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REPUBLIC OF ESTONIA

SELECTED ISSUES

May 2018

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INTERNATIONAL MONETARY FUND

REPUBLIC OF ESTONIA

SELECTED ISSUES

May 4, 2018

Approved By
European Department

Prepared by Alexander Pitt, Ashni Singh, and Andreas Tudyka

CONTENTS

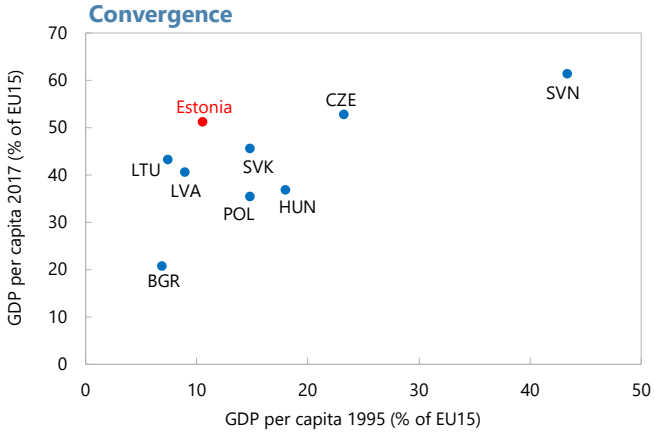
WAGES AND INFLATION[1]

A. Introduction

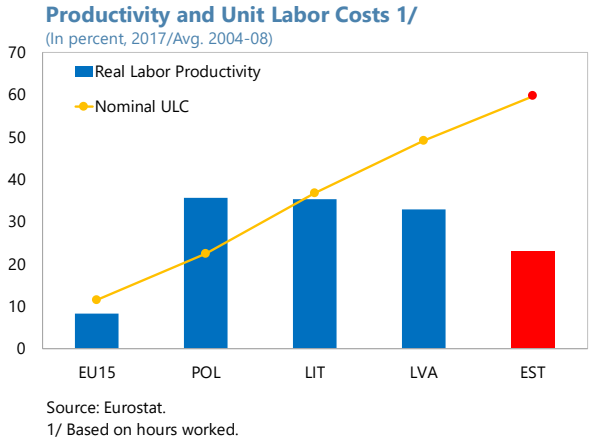
1. Estonia has made remarkable progress in income convergence with Western Europe. Income per capita has risen to about 51 percent of the level of EU15 (2017), the third-highest of the New Member States (NMS), and Estonia has covered the largest distance between its initial income level and the EU15's.

2. Wages have risen commensurately. However, in recent years they have increased more rapidly than labor productivity, and faster than elsewhere in Europe. While this does not immediately threaten external stability—given the current account surplus and continued volume growth in exports—continued divergence of wage dynamics from economic fundamentals could undermine growth and income convergence in the longer run (IMF 2017a), and impact adversely competitiveness.

3. In this paper, we investigate the relation between wages and inflation. Specifically:



Source: Eurostat.



Source: Eurostat.
1/ Based on hours worked.

- What are the drivers of wage growth and inflation? Is a wage-price spiral emerging?
- Have the direction and magnitude of drivers been different in Estonia, and have their effects been different than elsewhere in Europe?

The rest of this paper is organized as follows: In Section B, we discuss the drivers of wage growth, and how they might differ in Estonia both in their direction and magnitude, and in their impact. We also discuss a number of idiosyncrasies that can account for some of Estonia's wage dynamics. In Section C, we formally test the effect of wage drivers. Section D concludes.

B. Drivers of Wage Growth

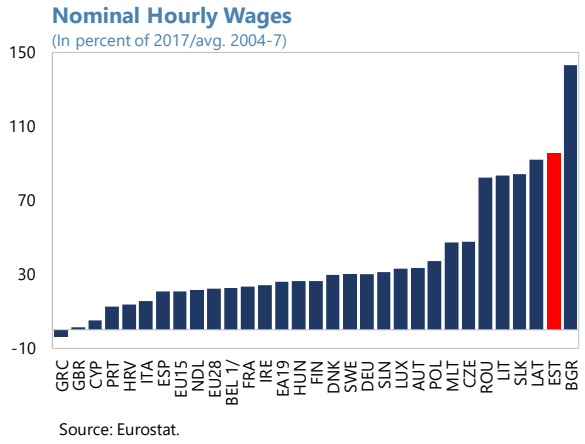
4. There have been three key factors as drivers of wage growth in advanced economies after the Global Financial Crisis (GFC): IMF (2017b) identifies productivity gains, inflation expectations, and labor market slack. In many countries in Europe, all these factors have worked

[1] Prepared by Alexander Pitt with research assistance provided by Nhu Nguyen.

toward pushing wage inflation lower, but in Estonia and other Baltic economies, unemployment has fallen and the labor market has tightened appreciably, while productivity growth has slowed (Figure 1). At the same time, inflation is more volatile than in larger EU economies, which may reduce the role of inflation expectations in wage formation (Capistrán and Timmermann, 2009), implying that the low inflation rates in recent years may not have had as strong a downward drag on wage settlements as elsewhere.

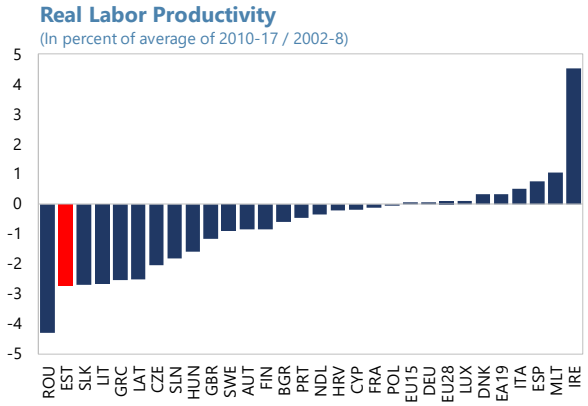
Figure 1. Wages and Wage Drivers

Estonia's wage increases were among the highest in Europe …



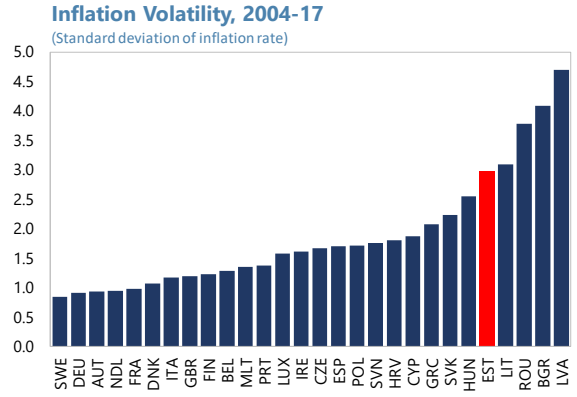
Source: Eurostat.

… but the drop in its labor productivity as well.



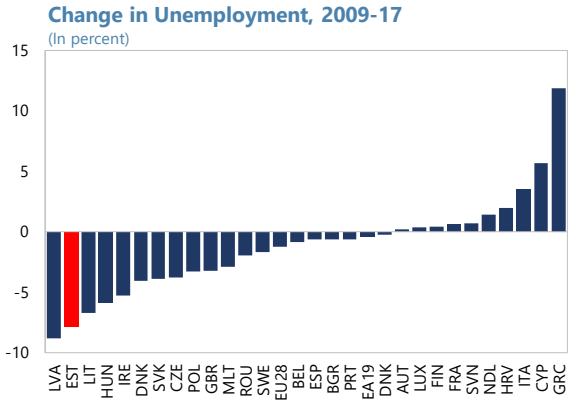
Source: Eurostat.

Inflation volatility is high, likely limiting the anchoring role of expectations.



Source: Eurostat.

At the same time, unemployment has declined strongly since its peak in 2008/09.

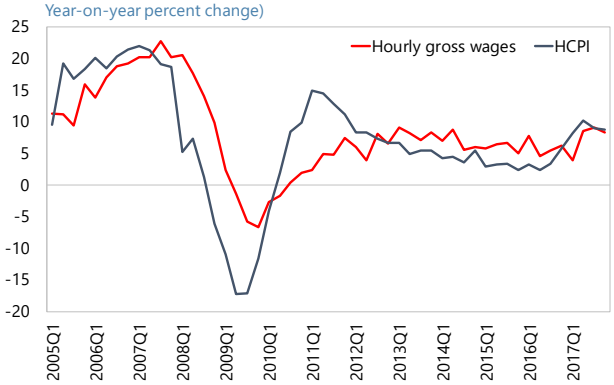


Source: Eurostat.

Productivity[2]

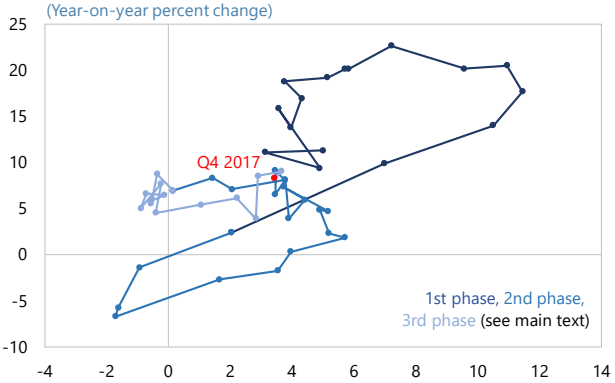
5. Productivity growth in Estonia, as elsewhere, has slowed, albeit from high levels that can be explained by high investment and income convergence with Western Europe. Despite this slowdown, wage growth has recovered quickly after the GFC, and from 2013 until recently, has outpaced nominal GDP growth. This implies that the labor share of national income has been rising, and real unit labor costs as well (see IMF 2017a). Nonetheless, overall the lower growth of GDP does appear to have gone hand in hand with lower wage growth: compared to pre-GFC levels, both GDP and wages are growing at a slower pace.

Wages and GDP
Year-on-year percent change)



Source: Statistics Estonia.

Inflation and Wages, 2005-17
(Year-on-year percent change)

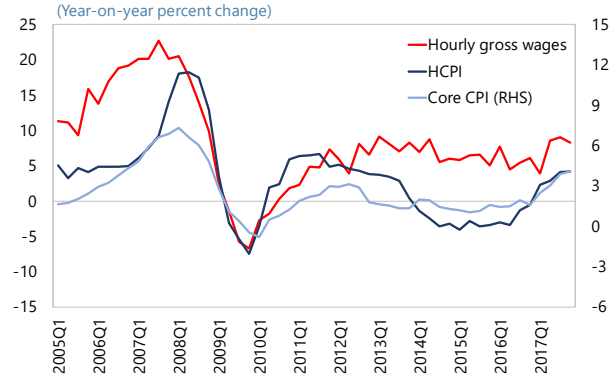


Source: Statistics Estonia.

Inflation

6. Inflation in Estonia is generally in line with European trends, but at higher levels (reflecting income convergence) and with higher volatility.[3] With Estonia one of the smallest and most open economies in the Euro Area, this is unsurprising. Moreover, the relation between wages and inflation appears to move only slowly; there are three distinct phases over the past decade: first, pre-crisis high inflation and high wage growth; second, during the crisis a rapid adjustment with negative inflation and declining wages (in nominal terms), in line with the internal devaluation' policies; and third, a settlement of broadly stable wage growth irrespective of declining inflation rates from 2014 on.[4] The limited

Wages and Inflation
(Year-on-year percent change)



Source: Statistics Estonia.

[2] For a more extensive discussion of productivity and competitiveness, see IMF (2017a).

[3] More recently, however, core inflation in Estonia accelerated markedly, to 4.1 percent y/y in Q42017, significantly higher than in Baltic and CEE peers. In part (0.9 percent), this is due to tax increases generating a one-off effect.

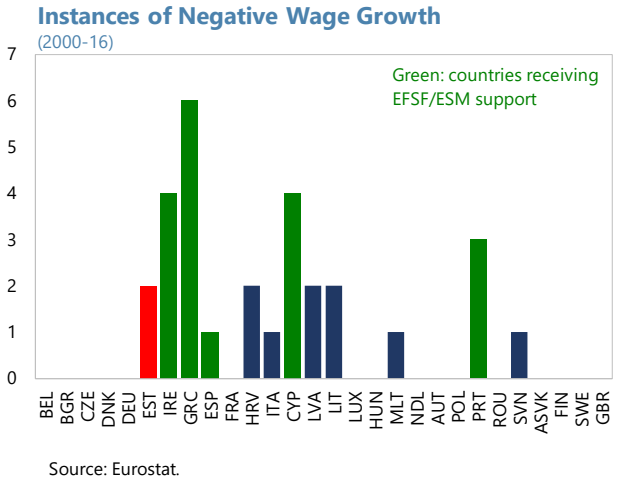
[4] 'Internal devaluation' was the strategy adopted by the Estonian authorities during the GFC to regain competitiveness, and external and fiscal balance. At the core of the strategy was a cut in nominal wage costs, both in the public and private sector.

impact of inflation over extended periods is consistent with high inflation volatility and the limited reliability of expectations. However, this does not exclude that: (i) wages do adjust rapidly when economic developments are sufficiently stark; and (ii) price dynamics eventually do influence wages (see below).

7. Prior to the GFC, wages appear to have led inflation. Despite the economy's openness and small size, in the years prior to 2008, wages accelerated first, then core inflation and HCPI, suggesting the emergence of a wage-price spiral. During the GFC, wages and inflation fell broadly simultaneously, and wage growth took some time to recover to the rate of inflation. In 2013, inflation decelerated markedly, but not wage growth, and since 2016, wage growth has accelerated again, and so have measures of core and harmonized CPI, both broadly simultaneously with wages (though some of these dynamics are due to tax increases). As wage and price dynamics accelerate, care will need to be taken to avoid the emergence of another wage-price spiral.

Labor Markets

8. The labor market in Estonia appears efficient. Not only is unemployment low, but Estonia also performs well in various other metrics of labor market efficiency (Figure 2): youth unemployment is lower than in most peers; and the economy is providing employment opportunities for the low skilled, on a par with the EU28 and much more so than in peers.[5] However, foreign nationals are at significantly higher risk than in, for instance, Latvia of being unemployed, relative to natives.[6] This can in part be explained by geography and language skills—many of the non-nationals in Estonia are ethnic Russians who live in the economically relatively weak north-east of the country and whose command of the Estonian language is limited. This may have implications for productivity growth: if well-educated Estonian nationals emigrate and are replaced by lower-skilled foreign workers, this may drag down productivity growth.[7]



Source: Eurostat.

9. Wages are flexible. Wages in Estonia have in the past adjusted downward in nominal terms (during the 'internal devaluation' in 2009/10), something that has happened only rarely in Europe

[5] Across the EU, low-skilled persons face significantly higher (and rising) risk of unemployment than higher-skilled person. The relatively good integration of low-skilled workers in Estonia may be indicative of a relatively slow shift to higher value-added industries.

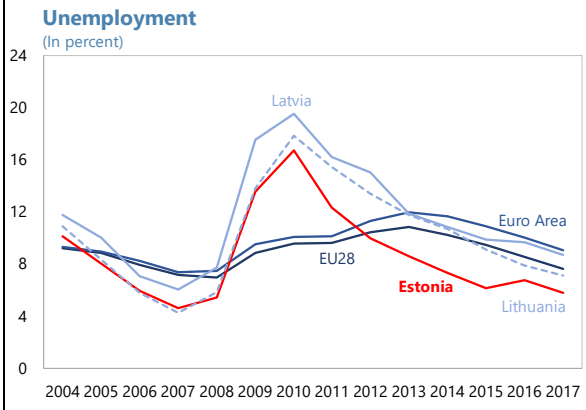
[6] Foreign nationals and residents born abroad account for close to 15 percent of the working-age population and labor force. This includes ethnic Russians who came to Estonia in Soviet times.

[7] Net migration of Estonian nationals remains negative, even though overall migration turned positive in 2016.

outside the crisis countries (e.g., in other Baltic countries). This demonstrates that the current rapid wage growth can also be reversed rapidly if need be. Also, employment protection legislation is limited, providing flexibility to the labor market as a whole (and has allowed firms to hoard labor, lowering productivity). In this regard, the exposure of Estonian firms to international markets should exert significant discipline: given the small size of the domestic market and the high trade openness (exports and imports of goods and services amount to more than 150 percent of GDP), pricing power of domestic firms is likely limited, implying that the mark-up would need to adjust if wages rise faster than productivity—which is indeed what has happened.

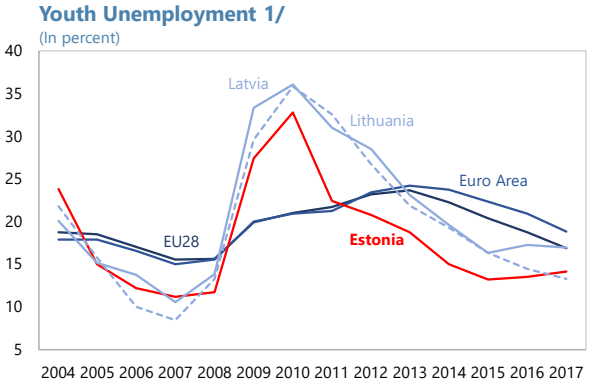
Figure 2. Labor Market Performance in a European Context

Unemployment has declined almost to pre-crisis levels and remains below Baltic peers and EU and EA levels.



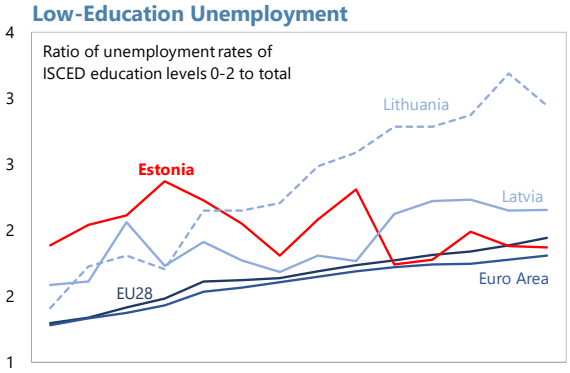
Source: Eurostat.

