EUROPEAN SOCIAL POLICY NETWORK (ESPN)

Financing social protection

Luxembourg

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European Social Policy Network (ESPN)

ESPN Thematic Report on Financing social protection

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Contents

SUMMARY 6
1 CURRENT LEVELS AND PAST CHANGES IN FINANCING SOCIAL PROTECTION 7
1.1 Social protection expenditure by function 8
2 CURRENT MIX AND PAST CHANGES IN THE SOURCES OF FINANCING SOCIAL PROTECTION 11
2.1 Overall review of social protection financing in Luxembourg 11
2.2 Description by function 12
3 STRENGTHS AND WEAKNESSES OF THE EXISTING MIX OF FINANCING OPTIONS AND POTENTIAL FUTURE SOURCES OF FINANCING - NATIONAL DEBATE ON THE TOPIC......... 17
3.1 Challenges to financing on the expenditure side 17
3.2 Potential challenge to the financing of social protection on the revenue side: digitalisation 18
3.3 Traditional and alternative financing in the specific situation of Luxembourg 19
3.4 Policy recommendations 22
REFERENCES 23

Summary

Social protection expenditure in 2016 accounted for 22% of GDP in Luxembourg, compared with 28% in the EU as a whole.[1] However, to a large extent this reflects the relatively high GDP per head in Luxembourg. Total social protection expenditure expressed in absolute terms amounted to €17,200 per head in 2016, compared with €10,400 on average in the three surrounding countries.

In addition, Luxembourg will face at least four major challenges. First, ageing – still moderate at the current juncture, due to sustained net migration – is due to accelerate strongly. Second, by 2060 Luxembourg will be paying about 45% of pension benefits (general system) to non-residents (especially former cross-border workers). Third, the resulting financial strain will be further magnified by the gradual decrease in pension reserves and the associated withering away of property incomes (at present a significant component of total financing) and by the generosity of pension allowances (the fourth challenge). All in all, according to recent calculations made by the Ageing Working Group, social protection expenditure (pensions, healthcare and long-term care) will rise from 14% to 27% of GDP over the period 2016-2070 – the largest increase in the EU. Possible ways out are higher work participation rates, a rise in social contributions, social and pension reforms or alternative financing.

Turning to the revenue side, social contributions in 2016 represented 49.6% of the total financing of social protection; general government revenue about 43%; and the rest (mostly property incomes) 7%. Overall, social contributions play a smaller role in Luxembourg than in the EU generally. As regards more specifically old-age benefits, social contributions account for 68% of total financing in Luxembourg, as against 65% in the EU. The opposite situation prevails in healthcare and sickness, however — 61% and 41%, respectively.

Overall, the macroeconomic data do not signal a strong need for alternative financing in Luxembourg. The public debate also confirms the need for caution in this field. Some argue for a strong reliance on alternative financing, in order to address future financing challenges – for instance the removal of the cap on social contributions, a rise in the 'solidarity levy', the reintroduction of the wealth tax on households, an increase in the wealth tax on companies and the subscription tax on investment funds, and finally a new levy channelled to the pension system and payable on labour, but also on capital incomes.

Many observers consider that in Luxembourg, a very open economy, alternative financing would strongly affect economic activity and therefore the tax bases. More generally, the economic impact of alternative financing depends on the peculiarities of the measures envisaged. The distributive impact is also far from straightforward, as alternative financing could particularly impact workers and consumers who are less able to relocate. From a more institutional perspective, the Luxembourg social system is basically 'Bismarckian' in nature. The very character of this insurance-based system would therefore be at stake, should Luxembourg rely more on alternative financing. Finally, the sheer magnitude of the long-term financial challenge in Luxembourg makes it impossible to rely on alternative financing alone.

All in all, a firm analytical, micro perspective is imperative, in order to assess correctly the overall impact of alternative financing. In the current circumstances, and given the many uncertainties involved, it should be considered a 'last resort', although well-targeted measures – related, for instance, to the calibration of specific social contributions (e.g. *contribution dépendance*) or tax credits – could be contemplated. The 'robotisation-digitalisation' issue should also be monitored closely.

[1] All figures in this report stem from the European System of Integrated Social Protection Statistics (ESSPROS) tables published by Eurostat (https://ec.europa.eu/eurostat/web/social-protection/data), unless otherwise reported.

1 Current levels and past changes in financing social protection

1.1 Social protection expenditure levels

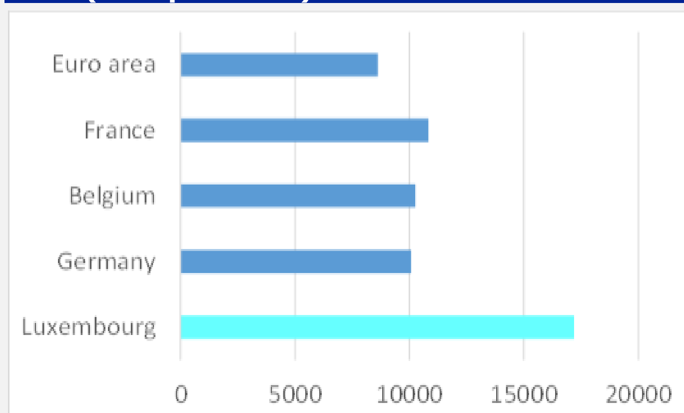
Social protection expenditure in Luxembourg is, at first sight, quite moderate, accounting for 22% of GDP in 2016, compared with 28.2% for the EU-28 (gross aggregates). The expenditure ratio hardly increased from 2005 to 2016 (just +0.1 percentage point (pp), compared with +2.2 pp for the EU). The overall pattern is largely similar in terms of net social protection expenditure, which amounted to 20.0% of GDP in 2015. The difference between gross and net expenditure was quite constant from 2007 to 2010, at around 7% (mostly related to healthcare contributions, and especially personal income taxes on pensions). It increased to 9% in 2015 – probably because the personal income tax brackets in Luxembourg are not indexed to inflation, and because of the related upward drift in average, implicit tax rates on pensions (by contrast, the tax brackets were adjusted in 2008 and 2009).

When interpreting these gross or net ratios, account should be taken, however, of the comparatively high level of GDP, which dilutes any amount expressed as a percentage of this macroeconomic aggregate. As explained in Box 1 below, expenditure appears much higher when calculated in absolute terms per head of population, or as a percentage of gross national income. This discrepancy should be borne in mind when interpreting the future financing challenges (see section 3 below).

