Old versus young: How much do countries spend on social benefits? Deterministic modeling for government expenditure

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Abstract
The increasing levels of population ageing have led to debates questioning the spending hierarchy granted by governments to social benefits. In this article, we use a Lotka–Volterra competition model based on differential equations to investigate the relationships between old age pensions, family/children benefits, sickness/health care, and unemployment benefits. The analysis focuses on Austria, Germany, and Switzerland between 2007 and 2018 with the aim of better understanding whether and when priority is given to benefits in favour of the older versus younger cohorts of the population. Findings for the German-speaking European triangle show that an intergenerational conflict is significantly present in government expenditure. In particular, old age pensions and family and children benefits mostly interact in a predator–prey relationship that favours old age pensions, while expenditure for sickness and health care predominates the scenario.

Keywords Lotka–Volterra models · Government expenditure · Old age pensions · Social benefits · Intergenerational conflict

JEL Classification CO2 · J13 · H51 · H53 · H55

In the years ahead, class warfare is apt to be redefined as the young against the old, rather than the poor against the rich. Thurow, 1996.

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1 Introduction

Government spending affects the economy to a large extent. Social benefits—although in decline in OECD countries—also affect the social well-being of a community. Thus, it becomes crucial to understand whether there exists a spending hierarchy between categories of social benefits and whether they prioritize certain segments of the population over others. In most developed countries, one can observe a rise in pensions spending due to the increasing ageing of the population. On the one hand, 20% of the European Union population is above 65 and projections for 2070 indicate this would increase by a further 10%, also suggesting that the proportion of workers will consistently decline (Powell and Leedham 2009). On the other hand, the homogeneous proportion of old voters makes it difficult to reform extant pensions systems in favour of the young (Galasso 2006), as well as encourage future workforce participation in those countries where ‘tax increases are needed to pay for transfer to growing older population’ (Powell and Leedham 2009).

The growing imbalance between the needs of the old and the young is, however, likely to create a fracture over welfare policy (Higgs and Gilleard 2010). In this regard, Higgs and Gilleard (2010) stressed how certain levels of ‘wealth enjoyed by older cohorts can only be sustained by cutbacks in entitlements for younger cohorts’ and threats to the financial stability of a country (Davis 2002); (Bovenberg and Gradus 2008). The duration and generosity of family benefits such as child benefits or child-raising allowances, for instance, differ based on a country’s social protection system. Health care, too, represents one of the main features of government spending for the older population (Wiener and Tilly 2002) and other social benefits dedicated to the younger population may suffer from this. Employment and health care, for instance, are significantly related to each other (Thompson et al. 1999).

In this article, we look at how government spending has evolved between 2007 and 2018 in Austria, Germany, and Switzerland with respect to four categories of social benefits; namely, old age pensions, family/children benefits, sickness/health care, and unemployment benefits. In particular, we are interested in investigating the relationships that exist between social benefits that favour the older segment of the population versus benefits that favour the younger segment of the population. To do this, we use a non-autonomous Lotka–Volterra competition model based on differential equations that allows to look at how these categories interact with each other simultaneously.

Through this, we are able to identify how a change in a specific category (e.g. expenditure for old age pensions) affects other categories (e.g. children benefits) and according to which relationship. Understandably, it is likely that an increase in spending for unemployment benefits may reduce the amount of social protection expenditure dedicated to other benefits based on a competitive interaction. Similarly, a decrease in spending in children benefits may not affect the reduction of other benefits due to a predatory-prey relationship between the categories of reference.

Scholars have long discussed about the composition of social security benefits and have tried to identify the most efficient, and equal, level of social protection. Feldstein (1985) was one of the first ones to question their optimal level by distinguishing between scenarios more or less myopic in terms of behavior towards retirement and saving. The ageing of the population and the social and economic impact that this may have justify our willingness to understand how countries with notably good welfare systems spend public money. Identifying what relationships exist between benefits dedicated to
the older cohorts and other forms of support in favour of the younger cohorts may help policymakers maintain or change their strategies.

