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PRINCIPALITY OF LIECHTENSTEIN

SELECTED ISSUES

March 2025

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Approved By

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[1] The authors would like to thank Mark Horton and Kazuko Shirono (both IMF EUR) and the Liechtenstein authorities for helpful comments and suggestions. Zhengting Yue provided excellent research assistance.

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CROSS-BORDER INCOME FLOWS IN LIECHTENSTEIN[1]

In Liechtenstein, the gap between Gross Domestic Product (GDP) and Gross National Income (GNI) is significant due to the country's economic structure as a financial center with a high percentage of cross-border commuters and globally competitive manufacturers contributing to high GDP per capita. Using currently available data, this paper examines the drivers of the GDP-GNI gap in Liechtenstein to provide a broader context of its high per capita income.

A. Contextualizing the GDP-GNI Gap in Liechtenstein

1. In assessing Liechtenstein's economy, it is important to distinguish between Gross Domestic Product (GDP) and Gross National Income (GNI). GDP measures economic activity by the total value of goods and services produced within a nation's borders, whereas GNI represents the total income earned by the residents of that country, regardless of whether that income is generated within or outside the country's borders. This distinction becomes relevant due to the country's economic structure as a financial center with a high number of cross-border commuters and manufacturers with global reach. Liechtenstein has a high nominal GDP per capita—second highest in Europe—driven by its robust financial services sector and presence of numerous multinational corporations. These companies contribute significantly to economic output within Liechtenstein's borders, but some of this output is distributed as income to nonresidents, including wages paid to commuters from Austria and Switzerland. GNI provides a more nuanced view in light of the economic structure and the large share of cross-border commuters.

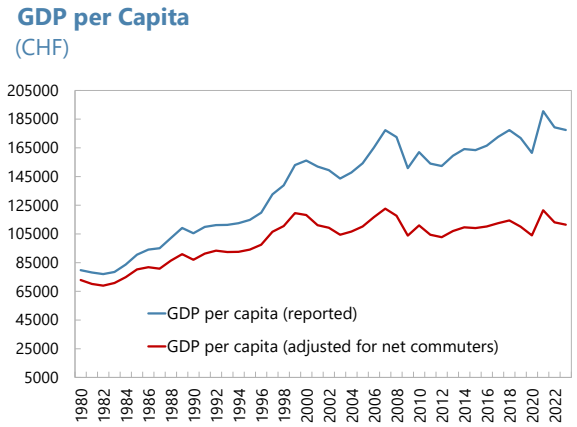
2. GNI is affected by compensation and profits flowing outside the country and is typically lower than GDP in Liechtenstein. Given the substantial number of commuters, a significant portion of the income generated within its borders does not accrue to Liechtenstein's residents. Additionally, profits from foreign firms may be repatriated, further affecting the GNI. GNI tends to be lower than the GDP, highlighting a disparity between economic activity and actual income available to the population. When GDP per capita is adjusted for cross-border commuters, it is considerably lower (Figure 1a).

3. The GDP-GNI gap in Liechtenstein can be further contextualized with respect to other countries, including Ireland and Luxembourg. These two countries also have gaps that are among the highest in the world (Figure 1b). Like Liechtenstein, both Ireland and Luxembourg exhibit high GDP per capita figures, fueled by the presence of multinational corporations. However, the gap between GDP and GNI in Liechtenstein is more volatile than in Ireland and Luxembourg. This paper focuses on the historical drivers of the GDP-GNI gap in Liechtenstein and analyzes it in a cross-country context, including in comparison with Ireland.[2]

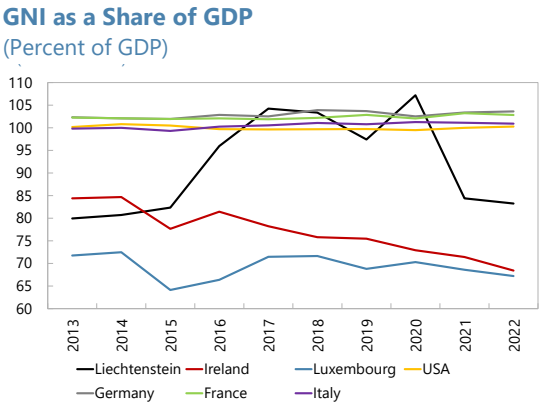
[1] Prepared by Andrew Baer (STA) and Tara Iyer (EUR).