Box 1: Level of social protection expenditure in absolute terms and as a percentage of gross national product

According to our own calculations, based on Classification of the Functions of Government (COFOG) Eurostat data, and taking out the proportion transferred to non-residents (cross-border workers, mostly settled in Belgium, France and Germany, represent no less than 44% of total employment in Luxembourg), gross social protection and health expenditure reached €17,200 per head of resident population in Luxembourg in 2016. The comparable amount was €10,400 per head on average in the three surrounding countries, and €8,600 in the euro area.

Figure 1: Expenditure on social protection and health, according to COFOG data (EUR per head)



Sources: Eurostat and own calculations. After the elimination of expenditures channelled to non-residents – especially pensions (25.5% to non-residents), family allowances (48%) and healthcare (23%).

An alternative measure of the economic weight of social protection expenditure in Luxembourg, also focused on the part effectively paid to residents as in Figure 1, would consist in using as denominator the gross national income (basically GDP less the remuneration of cross-border workers and property incomes channelled to the 'rest of the world'; hence non-residents would no longer be included in both the numerator and the denominator of the ratio, thus resulting in a ratio for residents only). In 2016, the resulting ratio would be equal to 27.8% of GDP, approximately the social protection on GDP ratio observed in the EU, according to ESSPROS data (28.2% of GDP in 2016).

Comparatively high GDP and sustained economic growth over the period 2005-2016 concealed the sustained rise in social protection expenditure levels. In real terms, they

indeed increased by 46% over the period, and by 3.5% a year on average. Luxembourg distinguished itself in a striking way from other, 'similar' EU Member States, as average real growth was contained to about 2% a year in the three surrounding countries, in the Netherlands and in the EU as a whole.

The gap – equal to 1.6 percentage points – between average expenditure growth in Luxembourg (+3.5% a year) and in the EU (+1.9%) from 2005 to 2016 could, however, be attributed to more dynamic population growth in Luxembourg, where the number of residents increased by 2.1% on average, compared with 0.3% in the EU. This means that expenditure per head was, by and large, in line with the EU evolution over the reference period.

This expenditure growth was also contained somewhat owing to the 21 December 2012 law reforming the pension system (*loi portant réforme de l'assurance pension*), implemented from 2013 onwards. Under this law, the new pensions paid in a given year are calculated in a slightly less generous fashion. It is estimated that due to this law, the new pensions paid in 2016 and 2018 were, on average and respectively, 0.7% and 1% below their 'unchanged policy' equivalent. The 'stock' of existing pensions, paid before implementation of the law, is not affected, however. This means that the impact of the reform (although quite substantial over the medium term) was quite limited over the period 2013-2016.

Other major reforms worth mentioning over the period 2005-2016 on the expenditure side are (i) the law discouraging the solidarity early retirement (*Préretraite solidarité*), adopted in November 2017; (ii) the reform of the professional reclassification system that took effect on 1 January 2016, which should have an impact on disability pensions; (iii) a financing system based on global hospital budgets ('envelopes') was organised in 2011 (see http://legilux.public.lu/eli/etat/leg/rgd/2011/08/11/n3/jo).

Finally, after the observation period, the minimum income scheme (*Revenu d'inclusion sociale* – REVIS) replaced the previous guaranteed minimum income from January 2019, with a stronger activation component (registration as unemployed with the public employment service and participation in active labour market policies are required). A new law reforming long-term care (with an unclear impact on expenditure, however) was introduced in 2018. The government will continue to finance 40% of long-term care expenditure. Family allowances were reformed in 2013 (overall a simplification, with a similar €265 per month allowance for all children in the family). Moreover, the parental leave scheme became more flexible in 2016.

The long-term financial impact of these reforms is difficult to evaluate, but only the 21 December 2012 law on pensions is expected to have a significant and measurable impact. The Luxembourg social security system has been continuously in surplus since 2005, which explains the absence of full-blown 'austerity' measures over this time horizon.

1.2 Social protection expenditure by function

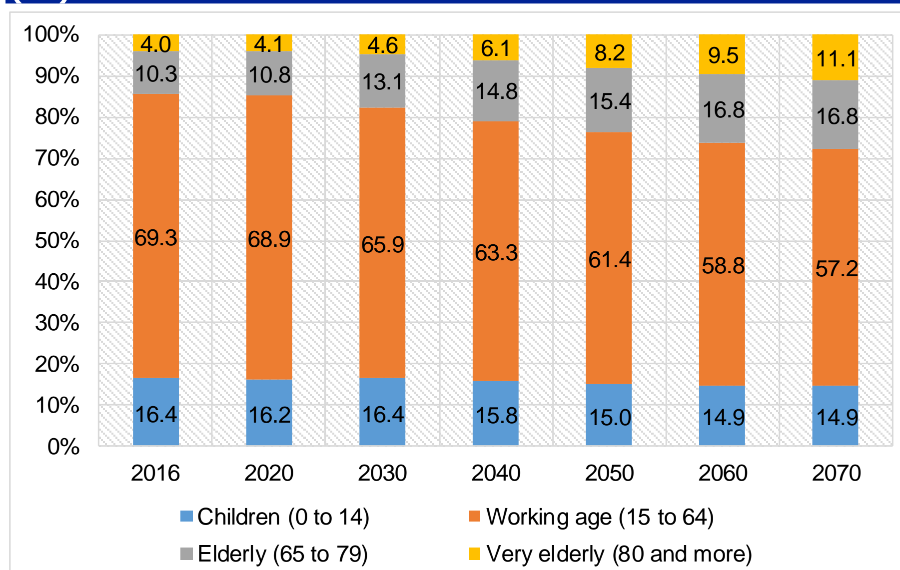
The breakdown of gross social protection expenditure by function did not change much from 2005 to 2010. Sickness and health accounted for about one quarter of the total throughout the reference period (also in 2016), and old-age expenditure for about 26-27% before 2016, and even close to 32% in 2016. The latter, steep increase is a reflection of a relatively low GDP growth rate from 2010 to 2016 (i.e. +3.3% a year, on average), at least by Luxembourg standards. At the same time, pension expenditure was inflated by the growing proportion of non-residents. Ageing was a much less powerful factor over this period – which also explains the slight decrease, as a percentage of total gross expenditure on social protection, of sickness and health expenditure (from 25.7% of the total in 2005 to 24.6% in 2016).