Also, youth unemployment is generally lower than in comparators …



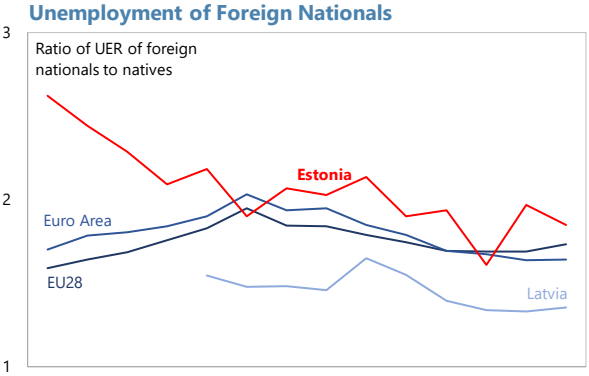
Source: Eurostat.
1/ Age group 15-24.

… and the integration of low-skilled workers into work is in line with the EU and better than in Baltic peers.



Source: Eurostat.

However, foreign nationals face a significantly higher risk of unemployment than nationals, more so than in peers.



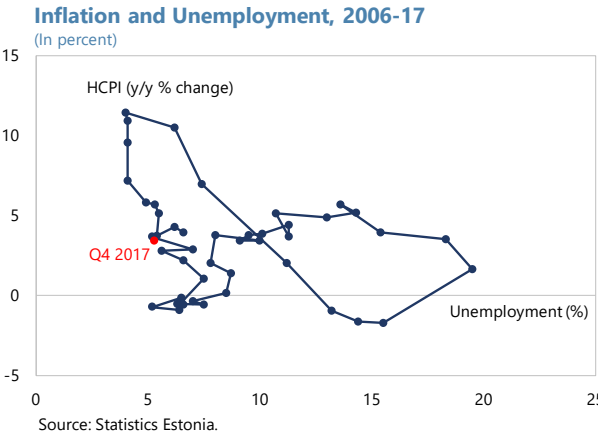
Source: Eurostat.

10. Key labor market relationships have adapted to the lower-inflation environment. The Philips curve has shifted inward (Figure 3), in line with declining inflation (see above). The Beveridge curve has remained stable, suggesting that labor market mismatches have not changed much. At the same time, the labor force composition has changed: while the working age population has

declined, labor force participation has steadily risen, keeping the overall labor force broadly stable, but ageing.

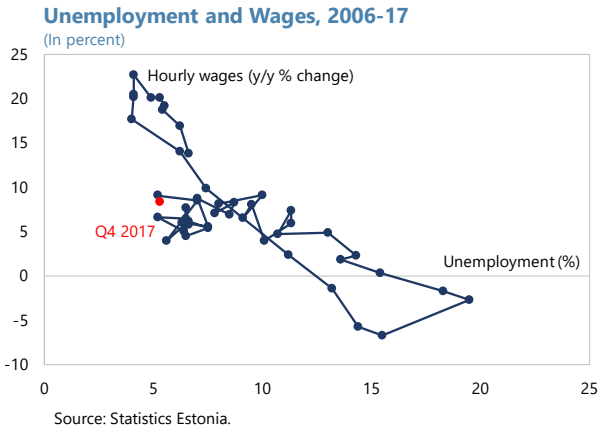
Figure 3. Labor Market Efficiency

The Phillips curve has shifted inwards, both as measured with inflation …



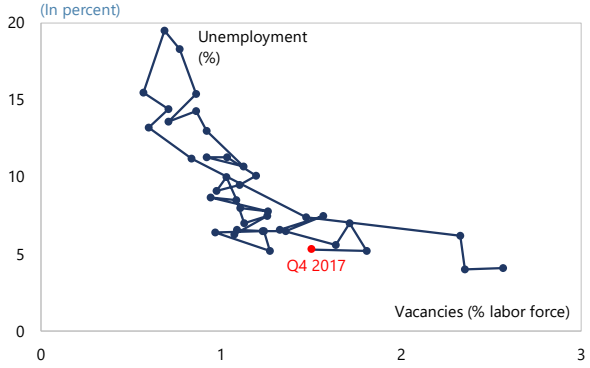
Source: Statistics Estonia.

… and by wages.



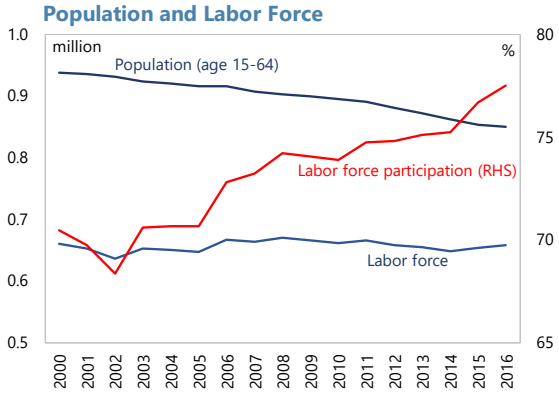
Source: Statistics Estonia.

Labor market pressure has increased, but mismatches do not appear to have risen …



Source: Statistics Estonia.

… even as participation rose, holding the total labor force constant as the working-age population declines.

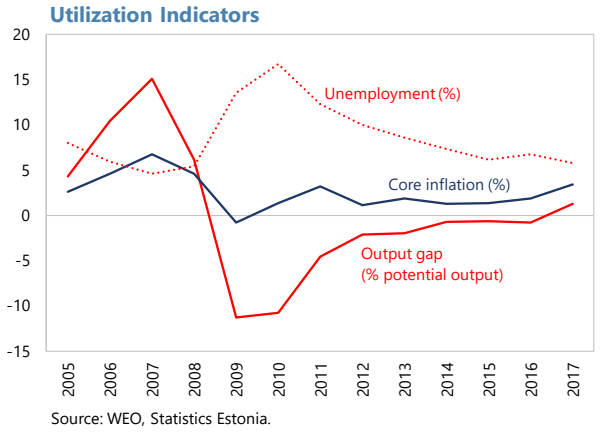


Source: Eurostat.

11. The decline in unemployment and other metrics suggest that the labor market is tightening. While unemployment remains slightly higher than immediately before the (GFC), output now is about 1 percent above potential, while the positive output gap was much larger during 2005–08. Other metrics of labor market slack point in the same direction: involuntary part-time work is the second-lowest in the EU, and temporary contracts the fourth-lowest (Figure 4). Also, indicators of labor shortages are edging up (Eesti Pank, 2017b).

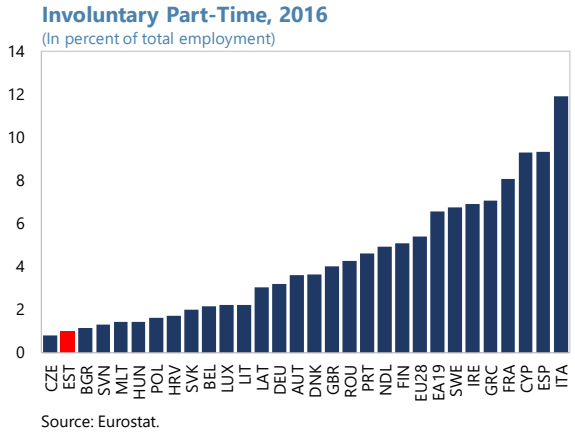
Figure 4. Indicators of Labor Market Slack

Labor market slack seems limited, as the output gap is closed, …



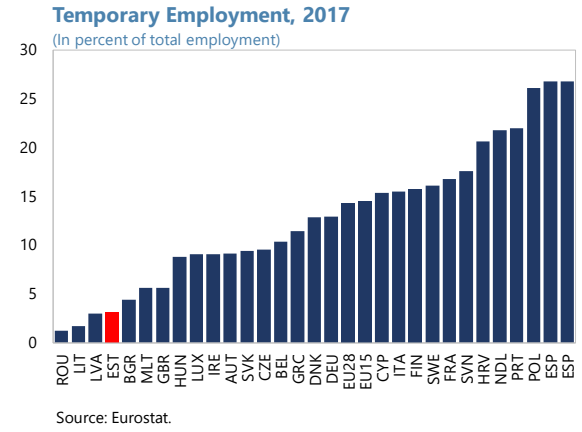
Source: WEO, Statistics Estonia.

… involuntary part-time work is low …



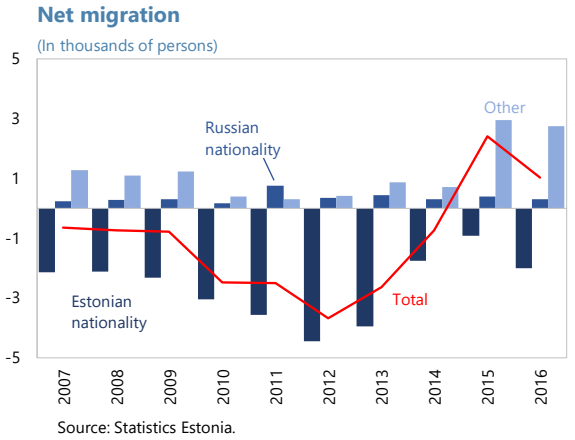
Source: Eurostat.

… as is the prevalence of temporary employment contracts.



Source: Eurostat.

Moreover, emigration remains high, enhancing workers' bargaining power.



Source: Statistics Estonia.

12. Migration is likely enhancing workers' bargaining power. Estonia's emigration rate is relatively high, which suggests that (prospective) employees have and do seek out—usually significantly higher-paid—opportunities in Nordic countries and Western Europe, both through emigration as well as commuting to Finland.[8] While immigration could make up for this loss (and net migration, even in the working age group, has turned positive since 2015), some of the foreigners who arrive in Estonia—especially recently arrived Ukrainians who account for much of the recent increase in immigration—may not be as easily employable as native Estonians, and their productivity lower.

13. Overall, several factors that have tended to slow wage dynamics in other advanced economies, appear to have operated in a contrary direction in Estonia. Notably, labor markets

[8] The ferry from Tallinn to Helsinki takes 2–2½ hours, allowing weekly commutes.

are tight (and workers have additional bargaining power through the possibility of emigration, which many of them use), and inflation less stable than in larger economies, making it more difficult to anchor expectations.[9] Hence, the decline in inflation probably had less of an impact on wages than elsewhere.

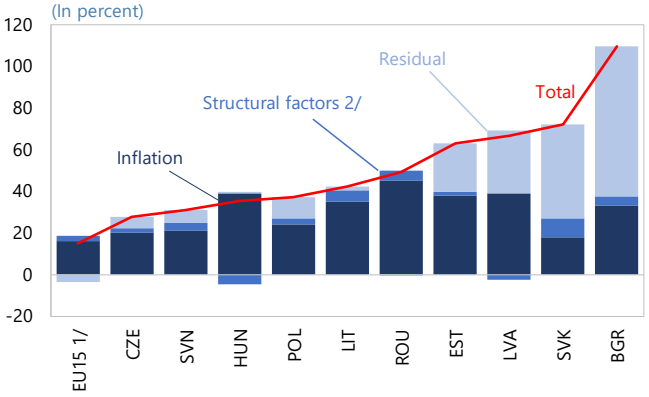
14. However, other factors should exert a strong pull toward wage moderation. In particular, the drop-in productivity growth in Estonia has been much more pronounced than in most other European economies, which should limit the room for maneuver on the part of firms. Nonetheless, Estonia's labor income as a proportion of national income has risen significantly since pre-GFC times, and is now one of the highest in Europe—which has, however, not led to a decline in inequality, which is relatively high compared to other European countries.

Other Drivers

15. Structural changes in the work force and working conditions also play a—albeit small—role in explaining some of the increase in wages in Estonia:

- The *gender pay gap*, while still high, is narrowing gradually. Everything else equal, this would drive average wages up, e.g., if wages in the public sector, which comprises many typically female professions—such as nurses or teachers—were to be raised by the state.

Average Hourly Pay, 2014/06
(In percent)



Sources: Eurostat and IMF staff calculations.
1/ Unweighted average.
2/ Female wages, female employment, part-time/full-time, occupations.

- An increasing *share of women* in the labor force would, given the still-existing gender pay gap, push average wages down.
- Increasing *part-time work* (related to higher female labor force participation) would also lower average hourly wages, as part-time work is generally less well remunerated than full-time work (even per hour).
- Shifts in the *occupational composition* of the workforce could drive up average wages, as more employees move into better-remunerated jobs and professions.

[9] At the same time, more strongly anchored inflation expectations also help stabilize actual inflation (van der Cruijsen and Demertzis, 2010).

Overall, however, the impact of these structural shifts is small. Estonia's average hourly pay grew by 63 percent over 2006–14, and only just under 2 percent of this can be explained by these structural shifts.[10] This implies that the wage increases explained by more fundamental factors discussed above is by far more important. However, this is similar to other NMS (as well as in the EU15).

Structural Components in Hourly Wages

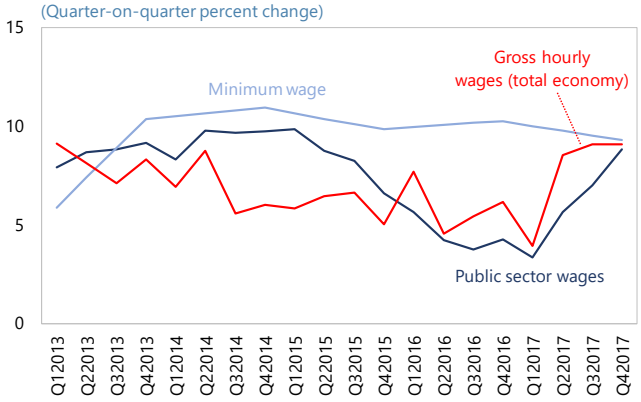
	% change 2014/06
Pay gap	1.9
Female LFP	-1.1
Increasing part time	-0.7
Occupation	1.8
Residual	60.9
Total	62.9

Sources: Eurostat and IMF staff calculations.

16. There are also several idiosyncratic drivers that play a role in wage settlements in Estonia. As outlined in IMF (2017a), public sector wage and minimum wage policies also have a strong influence on overall wage developments in Estonia.

- *Public sector wages* (which are negotiated by social partners) have some bearing on the average wage in the economy, directly as sectors that are dominated by government employment account for almost a quarter of employment, and indirectly as they serve as a reference point for private sector wage agreements. While public sector wages have decelerated in the first half of 2017, they have started to rise again in Q3 2017, to 7 percent (4Q/4Q), though at least part of this is due to the Estonian presidency of the EU, which has driven up public sector pay during the second half of 2017. In addition, the causality also runs from private sector to public sector remuneration, as the public sector needs to remain competitive to continue to be able to staff a high-quality civil service.

Wage Dynamics
(Quarter-on-quarter percent change)



Sources: Statistics Estonia and https://countryeconomy.com

- *Minimum wages* are largely determined in negotiations between social partners, but government representatives are present and minimum wage agreements are given legal force. After rising by 10 percent each year during 2013–17, the rise for 2018 is being contained at 6.4 percent. However, the link between minimum wages and overall wages appears to have weakened somewhat in recent years: despite continued high increases in the minimum wage, overall wage growth has declined, and has only recently caught up again. Moreover, from 2019, social partners have agreed on a formula which includes productivity growth to guide minimum wage negotiations, and agreement has been reached to cap the minimum wage at 40 percent of the average wage.

[10] The data only reflects employees in industry, construction and services (excluding public administration, defense, compulsory social security), which account for about 60 percent of employed persons.

C. Testing the Main Drivers

17. The factors that drives wages in the Baltics, as well as the NMS, indeed appear somewhat different from those in the EU15. We consider a cross-country panel regression covering the years 1995–2016, with a variety of country groupings to determine differences in wage formation between country groupings.[11] The dependent variable is nominal hourly compensation, explanatory variables are one-year-ahead inflation (as a proxy for inflation expectations), the change in real labor productivity, and as indicators of labor market slack, the share of involuntary part-time employment in total employment, and the share of employees with temporary contracts in total employment.[12]

18. Our regressions suggest that (see Table 1):

- *Inflation* appears to have a limited impact in the NMS, in line with findings for Estonia by the Estonian Central Bank (Eesti Pank 2017a). While for all countries and in the EU15, inflation expectations have a significant impact on wages, they do not in the NMS and the Baltics. This is in line with our argument above: higher inflation volatility would make inflation expectations less reliable, and hence reduce their usefulness as an anchor.
- *Productivity* is significant in all country groupings except the groups of NMS as a whole. In particular, in the Baltics the coefficient is much higher than in the EU15 group. This result appears at odds with the notion that wage growth has outpaced productivity in Estonia, but this applies only in recent years. Over the entire period, wages and productivity have broadly moved in line.
- Indicators *of labor market slack* suggest that labor market conditions play a much larger role in the NMS (including the Baltics) than in the EU15 or across all countries. This would also help explain why the slowdown in productivity growth has been outweighed by labor market considerations in the former countries (and has led to relatively low unemployment there). In this regard, the positive and significant coefficient on temporary contracts—which suggests that in times of more job insecurity wages rise—in the NMS and Baltics might reflect that in these countries, temporary contracts are less a structural feature reflecting differentiated employment protection (and indeed, in many of these countries, employment protection is both lower overall, and less differentiated between permanent and temporary contracts), but a signal of labor market tightness: employers might resort to temporarily employ workers in an upswing (and not to avoid taking on employees permanently).
- Lastly, the insignificance of the *constant* in the Baltics regression suggests that wages there are likely more flexible than in the EU15, a result corroborated by the negative nominal wage growth in Estonia and other NMS, but only to a limited extent in the EU15 during the GFC.

[11] The sample in the "Baltics" groups is necessarily small, limiting the number of observations, the significance of the results, and the comparability of coefficients across country groupings. However, the grouping "New Member States" is large enough to yield more robust results, which are similar to the Baltics group alone.

[12] We have also tested the unemployment rate, alone and with other measures of labor market slack, but this variable was—to our surprise—not significant.