Section 2 illustrates the methodology used for this analysis and the descriptive statistics with respect to government expenditure in old age pensions, family/children benefits, sickness/health care, and unemployment benefits in Austria, Germany, and Switzerland for the period of investigation (2007–2018). Section 3 discusses the results, while Sect. 4 concludes with some policy implications.

2 Methods and data

2.1 Methodology

To perform the analysis we collect yearly data for the period 2007–2018 on government expenditure with respect to the following social benefits: old age pensions, family/children benefits, sickness/health care, and unemployment benefits. Hereinafter, we refer to these government expenditures as TPE (type of public expenditure). Data refer to the net social protection expenditure in Austria, Germany, and Switzerland and are expressed in millions of Euros.

To analyse this data, we apply a competition model based on differential equations developed in Marasco et al. (2016). This model allows us to describe the kind of interaction that exists among TPEs and how their interaction changes over time. Several scholars have used this methodology to explain economic and social phenomena. Marasco and Romano (2018a) used the Lotka–Volterra model to identify the ‘kind and intensity of inter-generational interactions within a society’, while Marasco and Romano (2018b) referred to it to identify changes in connections between commercial ports and Marasco et al. (2016) estimated the interactions between various market shares. More recently, Dominioni et al. (2020) exploited such methodology to analyse trust spillovers in institutions and Focacci and Quintavalla (2020) used LV equations to explain water usages in different countries. The same methodology was used by Focacci (2021) to address the changing relationships between unemployment, robotisation, and renewable energy, and by Sotis (2021), who looked at Google searches of symptoms, unemployment, and news during Covid times. This approach is becoming widely used in the social sciences for the advantages it provides.

In the development of their model, Marasco et al. (2016) stress that, first, the analytical solutions of this system being known, which means that ‘we no longer need to fit the coefficients derived from this model’. This also means that parameters do not have to be estimated through expensive numerical methods, as the methodology is not data demanding and relationships between entities such as TPEs can be inferred directly from the data at hand. Second, the analytical solutions only depend on the utility functions of the competing entities; and the model is significantly associated with the logit model, frequently used in the economics literature. Third, because interaction coefficients are dependent on time, our model allows us to capture the significant structural changes typical of government spending. Fourth, the model analyses relationships between government expenditures simultaneously. This means that the LV method allows to capture specific interactions without the need to isolate entities such as TPEs into pairs but instead accounting for all the factors considered. This is particularly useful in a context where a change in public expenditure related to one TPE affects other TPEs with which it is interacting.
We define the share of each TPE share (TS) in the form of a logit model. We focus on the four TPEs, with i = 1 as the amount spent by each government for old age pensions; i = 2 as the amount spent for family and children benefits; i = 3 as the amount spent for sickness and health care; and i = 4 as the amount spent for unemployment benefits. The shares of the ith species and of the outside source are defined as follows:

\begin{align*}
  x_i(t) &= \frac{\exp(f_i(t))}{1 + \sum_{j=1}^{4} \exp(f_j(t))} \quad \forall t \geq t_0 \\
  x_0(t) &= \frac{1}{1 + \sum_{j=1}^{4} \exp(f_j(t))} \quad \forall t \geq t_0
\end{align*}

(1)

where the utility function of each TPE \( f_i(t) \), \( i = 1, \ldots, 4 \), is equal to:

\begin{align*}
  f_i(t) &= \ln \left( \frac{TS_i(t)}{TS_0(t)} \right), \quad i = 1, 2, 3, 4
\end{align*}

(2)