This situation will most likely change in the future, however, as illustrated in Figure 2 below. The growing proportion of persons aged 65 and over should indeed swell expenditure on health, long-term care and pensions, as underlined at the European level by the Ageing Working Group in its 2018 report (AWG, 2018). In addition, the social

contributions paid by cross-border workers will be matched by steeply increasing pension benefits in the future. These workers currently account for about 45% of total employment in Luxembourg and a little more than 40% of total social contributions (STATEC, 2015); meanwhile, about 25.5% of the general pension regime expenditure (i.e. pensions paid to private-sector employees) is channelled to non-residents. This discrepancy between revenue and expenditure could decrease due to changes in EU legislation, for instance, or because of more 'economic' underlying factors. The gap is already narrowing, due to the gradual retirement of the large inflows of non-resident workers observed over the last 30 years. Projections (IGSS, 2016) suggest that this trend is likely to continue, and even to intensify in the future. In 2060, non-residents will, according to the General Social Security Inspectorate (IGSS – *Inspection Générale de la Sécurité Sociale*), account for no less than 45% of total pension expenditure – which means that the non-resident workforce will become a major source of expenditure drift.

At the same time, cross-border workers are underrepresented in long-term care, where, according to IGSS, they make up only about 2% of total expenditure; this is also true in the case of unemployment allowances (about 11% at present, but probably more after about 2021, due to new European legislation; see Ministry of Finance, 2017) and in healthcare (about 23%). But they represent 48% of all family benefits.

Figure 2: Evolution of the composition by age of the Luxembourg population (%)



Source: Ageing Working Group (2018).

The discrepancy between the contributions of cross-border workers to the general pension regime and their share of pension expenditure gives rise to large and systematic pension surpluses. The accumulation of pension surpluses has led to a steep rise in total assets held by the so-called *Fonds de compensation commun au régime général de pensions* or FDC (see FDC, 2018). The assets under management amounted to about 34% of GDP at the end of 2017, and they generated annual income equal to about 1.6% of GDP in 2016 (IGSS, 2019). It should be mentioned in this respect that a new law was enacted in 2004. This led to the assets of the general pension scheme being invested in a more organised way, in a strategic fund aimed at maximising returns. This also helped to foster property incomes (National Reform Programme, 2005).

No significant changes occurred over the period 2005-2016 as regards the shares in total, gross social protection expenditure on social exclusion, family and children, disability and housing.

The share of expenditure on means-tested benefits is quite low in Luxembourg, at about 3-4% of total expenditure throughout the period 2005-2016 – compared to more than 12%

in 2016 for the EU as a whole – the major component being the minimum income scheme *Revenu minimum garanti* (replaced since 1 January 2019 by *Revenu d'inclusion sociale*).

Finally, tax expenditures are close to zero in Luxembourg, and private pension schemes are quite underdeveloped, due *inter alia* to the generosity of the public pension system (first pillar).

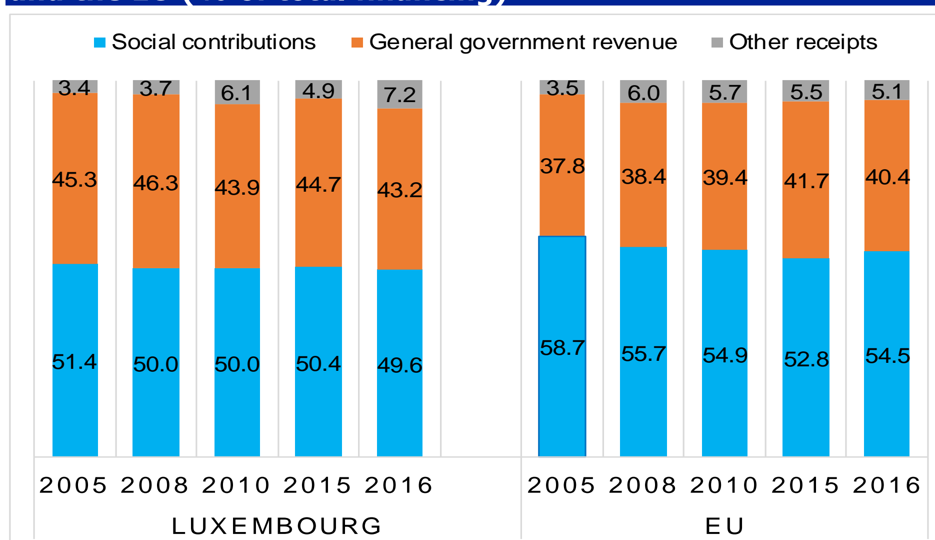
2 Current mix and past changes in the sources of financing social protection

An overall review of the financing of social protection is provided below; there then follows a more precise description of each major branch.

2.1 Overall review of social protection financing in Luxembourg

The financing of social protection in Luxembourg mostly rests on social contributions, as they accounted for approximately 50% of the total in 2016. The rest is based on general government transfers (43% in 2016) and 'Other receipts' (7%) – most prominently the above-mentioned property income generated by the FDC. The accumulation of pension reserves indeed to a large extent explains the growing proportion of total financing generated neither by social contributions nor by general government financing (see 'Other receipts', in grey in Figure 3 below).

Figure 3: Total financing for social protection by main source in Luxembourg and the EU (% of total financing)



Sources: Eurostat and ESSPROS database.

As no overly acute financing constraint emerged during the period 2005-2016 social contribution rates remained fairly stable, with a slight decrease from 2005 (51.4%) to 2016 (49.6% of total financing); but this slowly declining trend should by no means be interpreted as a structural shift away from social contributions. The proportion of general government financing indeed exhibited a similar downward trend, from 45.3% in 2005 to 43.2% in 2016. The two decreasing trends are merely a reflection of the 'dilution effect' induced by the growing property incomes generated by the cumulated surpluses of the general pension system.

Therefore, the marked decline in the proportion of social contributions in the total financing of social protection recorded from 2005 to 2016 at the EU level was not matched by a similar evolution in Luxembourg. But they account for a much lower proportion in Luxembourg.

Social contributions in Luxembourg tend to be equally split between employees and employers, and they mostly rest on the 'wage bill', although self-employed and retired people (healthcare and long-term care) also pay social contributions.

2.2 Description by function

Table 1 below synthesises the breakdown of financing sources for the different ESSPROS functions of social protection in Luxembourg.