Table 1. Wage Drivers

Dependent variable: Compensation per hour worked (in national currency; % change)

Independent variables	All Country	EU-15	NMS	Baltics
Inflation (HCPI one year ahead, % change)	**0.0207***	**0.0127****	0.0201	-0.00693
	(0.0106)	(0.00521)	(0.0243)	(0.0319)
Real labor productivity per hour worked (% change)	**0.0364*****	**0.0191*****	0.0421	**0.126*****
	(0.0111)	(0.00459)	(0.0268)	(0.0294)
Involuntary part-time employment (age 15-74, % of total employment)	**-0.578*****	**-0.586*****	**-2.492****	**-4.876*****
	(0.218)	(0.0727)	(1.243)	(1.144)
Temporary contracts (age 15-74, % of total employment)	**0.0289*****	-0.00392	**0.0797*****	**0.0621****
	(0.00659)	(0.00282)	(0.0168)	(0.0265)
Constant	-2.383	**4.749*****	**30.58*****	5.682
	(2.323)	(0.874)	(7.020)	(4.296)
Fixed effect	Country	Country	Country	Country
Observations	579	307	200	53
Number of Countries	30	15	11	3
Adjusted *R-squared*	0.3959	0.3639	0.3689	0.4441

Sources: Eurostat, IMF staff calculations
*** p<0.01, ** p<0.05, * p<0.1
Standard errors in parentheses.

D. Conclusions and Policy Options

Conclusions

19. The role inflation and inflation expectations play in Estonia (and NMS) is different from those of the EU15. The impact of inflation on wage formation is smaller than in larger and richer countries with lower inflation volatility. This has limited the downward pressure on wages during the period of very low inflation in 2014–16, leading to a significant increase in labor's share of the national income. While there has been an episode of wage growth leading inflation before the GFC, the current simultaneous acceleration in prices and wages is not evidence of a developing wage-price spiral, as a significant share of the increase in inflation is due to exogenous factors.

20. Unemployment and other metrics of labor market slack are low. This removes a factor that has contributed to low wage growth elsewhere in Europe (though in some other countries, e.g., Germany, wage growth has been modest despite low unemployment). At the same time, labor market frictions do not appear to have increased, and labor force participation has reached levels of western peers, suggesting that the scope for further increases is becoming more limited. These developments imply that labor market developments will likely further exert upward pressure on wages.

21. The productivity slowdown after the GFC has led only to a modest adjustment in wage growth. While labor productivity has a significant influence on wages in the EU15, the link in Estonia and other NMS is weaker. To some extent, this may reflect a possibly greater degree of labor hoarding in economies that are relatively small and on a convergence path, and which tend to be more volatile in terms of output growth than their EU 15 peers. Such hoarding could explain some of the productivity slowdown in recent years and, thereby, the divergence of wages from productivity. If this is the case, then productivity can be expected to pick up and the wage-productivity gap to narrow as the economy accelerates.

22. Idiosyncratic factors also play a role, but structural shifts account for a relatively small share of recent wage increases. Public sector pay is correlated with overall pay, in part because the public sector is sizable, but also because plays some benchmarking role. The association of minimum wage increases with overall pay appears to have weakened. Lastly, structural shifts are working both to raise (a declining gender pay gap, and a shift in the occupational structure of the economy) as well as to lower wage growth (increasing female labor force participation, increasing part-time work), but the total effect appears to be small.

Policy Options

23. There are a number of policy options to bring wage growth more in line with productivity. However, none alone is likely to prove decisive; hence it is important to pursue a package of measure addressing both wages and productivity.

- *Labor supply:* Strengthening labor supply could alleviate wage pressures stemming from a tight labor market, but options are limited. Existing measures could be reinforced, but are likely to hit limits: (i) further streamlining public sector employment to encourage people to seek employment in the private sector; and (ii) further raising labor force participation (though the current level, at 77 percent, is already among the highest in the EU, and part-time work is also relatively rare, including among women). Moreover, immigration policies could be relaxed further, but political constraints will likely limit this as well.

- *Wages:* The authorities' options in this area are circumscribed as well, since wages are negotiated by the social partners. The government may be able to influence wage settlements to some extent through its own remuneration policies, as well as its presence in minimum wage negotiations.

- *Productivity:* Raising labor productivity growth is key for continued convergence with Western Europe, which would eventually lead to wages catching up with those in EU15 countries. To this end, private sector capital investment needs to be encouraged, and public-sector investment raised. The latter would also be a means to raise the attractiveness of private investment, as public infrastructure should enhance the productivity of private investment. In this regard, adequate wage growth could also help trigger more investment if it forces employers to enhance productivity to stay competitive and/or shift into higher value-added activities. On the other hand, wage growth cannot be too high so as to deter investment. However, at the current

juncture, with the economy already operating above capacity, expansion of public investment would need to be offset by other measures. It is difficult to fine-tune the economy through public investments, which typically have long gestation and implementation periods. Therefore, fiscal demand management would need to focus on revenue and current spending measures, while investment would need to be raised.

- *Tax policies:* The tax system can be used to both dampen labor cost growth by reducing social security contributions and/or income taxes, and to support investment. In this regard, the recent income tax reform which has significantly reduced the tax burden on lower incomes is a good start. However, going forward, the effective progressivity of income taxation could be enhanced further. In implementing such policies, pro-cyclicality needs to be avoided: tax relief should, to the extent possible, be timed to coincide with a slowdown.

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PUBLIC EXPENDITURE EFFICIENCY IN ESTONIA[1]

This Selected Issues Paper assesses the efficiency and effectiveness of public expenditure in Estonia. It benchmarks Estonia's expenditure levels and composition against peers', and takes stock of spending outcomes. Although Estonia achieves a generally efficient use of public funds, structural reforms could provide efficiency gains in key areas such as social, health care, and education spending.[2]

A. Background

1. Estonia faces demographic challenges and structural impediments that hinder a speedier income convergence with Western Europe. Estonia has ample fiscal buffers that could help face future shocks: public reserves exceed gross debt, and the structural balance has been positive since 2009 and only turned into slight deficit in 2017. However, a comparatively low overall capital stock, and imminent and sizeable demographic shifts will impose spending pressures in the years to come.

2. Against this background, this SIP reviews Estonia's public expenditure to identify potential areas where reform may yield efficiency gains. To get a cross-country perspective, we undertake a benchmarking exercise to compare Estonia's public spending levels and composition against a set of relevant peers. To gauge the efficiency of public spending, and to identify possible reform areas, we further assess spending relative to outcome measures. Our analysis makes use of both, the economic expenditure classification, which, inter alia, helps assess the distribution of current versus investment spending, as well as the functional classification, which allows for an assessment of the achievement of policy objectives.

3. The authorities started conducting regular in-depth spending reviews in 2016. Full-blown spending reviews are much narrower in focus and thereby allow a more detailed analysis and scrutiny of the effectiveness of certain spending categories. The approach taken in this SIP is a much broader benchmarking exercise, which aims at identifying broad areas for potential efficiency gains. The results presented here should therefore not be seen as a replacement for detailed spending reviews.

B. Public Spending by Economic Classification

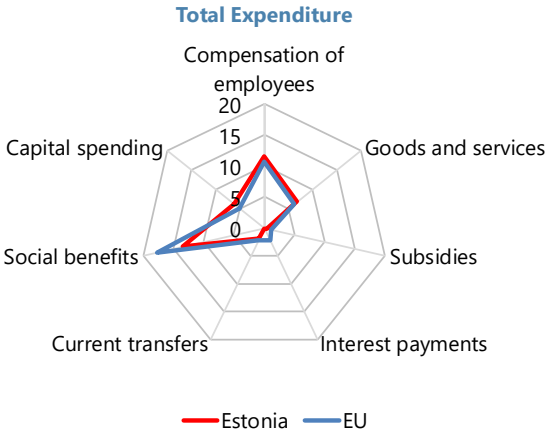
4. General government spending is below the EU average, but on par with CESEE countries. Estimated at 40 percent of GDP, total spending has increased by 3 percentage points over the period 2011–16, mostly driven by the public wage bill and social benefits. In the meantime, the EU and CESEE averages have decreased by 2.6 and 1.8 percentage points respectively. Estonia

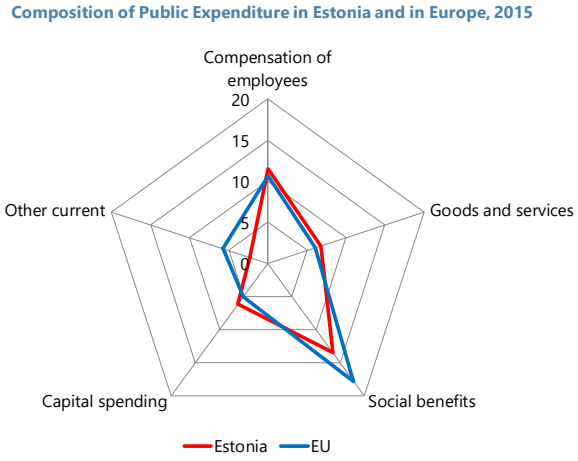
[1] Prepared by Andreas Tudyka. The author would like to thank the Estonian authorities, and the participants of a seminar at the Central Bank of the Republic of Estonia, and the IMF's Fiscal Affairs Department and in particular Mercedes Garcia-Escribano, and Maximilien Queyranne for helpful comments and suggestions.

[2] The analysis in this SIP is based on the Expenditure Assessment Tool (EAT) and the European expenditure template developed by the IMF's Fiscal Affairs Department (Liu and Garcia-Escribano, 2017).

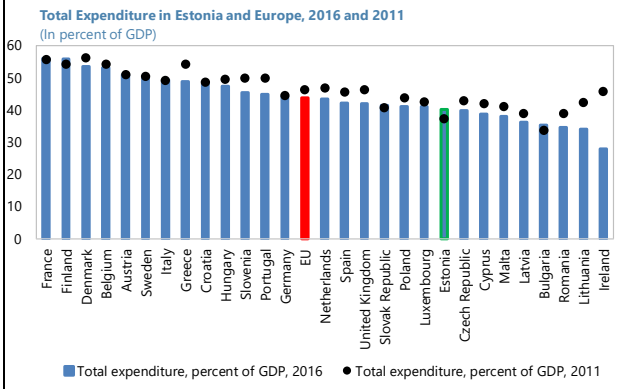
ranks well below the EU average in terms of overall public spending as a share of GDP (Table 1). Spending is mostly driven by current spending, particularly compensation of employees and social benefits. Estonia's low level of public debt translates into equally low interest payments, which provides fiscal space relative to peers. Spending on compensation of employees, goods and services and public investment is above the EU average, while social benefit spending is below the EU average (Figure 1).

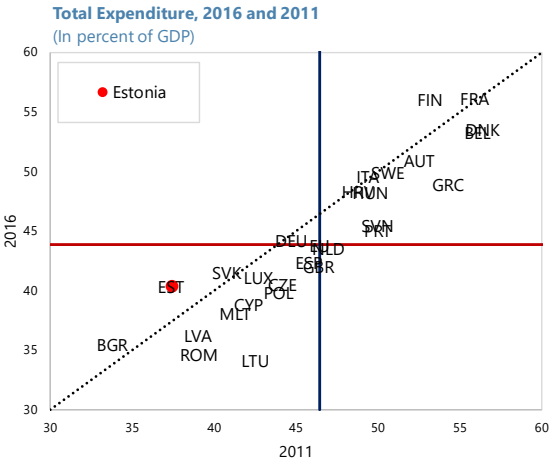
Figure 1. Public Expenditure in Estonia and Europe





Note: Other current spending = current spending - compensation of employees - goods and services - social benefits.





Note: Solid lines are EU.

Sources: Eurostat and IMF staff calculations.

Table 1. General Government Expenditure by Economic Classification

Estonia	2011	2012	2013	2014	2015	2016	Difference (2011-2016)
			(percent of GDP)				(ppts of GDP)
Total expenditure	37.4	39.3	38.5	38.5	40.4	40.4	3.0
Current spending	33.0	32.1	32.3	32.4	34.2	35.2	2.2
Compensation of employees	10.7	10.3	10.6	10.9	11.5	11.8	1.1
Goods and services	6.6	6.6	6.6	6.7	6.8	7.0	0.4
Interest payments	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Subsidies	1.0	0.9	0.7	0.5	0.4	0.4	-0.6
Current transfers	1.7	1.7	1.9	1.7	1.9	1.9	0.2
Social benefits	12.9	12.5	12.4	12.5	13.5	14.0	1.1
Capital spending	5.8	7.2	6.4	6.1	6.2	5.3	-0.5
Gross fixed capital formation	4.9	6.4	5.5	5.3	5.4	4.8	-0.1

EU	2011	2012	2013	2014	2015	2016	Difference (2011-2016)
			(percent of GDP)				(ppts of GDP)
Total expenditure	46.4	46.4	46.8	46.2	45.4	43.9	-2.6
Current spending	41.2	41.3	41.4	40.9	40.2	39.9	-1.3
Compensation of employees	11.1	11.0	11.0	10.9	10.7	10.7	-0.4
Goods and services	6.3	6.2	6.2	6.2	6.1	6.0	-0.3
Interest payments	2.5	2.5	2.5	2.3	2.2	2.0	-0.5
Subsidies	1.2	1.2	1.2	1.2	1.2	1.2	0.0
Current transfers	2.1	2.2	2.3	2.2	2.2	2.2	0.1
Social benefits	17.9	18.1	18.2	18.0	17.8	17.7	-0.2
Capital spending	5.2	4.9	5.3	5.2	5.0	3.9	-1.3
Gross fixed capital formation	3.7	3.6	3.5	3.6	3.9	3.0	-0.7

CESEE	2011	2012	2013	2014	2015	2016	Difference (2011-2016)
			(percent of GDP)				(ppts of GDP)
Total expenditure	41.8	40.8	40.8	41.2	41.7	40.0	-1.8
Current spending	35.8	35.5	35.8	35.5	35.5	35.6	-0.1
Compensation of employees	9.7	9.5	9.7	9.7	9.9	10.0	0.3
Goods and services	6.3	6.1	6.2	6.2	6.3	6.1	-0.2
Interest payments	1.9	2.0	1.9	1.8	1.7	1.6	-0.3
Subsidies	1.1	1.1	1.1	1.0	1.0	0.9	-0.2
Current transfers	1.8	2.0	2.1	2.0	2.2	2.3	0.5
Social benefits	15.0	14.7	14.8	14.7	14.5	14.7	-0.3
Capital spending	6.2	5.4	5.1	5.8	6.1	4.4	-1.8
Gross fixed capital formation	4.5	4.3	4.2	4.5	5.1	3.4	-1.1

EM	2011	2012	2013	2014	2015	2016	Difference (2011-2016)
			(percent of GDP)				(ppts of GDP)
Total expenditure	43.1	42.0	42.6	43.4	43.3	41.5	-1.6
Current spending	36.8	36.9	37.5	37.1	36.9	36.7	-0.1
Compensation of employees	9.9	9.8	10.0	9.9	10.0	10.1	0.2
Goods and services	6.4	6.4	6.5	6.5	6.4	6.2	-0.1
Interest payments	2.4	2.7	2.5	2.4	2.3	2.1	-0.3
Subsidies	1.2	1.2	1.2	1.2	1.2	1.0	-0.3
Current transfers	1.8	2.0	2.1	2.0	2.3	2.5	0.7
Social benefits	15.1	14.9	15.1	15.1	14.7	14.8	-0.3
Capital spending	6.2	5.2	5.2	6.4	6.5	4.8	-1.4
Gross fixed capital formation	4.4	4.1	4.2	4.6	5.2	3.2	-1.2

Note: Capital spending inlcudes gross capital formation and capital transfers.
Sources: Eurostat and IMF staff calculations.

Wage Bill

5. The size of the wage bill is close to the European average, but employment levels are relatively high. At 10.8 percent of GDP in 2015, the wage bill is only slightly higher than the European average (Figure 2), and about 1.3 percentage points higher than the CESEE average. However, at 16.4 percent of the working age population, general government employment levels are significantly higher than the European and CESEE averages of 11.9 and 11.4 percent respectively in 2015. At the same time, average wages in the public sector are relatively low as evidenced by a negative public-private wage premium gap (IMF, 2016a, 2016b).[3] This could limit the public sector's ability to attract and retain qualified staff, while severely increasing the overall wage bill should the gap narrow going forward.

6. Reducing general government employment could boost labor supply, alleviating pressures stemming from demographic headwinds and an already tight labor market. Labor force participation, currently at about 77 percent, is one of the highest in the EU. Unemployment has decreased to very low levels by historical standards (5.8 percent in 2017) and wage growth has consistently been high, outpacing labor productivity growth in the past years. This has led to rising unit labor cost, which could affect Estonia's competitiveness (Figure 2). At the same time, Estonia, like many other CESEE countries, is facing severe demographic headwinds making policies aimed at alleviating labor market tightness even more important.

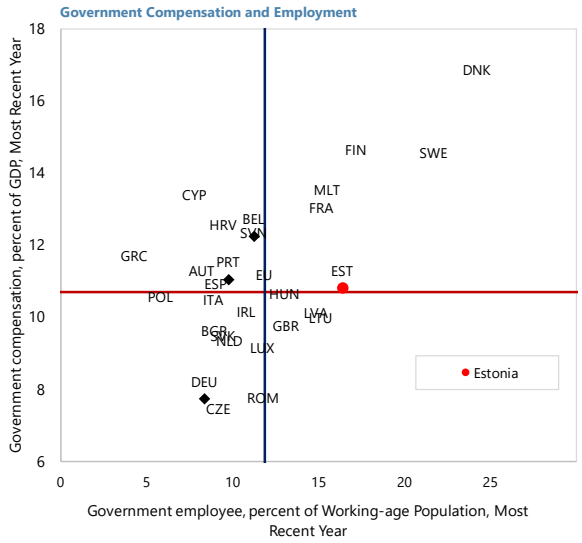
7. Ongoing public-sector reforms should be complemented with further structural measures. A policy to shrink the size of the government sector, targeting a yearly staff reduction of 0.7 percent is in place, and has been overachieved in 2016.[4] However, there seems to be room for a faster reduction that would free up labor resources for the private sector. For example, cross-country studies provide evidence of effective policies, such as rationalizing the size and structure of government, outsourcing non-core functions, and improving service efficiency and hiring processes (IMF, 2014). Moreover, downsizing that is part of a reorganization of government services and that targets specific positions and functions, would likely be more successful in achieving permanent reductions in employment than untargeted, across-the-board employment cuts. The literature on civil service reform also suggests that voluntary departure schemes have not been very effective, as they suffer from adverse selection problems (Haltiwanger and Singh, 1999; OECD, 2011; Holzman and others, 2011).

[3] Public-private wage differential (as a percent of private wage): based on a review of regression studies that control for skill differentials between the public and private sector. Numbers are calculated by taking the within-country average over time.