If the utility functions \( f_i(t) \) are of class \( C^2([t_0, +\infty)) \), Eqs.(1) are the unique global solution of the Cauchy problem:

\begin{align*}
  x_i(t) &= g_i(t)x_i(t)[1 - x_i(t)] - \sum_{j=1, j\neq i}^{4} g_j(t)x_j(t)x_i(t), \quad i = 1, 2, 3, 4 \\
  x_i(t_0) &= \frac{\exp(f_i(t_0))}{1 + \sum_{j=1}^{N} \exp(f_j(t_0))}, \quad t \in [t_0, +\infty)
\end{align*}

(3)

Where \( x_i(t) = \frac{dx(t)}{dt}x_0(t) = 1 - \sum_{i=1}^{4} x_i(t) \) and

\begin{align*}
  g_i(t) &= f_i(t) = \frac{T \cdot S_i(t)}{TS(t)} - \frac{T \cdot S_0(t)}{TS_0(t)}, \quad i = 1, 2, 3, 4
\end{align*}

(4)

Consequently, the model presented describes the interaction between the ith and jth TPEs. The share of the TPE depends on the logistic growth rate \( g_i(t) \) and the interaction functions \( g_j(t) \) between the ith and jth TPE. The maximum capacity of each TPE is equal to one and the kind of interaction that exists among TPEs depends on the sign of the functions \( g_i(t) \) and \( g_j(t) \). The utility functions \( f_i(t) \) are the nonlinear combination of variables \( V_{ih}, h=1, \ldots, M_i \), which depend on time. The share of the ith TPE grows when its utility function \( f_i(t) \) increases in value, whereas it decreases when the value of the utility function \( f_j(t) \) of another TPE increases. Thus, Eq. (3) indicates how changes in the utility functions of one TPE affect the shares of the other TPEs. It is important to note that the data is on shares, as we cannot observe the utility functions. Consequently, we identify the utility functions using a standard fitting procedure (Fourier).

The deterministic model used in our analysis allows us to examine the evolution over time of the relationships among the four TPEs of interest; namely, old age pensions, family/children benefits, sickness/health care, and unemployment benefits. In Table 1, we illustrate the types of interaction that can emerge between types of public expenditures. When two TPEs are in a relationship of competition, an increase (decrease) in the value of one TPE negatively (positively) affects the value of another TPE. When, instead, one TPE (e.g., old-age pensions) is considered a predator, then an increase (decrease) in the value of that TPE negatively (positively) affects the value of another TPE (e.g., family benefits).
### Table 1  Possible types of interactions (Marasco et al. 2016)

| $g_i$ | $g_j$ | Interaction         | Definition                                                                                                                                 |
|-------|-------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| +     | +     | Competition         | An $↑$ ($↓$) in the value of one index negatively (positively) affects the value of the other index.                                         |
| −     | +     | Predator–prey       | An $↑$ ($↓$) in the value of index A negatively (positively) affects the value of index B (prey). An $↑$ ($↓$) in the value of index B positively (negatively) affects index A (predator) |
| −     | −     | Mutualism           | An $↑$ ($↓$) in the value of one index increases (reduces) the value of the other.                                                           |
| −     | 0     | Commensalism        | An $↑$ ($↓$) in the value of index A positively (negatively) affects index B. Index A is unaffected by changes in B.                        |
| +     | 0     | Amensalism          | An $↑$ ($↓$) in the value of index A negatively (positively) affects index B. Index A is unaffected by changes in B.                       |
| 0     | 0     | Neutralism          | No interaction                                                                                                                               |
However, an increase (decrease) in the latter (prey) positively (negatively) affects the predator TPE. In commensalistic relationships, only one TPE is affected by changes in the other and with neutralism no interaction is observed between the two. Mutualism, on the other hand, entails that an increase (decrease) in one TPE (e.g., unemployment benefits) increases (reduces) the value of another TPE (e.g., family benefits).