Table 1: Overall financing by function *(as % of total financing)*

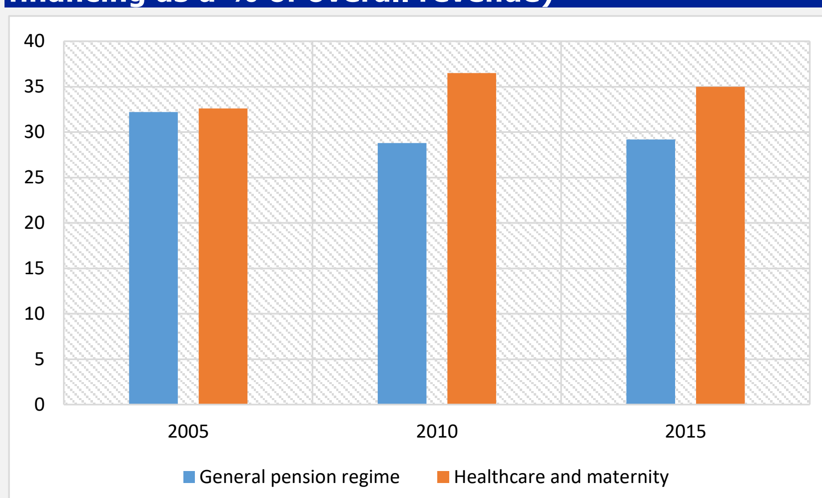
		2010			2015		
		Social contributions	**Govern-ment revenue**	**Others**	**Social contributions**	**Govern-ment revenue**	**Others**
Old-age benefits	Luxembourg	63.4	20.6	16.0	68.1	21.7	10.2
	EU	64.6	20.1	15.3	64.8	19.8	15.4
Survivors	Luxembourg	--	--	--	67.1	22.5	10.4
Disability	Luxembourg	65.4	26.7	7.9	65.8	29.0	5.2
Heathcare and sickness	Luxembourg	61.8	31.7	6.5	61.3	32.2	6.5
	EU	42.2	47.7	10.1	40.6	49.9	9.5
Unemployment	Luxembourg	0.0	93.6	6.4	0.0	94.4	5.6
Family and children	Luxembourg	0.0	99.8	0.2	0.0	99.7	0.3
Housing	Luxembourg	0.0	99.9	0.1	0.0	99.9	0.1
Others	Luxembourg	0.0	99.8	0.2	0.0	99.7	0.3

Source: Calculations by the European Commission.

Box 2: Evolution of social contributions in pensions and healthcare since 2005 (national data)

As the data in Table 1 are not available from 2015 onwards, they are supplemented below by additional national data related to the two major branches in terms of total expenditure – namely, the general pension system (approximately the aggregation of old-age, survivors and disability above, but without the 'special', public pension schemes) and Assurance maladie – maternité ('healthcare and maternity' in the chart).

Figure 4: Overall financing of the general pension regime and healthcare/ maternity by the general government, according to national data (government financing as a % of overall revenue)



Note: for healthcare and maternity, contributions by the state (contribution forfaitaire and participation dans les prestations), as a percentage of total revenue. For the general pension regime, state contribution as a percentage of total revenue.
Source: IGSS (Inspection Générale de la Sécurité Sociale).

The proportions are not comparable to the figures in Table 1 ('Government revenue'), but they do provide an idea of the evolution from 2005 to 2010. It should be noted that in healthcare, the proportion of government funding increased significantly over this period, due to rising *contributions forfaitaires* from the state (they were officially set at 51% of total private social contributions from 2005 to 2008, and at 58% in 2009).

By contrast, the general government participation ratio declined in the general pension regime from 2005 to 2010. This does not reflect any change so far as social contributions are concerned (the state participation remained at 50% of total private contributions throughout the period), but instead refers to the fact that a special, *ad hoc* 'State participation' transfer (amounting to €41 million in 2005) was abolished from 2007 onwards.

The specificities of the financing system are provided below, followed by a description of Table 1 for the major branches of the Luxembourg social protection system.

2.2.1 Pensions

The financing system could be described simply:

- Pension social contributions are the largest. In Luxembourg, both employee and employer contribution rates are 8% of salary, and they are supplemented by an additional 8% consisting of transfers from central government to the general pension system. The overall 'contribution rate' often mentioned in Luxembourg (although one third rests on transfers from the state, rather than on social contributions *per se*) is therefore 24%. Under Luxembourg law, the financial situation of the general pension regime is assessed on the basis of technical reports by the IGSS over successive 10-year periods, with interim assessments in the middle of each period. The most recent assessment took place in November 2016 (IGSS, 2016). In addition, social contribution rates should, in principle, be revised if the general regime pension reserves (*réserve de compensation*) cross a predetermined threshold of 1.5 times the annual pension expenditure of this regime.
- In addition, an assessment take place every year of whether *prime de répartition pure* (the ratio of annual pension expenditure to the social contribution base) remains at or above the global 'contribution' rate of 24%. If it does not, then the regular adjustment of pensions to the evolution of real wages (indexation) would in principle be totally or partially (by at least 50%) neutralised (with a delay of two years after the observed breach).
- Account should also be taken of the existence of minimum and maximum bases as regards pensions (this is also the case for healthcare, *assurance accidents* and *santé au travail*). The monthly minimum is, in principle, equal to the standard (*non qualifié*) minimum wage of €2,071.10 a month (as of February 2019) for persons aged 18 or over; €1,553.33 for wage earners aged 15 to 16; and €1,656.88 at 17 years of age. The maximum base – no contribution is paid above this income threshold – is equal to five times the standard minimum wage, or €10,355.50 as of February 2019.

The 'three times 8%' rate has not been changed since 1985, which clearly illustrates the stability of Luxembourg as far as social contributions are concerned. Even the 2012 pension reform did not change the way pensions are financed. Although it will have a significant impact on future pension expenditure (because of a gradual, planned decrease in the part of pension allowances that is proportional to cumulated income, and due to additional parametric changes as regards (most notably) the link between pensions and real wages).

This overall stability of contribution rates will not necessarily prevail in the future. The authors of the 21 December 2012 law reforming the pension system indeed mention in their 'general considerations' an increase from 24% to 30% of the total 'contribution' rate relating to the general pension system over the medium term. In addition, according to *Code de la Sécurité Sociale*, the overall pension contribution rate should be reset for a 10-year period if the pension reserve is no longer above 1.5 times annual pension expenditure (general pension regime). Under reasonable demographic and macroeconomic assumptions, this 1.5 limit could be breached around 2035 (IGSS, 2016).

As illustrated in Table 1, social contributions account for most revenue as far as old-age benefits are concerned, with 68% of total financing in 2015, compared to 22% for

government financing – this pattern being quite close to that observed at the EU level. This is merely a reflection of the institutional arrangement described above, whereby the general government contributes the equivalent of exactly one half of the combined contributions of employers and employees to the general pension regime (the 'three times 8%' system, with the 24% overall 'Contributions').

As this scheme also prevails for survivor and disability pensions, the same pattern emerges for these two categories, according to European Commission statistics (the general pension system in Luxembourg indeed rests on these three pillars, namely old-age, disability and survivors – the latter accounts for about 24% of the total expenditure of the general pension system and disability for approximately 10% according to IGSS statistics (IGSS, 2019).