[4] The government has pledged to keep government employment in full-time equivalent terms pegged at 12 percent of the population aged 15–74 years.

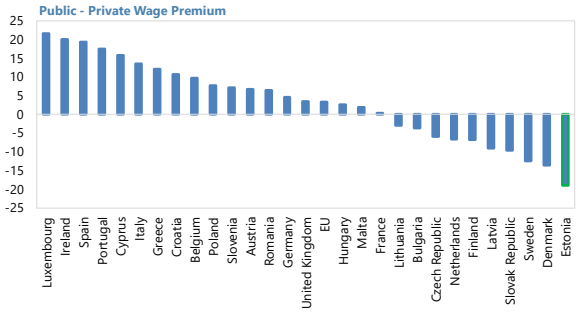
Figure 2. Public Sector Wage Bill, Employment and Labor Market Implications

General government employment is relatively high…



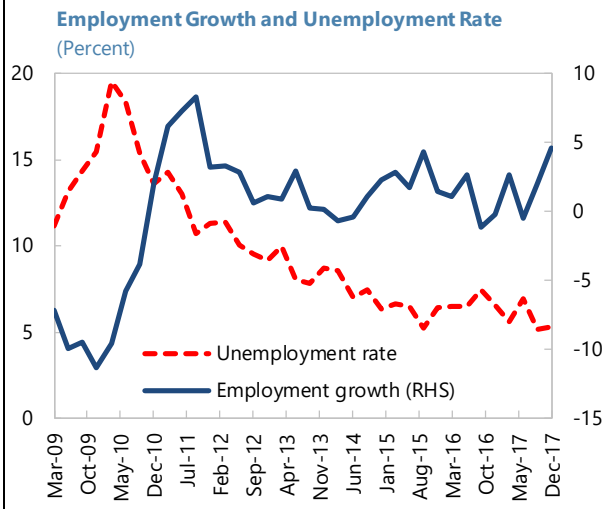
Note: solid lines are EU.

…while wages in the public sector are relatively low

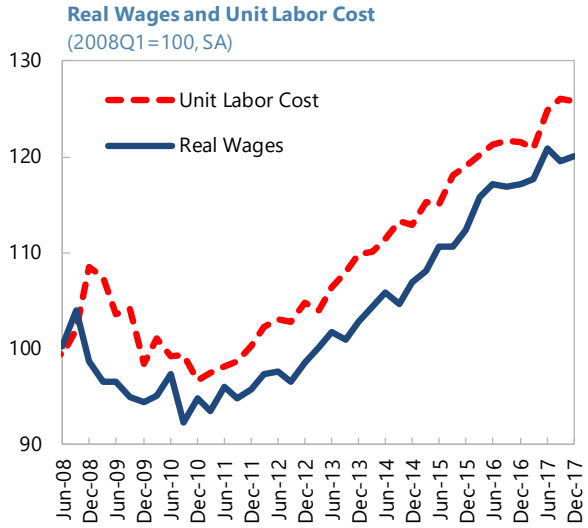


1/ Public - private wage differential (as a percent of private wage): based on a review of regression studies that control for skill differentials between the public and private sector. Numbers are calculated by taking the within-country average over time.

Unemployment is at historical lows…



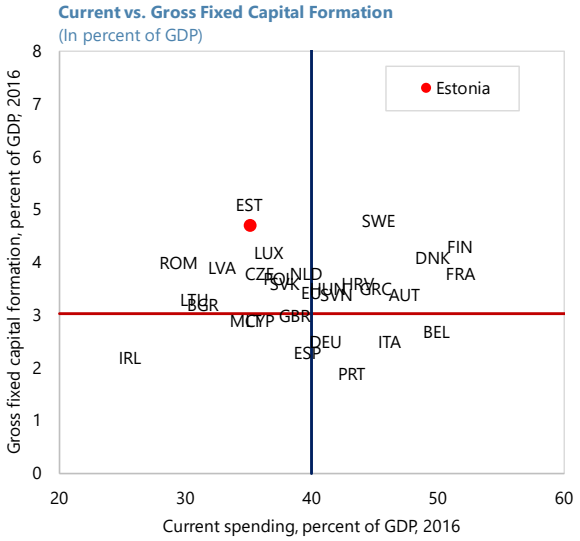
and wages have been rising rapidly.



Sources: Statistics Estonia, IMF Government Wage Bill and Employment Dataset, and IMF staff calculations.

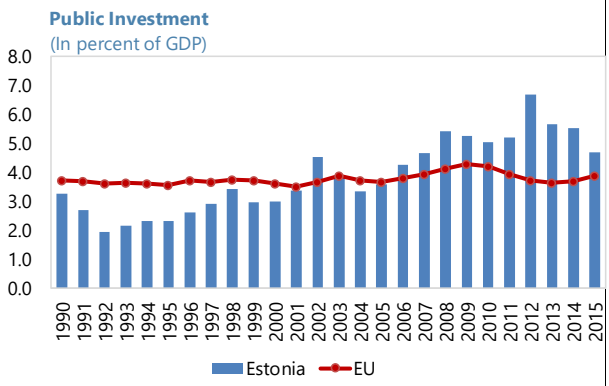
Figure 3. Public Investment, Capital Stock, and Infrastructure Quality

Public investment is high by European standards…

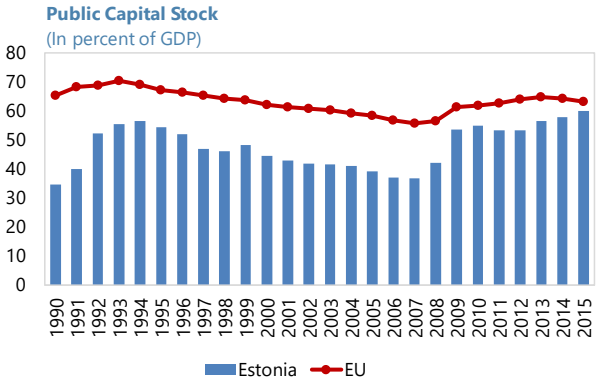


Note: Solid lines are EU.
Sources: Eurostat and IMF staff calculations.

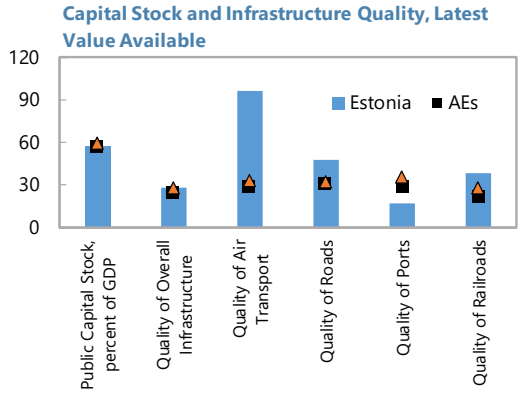
…and has been so for a decade.



The public capital stock will soon have caught up with the EU average…



…and is perceived to be of good quality overall, with the exception of ports.



Ranking: 1 = best, 144 = worst

Sources: Eurostat, IMF FAD Expenditure Assessment Tool (EAT), World Economic Outlook, World Development Indicators, IMF Investment and Capital Stock Dataset, World Economic Forum, and IMF staff calculations

Public Investment

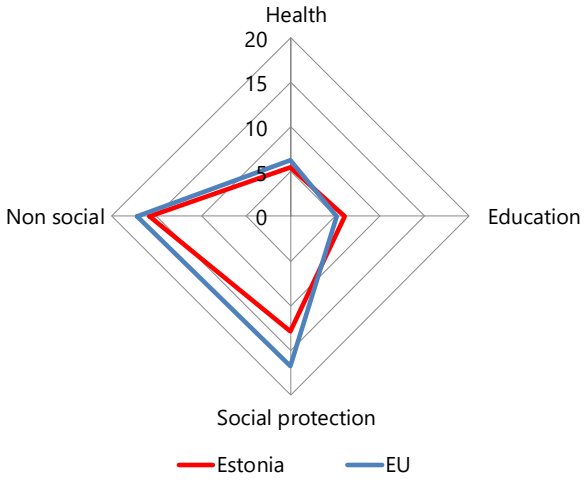
8. Public investment is higher than in most European countries, which is reflected in comparable levels of the perceived quality of the capital stock. Over the past decade, Estonia has consistently had higher public investment rates than the EU as well as CESEE averages, reaching over 5 percent of GDP in 2017.[5] The public capital stock still needs some 3 percentage points to catch up with the European average, estimated at about 63 percent of GDP in 2015, while having been 3 percentage points above the CESEE average. The quality of the overall capital stock and infrastructure are perceived to be about the same as for the OECD average, while the quality of air transport, roads and railroads are perceived to be lower. The quality of ports is the only category, in which Estonia scores higher than either the OECD or advanced economies averages (Figure 3).

9. The policy focus should lie on preserving efficiency in public investment. Due to high public investment rates, supported by EU structural funds, Estonia's public capital stock will soon have caught up with the EU average. As such, particular focus should be given to preserving efficiency through tight project management and stronger prioritization to avoid leakages and inefficiencies. In addition, attention should be shifted to guaranteeing a sufficient level of maintenance spending in the medium term.

C. Public Spending by Functional Classification

10. Relatively low public spending is reflected across most functional categories. Estonia spent more than the EU average in only the three categories defense (0.7 percentage points of GDP), recreation, culture and religion (0.8 percentage points of GDP), and education (0.9 percentage points of GDP) in 2015 (Table 2). Similar magnitudes apply to CESEE and Emerging Market country averages. Expenditure is particularly lower than the EU average for general public services (2.1 percentage points of GDP), health (0.8 percentage points of GDP), and social protection (3.9 percentage points of GDP). However, the simple comparison with other countries may mask the underlying efficacy of spending in the different categories. The following sections will therefore undertake an outcome-based investigation to identify potential efficiency gains.

Composition of Public Expenditure in Estonia and in Europe, 2015



Note: Non-social spending = total spending - education - health - socal protection.
Sources: Eurostat and IMF staff calculations.

[5] Estonia is a major recipient of the European Structural and Investment (ESI) Funds (European Regional Development Fund, European Social Fund, Cohesion Fund, European Agricultural Fund for Rural Development, European Maritime and Fisheries Fund) and is allocated EUR 4.5 billion during the 2014–20 budget period.

Social Protection

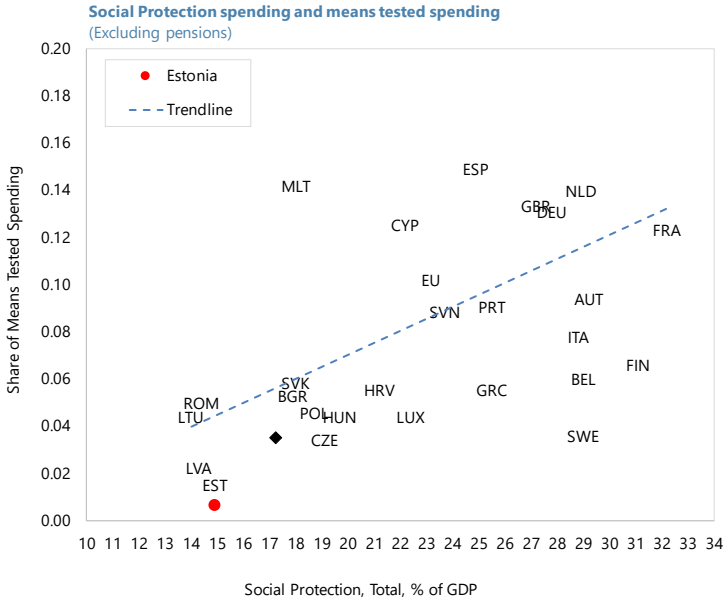
11. Low fiscal redistribution is partly responsible for poor social outcomes. The share of the most vulnerable households at the lower end of the income distribution, reflected by the at-risk-of-poverty rate after social transfers, was the highest in Europe for the elderly, and above the EU average for the non-elderly in 2015 (Figure 5). Comparing the improvement of the Gini index induced by the redistribution effect of social spending, Estonia ranks in the bottom quartile in the reduction of income inequality in a ranking of EU countries, slightly lower than the CESEE average.[6] With about 70 percent, pensions contribute the bulk of this reduction, which is about 15 percentage points higher than in the EU, but similar to the CESEE average. Direct taxes and social contributions reduce inequality less than the EU average, while means-tested social transfers contribute less to reduce inequality than in any other country in the EU. Nevertheless, the amount of income inequality reduction achieved by 1 percent of GDP of social spending is above the EU average, but slightly below the CESEE average (Figure 5).

Contributions to Decrease in Gini
(In percent)

	Pensions	NMT	MT	DT	SC
Estonia	69.4	10.5	4.0	14.4	1.6
EU	54.9	10.0	13.4	17.0	4.7
CESEE	67.8	8.1	7.6	10.7	5.8

Note: SC= Social Contributions; DT=Direct Taxes; MT=Means -tested social spending; NMT=Non-means-tested social spending.
Sources: Euromod and IMF staff calculations.

12. Expanded active labor market policies and improved targeting the poor could lead to better social outcomes, while the scope for increased means testing appears limited. Only about 1 percent of social protection spending is means-tested compared to the EU and CESEE averages of 9.4 and 3.5 percent, respectively. However, careful design of means-tested benefits is necessary to avoid disincentives to work and welfare dependency. This can be achieved through a greater use of in-work benefits and by expanding the role of active labor market programs and strengthening their link to social assistance benefits (IMF, 2012).



[6] The Gini index reduction measure of efficiency, calculated by Eurostat using EUROMOD, compares the market income (pre-redistribution, i.e., pre-tax-and-transfer) Gini index with the disposable income (post-redistribution, i.e., post-tax-and transfer) Gini index concentration of income inequality. At a maximum concentration, the index is 1, at absolute equality of incomes it is zero.

Table 2. General Government Expenditure by Functional Classification

Estonia	2011	2012	2013	2014	2015	Difference (2011-2015)
			(percent of GDP)			(ppts of GDP)
Total expenditure	37.4	39.3	38.5	38.5	40.3	2.9
General public services	3.5	4.1	4.1	4.1	4.3	0.8
Defence	1.5	1.8	1.8	1.8	1.9	0.4
Public order and safety	2.1	2.0	1.9	1.9	1.8	-0.3
Economic affairs	4.5	4.7	4.7	4.8	4.8	0.3
Environment protection	-0.3	0.8	0.6	0.6	0.7	1.0
Housing and community amenities	0.5	0.6	0.5	0.4	0.4	-0.1
Health	4.9	5.0	5.0	5.2	5.5	0.6
Recreation, culture and religion	1.9	1.7	2.0	2.0	2.0	0.1
Education	6.2	6.3	6.0	5.7	6.1	-0.1
Social protection	12.6	12.3	11.9	12.0	12.9	0.3

EU	2011	2012	2013	2014	2015	Difference (2011-2015)
			(percent of GDP)			(ppts of GDP)
Total expenditure	46.4	46.3	46.7	46.2	45.4	-1.1
General public services	6.7	6.9	6.8	6.7	6.4	-0.3
Defence	1.2	1.2	1.2	1.1	1.2	-0.1
Public order and safety	1.8	1.8	1.8	1.8	1.8	-0.1
Economic affairs	5.2	5.0	5.4	5.3	5.1	-0.2
Environment protection	0.7	0.8	0.8	0.8	0.8	0.1
Housing and community amenities	0.8	0.7	0.7	0.7	0.7	-0.1
Health	6.4	6.4	6.3	6.3	6.3	-0.1
Recreation, culture and religion	1.2	1.2	1.2	1.2	1.2	0.0
Education	5.4	5.3	5.3	5.2	5.2	-0.3
Social protection	16.9	17.1	17.2	17.0	16.8	-0.1

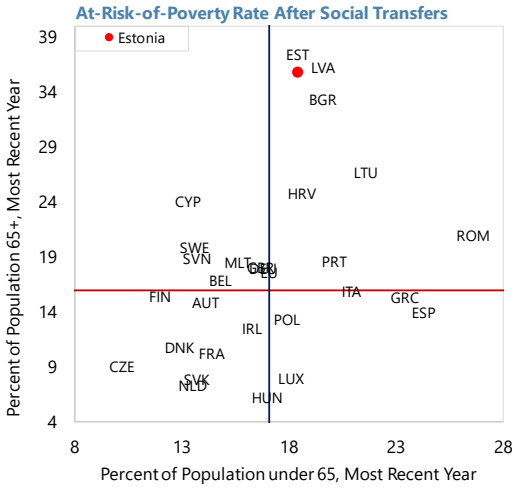
CESEE	2011	2012	2013	2014	2015	Difference (2011-2015)
			(percent of GDP)			(ppts of GDP)
Total expenditure	41.8	40.8	40.8	41.1	41.5	-0.3
General public services	5.4	5.6	5.8	5.5	5.6	0.1
Defence	1.2	1.1	1.1	1.1	1.2	0.0
Public order and safety	2.1	2.0	2.1	2.0	2.1	0.0
Economic affairs	6.0	5.3	5.2	5.6	5.5	-0.5
Environment protection	0.7	0.8	0.7	0.7	0.8	0.1
Housing and community amenities	0.9	0.8	0.8	0.9	0.9	0.0
Health	5.5	5.4	5.4	5.5	5.6	0.2
Recreation, culture and religion	1.3	1.3	1.3	1.4	1.4	0.2
Education	5.0	4.8	4.8	4.8	4.9	-0.2
Social protection	13.8	13.6	13.6	13.5	13.4	-0.4

EM	2011	2012	2013	2014	2015	Difference (2011-2015)
			(percent of GDP)			(ppts of GDP)
Total expenditure	43.0	42.0	42.6	43.2	43.0	-0.1
General public services	6.4	6.3	6.6	6.3	6.2	-0.2
Defence	1.3	1.1	1.2	1.2	1.2	-0.1
Public order and safety	2.2	2.2	2.2	2.2	2.3	0.1
Economic affairs	6.2	5.8	5.7	6.3	5.9	-0.3
Environment protection	0.7	0.6	0.7	0.7	0.8	0.1
Housing and community amenities	1.1	0.9	1.0	1.1	1.2	0.2
Health	4.9	5.0	5.0	5.2	5.3	0.4
Recreation, culture and religion	1.2	1.3	1.2	1.4	1.5	0.4
Education	4.6	4.3	4.3	4.4	4.4	-0.1
Social protection	14.6	14.5	14.6	14.4	14.2	-0.4

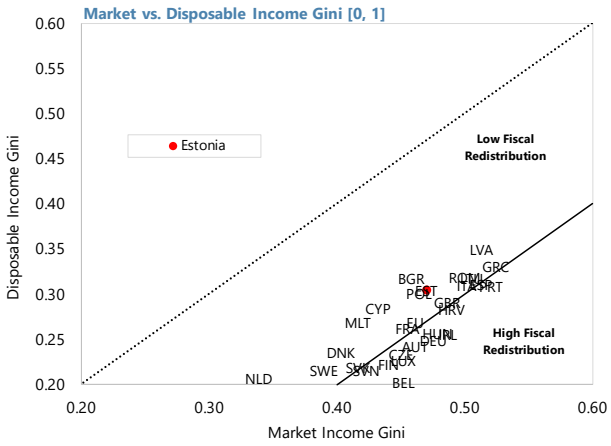
Sources: Eurostat and IMF staff calculations.