[2] Detailed data for Luxembourg are not as readily available. Ireland also publishes GNI* which excludes the depreciation of certain assets and the income of redomiciled PLCs. We use GNI for the purposes of this paper.

Figure 1. Visualizing Income in Liechtenstein



Source: Liechtenstein Authorities and IMF staff calculations.

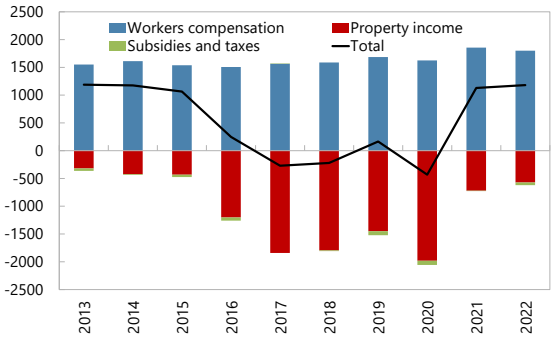


Source: Liechtenstein Authorities, Haver Analytics, and IMF staff calculations.

B. Drivers of the Gap and Cross-Country Comparisons

4. GDP in Liechtenstein is calculated using both production and income approaches, while GNI is equal to GDP less primary incomes paid to nonresidents plus primary incomes received from nonresidents (Figure 2). GDP by production is the total of value added produced by resident units plus taxes less subsidies on production. GDP by income is the sum of primary incomes distributed by resident producers. These are alternative approaches meant to produce the same results. The net primary incomes in GNI are composed of (i) cross-border worker compensation; (ii) cross-border property income, which includes interest and dividends, reinvested profits from direct investments, and rent; and (iii) cross-border subsidies and taxes, which are not very significant in Liechtenstein. Positive net primary incomes to the rest of world indicates GNI less than GDP, while negative net primary incomes to the rest of the world result in GNI greater than GDP.

Figure 2. Net Primary Income to Rest of World



Source: Liechtenstein Authorities.

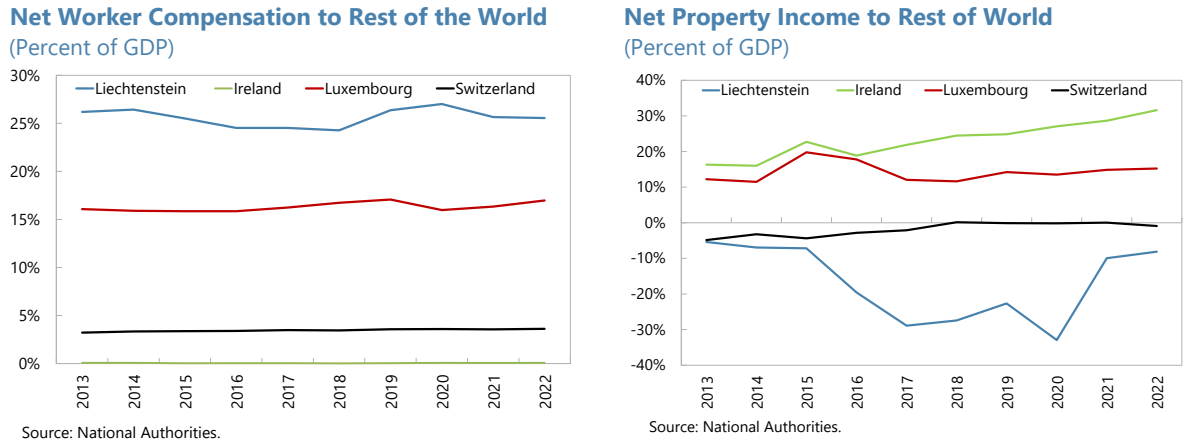
5. To better understand the GDP-GNI gap, it is useful to analyze its specific sources.

- **Workers' compensation (Figure 3a)**, which in GDP includes all wages and salaries paid to workers of resident companies, irrespective of their nationality. This means that the wages of inward commuters—those who work in Liechtenstein but reside in neighboring countries—are counted in Liechtenstein's GDP, while the wages of outward commuters—Liechtensteiners who

work abroad—are excluded. For GNI, the accounting is reversed. Due to significant net inward commuting, roughly 25 percent of incomes paid by Liechtenstein producers go to nonresidents, after incomes received by outward commuters are netted out. This net outward flow reduces GNI when compared to GDP. By comparison, net workers' compensation (flowing out to non-residents) is around 15 percent of GDP for Luxembourg, under 5 percent for Switzerland, and almost 0 percent for Ireland. While Liechtenstein's flow is large compared to other European countries, it has also been relatively stable since 2013.