Another striking feature of old-age benefits in Luxembourg is the decline, from 2010 to 2015, of the share of 'Other revenue': a decrease from 16% of total financing in 2010 to 10.2% in 2015 – whereas the opposite trend was observed in the EU. This evolution in Luxembourg should not be overstated, however. The property incomes brought about by the 'Compensation reserve' (namely the aforementioned reserve managed by the FDC) in 2010 (thus for the 'general regime' as a whole, not just old-age pensions) were exceptionally high, and the corresponding amount could be considered an outlier (with 13.2% of total revenue of the general pension regime in 2010, compared with 9.9% one year before and 2.7% one year after) – caused by the particularly favourable yield on pension reserves achieved by the FDC in 2010 (as stock exchange markets performed well on average). Overall, and disregarding outliers, the trend observed in national social security statistics points to an increasing share of property income (from the perspective of the general pension system as a whole), as the FDC reserve is itself still on an upward trajectory for the moment, owing to the significant accumulated surpluses of the general pension system.

2.2.2 Healthcare and maternity

As far as healthcare and maternity contributions (national definition) are concerned, a distinction needs to be drawn between benefits in kind and sick leave (*opérations en espèces*). For wage earners in the private sector, the two respective contribution rates are 5.6% and 0.5% of salary, and both are equally split between employees and employers. This means that overall, the employer will be responsible for 3.05% of salary, as will the employee.

In addition, a specific contribution related to sick leave is paid by employers (to *mutualité des employeurs*, recorded as a social security institution), depending on a pre-set classification reflecting absenteeism rates. This contribution is described in more detail below (see the discussion on *statut unique* in this section).

Public-sector employees pay healthcare contributions for benefits in kind only (namely 5.6% of salary, equally split between the employee and the public employer). Retirees and unemployed persons have to pay 5.6% as well (half directly by themselves), whereas the self-employed pay 6.1% (like private wage earners, but in their own name).

Another feature worth mentioning is the large contribution of the Luxembourg state (*contributions forfaitaires de l'Etat*) – proportionately larger than the state financing of the general pension regime, as since 2011 the state has taken charge of the equivalent of two thirds of the social contributions paid by employees and employers (with additional, lower, but more targeted interventions). The corresponding proportion was lower before 2011, equal to 51% from 2005 to 2008 and to 58% in 2009 and 2010.

In a quite stable financing environment, no major reform occurred over the reference period, except the creation of ***statut unique*** that harmonised the position of employees and blue-collar workers. This came into force in January 2009. Prior to that date, only employees on sick leave benefited from the continuation of their wage (for 77 days plus the ongoing month – *Lohnfortzahlung*): blue-collar workers did not. From 2009, however, the regulations governing both categories were harmonised and all benefited from

Lohnfortzahlung. As a consequence, sickness contributions (*Assurance maladie-maternité, prestations en espèces*) dropped markedly for blue-collar workers – as they were no longer covered by *assurance maladie-maternité* from the very first day of their sick leave. In addition, a new *Mutualité* was created, in order to guarantee that companies are reinsured for the sickness risk. Companies have to pay contributions to this *mutualité*, ranging from 0.41% to 2.79% of the wage bill (depending on the prevalence of sick leave).

All in all, the impact of this reform on total contributions, and therefore on overall financing, was quite limited, as in general terms, the new employer contribution paid to the *mutualité* replaced the 'surcharge' on sickness contributions directly paid by blue-collar workers before the reform. Since the introduction of *statut unique*, blue-collar workers indeed pay 0.5% in order to cover the residual risk of sickness leave (i.e. following the *Lohnfortzahlung* period) – just like private employees. Before the reform, the rate was 4.7% for blue-collar workers and 0.2% for employees.

Statut unique was accompanied by the merger of several social security entities, as the (previously separated) *caisses de maladie* for blue-collar workers and employees merged into *Caisse Nationale de Santé* (in parallel, four *caisses de pension* merged to yield the *Caisse Nationale d'Assurance Pension*).

Healthcare contributions (*assurance maladie-maternité*) were very stable from 2005, although benefits in kind increased somewhat in 2011, from 5.4% over the period 2005-2010 to 5.6% from 2011.

Returning to Table 1, although the share of government revenue is higher in Luxembourg for healthcare and sickness than for old-age benefits, it is well below the comparable EU data – 32% of total financing for healthcare and sickness in Luxembourg and 50% in the EU. The 32% share, recorded in 2010 and 2015 (no change), reflects in particular the central government transfer called (somewhat misleadingly) *Cotisation forfaitaire de l'Etat* (the aforementioned equivalent of 60% of all healthcare social contributions), which amounted to €1,008 million in 2015 (and €1,045 million in 2016).

2.2.3 Long-term care

A specific case in Luxembourg is the so-called ***contribution dépendance*** paid by households. This is to cover the financing of long-term care and is not deductible from taxable income. It applies to a wider range of incomes than 'traditional' social contributions (wages and pensions (and other replacement income), but also property income like rents). In addition, its base is equal to gross income, but after deduction of the equivalent of a quarter of the standard minimum wage (€2,071.10 in February 2019); thus €517.78 is deducted in order to establish the contribution base. No cap is applied to this base, and the rate applied is 1.4% (as of February 2019). This contribution is complemented by a state transfer equal to 40% of total long-term care expenditure since 2013 (16 December 2011 law). This transfer amounted to €262 million in 2017.

The only noticeable change in contribution rates since 2005 relates to the increase in *contribution dépendance*, from 1% to 1.4% in 2007.

2.2.4 Family allowances

As far as **family allowances** are concerned, a specific 1.7% contribution is paid by employers for public-sector wage earners. For the rest, this branch is financed by government transfers. These two features explain the very large proportion accounted for by 'Government revenue' in Table 1 for 'Family and children'.

2.2.5 Other functions or branches

For the sake of completeness, there is one other thing that should be mentioned: ***assurance accidents***, with contribution rates that vary from one sector to the next, according to a specific risk classification (also with a 'bonus-malus' system applying to individual companies) and recalculated every year, and ***santé au travail***, with small

contribution rates (0.10% or 0.11%) for affiliated companies. **Unemployment allowances** are financed by general taxation (*Fonds pour l'emploi*).

In Table 1, the case of unemployment expenditure, housing and social exclusion is quite straightforward, as government financing represents the lion's share of these three functions. The corresponding proportion is somewhat lower for family and child benefits, but is still close to 90%.