Figure 4. Social Outcomes

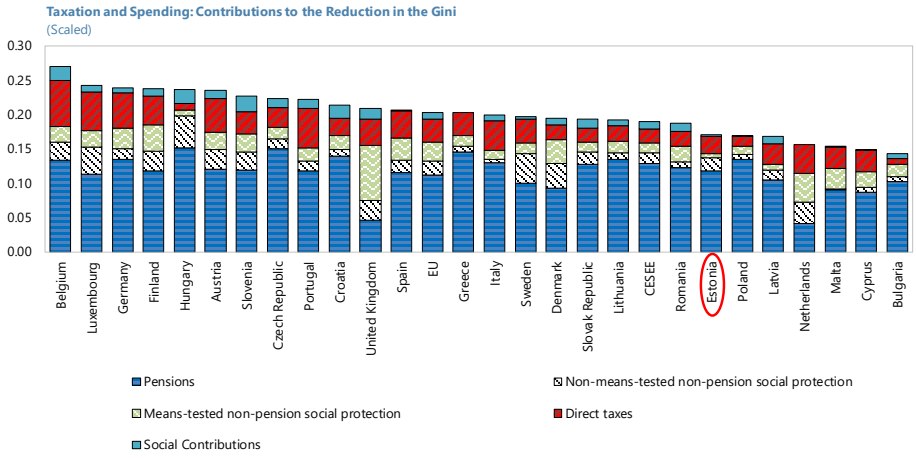
The share of the at-risk-of-poverty elderly is high...



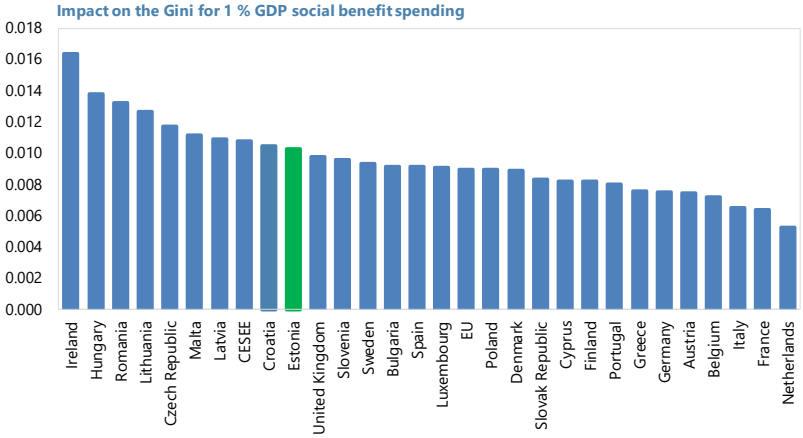
... while the social protection0induced reduction inequality is low.



The level of fiscal distribution is low...



... but the redistribution impact of social spending is relatively high.



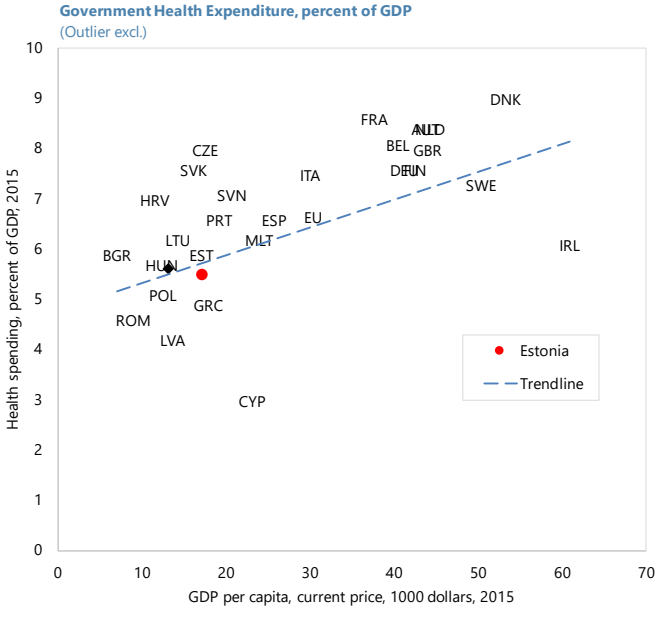
Sources: Eurostat and IMF staff calculations.

On the flipside, the effectiveness of increased means testing may prove limited as the share of social transfers after pensions and family benefits is only about 20%. Administrative cost of means-testing should also be considered. On the spending side, priority may be given to improving social safety nets and increasing social transfers, especially for the elderly as public pensions, being the most redistributive tool in Estonia, do not provide sufficient replacement income to protect against the risk of poverty. This is reflected in a comparatively low benefit ratio (around 30 percent), which is expected to further decline in the medium to long run (Carone et. al., 2016).[7]

13. Reforms to improve the income redistribution are underway. As part of the income tax reform, the 2018 budget includes an increase of the basic allowance to the level of the minimum wage of EUR 500——about 55 percent of the average wage. It will increase the disposable incomes of workers in the lower segment of the income distribution. In particular, the authorities estimate the new basic allowance to increase the net wage of low wage workers up to 15 percent. Overall, the change in the basic allowance is estimated to generate a revenue loss of around 0.8 percent of GDP in 2018. A planned pension reform is aimed at preventing old-age poverty by guaranteeing a minimum pension. Main elements of the reform include: (i) shifting the calculation basis for the first pension pillar, financed out of social tax revenue, from level of income to years worked by 2037; (ii) tying the national retirement age to the average life expectancy in 2027; and (iii) abolishing special pensions of certain groups by 2020. The government also increased monthly benefits for families with many children in July 2017 to an additional EUR 300 for families with three children, and EUR 400 for families with seven or more children.

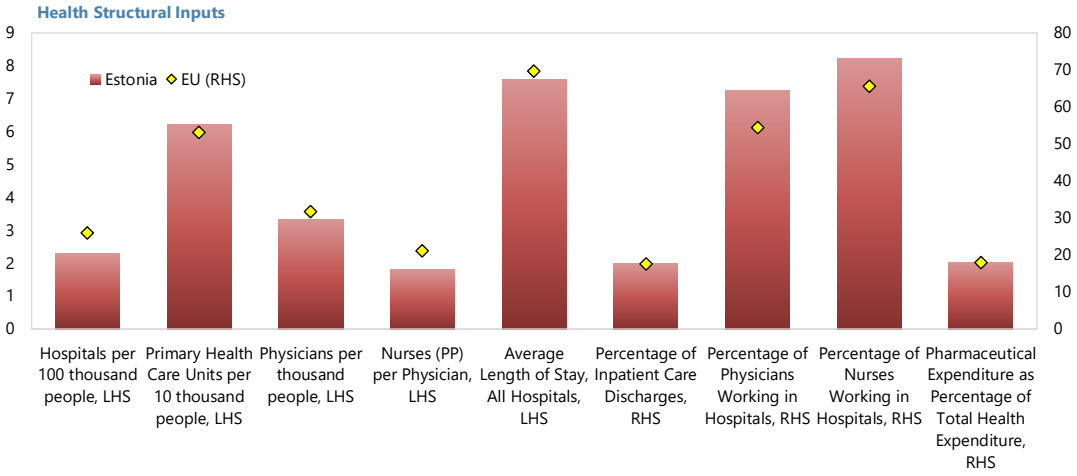
Health

14. Health spending is currently low, but mounting demographic pressures will likely lead to longer-term cost pressures. At about 5.5 percent of GDP in 2015—about ½ percentage point higher than in 1990—health spending is about ¾ of a percentage point of GDP lower than the EU average, but on par with the CESEE average. In PPP-adjusted terms, Estonia spent about USD 1,670 while the EU average was about USD 3,100 in 2014. However, the projected increase in the old-age dependency ratio from 28 percent in 2013 to 54 percent by 2060 (EC, 2015) will likely exert upward pressure on spending considering the high cost of treating the elderly, in particular as advances in health-care technology introduce better, but more costly treatment options and health care demand is typically very responsive to income growth.



[7] Occupational and private individual schemes that may help support retirees' income are excluded.

15. The share of doctors and nurses working in hospitals is comparatively high. With 65 percent, the share of doctors working in hospitals is about 10 percentage points higher than the EU average (7 percentage points higher than CESEE), while the share of nurses is about 8 percentage points higher (10 percentage points higher than CESEE). Hospital services are generally costlier than, for example, primary care services.



Source: World Health Organization

16. An assessment of Estonia's health outcomes using WHO data indicates that there is room for improvement. The Health-Adjusted Life Expectancy (HALE) at birth is about 69 years compared to over 70 years for the EU average, but is higher than in the three Baltics (Latvia 67 years; Lithuania 66 years) (Figure 6).[8] Few countries achieve a similar or higher outcome with a lower per capita spending. Nevertheless, WHO data show that there is room for improvement in some areas: crude deaths exceed the EU average by about 20 percent, diseases of the circulatory system, and ischemic heart diseases both by about 37 percent, external injuries/poisoning by about 59 percent, alcohol-related diseases by about 45 percent, and smoking-related diseases by about 10 percent. This is also reflected in the self-perceived level of good health as reported by Eurostat, which is lower in the category "Good or very good" than to the EU average for all income levels. Moreover, health outcomes are not evenly distributed within the population as the self-perceived level of good health comes close to the EU average only for the richest two quintiles.

[8] HALE adjusts standard life-expectancy measures for severity of illnesses and quality of life factors. Other factors, such as the quality of the health care environment and financial risks, are not taken into account.

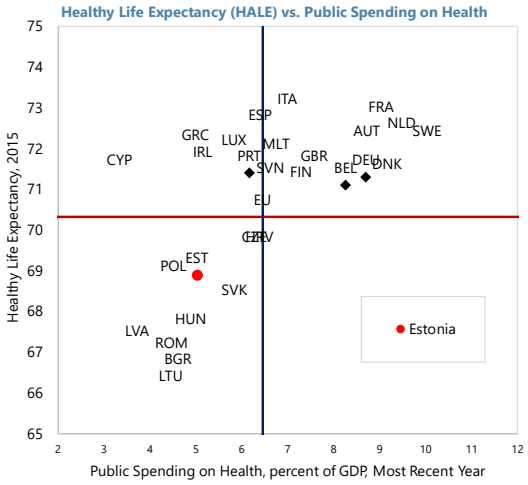
17. A Data Envelopment Analysis[9] also suggests that further efficiency gains are possible. The distance to the efficiency frontier, i.e. to the best-in-class result for a given level of spending, is about 4 years of HALE. Many of the causes of poor health outcomes, which are mainly driven by behavioral health risks could be addressed by strengthening the primary health care system and through an effective public health intervention and prevention agenda (OECD, 2017). Consequently, a considerable share of acute inpatient care could be shifted to more suitable (and lower cost) settings (World Bank, 2015), for example, by reducing the excessive reliance on the hospital sector, which generally proves costlier than primary care. Also, medical training could (i) move away from narrow disease-oriented specialization to teaching more general skills, and (ii) intensify the promotion of continuous education as a way of re-skilling the workforce (OECD, 2017). However, a declining working-age population will make increasing the efficiency, while ensuring the sustainability of the health system, challenging as the health system is mainly financed through payroll taxes. This also applies to guaranteeing a sufficient level of qualified human resources, in particular as the ratio of nurses to doctors in the health care system is still below the EU average (Figure 6).

18. Ongoing reforms are, inter alia, seeking to consolidate the hospital system. Since 2014 efforts have been made to create networks between regional and general hospitals to share access to specialist expertise and resources. A [limited number] of networks was operating in 2017. Moreover, recent excise tax hikes on tobacco and alcohol were aimed at changing risk behaviors and investments in e-health systems are aimed at creating efficiency gains. Guaranteeing a sufficient level of human resources has partly been addressed by increasing the role of nurses and midwives.

[9] Developed by Farrell (1957), see also Charnes, Cooper, and Rhodes (1978). This approach relies on the calculation of a 'best practice' frontier comprising countries which display the optimal combination of inputs and outcomes. The distance from the frontier provides for all countries an efficiency score that can be used to estimate potential gains by improving efficiency to best-performer levels. The bigger the distance to the efficiency frontier, the more inefficient a country is in providing health services. DEA calculation outcomes are influenced by sample selection and measurement issues, and outliers can have a substantial impact on efficiency scores.

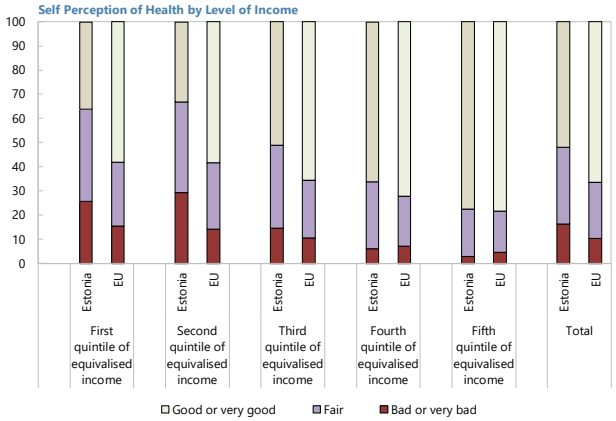
Figure 5. Health Outcomes

The Health-Adjusted Life Expectancy for the given level of spending is high, but not at the EU level.

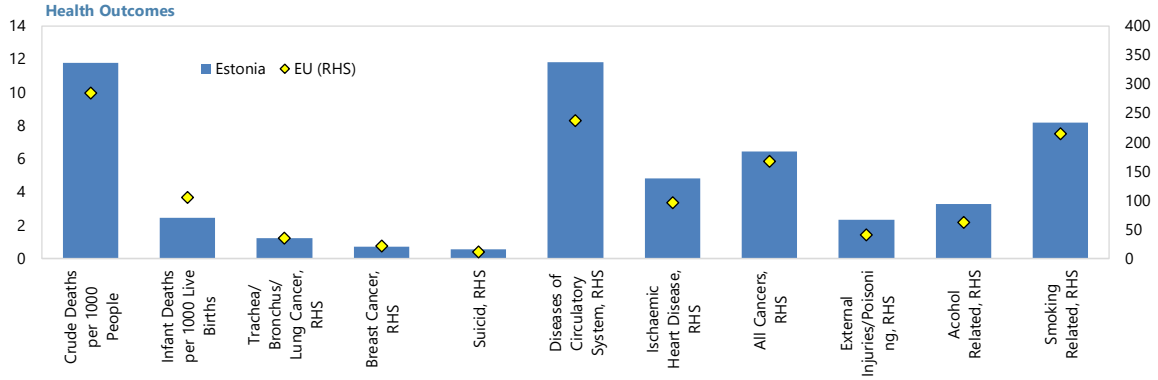


Note: solid lines are EU.

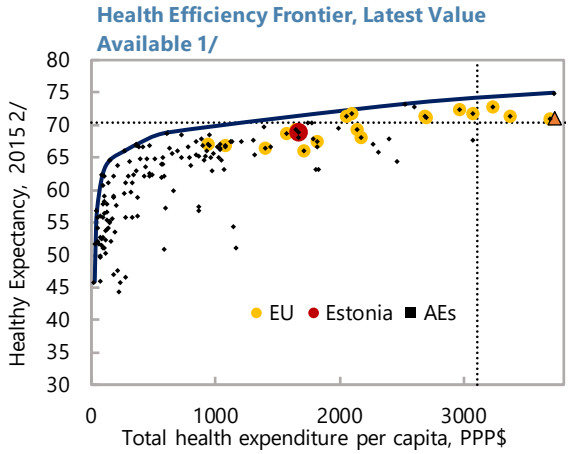
The self-perceived level of health is generally lower than in the EU, especially for lower income levels.



Many of the causes of poor health outcomes are mainly driven by behavioral health risk factors.



The distance to the efficiency frontier is about 4 years of HALE

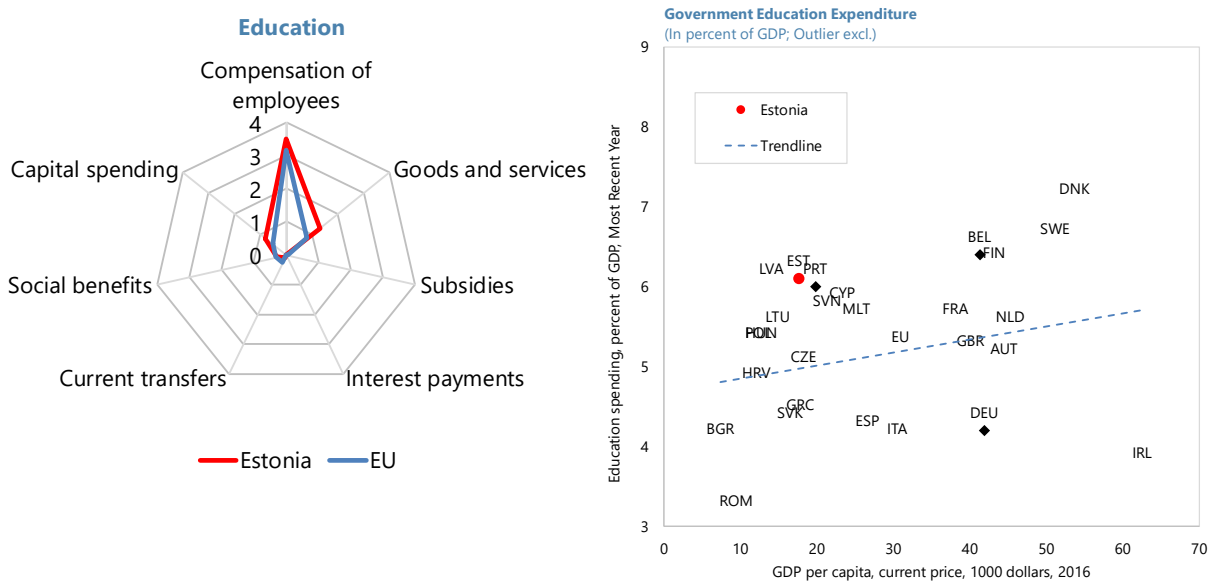


Sources: World Health Organization, Eurostat, and IMF staff calculations.