- **Net cross-border flows of property income (Figure 3b)**, which includes dividends and interest income. While worker's compensation has remained stable since 2013, net property income has exhibited large fluctuations in recent years. For instance, net property income to the rest of the world surged by 178 percent in 2016, increased by 37 percent in 2020, but then plummeted by 64 percent in 2021. This volatility is also evident in terms of share of GDP, particularly compared to other European countries with large cross-border flows. Another notable feature is that Liechtenstein has persistent net inflows of property income, while Ireland, Luxembourg, and Switzerland, have instead seen net outflows.

Figure 3. Net Worker's Compensation and Net Property Income to Rest of World: Cross-Country Comparison

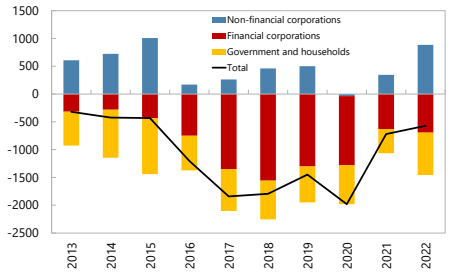


6. Net property income – which has different dynamics for Liechtenstein and Ireland (Figures 4 and 5)—can be dissected into contributions from various institutional sectors, including households, government, non-financial corporations (NFCs), and financial corporations (FCs). Volatility is primarily influenced by NFCs, including Liechtenstein resident multinationals and FCs. Liechtenstein NFCs generally have net outflows of property income while

FCs consistently have net inflows.[3] Liechtenstein's somewhat balanced property income cross-border flows are contrasted with Ireland, which are dominated almost exclusively by outflows of NFC interest, dividends, and reinvested profits to foreign entities. In Ireland, MNCs have key headquarter functions domiciled outside the border, leading to greater net outflows of property income.

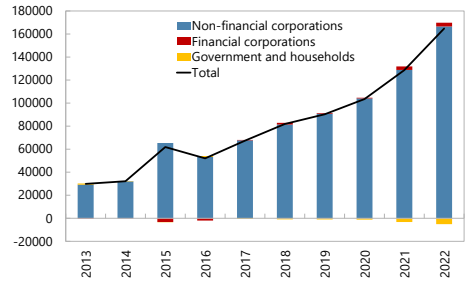
Figure 4. Net Property Income to Rest of World: Liechtenstein vs Ireland

Liechtenstein Net Property Income to Rest of the World
(Millions of CHF)



Source: Liechtenstein Authorities.

Ireland Net Property Income to Rest of the World
(Millions of Euro)



Source: Ireland National Authorities.

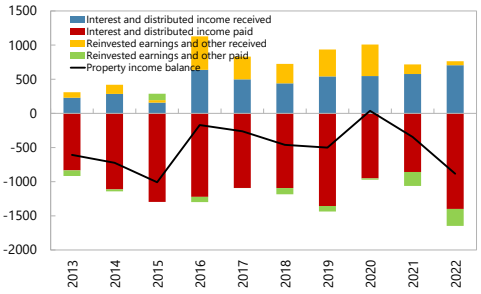
7. Liechtenstein's government and households are consistent net recipients of property income. This reflects both government surpluses and foreign interest and dividend income of households. Liechtenstein FCs also receive more foreign property income than they distribute to nonresidents, although this balance is highly volatile. Strong net inflows of interest and dividends led to FC net property income amounting to over 1 billion CHF each year between 2017 and 2020. These inflows reflect Liechtenstein's position as a financial center.

8. Liechtenstein NFCs often report net outflows of interest and dividends to foreign investors, although this is volatile. Strong inflows of reinvested earnings, interest and dividends to NFCs brought their property income balance close to zero between 2016 and 2020. These inflows include payments made by foreign affiliates to Liechtenstein resident multinationals. This relative balance stands in contrast to Ireland, where NFCs have large and consistently growing primary income outflows. This indicates that the headquarters function of receiving payments from foreign affiliates and then reallocating them is more important in Liechtenstein than in Ireland. Many of the most important multinationals in Liechtenstein were founded in the country rather than having shifted to the country for strategic or financial considerations.