3 Strengths and weaknesses of the existing mix of financing options and potential future sources of financing - national debate on the topic

3.1 Challenges to financing on the expenditure side

At first sight, and given the apparently sound financial situation of social security – the general pension system in particular – there would appear to be no real financing challenges at the current juncture. However, many observers[2] consider that this first impression is misleading. At least four reasons could be mentioned.

First, as already illustrated above, ageing is currently not very pronounced in Luxembourg, due especially to high net migration – in particular since 2011. However, according to the Europop2015 demographic projections (see also AWG, 2018), and as shown in Figure 2 above, this situation is no longer likely to prevail from 2020 onwards. For instance, the population aged 65 (the legal pension age) or more would go from about 15% now to 18% in 2030, 21% in 2040 and 26% in 2060, with large potential impacts on expenditure related to ageing, especially pensions, health and long-term care.

Second, one should mention the impact of the large reliance on cross-border workers on future pension expenditure (see part 1). Their current contributions will be matched by large pension expenditure in the future. This is likely to deflate domestic demand in Luxembourg, and thus also economic growth, and it could further exacerbate the challenges related to social protection financing in the future.

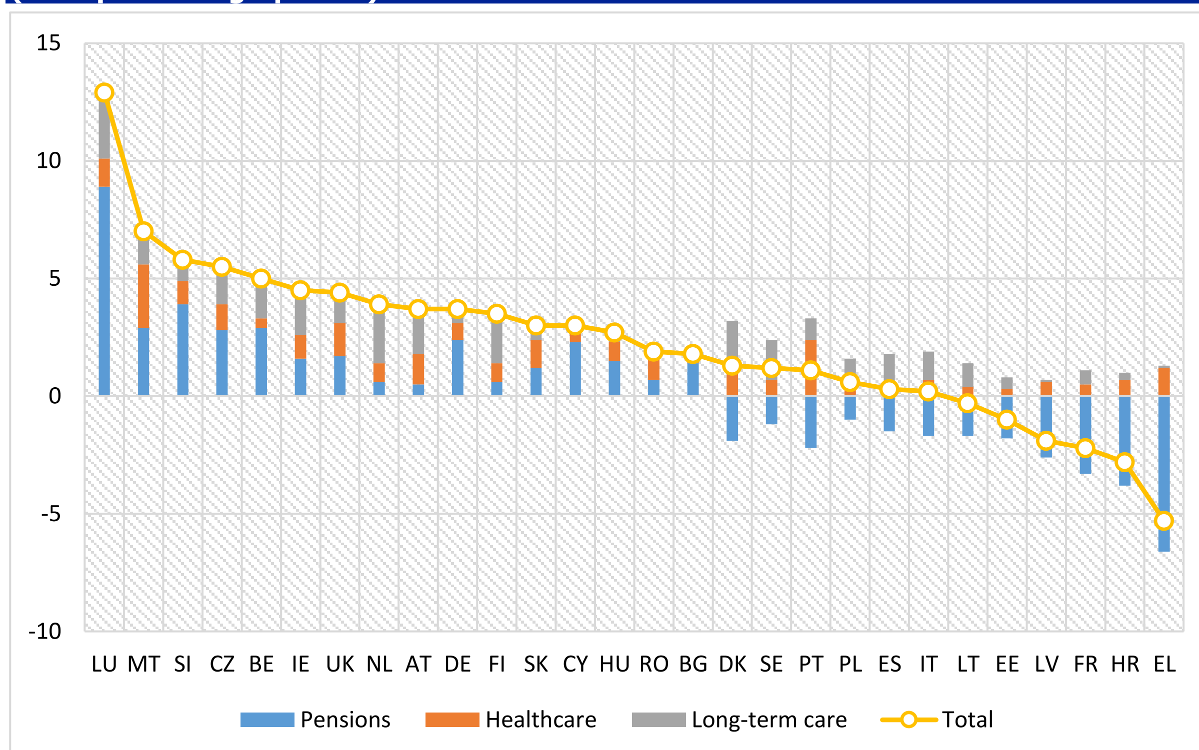
Third, social protection in general (see Box 1 and Figure 1 above), and the pension system in particular, may appear quite generous in international comparison. According to Fondation IDEA (IDEA, 2017) and based on an examination of several micro illustrative cases, the internal rate of return of employees' and employers' pension contributions in terms of future pension (thus the equivalent of the nominal yield of a bond, for instance) will hover at around 7% a year in nominal terms; even at extremely high income levels, this rate is unlikely to decline much – it would still be about 6.5%. Such a rate of return on pensions means that under the current financing system (i.e. with unchanged social contribution rates and with no additional financing), Luxembourg would need a real rate of GDP growth of about 5%, in order to avoid a systematic upward drift in pension expenditure.

Fourth, according to IGSS baseline projections (IGSS, 2016), due to the gradual deterioration in the financial situation of the pension system, the 'Compensation reserve' will gradually decline in the future, and will even disappear around 2043. This means that pension property income, which represented no less than 1.6% of GDP in 2016, will also tend to zero. This will further complicate the financing of social protection in Luxembourg.

The interplay of these four factors (demographics, non-residents, the relative generosity of social protection and gradually disappearing property income) could have a tremendous impact on future expenditure. The most detailed analysis in this field was conducted by the AWG in its 2018 report (AWG, 2018). The baseline projection of this group is illustrated in Figure 5 below: it appears that Luxembourg would, by this yardstick, be particularly exposed in terms of additional, future expenditure related to ageing. Total social protection expenditure would increase by no less than 13 GDP percentage points between 2016 and 2070, of which 9 pp would be attributable to the pensions systems (public and private sectors) alone.

[2] See for instance Kieffer (2011, 2013).

Figure 5: Increase in social protection expenditure between 2016 and 2070 (GDP percentage points)



Source: AWG (2018).

A large array of different measures would be required in order to bridge a financing gap of such magnitude (namely 13 percentage points). Alternative financing is only one among many possible solutions in these circumstances. These aspects are addressed below (see section 3.3).

3.2 Potential challenge to the financing of social protection on the revenue side: digitalisation

Another challenge frequently mentioned in Luxembourg could further magnify the 13 pp financing gap identified above – namely, the potentially negative impact of digitalisation of the economy, with a knock-on effect on social contributions.[3]

The potentially large impact of the digitalisation process on employment, and therefore the wage bill (by far the biggest source of social contributions in Luxembourg), has been highlighted by several authors, most prominently Frey and Osborne (2013). They indeed argued that about 47% of jobs could be threatened by this process. To conclude that half of the contribution base could be undermined in Luxembourg would be a naïve interpretation of the issues at stake, however.