Education

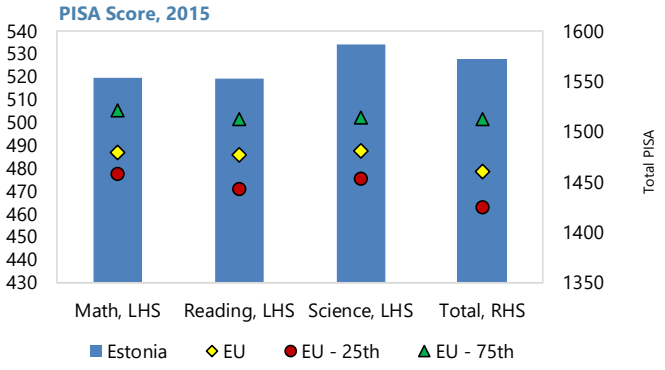
19. Controlling for income levels, education spending is high relative to the EU and CESEE averages. Education spending was about 0.9 and 1.2 percentage points of GDP higher than the EU and CESEE averages in 2015, respectively. Higher spending is also reflected across almost all education spending categories when compared to CESEE, and the difference with the EU being highest for Goods & Services (1.3 percent higher) and capital spending (0.8 percent higher) (Figure 7). The decline over the period 2010–15, however, was similar to the decline of the EU average (0.5 percentage points for Estonia vs. 0.4 for the EU) (Table 2).

Figure 6. Education Spending



Sources: Eurostat, World Economic Outlook, and IMF staff calculations.

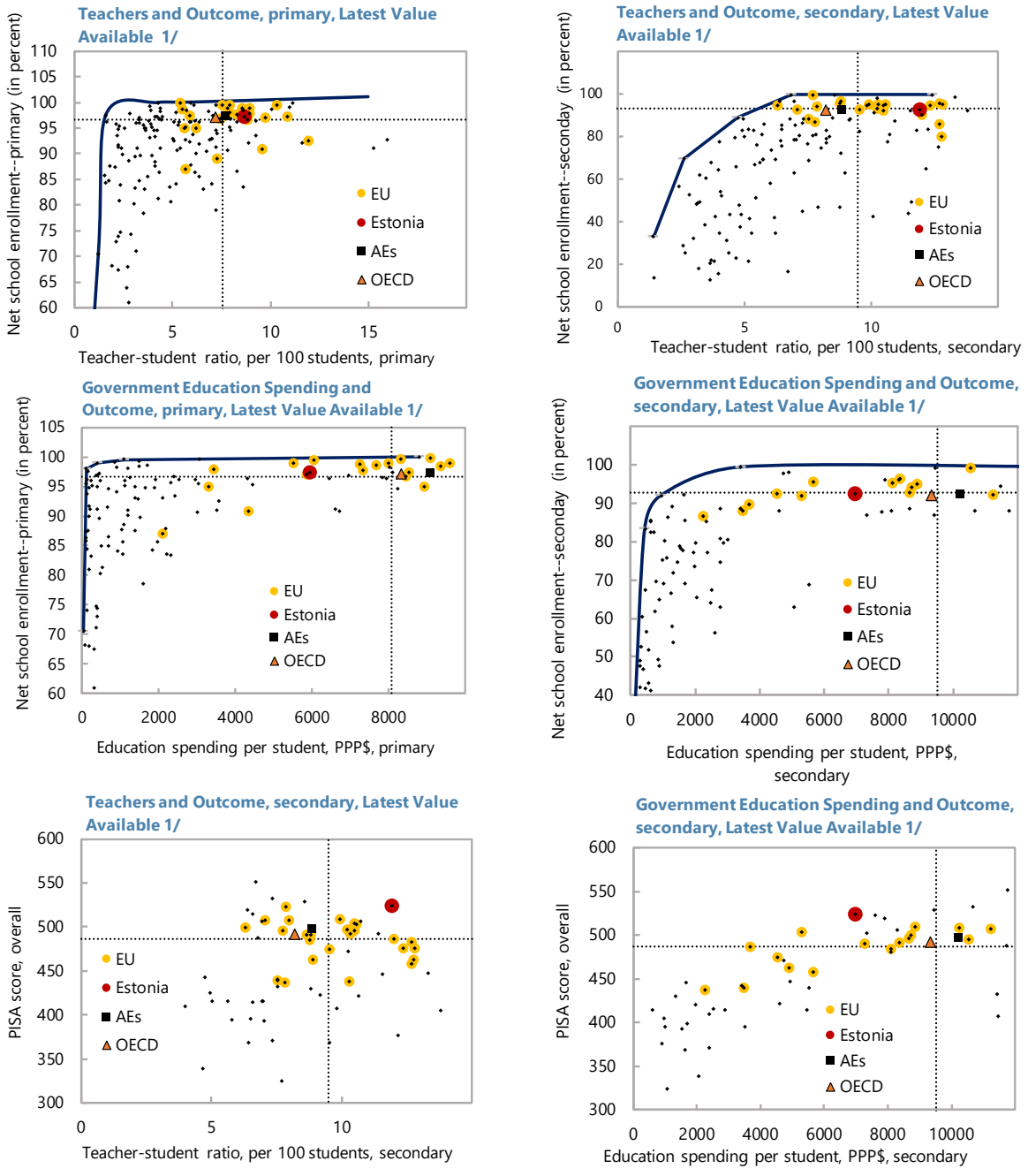
20. The high level of spending is reflected in high education outcomes. The teacher-student ratio exceeds the EU average by 1.1 for primary education and 2.4 for secondary education and the CESEE average by 1.5 and 2.1, respectively. The net school enrollment ratios are only slightly above the EU average and about 3 percentage points above the CESEE average for both primary and secondary education. Accordingly, the distance to the frontier is about 3 years for primary education and 7 years for secondary education in terms of net enrollment (Figure 7). Net school enrollment, given the current level of per student spending in PPP USD terms, is also still about 3 years away from the efficiency frontier for primary schooling and about 8 years for secondary schooling. In short, other countries achieve a higher net school



Sources: World Bank

enrollment with fewer resources. PISA scores on the other hand, are consistently higher than the 75th percentile of the EU and CESEE averages for all components of the overall score, i.e. math, reading and science.

Figure 7. Education Outcomes



Sources: IMF FAD Expenditure Assessment Tool (EAT) and World Bank.
1/ Dash lines are the average of EU.

21. Reform priorities should focus on increasing the efficiency of education spending in light of demographic challenges and economic needs. As education outcomes are good, reforms should focus on achieving efficiency gains in the supply of education services while maintaining a high level of education outcomes. Estonia also needs to further develop the skills required to become a technology-intensive economy (OECD, 2016). Teaching will also need to be made more attractive to avoid a future shortage of quality teachers, which is currently being addressed by the government through targeted wage increases for teachers. At the same time, Estonia's education system needs to adapt to the declining numbers of students, which will require redefining and coordinating the allocation of education resources.[10] However, the scope for savings through consolidation may be limited by the need to provide basic education within a reasonable commuting distance for students, requiring more teachers and schools per student in less populated areas. The education system should also aim to address mismatches between job needs and skills.

22. Recent reforms have changed teachers' remunerations to make the profession more attractive. Teachers' base salaries were changed from contact hours to general working time, and more autonomy was given to school principals to set the salary of individual teachers. Also, beginning with the 2013/2014 academic year, higher education was made free of charge for students studying full time in Estonian. Moreover, the government is implementing a reform to improve school-transport for students, which will help consolidate regional education supply. The ongoing administrative reform could also help municipalities organize their school systems more efficiently.

D. Policy Implications

23. Better outcomes should be achieved in a budget-neutral way where possible. Given already relatively low spending levels, improving social outcomes, in particular old-age poverty, may prove difficult to achieve only by cutting spending elsewhere. In combination with spending pressures, which will inevitably arise with an aging population, achieving better outcomes in a budget neutral way may necessitate broadening the tax base.

24. Estonia achieves a generally efficient use of public funds, with some key differences across sectors, but further efficiency gains are possible. With 40.4 percent of GDP Estonia ranked well below the EU average of 43.9 percent, but similar to the CESEE average in 2016. Spending is mostly driven by current spending, particularly compensation of employees and social benefits. Most outcome-based measures of the achievement of policy objectives indicate that public spending achieves satisfactory results, yet further reforms in the following areas could provide additional efficiency gains:

[10] The EC's *2015 Ageing report* projects substantial decrease in the number of students in primary education over the period 2013–60.

- Reducing general government employment could be done faster to free up labor resources for the private sector. This should be complemented with further structural measures.
- Particular focus should be given to preserving efficiency in public investment through tight project management and stronger prioritization to avoid leakages and inefficiencies.[11]
- Social spending could be made more efficient through better targeting the poor, greater use of in-work benefits and by expanding the role of active labor market programs and strengthening their link to social assistance benefits.
- Efficiency gains in the health sector can be achieved by rebalancing toward primary and preventive care, and shifting acute inpatient care to lower-cost settings, while ensuring the sustainability of the health system in light of demographic challenges.
- Reforms of the education sector should focus on achieving efficiency gains in the supply of education services while maintaining a high level of education outcomes. At the same time, Estonia's education system needs to adapt to the declining numbers of students.

[11] Also see the Selected Issues Paper "Public Investment Management in Estonia: Key Institutions and Reform Priorities."

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PUBLIC INVESTMENT MANAGEMENT IN ESTONIA: KEY INSTITUTIONS AND REFORM PRIORITIES[1]

Strong public investment management (PIM) institutions are critical to improving investment efficiency. This Selected Issues Paper (SIP) assesses key institutions involved in the PIM function in Estonia, examining salient features of these institutions against recommended practice. Several meet expected requirements, particularly those related to the implementation phase. Others could be strengthened, especially those related to the strategic planning, and resource allocation phases.

A. Background

1. Estonia plans to continue investing heavily to accelerate its development outcomes. Public investment has been kept high in Estonia over the years, with general government gross fixed capital formation exceeding 4.5 percent of GDP for more than a decade. The emphasis on investment has helped to address infrastructural impediments to competitiveness and growth, and improve social outcomes, but gaps remain. These are expected to be addressed by maintaining high levels of investment in coming years. The new government has announced additional investments of 0.5 percent of GDP annually for the next three years from 2018. A number of mega-projects are also in implementation or under consideration.[2]

2. This relatively high level of public investment is being implemented in the context of sustained fiscal discipline. In adherence with its fiscal rule, Estonia maintained a structural fiscal surplus since 2009 until 2016 and, despite recent loosening, the nominal deficit was contained to 0.3 percent of GDP in 2017 according to preliminary results. This has enabled it to remain the least indebted country in the EU, with gross public debt peaking at 10.7 percent in 2014 and reverting to 9 percent in 2017 (Figure 1). The commitment to preserve this strong fiscal performance, while investing heavily to accelerate development outcomes, reaffirms the importance of a supportive institutional framework for PIM.

3. Several initiatives are already underway to strengthen public financial management more broadly. The legal framework has been updated, with revisions made in recent years to the State Budget Act, the State Assets Act, the Local Government Financial Management Act, and the Public Procurement Act. Most recently, the State Budget Act was amended to address previous asymmetries in the fiscal rule. Following the introduction of accrual accounting across the public sector over a decade ago, the state budget was presented on the accrual basis for the first time in 2017. Program-based budgeting is being piloted, and full implementation of performance-based budgeting is targeted for 2020. Spending reviews are also being piloted, with the aim of increasing expenditure effectiveness and supporting policy prioritization. This reform agenda signals recognition of the importance of strong fiscal institutions.

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[1] Prepared by Ashni Singh. The author would like to thank the Estonian authorities and colleagues in the IMF's Fiscal Affairs Department, particularly Carolina Renteria and Christiane Roehler, for helpful comments.

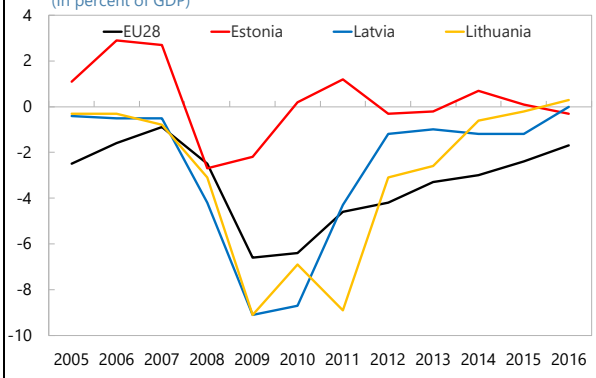
[2] These include Rail Baltic, whose capital cost is projected at €5.8 billion (25.2 percent of Estonia's 2017 GDP), of which Estonia's share is expected to be €1.35 billion (5.9 percent of GDP) partly to be met by EU grants under the Connecting Europe Facility.

Figure 1. Recent Trends and Developments

Estonia has outperformed the EU and the Baltic states in containing its fiscal deficit for many years…

General Government Deficit/Surplus

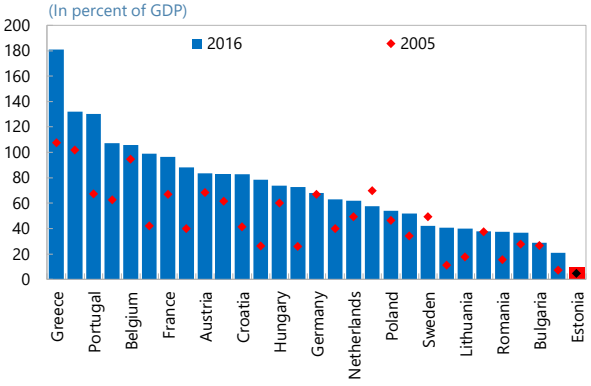
(In percent of GDP)



… thereby protecting its long-term status as the least indebted country in the region.

General Government Gross Debt

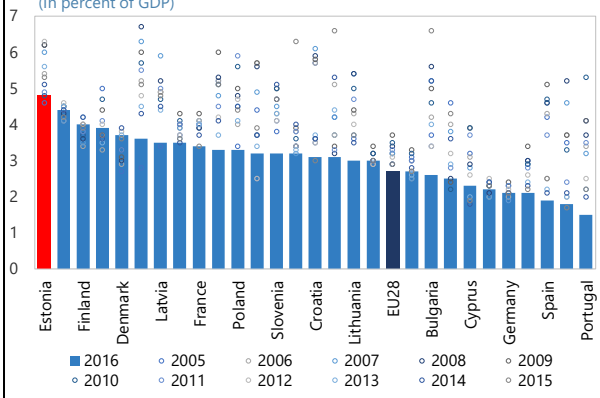
(In percent of GDP)



Public investment has been consistently at the high end of regional comparisons…

General Government Gross Fixed Capital Formation

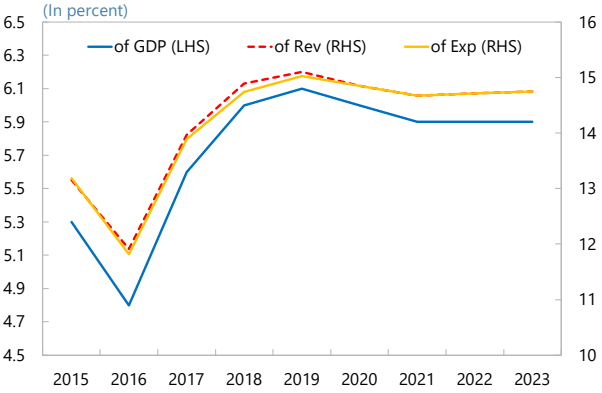
(In percent of GDP)



… and is projected to remain high.

General Government Fixed Capital Formation

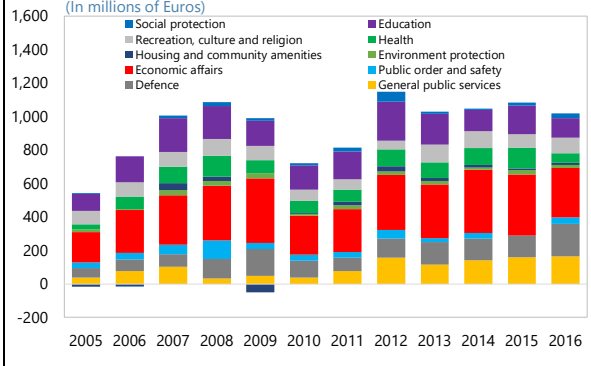
(In percent)



The main beneficiary sectors have included economic affairs, education, and defense…

General Government Gross Capital Formation by Function

(In millions of Euros)



… and within economic affairs, transport infrastructure has dominated.