We assess the accuracy of the model using the Mean Absolute Percentage Error (MAPE). In particular, following Lewis (1982), we consider our model to be highly accurate when MAPE < 10%; good if 10% < MAPE < 20%; reasonable when 10% < MAPE < 50%; and inaccurate if MAPE > 50%. Our Mean Absolute Percentage Errors are calculated as in:

$$MAPE = \frac{1}{n} \sum_{i=1}^{n} \left| \frac{h_i - p_i}{h_i} \right| \times 100\%$$

where $h_i$ and $p_i$ are respectively the historical and predicted values.

### Table 2  Descriptive statistics for Austria

|            | Min         | Max         | Mean        | SD          |
|------------|-------------|-------------|-------------|-------------|
| Old age    | 31,152.26   | 48,828.46   | 40,204.99   | 5648.50     |
| Sickness/health care | 19,317.65   | 28,894.70   | 23,673.24   | 2891.41     |
| Family/children | 7,904.95    | 10,334.22   | 9,183.82    | 705.94      |
| Unemployment | 3,887.21    | 6,129.65    | 5,080.55    | 796.78      |

### Table 3  Descriptive statistics for Germany

|            | Min         | Max         | Mean        | SD          |
|------------|-------------|-------------|-------------|-------------|
| Old age    | 226,056.38  | 307,807.59  | 259,721.23  | 26,828.39   |
| Sickness/health care | 194,075.88  | 337,197.84  | 268,134.03  | 45,428.06   |
| Family/children | 68,054.52   | 109,596.81  | 88,224.28   | 13,393.62   |
| Unemployment | 30,597.07   | 44,915.91   | 34,612.23   | 4709.86     |

### Table 4  Descriptive statistics for Switzerland

|            | Min         | Max         | Mean        | SD          |
|------------|-------------|-------------|-------------|-------------|
| Old age    | 32,794.65   | 66,582.02   | 52,483.52   | 12,430.12   |
| Sickness/health care | 22,531.87   | 49,798.13   | 37,587.95   | 9934.97     |
| Family/children | 4,726.32    | 9,491.42    | 7,461.06    | 1772.66     |
| Unemployment | 2,438.50    | 5,943.68    | 4,450.02    | 1108.07     |

### Table 5  MAPE for the four indices considered

| Country    | Old age | Sickness | Family | Unemployment |
|------------|---------|----------|--------|--------------|
| Austria    | 2.53    | 0.17     | 0.71   | 0.49         |
| Germany    | 3.64    | 0.66     | 0.56   | 0.40         |
| Switzerland| 7.11    | 0.59     | 0.56   | 0.63         |
2.2 Descriptive statistics

With respect to the data used, we observe that all three German-speaking countries under investigation spend the most for old age pensions. Austria and Switzerland, respectively, spend 40,204,99 and 52,483,52 million Euros, on average; Germany spends more than 259,721 million Euros for old age pensions. This is necessarily linked to the ageing of the population; however, it can inform us with respect to the direction of government expenditure in these countries.

For instance, when looking at individual data, Switzerland leads the way in 2010 with 4,513 Euros spent per inhabitant, followed by Austria and Germany with 3,457 and 2,786 Euros. The ranking holds for the subsequent periods: in 2018, government expenditure for old pensions is equal to, respectively, 5,326, 3,915, and 3,201 Euros per person. On the other hand, in all three countries, family and children benefits (in 2018 equal to 901, 993 and 1200 Euros per Swiss, Austrian, and German inhabitant) rank third with respect to social support, preceded by benefits for sickness and health care (in 2018 equal to 5,675, 3,268 and 4,092 Euros per Swiss, Austrian, and German inhabitant) and followed by unemployment (Tables 2, 3, 4).

While the subdivision of government expenditure for social protection follows the demographic changes of the population, it appears evident that, in Austria, Germany, and Switzerland, more money is spent for the older cohorts compared to the younger cohorts. With respect to this, it is interesting to understand how relationships between these forms of benefits change over time and what this entails.