The study by Frey and Osborne is indeed resolutely on the upside in terms of job losses. According to the OECD (Arntz et al., 2016) or the *Conseil d'Orientation pour l'emploi* (COE, 2017), they would not even reach 50% of total employment, even in the medium term, in spite of the impact of technologies like artificial intelligence, the Internet of things, big data, blockchain, nanomaterials, neurotechnologies, advance energy storage technologies, etc. The impact on employment would rather be confined to about 9-10% over a 10-15-year time horizon. Account should also be taken of the social acceptance of new technologies, their profitability and the institutional context. In addition, the digital economy would help create new job opportunities – as was the case in previous waves of technological innovation. According to Goos et al. (2015), each job created in advanced

[3] For a detailed discussion on this issue, see Ruben (2017).

technology sectors tends to create on average between three and five additional jobs. This evidence seems to be confirmed by the fact that total employment has so far been more resilient in the most advanced countries in terms of robotisation (e.g. Germany, South Korea, Japan).

Finally, the potential efficiency gains generated by new technologies could stimulate consumption and investments, and ultimately total employment.

In any case, the expected impact of digitalisation is not noticeable for the moment in Luxembourg, where the proportion of the self-employed in total employment was 6.1% in 2017 – slightly below 6.9% recorded in 2000. Furthermore, labour productivity in Luxembourg has been broadly stagnant over the last 10 years (see, for instance, CES, 2017). It is striking that from 2000 to 2017, total employment in the Grand Duchy increased by 3% on average, compared to 2.6% for GDP – pointing to an extremely high employment intensity of economic growth.

Should digitalisation accelerate and induce significant productivity gains, employment would by definition tend to decelerate; but at the same time, part of the gains could be channelled to average wages, and this would in turn cushion the impact of digitalisation on the wage bill.

All in all, the impact of digitalisation on the contribution base is difficult to apprehend at this stage. Although the digitalisation factor should be monitored closely in Luxembourg, too, this factor taken in isolation does not seem to imply major changes in the way social protection is financed in the Grand Duchy – at least at the current juncture.

3.3 Traditional and alternative financing in the specific situation of Luxembourg

All in all, the financing of social protection could face considerable challenges even in the near future – not so much because of the digital economy, as because of more 'trivial' factors, like ageing, the gradual increase in expenditure channelled to non-resident workers, the mere generosity of the pension system and declining property income.

Under unchanged policy assumptions, social protection financing would have to increase in a very significant way in order to address the 13 percentage point financing gap expected by the AWG. This could lead to 'semi-automatic' increases in social contributions – as explained in part 2.

These would be no panacea. First, higher contributions tend to have an adverse impact on lower incomes. They could even be considered as slightly regressive. Because of the cap currently applied to the contribution base (see section 2), high wage earners would indeed lose a lower proportion of their gross income than workers located at the other end of the income spectrum. For instance, an increase of the rate of personal pension contributions from 8% to 10% considered in isolation would induce a loss of 2% for a person with annual gross income of €25,000 a year (slightly above the basic minimum wage) and 1.66% for a salary of €150,000 a year – and the impact would most probably be even more regressive in terms of net income (i.e. after personal income tax).

Second, in the pension system as it currently stands, increases in social contribution rates will be matched by an equivalent increase in the 'contribution rate' supported by the Luxembourg state, which means that the central government will incur a less favourable fiscal balance. For instance, an increase in this contribution rate from 8% to 10% will imply (at 2018 values) a deterioration in this balance of about €400 million, reflecting higher state transfers to the general pension regime.

Third, higher contributions – the 'default' solution – would also decrease the purchasing power of households and inflate the production costs of companies. The latter are basically in a comparatively favourable situation as regards the social contributions of employees and employers. On the other hand, however, since 2000 low productivity gains have given way to large increases in unit labour costs (ULC), compared to the neighbouring countries. For instance, nominal ULC rose by 66% in Luxembourg from 2000 to 2017, compared with

19% in Germany, 30% in Belgium and 32% in France, according to the European Commission AMECO database.[4] Higher contribution rates would further magnify these evolutions.

Against this background, several observers have proposed addressing the financial challenge via alternative financing, rather than through increases in social contributions. This sensitive debate took shape *inter alia* in the 2018 report of the Luxembourg *Groupe de travail pensions* (GTP, 2018; hereafter Pension Working Group).

The representatives of wage earners in this group advocated a greater future reliance on alternative pension revenue. In a separate publication (CSL, 2017), more precise alternative financing proposals were mentioned: the removal of the cap on social contributions, a rise in the 'solidarity levy' (surcharges of 7% or 9% are at present applied to personal income tax, and another 7% surcharge is added to *Impôt sur le revenu des collectivités* – i.e. the major corporate tax), the reintroduction of a wealth tax on households (cancelled from 2006 onwards, when it became applicable to companies only), increases in the wealth tax on companies and in the subscription tax on investment funds, and finally a new levy channelled to the pension system, payable on labour, but also on capital incomes (dividends, rents and interest).

The report of the Pension Working Group also underlined the need to consider all potential aspects of alternative financing, including economic risks. It also stated explicitly that the 'Bismarckian', 'insurance philosophy' inherent in the Luxembourg social security system should not be undermined. The very nature of this insurance system would be at stake should Luxembourg rely more on general financing. It is frequently argued in Luxembourg, for instance by social security officials, that a much heavier reliance on alternative forms of financing would undermine the 'social contract' that underlies the national social protection system.

Finally, the report of the Pension Working Group highlighted the fact that disregarding property income, a significant proportion of overall revenue in the general pension regime already stems from general financing, rather than from social contributions – as already discussed in section 2. In other words, alternative financing is already now a strong feature of the financing of social protection in Luxembourg. The global, 24% 'contribution' rate in the general pension system is indeed financed by the 'taxpayer' via the 8% tranche supported by central government.

In a contribution entirely devoted to pension reform, Fondation IDEA was more specific as regards the potential risks associated with alternative financing in the specific situation of Luxembourg (IDEA, 2018).

First, given the magnitude of the adjustment required in order to bridge the gap between the current 'pension yield' (about 7% a year in nominal terms) and reasonable estimates for medium-term (or potential) economic growth (about 3% in real terms or 5% nominal), alternative financing could not be more than a second best – the first best being a revised pension formula and more socially targeted pensions.