General Government Gross Capital Formation - Economic Affairs

(In millions of Euros)

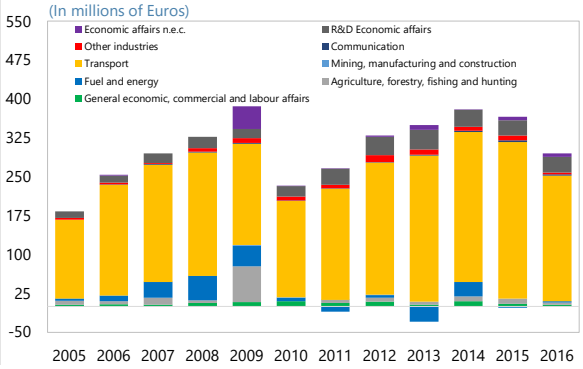
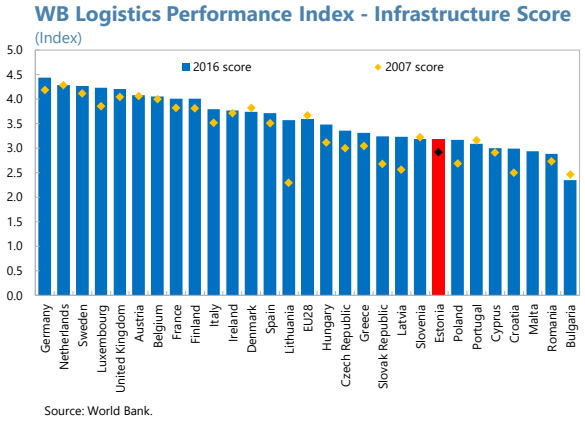
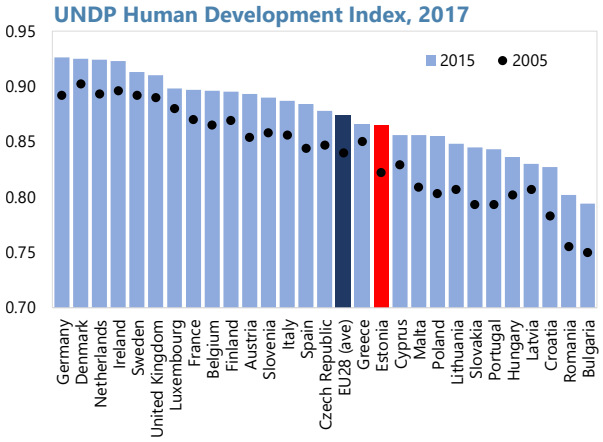


Figure 1. Recent Trends and Developments (Concluded)

Despite progress made, there remains room to further improve the quality of infrastructure…



… as well as key social indicators.



Sources: World Bank, Eurostat, Statistics Estonia, IMF staff calculations.

4. PIM institutions can contribute significantly to raising public infrastructure quality and boosting investment efficiency and productivity. McKinsey (2013) estimates that scaling up PIM best practices could save an average of $1 trillion a year globally in infrastructure costs, and identifies three main opportunities; (i) making better decisions about project selection; (ii) streamlining project delivery; and (iii) making the most of existing infrastructure. IMF (2015) posits that the strength of PIM institutions will influence public investment efficiency, and identifies 15 institutions through three stages of the PIM function as being critical to overall institutional strength (Figure 2). IMF (2015) also develops a PIM Assessment (PIMA) instrument, for conducting comprehensive assessments of PIM practices across these 15 institutions.[3] PIMAs summarize the strengths and weaknesses of country public investment processes, and set out a prioritized and sequenced reform action plan. Over 30 PIMAs have been conducted to date, of which eight have been or are in the process of being published.

[3] The PIMA framework was very recently updated. While the new framework streamlines and realigns some of the PIM institutions and the levels of expected practice, the general thrust of the original framework remains unaltered.

Figure 2. IMF Public Investment Management Framework

The strength of PIM institutions influences public investment efficiency…

…and the PIMA conducts an assessment of 15 institutions across 3 PIM phases.

Each phase and institution has the potential to impact overall PIM outcomes.

- **Planning**: Efficient investment planning requires institutions that ensure public investment is fiscally sustainable and effectively coordinated across sectors, levels of government, and between public and private sectors.
  - **National and sectoral planning**: ensures public investment decisions are based on clear and realistic priorities, cost estimates, and objectives for each sector.
  - **Coordination**: integrates public investment plans across levels of government, provides certainty about funding from the central government, and ensures sustainable levels of subnational borrowing.
- **Allocation**: Allocation of capital spending to the most productive sectors and projects requires a comprehensive, unified, and medium-term perspective to capital budgeting, as well as objective criteria and competitive procedures for appraising and selecting particular investment projects.
  - **Multi-year budgeting**: provides transparency and predictability regarding levels of investment by ministry, program, and project over the medium term.
  - **Project appraisal and selection**: ensures that project proposals are subject to published appraisal using standard methodology and taking account of potential risks.

Figure 2. IMF Public Investment Management Framework (concluded)

- **Implementing:** Timely and cost-effective implementation of public investment projects requires institutions that ensure projects are fully funded, transparently monitored, and effectively managed**.**
  - **Transparency of budget execution**: ensures that major investment projects are tendered in a competitive and transparent process, monitored during project implementation, and independently audited.
  - **Management of project implementation:** ensures identification of an accountable project manager working in accordance with approved implementation plans, and provides standardized procedures and guidelines for project adjustments.

Source: IMF (2015).

5. This SIP examines key PIM institutions in Estonia, and finds that several meet expected requirements, while others could be strengthened. Guided broadly by the PIMA framework, this SIP provides a preliminary assessment of the PIM institutions involved in: national and sectoral planning; coordination within the public sector; multi-year budgeting; project appraisal and selection; transparency of budget execution; and management of project implementation; each of which could impact overall PIM outcomes. Among the stronger PIM functions in Estonia are coordination within the public sector, transparency of budget execution, and management of project implementation, with high levels of transparency and robust arrangements for project execution. Areas that could benefit most from strengthening are the planning arrangements, as well as appraising, prioritizing, and selecting of projects. Table 1 provides a summary of the main findings. This SIP is not a substitute for a full PIMA, and Estonia could still benefit from a full PIMA being conducted.[4] It should also be emphasized that the institutions addressed by this SIP were selected for focus given the need to prioritize effort based on relevance in this initial effort. A comprehensive assessment of the PIM function in Estonia would require examination of the full set of institutions under the PIMA framework.

[4] If Estonia were to have a PIMA conducted, it would be the second advanced economy to do so after Ireland (IMF 2017). The preliminary assessments reported in this SIP would be subject to revision by a full PIMA, given the more comprehensive nature of that exercise.

Table 1. Summary Assessment

Phase/Institution		Institutional Strength	Effectiveness
Planning	**National and Sectoral Planning**	**Medium**: National and sectoral plans are published, most include measurable targets, and some include costings although the public investment and overall fiscal implications are not always obvious.	**Low**: The absence of a link between the national and sectoral plans and the fiscal framework, and the lack of a single consolidated presentation of public sector investment plans with sectoral allocations and costings of large projects, undermine the effectiveness of the planning function
	Coordination within the Public Sector	**Good**: Local governments are subject to fiscal rules, fiscal transfers are formula-based, and the state budget covers general government. The state-owned enterprise (SOE) sector enjoys autonomy, but is actively monitored.	**Good**: Local governments comply with the fiscal rule, indebtedness is low, functional responsibilities are clear, and the level of EU-funding for investments helps with coordination. Large SOE investment projects are discussed with central government.
Allocation	**Multi-Year Budgeting**	**Medium**: The medium-term budget strategy and annual budget plan include projections of capital spending over a four year horizon, ceilings are binding for the budget year and indicative for outer years, but total costs of multi-year projects are not published in budget documents.	**Medium**: Budget ceilings are not applied to grant-financed projects. This accommodates accelerated implementation, but could undermine incentives for good forecasting. The non-inclusion of total project costs in the budget documentation means that budget allocations are approved without a view of total costs for multi-year projects.
	Project Appraisal	**Medium**: Cost benefit analyses are conducted for major and externally-financed projects. Other projects are subject to qualitative appraisals within sector ministries and the ministry of finance (MoF).	**Low**: The lack of a standard methodology and central capability to appraise projects affect the rigor of the appraisals conducted. Project-related risks should also be systematically identified and actively managed.
	Project Selection	**Medium**: All projects are scrutinized by the MoF prior to inclusion in the budget, but there are no binding criteria to guide project selection. A project pipeline is maintained, but other projects could be included in the budget.	**Low**: Despite MoF scrutiny, the absence of formal appraisal and binding selection criteria, and latitude to add projects from outside the process undermine effectiveness of the selection function.
Implementation	**Transparency of Execution**	**Good**: Public procurement is open and competitive, project costs and physical progress are monitored, and financial oversight and ex post audits are conducted.	**Good**: The e-procurement platform allows for very open access to procurement information, internal and external audit reports are produced on project implementation, and procedural violations highlighted where they occur.
	Project Implementation	**Medium**: Individual ministries and agencies oversee implementation, project budgets typically include provisional sums to accommodate modest adjustments, and ex post reviews are done particularly in relation to externally financed projects.	**Medium**: In the absence of central monitoring of project implementation, comprehensive data are not readily available on cost and time overruns, although anecdotal evidence suggests that cost and time overruns do occur on occasion.

B. Planning Sustainable Levels of Public Investment

National and Sectoral Planning

6. In accordance with the requirements of the legal framework, several national and sectoral plans have been prepared. The State Budget Act requires strategic development documents to be prepared, which then form the basis for the national budget strategy and annual budget plans. In keeping with these requirements, an array of national plans and sectoral strategies have been prepared. These include three horizonal longer term national strategies, along with a four-year government program derived from political commitments. At the sectoral level, 47 strategies have been developed. A number of these plans and strategies are driven by the procedural requirements of applying for financing under the EU structural and investment funds, which are a significant source of financing for public investment activity.[5]

7. Despite its strengths, the planning process could be improved in number of areas. Key strengths of the planning process and its outputs include: a high level of transparency with most plans being publicly available; most include costings, even though the public expenditure and investment requirements are often not obvious and individual projects are sometimes not costed; and most include an abundance of performance indicators and targets, even though the large number of targets contained in some could undermine the effectiveness of the monitoring function. More fundamentally, the plans do not have a formal link to the fiscal framework, and are not constrained by an indication of available financing. As a result, they represent more the unconstrained aspirations of the sectors rather than plans that could realistically be financed. In addition, despite the importance attached to public investment, a single consolidated view of the investment plans of the public sector or even of the general government, with details of all major projects and accompanying financial projections, is not readily available.

8. The authorities have recognized the need to strengthen the planning process, and have recently announced number of changes in the next planning cycle. The government has recently launched the process for preparation of the next cycle of national and sectoral plans, under the umbrella of Estonia 2035.[6] In making the announcement, the authorities indicated the intention to: consolidate the strategic planning framework; avoid fragmentation and prevent inconsistencies; reduce the number of plans and bureaucracy; and ensure that the implementation of the strategy reduces the workload related to the preparation, implementation, and reporting of development plans.

9. Going forward, reform priorities could include: streamlining and simplifying the planning process to reduce the number of plans and optimize the number of indicators and targets that have

[5] During the 2004–06 and 2007–13 periods, respectively, Estonia received €368 million and €3.4 billion of support under EU Structural and Investment Funds. During the 2014–20 cycle, Estonia is expected to receive €4.4 billion of support from these Funds.

[6] https://www.valitsus.ee/en/news/government-decided-begin-working-strategy-estonia-2035 accessed on March 9, 2018.

to be monitored; aligning the national plan with the fiscal framework and sectoral plans with indicative resource availability; identifying clearly within each plan the implications for the public finances including, in particular, the public investment requirements of the plan and indicative costings of major investment projects; and preparing a consolidated public sector investment plan with details of major public sector projects as well as financial projections and project costings. In this regard, Ireland provides a good example of reform to strengthen the national development planning system (Box 1).

Box 1. National Development Planning in Ireland

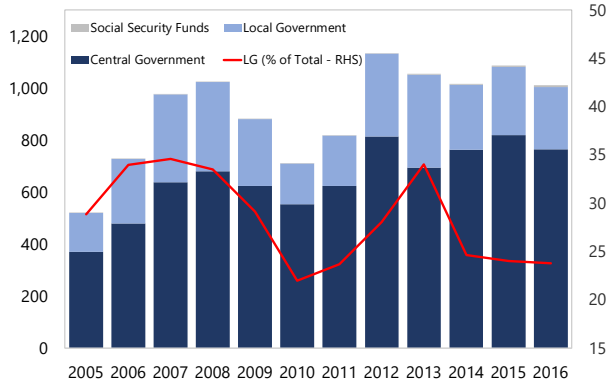
Ireland provides an interesting comparative example, including because of size and the fact that its national development planning function has its origins in the planning cycle for EU structural funds. Ireland's first national development plan (NDP) covered 1993–2000, coinciding with the EU cycle. Since then, the planning function has evolved considerably. Successive NDPs have served as strategic investment plans, and were costed and integrated with the budget process. Most recently, following a PIMA conducted by the IMF in 2017, Ireland concluded a new National Planning Framework, Ireland 2040, along with the new NDP 2018–27. This NDP identified the strategic priorities for public investment for all sectors, and reaffirmed the commitment to stronger coordination of sectoral strategies and more rigorous selection and appraisal of projects. It included indicative budgetary allocations to support the delivery of each national strategic outcome, and for identified strategic investment priorities under each outcome. It also included annual projections of capital expenditure by funding source, as well as annual departmental capital allocations over the life of the plan. The Irish NDP, therefore, maintains a close integration with the medium-term fiscal framework and long term fiscal projections, and connects these with the national vision and sectoral aspirations.

Sources: Government of Ireland (2018a) and (2018b).

Coordination within the Public Sector

10. Estonia has an active local government sector, through which significant public investment is executed. The local government reform reduced the number of local governments from 213 to 79, and there are plans for further reforms aimed at increasing financial autonomy, including by transferring some central government functions to local governments, along with the corresponding financing. Currently, local governments account for 25 percent of general government capital expenditure (Figure 3).

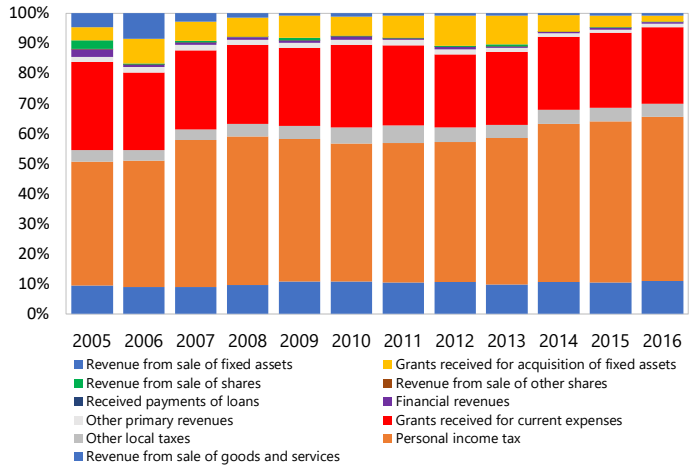
Figure 3. Public Investment by Local Governments
(€ millions)



Sources: Statistics Estonia, IMF staff calculations.

11. Local governments derive the majority of their revenue from central government transfers. The largest source of local government revenue is personal income taxes collected and transferred by the central government, comprising 11.86 percent of the incomes earned by residents within the local area (Figure 4). In addition, earmarked block grants are provided to meet recurrent costs in such areas as education and social benefits. These are calculated using more than 50 different formulas, and the central government has provided local governments with a tool to project their revenue for the coming four years. Reforms are currently being considered to eliminate earmarked transfers and improve efficiency by moving to a more performance-based system. Local governments compete for capital grants, and EU funds finance approximately one-third of their total investment.

Figure 4. Composition of Local Government Revenue



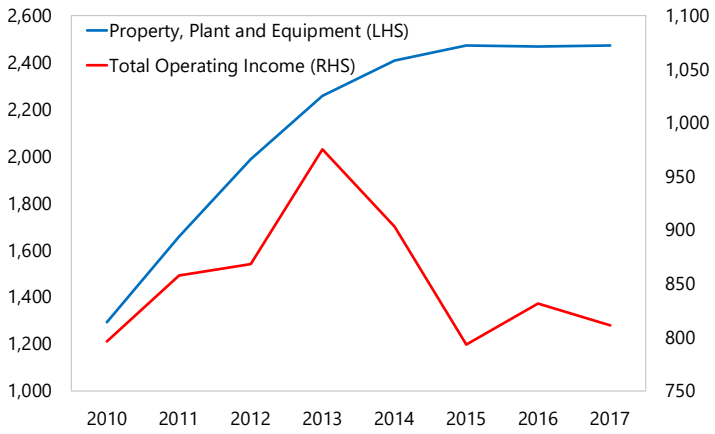
Sources: Statistics Estonia, IMF staff calculations.

12. Strict fiscal rules are in place to prohibit the incurrence of deficits, confine borrowing to investment purposes, and impose a ceiling on the level of debt. The Local Government Financial Management Act prescribes in detail the computation of the operating result of local governments, imposes the constraint that an operating deficit shall not be incurred, defines the composition of debt, and stipulates that a local government shall not incur debt in excess of either six times its operating surplus or 100 percent of its operating revenue for the current year. In addition, local governments are disqualified from receiving EU grants if they exceed the debt ceiling.

13. Otherwise, local governments enjoy complete autonomy over their expenditure, including capital expenditure, in the functional areas for which they are responsible. The functional responsibilities of local governments are stipulated by law, and include certain social and welfare services, basic education, and primary healthcare. Within the boundaries of their functional responsibilities, local governments have complete latitude on their investment decisions, and no consultations with the central government are required. While coordination between central and local government is generally recommended, the fact that most large projects are financed by EU grants in which the central government is involved, along with the clarity in respective responsibilities, and the strict enforcement of the fiscal rule, combine to ensure that public investment activity is coordinated at the aggregate level. In addition, the institutional perimeter of the state budget, and against which the fiscal rule and medium term budgetary objective is applied, is the general government. This also ensures coordination at the aggregate level of the general government, even if not at the individual project level.

14. Outside general government, but still within the public sector, the state-owned enterprise (SOE) sector is also a source of significant investment activity. There are currently 29 entities that are legally constituted as SOEs, amongst which 5 are statistically classified as general government because of the nature of their activities including the state real estate company. The latter provides an interesting model for managing public investment in real estate and the associated portfolio of real estate assets (Box 2). The other 24 operate on a commercial basis with the state as shareholder. Some SOEs have been implementing large investment projects. Property, plant and equipment held by Eesti Energia, for example, has doubled since 2010 (Figure 5), although the rate of growth has slowed in recent years as revenue has fluctuated. Total assets of the SOE sector exceeded €6 billion at the end of 2016.

Figure 5. Eesti Energia AS
(In millions of Euros)



Source: Eesti Energia.