With regards to the Mean Absolute Percentage Error, we find very low values for all three countries for each of the variables, indicating that the fitting procedure used was highly accurate (Table 5).

3 Findings and discussion

3.1 Old age pensions and family and children benefits

In this section, we examine the interaction coefficients of old age pensions (in black) and family and children benefits (in blue) for Austria (Fig. 1), Germany (Fig. 2), and Switzerland (Fig. 3). This is justified by the current and rapid ageing of the population, which stemmed an incredible debate on all forms of spending related to the older segment of the population and the subsequent intergenerational conflict recently highlighted by Marasco and Romano (2018a). Overall, in Austria, we mostly observe a predatory-prey relationship in which old age pensions and family and children benefits invert their roles (Table 6). Predator–prey relationships are present in Germany and Switzerland, but for these countries we also observe episodes of competition. Most importantly, we observe that the influence of old age pensions on family and children benefits changes over time according to a life cycle typical of the country of reference.

Between 2008 and 2012, an increase in government expenditure in old age pensions caused a decrease in government expenditure in family and children benefits in Austria. In 2004, Austria ranked second in the European Union for highest pension expenditure. It was only in 2007 that the government established a permanent monitoring mechanism to review the pension system to guarantee long-term financial stability. While family and
children benefits managed to enter a competition relationship with old age pensions starting from 2016, government expenditure still favoured the older cohort of the population. In 2018, the Austrian government spent 48,829.46 million Euros in old age pensions against the 10,334.22 spent in family and children benefits. This may due to the fact that occupational family policy in Austria is mainly provided by employers (Wiß and Greve 2002).
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and economic independence due to de-familisation is limited (Wiss and Greve 2020). This would then diminish the burden by the government in providing social benefits. Thus, levels of public family policy are only medium in this country. According to the authors, the ‘dominant male breadwinner family model in Austria prevents unions calling for more widespread work-family policies’—while paid home care policy allows mothers to stay at home full-time (Haas and Hartel 2010). This was also recently stressed by Bergmann et al. (2019). Ultimately, the pension system in Austria remains sustainable firstly, due to the higher tax contributions and secondly, due to the slower ageing of the population compared to other countries, including Germany (Blank et al. 2016).

In Switzerland a similar pattern was observed for the same period, indicating that while an increase in old age pensions represented a threat for government expenditure directed towards families and children, the opposite was not the case. The considerable ageing of the Swiss population in a direct democracy setting implies that the voice of the larger elderly population is significant when it comes to voting on how public funds are spent (Grob and Wolter 2007) (Mueller and Heidelberger 2020). The stronger position held by government expenditure for the older cohorts and visible in Fig. 3 is also linked to the historically conservative type of welfare system present in the country. For instance, a national maternity insurance scheme is not in place, as well as there is ‘little child care provision’ (Bonoli and Kato 2004), or this is income-dependent (Abrassart and Bonoli 2015). This is

Fig. 3 Interaction Coefficients for Switzerland on Old Age (black) and Family/Children (blue) between 2007 and 2018. (Color figure online)

Table 6 Role of old-age pension expenditure relative to family and children benefits by approximate time intervals

| Austria         | Germany        | Switzerland  |
|-----------------|----------------|--------------|
| 2006–13 predator| 2006–16 prey   | 2006–8 mutualism|
| 2013–16 mutualism| 2016–18 competitor| 2008–12 prey   |
| 2016–18 predator| 2012–15 mutualism| 2012–15 mutualism|
|                 |                | 2015–18 competitor|
particularly emblematic given that, according to the Swiss Federal Statistical Office, raising a child until its 20th birthday may mean spending over CHF 200,000. At the same time, despite the number of older workers decreasing, this ‘reservoir’ remains significant (Sonnet et al. 2014). Thus, while old age pensions keep being a priority of the government, their abundance may be inferior to neighboring countries. On this subject, similarly to Germany, benefits for families and children abandoned their ‘prey’ role around 2016, when they started competing on an equal stand with old age pensions. However, differently from Austria and Switzerland, between 2007 and 2016 Germany’s the strongest set of social benefits were those dedicated to families and children, in a relationship of predator towards old age pensions. Thus, while German retirement policies encourage individuals to leave the workforce (Schmidthuber et al. 2021), an increase in government expenditure for old age pensions has never threatened expenditure for family and children benefits in this period. In other words, social protection support has significantly prioritised the younger cohorts in this country.