In addition, given the small size of Luxembourg and its extreme openness, higher taxes could have significant volume effects – with potentially damaging impacts on economic activity, employment and finally social contributions. At the same time, alternative financing alone would not alleviate in any way the strong dynamics of pension expenditure in Luxembourg. For instance, higher personal income taxes (and social contributions) could adversely impact net migration and therefore economic activity (i.e. the economic base for social contributions and for taxes), and finally the very 'social model' of Luxembourg. Structural changes in the way social protection is financed should not be introduced in isolation: 'holistic' assessments of the Luxembourg economy and social system should prevail instead.

[4] See http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm, downloaded on 13 February 2019.

Several of these 'pro and contra' arguments were also discussed in a 2007 publication entirely devoted to this issue (ALOSS, 2007), following a conference in 2006. In its introduction to the issue, the health and social security minister of the time, Mars Di Bartolomeo, explained '*Est-ce qu'on peut aboutir à des conclusions définitives dans ce domaine? Je me le demande, mais c'est un processus qui vaut la peine d'être lancé ou poursuivi.*'[5]

Many aspects of the question were highlighted. These are worth mentioning (being frequently congruent with the aforementioned arguments):

- Alternative financing is an old debate, with two major avenues: a shift to taxes instead of social contributions, or larger bases (inclusion of 'robots', energy consumption or taxation of value added, rather than the wage bill, higher VAT rates channelled to social protection). The economic impact (on consumption and private investment) is, however, very difficult to apprehend. In particular, the taxation of value added could affect the different sectors very differently; profits would be taxed twice; and value added is more volatile than the wage bill. Taxes on 'robots' would strongly penalise one-person companies (Euzéby, 2007) and could be a disincentive for developing production methodologies that are efficient and productive (Cichon, 2007).
- Euzéby (2007) also argued that social contributions should be privileged for social interventions aimed at replacing wages (e.g. unemployment, pensions, sickness), while taxation would be the most efficient option otherwise (e.g. healthcare, maternity leave, family allowances, minimum guaranteed income). The dominant criterion should therefore be the social function concerned, rather than additional financing per se (also see Devolder, 2007).
- There are no universal alternative financing regimes that are easily transferrable from one country to another. Alternative financing is mostly debated in 'Bismarckian', European countries, rather than in the rest of the world, where the privatisation debate is more prominent (Sigg, 2007).
- The need for additional financing in Luxembourg in future could be alleviated by social security reforms, but also by an increase in the employment rate of older persons (Paserman, 2007). There are no single 'miracle' or painless solutions, but rather a combination of small, politically feasible steps. Ecotaxes are still largely untested (Sigg, 2007).
- Alternative financing could particularly impact workers and consumers less able to relocate (less mobile tax base), and taxes primarily targeted at employers may end up being borne by workers. Moreover, the design of a proper financing system should proceed at the micro, redistributive and analytical level, and not only from the macroeconomic perspective (Cichon, 2007).
- The future of pension financing could rest on a better diversification of risks within the first pillar, too. This is the case in Sweden, with its three-tier system – with a minimum pension paid by the state, notional accounts financed by social contributions and individual accounts regulated by the public sector (Devolder, 2007).
- Alternative financing should not lead to an overly complicated financing of social protection (Martinez, 2007).

All in all, it appears that caution is required as regards alternative financing in general, and in Luxembourg in particular, due to the multi-faceted nature of the problem and the wide range of its economic and social impacts. An analytical, micro perspective is essential. Alternative financing could arguably be one option (among many others), including

[5] This could be translated 'Could one reach final conclusions in this field? I do not know, but this is a process worth launching or pursuing.'

measures to minimise future drifts in social protection expenditure (see IDEA, 2018, for concrete proposals related to the pension system, in particular on the expenditure side).

3.4 Policy recommendations

Given the magnitude of the financial challenge over the medium term – at least according to the AWG, the IGSS and most 'official' and international institutions – Luxembourg should rely on a wide range of instruments: for instance, pension reform (also with a view to the generosity of the system, demographic developments and the 'non-resident' factor), regular budgetary assessments of healthcare and long-term care, and a dynamic management of the FDC pension reserve. On the revenue side, caution is needed as regards both 'traditional' and alternative financing, given the great openness of the Luxembourg economy and the importance of tax stability in such a situation.

Financing via increased social contributions presents several adverse side effects in terms of economic activity and production costs, also from a distributive viewpoint. This should therefore be considered a 'last resort'.

Just in case a 'semi-automatic' increase in social contributions occurs in future, one could tentatively consider a parallel increase in the *Crédit d'impôt salarié* (CIS) – an existing tax credit that targets lower incomes. This CIS contributes to increase work incentives (namely by alleviating the so-called 'poverty trap') and would directly address some of the adverse economic consequences of higher social contributions – for instance, their impact on (already drifting) unit labour costs, as well as the quite regressive nature of social contributions from a distributive viewpoint.

Another way to mitigate the adverse consequences of any increase in social contributions would be an alternative calculation of *contribution dépendance*, where the contribution base is currently equal to earned income, less one quarter of the reference minimum wage (i.e. €2,071.10 divided by four = about €517.78 a month). The equivalent of the total minimum wage could be deducted (rather than just a quarter). Combined with a slightly higher contribution rate, such a measure would improve the situation of lower-paid workers, with no costs to the general government as a whole.

These steps (semi-automatic increases in social contributions – to consider with caution from a social and economic point of view – but with the two aforementioned 'accompanying' measures) may be interpreted as a further shift away from alternative financing in the strict sense – namely the creation of new taxes or the channelling to social protection of existing taxes. This is not really the case in Luxembourg, however, where a 1 percentage point increase in pension contributions by employees and employers is 'automatically' accompanied by a 1 pp increase in central government 'contributions' (namely by an increase of about €200 million (in 2018 values) in the central government transfer to the pension regime). The indirect contribution of the 'taxpayer' would therefore increase (in absolute terms, if not as a proportion of total financing), with no alteration in the 'insurance' character of pensions and healthcare.

More generally, and given the peculiarities of Luxembourg (i.e. the great openness of the economy and the resulting sensitivity of tax bases to taxation rates) – and also considering the sustained increase in unit labour costs observed since 2000 – additional steps on the revenue side, including the introduction of alternative financing, should be considered in a prudent way, based on strong conceptual and microeconomic bases. It is essential to understand better the issues at stake – most notably the distributional and economic impacts of various types of alternative financing (direct taxes on households and companies, indirect taxes, social contributions with alternative bases such as the *contribution dépendance*, etc.). The related social and economic literature is still a 'work in progress' in Luxembourg, and any new step in this field should be based on firmer conceptual grounds. The 'robotisation-digitalisation' issue should be monitored closely, in order to assess its potential impact on the evolution of social protection financing, but its impact should not be exaggerated at this stage.

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