15. SOEs enjoy a high level of autonomy, including over their investment activities, and reforms are underway to further strengthen SOE governance. The ownership model currently in place in Estonia is decentralized, with SOE ownership distributed amongst six sector ministries. The MoF performs a coordinating role pursuant to the provisions of the State Assets Act, developing SOE governance principles, and preparing an annual consolidated report on the sector. The recent establishment of nomination committees with private sector representation, for the purposes of appointing SOE supervisory boards, should result in stronger corporate governance in the sector. Additionally, consideration is being given to centralize the ownership function at the MoF, with clearly defined roles for the sector ministries. SOEs are required to conduct their operations in a manner aimed to achieve their targeted rate of return, and investment decisions are made on a purely commercial basis. No formal consultations are required or conducted with the central government on investment projects, although in practice there are discussions on large projects with public interest considerations.

Box 2. The State Real Estate Company—Riigi Kinnisvara AS (RKAS)

RKAS has its origins in the Estonia Privatization Agency, and was established legally as a company in 2001 to provide real estate development and management services to state agencies. Through the progressive transfer of real estate assets to RKAS, the state undertook to unify the management of these assets, aiming at more effective management and value maximization. Currently, RKAS develops real estate for state agencies, provides facilities management services, and conducts project management activities as needed on behalf of state agencies.

In relation to new real estate development, ministries or agencies that would like to propose new real estate developments propose these projects to the MoF by way of project memoranda, prepared with support from RKAS. Once a particular new development is approved via the budget process, RKAS is mandated to execute the project. Upon completion, the constructed asset is owned by RKAS and occupied at an agreed rental by the client ministry. Currently, state agencies comprise 95 percent of the tenancy of RKAS's property portfolio. Annual investments by RKAS in recent years have been between €60 and €100 million. In addition, to new properties, RKAS also invests in value added investments in its existing portfolio.

RKAS's current holdings comprise 700,000 square meters of real estate, 124,000 square meters are owned by government, but under facilities management contracts with RKAS, a further 670,000 square meters comprise assets still owned by government and likely to be transferred to RKAS (such as properties owned by the ministry of education), while a further 570,000 square meters are owned by government and are unlikely to be transferred to RKAS (comprising strategic assets, such as defense and heritage properties). RKAS is currently inventorizing all properties owned or occupied by the state, including preparation of valuations and a conditions survey aimed at determining investment needs where relevant. When completed later in 2018, this exercise will provide a full picture of the state's real estate assets and other properties it is occupying throughout the country.

Since 2008, in accordance with Eurostat and Statistics Estonia standards, RKAS's operations have been classified as part of the central government. As a result, its budget is reviewed within the central government budget process, and its operations are incorporated into the fiscal outcomes of the central government, despite its legal form as a company.

Source: RKAS.

16. Although there might be some room for improving coordination, existing arrangements are generally strong. It might be possible to coordinate investment planning more closely between the central government, local government, and SOE sectors. However, given the autonomy enjoyed by these sectors and the existing arrangements to coordinate at the aggregate level, the returns to any such efforts are likely to be marginal. Instead, emphasis should be placed on advancing existing initiatives, such as reforming and simplifying the fiscal transfer arrangements with local governments without undermining the fiscal discipline that has been achieved by the sector, and concluding consideration of whether to centralize the SOE ownership function at the MoF. At the same time, preparation of a single consolidated public-sector investment plan, including investments by the local government and SOE sectors, would be useful.

C. Ensuring Public Investment is Allocated to the Right Sectors and Projects

Multi-Year Budgeting

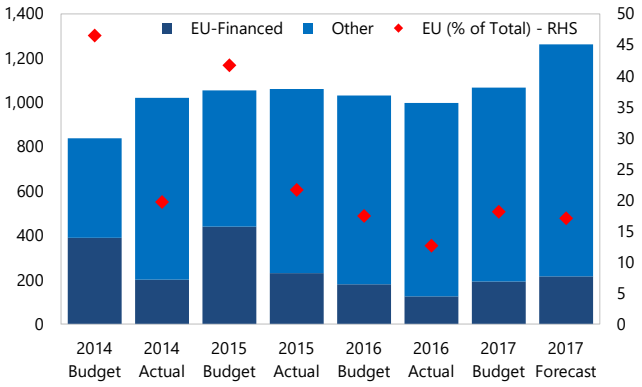
17. Multi-year budgeting is long established and deeply entrenched in Estonia. The State Budget Act requires the government to prepare and approve, no later than the end of May, a State Budget Strategy addressing the coming budget year plus three forward years. This document reflects the medium-term fiscal framework, and includes the financial plan underlying the state budget strategy for the period concerned. It also includes budget ceilings by agency. These ceilings are aggregated at ministry level, and are revised annually. Grant-financed expenditure is not subject to the ceiling, in order to allow flexibility in the event a project is implemented more quickly than anticipated. While this builds in flexibility to accelerate execution of grant-financed projects, it could undermine the incentives for reliable forecasting of the activities of these projects. Certain other expenditure mandated by law are also excluded from the ceilings, such as pension payments. The budget includes an appendix with detailed multi-year projections of capital expenditure by agency and major project.

18. The main gap in the multi-year budgeting arrangements, is the absence of data on total project costs for multi-year projects. Current budget documentation does not provide the parliament with total project costs when seeking approval of budget allocations, either on the first or any subsequent occasion. This is particularly an issue for those projects whose implementation period will exceed the projection period covered by the budget. While alternative documentation on total project cost might be available, particularly in the case of mega-projects which have high visibility, the budget documentation should include on a systematic basis the latest estimate of total project cost for multi-year projects. This will ensure that the parliament is informed of total projected cost when approving the first and subsequent allocations for the project.

Project Appraisal and Selection

19. Major projects are subject to comprehensive feasibility studies, and to scrutiny by EU authorities when financed by them. EU-financed projects comprise around 20 percent of total general government capital expenditure (Figure 6), including most large projects. Feasibility studies are prepared for these and scrutinized by EU authorities and, in the case of the mega-projects, are publicly available.[7]

Figure 6. Composition of Capital Expenditure by Funding Source
(In millions of Euros)



Source: Authorities data, IMF staff calculations.

[7] For example, Ernst & Young (2017).

20. Other projects are subject to a more qualitative appraisal, prior to inclusion in the budget. All other investments are appraised by the sector ministries and the MoF according to universal qualitative criteria such as whether the project: is related to the relevant sectoral development plan; has positive impact on other fields/areas; helps to increase the quality and accessibility of public services; is sustainable and cost effective; etc. A universal template is applied by the MoF for appraisal of requests for project funding in the budgetary process, and different appraisal and selection procedures are applied for real estate, information and communication technology, transportation, and other investments. There is no formal guidance on cost-benefit analysis or cost effectiveness analysis methodologies.[8]

21. The processes and methodologies by which projects are appraised could be strengthened, and should be applied to all projects irrespective of funding source. Larger or more complex projects above a specified size threshold or meeting other specified criteria should be subject to more sophisticated cost benefit analysis or cost effectiveness analysis, while smaller projects could be subject to simpler qualitative analysis. The objectives of such arrangements are that all projects are subject to a minimum, but sufficiently robust prescribed standard of scrutiny and analysis, and that no project can be otherwise introduced into the budget. The UK Green Book and Ireland's Public Spending Code provide good examples of detailed guidance issued by governments on preparing project appraisals, including guidance on the methodology and assumptions to be used, requiring explicit adjustment for optimism bias, and requiring risk and sensitivity analysis to be integrated into the appraisal.[9]

22. As with project appraisal, arrangements for project selection can also be strengthened. While all projects are scrutinized by the sector ministries and the MoF prior to inclusion in the budget, the rigor of that scrutiny could be strengthened with more formal guidance on the appraisal thresholds that should be met before a project is considered for inclusion in the budget, as well as by the development and application of formal and transparent criteria for project selection. Furthermore, while the MoF maintains a database of projects, current arrangements do not prevent the introduction of other projects into the budget.

23. Going forward, reform priorities should include: requiring mandatory appraisal of all public investment projects before inclusion in the budget, taking into account capacity to conduct such analysis, and accommodating more basic analysis for projects below a specified size threshold if needed; developing standard guidance on conducting such appraisals; developing standard criteria and guidance for prioritizing and selection of projects; and progressively building capacity to conduct project appraisal and selection, with the possible establishment of a core team within the MoF to lead and roll-out this practice across the public sector.

[8] OECD (2017) also points out that the absence of a coherent framework to assess the value-for-money and socioeconomic impacts of planned investment makes it challenging to correctly identify and prioritize the most productive infrastructure projects in Estonia.

[9] HM Treasury (2011); Government of Ireland (2012).

D. Delivering Productive and Durable Public Assets

Budget Execution and Project Implementation

24. Estonia has a well-established, open, competitive public procurement system, based largely on an e-procurement platform. The procurement system in Estonia is governed by the Public Procurement Act, and is overseen by the MoF which provides guidance on public procurement policy, advice and training, and administers the electronic procurement system. An e-procurement register and portal are maintained, through which the public has access to procurement notices, bid documents, and final awards made. Tenderers can also submit their bids, and receive notification of the basis for the final awards. In 2017, 93 percent of all public procurement was conducted through the e-procurement portal, comprising approximately 10,000 transactions with a total value of €2 billion. The MoF also produces an annual report on public procurement activities.

25. There are multiple layers of project monitoring, both of physical progress as well as financial costs. Responsibility for monitoring physical and financial progress of projects rests with the respective ministries and agencies. In addition, within the MoF, the financial control department serves as the audit authority for EU-financed projects and conducts ongoing audit and verification of financial transactions incurred by these projects. For each audit conducted, the department issues a specific report, and an annual report is also issued. Corrective action is taken on these reports, and there have been instances where costs have been deemed ineligible on grounds of procedural non-compliance.

Box 3. Project Cost and Time Overruns

Eastern Border

The Easter Border project was initially presented to Cabinet in February 2015 at an estimate of €79 million. In February 2018, the Police and Border Guard Board (PPA) presented estimates to the Ministry of the Interior that the project would now cost 2.5 times more at €197 million. A subsequent internal audit identified lack of information on factors that could affect construction price, like construction volumes and geology, at the time of planning the project. In addition, it was explained that the PPA had only one and a half months to present their initial assessment. Weak planning and monitoring were also identified as other contributory factors for the cost overrun.

Auvere Power Plant

The construction of the Auvere power plant began in 2011 by Eesti Energia AS. The plant began producing electricity in 2015, but in the commissioning phase it appeared that under higher production capacities the plant's particle emissions exceeded regulatory limits. To reduce particle emissions, in 2017 the general contractor, General Electric, undertook to build additional fabric filters and ancillary equipment. Since August 2017, the builder has been adjusting the plant and the fabric filters and conducting tests, the results of which confirm that after the installation of additional equipment the emissions of the plant remain within regulatory limits. Due to the deferral of commissioning, the final delivery of the power plant is expected to take place in the second quarter of 2018. In 2016, General Electric and Eesti Energia signed an agreement under which General Electric undertook to pay Eesti Energia liquidated damages for the delay in the delivery of the plant until its full delivery. For 2017, General Electric had to pay €30.9 million euros of which €21.9 million was settled by the year end. The budget of the project is €638 million, of which €568 million of this was invested up to the end of 2017.

Source: Eesti Energia SA 2017 Annual Report, mission discussions.

26. Ex post audits are also conducted and the findings submitted to the parliament for consideration. The National Audit Office of Estonia (NAOE) conducts ex post audits of projects on a selective sample basis. In addition to its ex post audits, the NAOE is seeking new audit products to enable it to provide the parliament with more timely information on matters within its purview. Under the NAO's audit strategy for 2014–20, audit of major investments is identified as a priority area for attention. Audit reports produced by the NAOE are examined by the State Budget Control Committee, which monitors implementation of the state budget and use of budget funds and state assets. Once a year, this Committee reports on its activities to the parliament. Amongst the audits recently concluded by the NAOE was one on Rail Baltic, which raised concerns about lack of clarity on Estonia's financial obligations under the project agreement, burden-sharing amongst the national parties to the agreement, and risks that are faced by Estonia in event of reduced availability of external financing for the project or withdrawal by any of the other parties. Ex post reviews of projects are also sometimes conducted, especially of EU-financed projects.[10]

27. Individual ministries manage and control projects during execution, but central capabilities for managing the overall portfolio could be strengthened. While individual ministries and agencies assign personnel to manage projects during implementation, central capability to oversee the whole portfolio could be strengthened. For example, matters previously raised regarding developing and administering guidance on project appraisal and selection and ensuring compliance with these will probably need to be driven centrally, as would the overall oversight of the whole portfolio.

28. An example of a gap arising from the absence of such central capability, is the lack of data on cost and time overruns. Time and cost overruns are a significant risk faced in implementation of infrastructure projects. Despite the existence of this risk, there is little consolidated data on the extent to which projects are implemented within their original cost and time budgets, and reliance has to be placed on anecdotal accounts which suggest that this risk is non-trivial (Box 3). While some ministries indicate success in managing project costs to keep them within the budget, more systematic monitoring and reporting, and institutionalized arrangements for investigating any cost and time overruns beyond specified thresholds, would be useful.

29. Possible areas for strengthening could include: establishing a modest centralized public investment management capability within the MoF (possibly by expanding the mandate of one of the existing departments), tasked with leading the project appraisal and selection function including setting standards for project appraisals and monitoring compliance with same; monitoring project implementation in collaboration with responsible ministries and agencies, and institutionalizing audits of cost and time overruns above specified thresholds; and providing overall leadership on public investment management issues (Box 4).

[10] For example, Praxis (2017).

Box 4. Alternative Approaches to Central Public Investment Management Units

Ireland

The Irish Government Economic and Evaluation Service (IGEES) provides central support for the application of the project appraisal methodologies across government. It does this through formal capacity building and on-call assistance. During 2016, IGEES trained around 200 officials from departments and local authorities in the appraisal and evaluation techniques in the Public Spending Code. IGEES economists are also seconded to departments to provide expertise in economic analysis of projects, as well as other aspects of economics. The Common Appraisal Framework for Transport, for example, was developed by the Department of Transport, Tourism, and Sport in collaboration with IGEES.

New Zealand

New Zealand's National Infrastructure Unit was established in 2009 within the Treasury (Ministry of Finance) to deliver the government's objectives relating to infrastructure. Its responsibilities include: formulating, and monitoring progress on the 20-year National Infrastructure Plan; establishing robust and reliable cross-government frameworks for infrastructure project appraisal and capital asset management, and monitoring the implementation and use of those frameworks; and providing support to, and acting as a secretariat for, the National Infrastructure Advisory Board. The Unit does not duplicate the role of other infrastructure-related government agencies, but works in cooperation with other government agencies and takes a cross sector, high level view of New Zealand infrastructure. The National Infrastructure Board consists of members from the private sector and outside central government, and was established to provide the National Infrastructure Unit and the Minister of Finance with advice and perspectives on infrastructure project appraisal, capital asset management issues and the development of the New Zealand Infrastructure Plan. A key role for the Board is to engage with the private sector, local government and other stakeholders.

Australia

Australia has gone one step further and has established Infrastructure Australia, an independent statutory body with a mandate to prioritize and progress nationally significant infrastructure. They provide independent research and advice to all levels of government as well as investors and owners of infrastructure, and are responsible for strategically auditing Australia's nationally significant infrastructure, and developing 15-year rolling Infrastructure Plans that specify national and state level priorities. Their role is defined in the amended Infrastructure Australia Act which states that the Minister must not give directions about the content of any audit, list, evaluation, plan or advice provided by Infrastructure Australia. Major reports published include Infrastructure Audits and Australian Infrastructure Plans. The first Australian Infrastructure Plan was released in February 2016. It is Australia's first 15-year rolling infrastructure plan. Infrastructure Australia also determines which nationally significant projects should be included on the Infrastructure Priority List. This is a rigorous prioritization process that ensures there is a highly credible pipeline of nationally significant infrastructure projects. The latest Infrastructure Priority List was delivered in February 2017. The revised version is due to be published in March 2018.

Sources: IMF (2017), http://igees.gov.ie/, http://www.infrastructure.govt.nz/, http://infrastructureaustralia.gov.au/

E. Conclusions

30. Estonia's PIM arrangements meet most expected requirements, but some institutions can be further strengthened. Among the stronger aspects of the PIM function are central government coordination with local governments and SOEs at the aggregate level, and the transparency of budget execution. Among the areas that could benefit most from strengthening are the planning function and the arrangements for appraising, prioritizing, and selecting projects.

31. A prioritized plan to further strengthen PIM in Estonia could comprise the following actions:

- As the first priority, strengthening project appraisal and selection arrangements:
  - Phased introduction of mandatory appraisals of all public investment projects before inclusion in the budget, taking into account capacity to conduct such analysis, and accommodating more basic analysis for projects below a specified size threshold if needed.
  - Developing standard guidance on conducting such appraisals.
  - Developing standard criteria and guidance for prioritizing and selection of projects.
  - Progressively building capacity to conduct project appraisal and selection, with the possible establishment of a core team within the MoF to lead and roll-out this practice across the public sector.
- In anticipation of the next planning cycle leading to preparation of the Estonia 2035 plan, streamlining the planning process and improving its alignment with the fiscal framework:
  - Simplifying the planning process to reduce the number of plans and optimize the number of indicators and targets that have to be monitored.
  - Ensuring that the entire national planning framework is aligned with the fiscal framework and sectoral plans with indicative resource availability.
  - Ensuring that each plan clearly identifies its implications for the public finances including, in particular, the public investment requirements of the plan and indicative costings of major investment projects.
  - Preparing a consolidated public-sector investment plan with details of major public-sector projects as well as financial projections and project costings.
- In parallel, advancing the rest of the reform agenda to strengthen public financial management and PIM, most of which is already underway:
  - Roll out the implementation of performance-based budgeting.
  - Advance the piloting and full implementation of spending reviews.
  - Simplify the local government transfers arrangements, including by eliminating earmarking and introduce performance monitoring with a view to eventually developing a performance-based system.

- Conclude the decision on SOE oversight, whether to centralize the ownership function, and implement decision.

32. A comprehensive agenda such as this could be consolidated into a full-fledged PIM reform strategy, and would position Estonia as a good example of an advanced economy with systems that are already strong, undertaking the next generation of reforms to further strengthen its institutions.

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