3.2 Other interactions

In this section, we add interactions between other benefits that contribute to the old versus young conflict in terms of government expenditure. In particular, we illustrate how relationships between sickness and health care (in green), mostly used by older cohorts, and unemployment benefits (in red), mostly used by younger cohorts, changed over time in Austria (Fig. 4), Germany (Fig. 5), and Switzerland (Fig. 6) between 2007–2018 (Table 7).

One can observe that unemployment benefits behaved similarly in Austria and Switzerland, alternating in a consistent way between the role of predator and the role of prey relative to sickness and health care. Conversely, government expenditure for sickness and health care remained quite stable over time in all three countries.

Fig. 4 Interaction Coefficients for Austria on Unemployment (red), Old Age (black), Family/Children (blue), Health (green) between 2007 and 2018. (Color figure online)
Differently from Austria and Switzerland, the role played by government expenditure in unemployment benefits is inferior with respect to sickness and health care in Germany. During the whole period of investigation (2007–2018), unemployment benefits behaved as prey in relationship with sickness and health care. This means that an
increase in government expenditure for sickness and health care caused a drop in government expenditure for unemployment, but that the reverse is not true. The reason for a relatively smaller government expenditure for unemployment could simply be due to the lower levels of unemployment registered in Germany. In Austria, unemployment as a percentage of the total active population went from 4.6% in 2011 to 5.7% in 2015 and only dropped to 4.9% in 2018. Switzerland followed a similar pattern, with a ‘tendential increase in the size of the nonworking population [] supported by social programs’ (Bonoli and Champion 2014) in the last decade. On this subject, Schimany and Zigova (2004) argued that one of the reasons why the traditionally Austrian pay-as-you contributions pension system struggled to be financially viable in the long term lied in the ‘continuing unemployment, partially substituted by atypical employment forms’. Understandably, the longer individuals receive unemployment benefits, the less likely it is for them to find a job and, hence, exit from unemployment (Lalive 2008). In Germany, on the other hand, unemployment decreased persistently during this period. In 2011, 5.8% of the total active population was unemployed in Germany. In 2015, the figure fell to 4.6% and in 2018, only 3.8% were unemployed.

Thus, while unemployment—despite relatively modest compared to other European countries—was a significant issue in Austria and Switzerland, Germany managed to reduce its government expenditure in this field in order to account for higher support for sickness and health care. In 2014, the percentage of self-reported use of prescribed medicines was equal to 53.4 in Germany against 49 in Austria. Similarly, self-perceived health was reported to be equal to 17.2% in Germany against 32.8% and 31.8% in, respectively, Switzerland and Austria. In the latter, the cash-for-care Pflegegeld approach successfully supports long-term care for the elderly and is paid monthly according to the level of care needed (Osterle 2013). The decentralised health system in Switzerland, on the other hand, has a liberal concept of care according to which the patient is considered a consumer able to choose her health plan between public and private practices and initiatives (Schussele Filliettaz et al. 2018). Thus, while government expenditure is high, especially due to the ‘relatively long’ hospital stays, individuals need to pay for basic or specific insurances (Okma et al. 2010), which reduces the burden of the government with respect to health care expenditure. Conversely, in Germany the government has always taken a proactive role in the health care system. Extensive funds were, for instance, provided in view of the 2008 Act on the Advancement of Organisational Structures within SHI (statutory health insurance), which ‘strengthened provisions for GP-centred care’ (Nolte et al. 2012). And while the ageing of the population is becoming an increasingly serious issue in Germany too—in line with this, old age pensions play a predatory role on health care expenditure since about 2018—, the range and quality of services offered to citizens remain very high (Kuhlmann et al. 2009) (Reiter 2020) and, thus, expensive.

| Austria          | Germany          | Switzerland     |
|------------------|------------------|-----------------|
| 2006 prey        | 2006 competitor  | 2006–08 prey    |
| 2006–11 mutualism | 2007–18 predator | 2008–12 predator|
| 2011–15 prey     |                  | 2012–15 prey    |
| 2015–17 competitor|                  | 2015–18 predator|
| 2017–18 predator |                  |                 |

Table 7 Role of sickness/health expenditure relative to unemployment benefits by approximate time intervals
4 Conclusions

In animal ecosystems, relationships between certain species appear to be immutable (e.g. the lion is expected to always eat the antelope). However, over time, due to internal and external factors, such relationships may experience a change (e.g., a drought may cause antelopes to die out, with lions having to find an alternative source of nourishment). When we think of the competitive relations that emerge between benefits for the old segment of the population and benefits favouring the younger generations, the TPE ecosystem may initially resist change. Nevertheless, the variation experienced in the relationships between two TPEs, which always interact with each other, is precisely what makes the TPE ecosystem resilient and able to go back to its original equilibrium. After the type and intensity of the interaction between two TPEs changes, it will never not change again. In other words, while ecosystems appear immutable, they are never not dynamic.

The silver economy is likely to build the foundations for a future economy that younger generations struggle to picture themselves in. For this reason, governments should carefully decide how to administer their finances. In this article, we looked at the type of relationships that exist between social benefits in favour of the older and younger cohorts. In particular, we analysed yearly data between 2007–2018 for government expenditure in the German speaking triangle of Europe; namely, Austria, Germany, and Switzerland. Using a competition model based on differential equations we investigated how old age pensions interacted with family and children benefits, as well as how sickness and health care behaved with regards to unemployment benefits. Findings show that, overall, the global ageing of the population significantly affected the decision of governments to prioritize certain forms of social support over others. In all three countries, old age pensions and family and children benefits interacted in a relationship of predator–prey. However, while in Austria and Switzerland this favoured the older cohorts for most of the period of investigation, in Germany an increase in old age pensions did not cause a reduction in government expenditure for family and children benefits up until 2016. At the same time, the relatively better unemployment situation in Germany allowed the government to prioritize finances to support sickness and health care, which by definition mostly interests the older population (Alemayehu and Warner 2004).

Intergenerational conflict has evolved with each technological revolution but has recently reached significant levels of competition among age cohorts and is likely to intensify in the future (Marasco and Romano 2018a). With the ageing of the population, the risk is to achieve dangerous levels of gerontocracy that disfavour the younger generations. The economies of Austria, Germany, and Switzerland are certainly successful compared to other European states; and so are their welfare states. At the same time, as the population gets older and the older population gets larger, more funds are to be allocated in ad hoc domains of social support. Consequently, government expenditure for old age pensions and sickness and health care are both expected to grow in the near future. The analysis provided in this paper confirms that these two types of social benefits dominate the scene in all three countries. Policy makers are, thus, encouraged to intervene so as to avoid negative spillovers with regards to social support originally thought for the younger cohorts; namely, family and children benefits, as well as unemployment benefits.

Future generations will have to face the repercussions of the current global pandemic, the takeover of technology, and the environmental crisis. While governments are not responsible for the ageing of their population, they should guarantee a comprehensive set of policies where the financial and health care support required by an increasingly older
population, and their well-being (Dominko and Verbic 2019), does not deteriorate expenditure in favour of those who come into the world, move their first steps into the labour market, or struggle to remain employed.

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Declarations

Conflict of interest The Author declares no conflict of interest.

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