[3] Preliminary data on International Investment Position (IIP) produced by FMA in their 2023 Financial Stability Report shows that net-IIP is around 8x GDP, including large net outwards FDI with Liechtenstein headquartered companies employing 53.000 people in their foreign subsidiaries. This would suggest that Liechtenstein generally would be a net receiver of property income both for the FCs and the NFCs. The data source used here is from the national accounts published by Liechtenstein's Statistical Office. Future work will be needed to improve macroeconomic statistics and reconcile data sources.

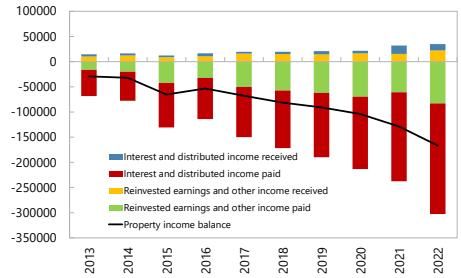
Figure 5. Property Income Balance of NFCs and FCs: Liechtenstein vs Ireland

Liechtenstein NFCs, Property Income Balance
(Millions of CHF)



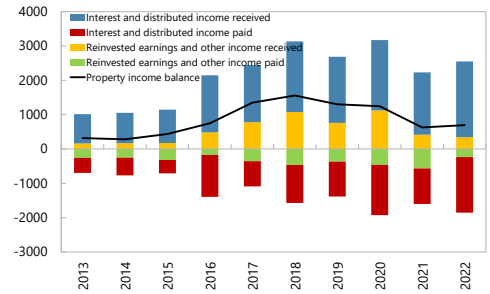
Source: Liechtenstein Authorities.

Ireland NFCs, Property Income Balance
(Millions of Euros)



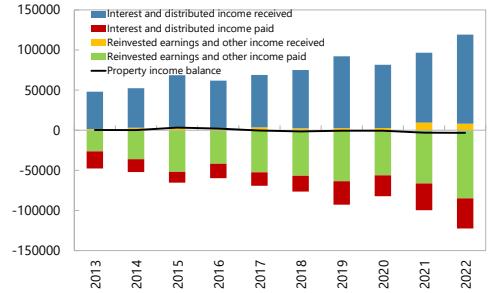
Source: Ireland National Authorities.

Liechtenstein FCs, Property Income Balance
(Millions of CHF)



Source: Liechtenstein Authorities.

Ireland FCs, Property Income Balance
(Millions of Euros)



Source: Ireland National Authorities.

C. Conclusion

9. Liechtenstein sometimes has GDP that is larger than GNI, and the sources of this gap are different from those in Ireland. The GDP-GNI gap is among the largest among major economies and comparable in magnitude to Ireland and Luxembourg – but is more volatile. Liechtenstein's gap is largely due to net outflows to foreign workers, and not because MNCs are domiciling operations in the country for financial reasons. In Ireland, MNCs can have key HQ functions and shareholders domiciled elsewhere, leading to outflows of property income. Due to Liechtenstein's role as financial center and the presence of large MNC HQs, the large outflow of compensation to foreign workers can sometimes be balanced by inflows of interest, dividends, and reinvested earnings.

10. The paper illustrates the importance of analyzing Liechtenstein's economic developments through an alternate lens, given its unique structure, namely the significant presence of commuters as well as foreign investments by Liechtenstein residents.

HIGHER FREQUENCY INDICATORS FOR LIECHTENSTEIN[1]

This paper describes steps to compile a high-frequency indicator of growth to be used for timely monitoring of real sector activity in Liechtenstein. Since the indicator is compiled with methods consistent with those used for national accounts, its development may also serve as an interim step towards production of quarterly GDP estimates. High-frequency indicators of growth measure domestic production rather than expenditure, making them well suited for monitoring Liechtenstein's export-oriented economy.

A. Introduction

1. The Liechtenstein Office of Statistics (OS) publishes annual GDP by economic activity in current prices with a lag of 23 months. More timely measures of economic activity in constant prices would provide greater visibility to changes in the business cycle and support responsive policymaking. This should ideally include quarterly national accounts (QNA).

2. As preparing full, timely indicators of activity will take time and effort, the authorities should develop a high-frequency indicator of economic growth (HFIEG). The process of developing data sources to generate tabulated levels of economic activity each quarter will take time. While this long-term effort is taking shape, the authorities should develop a HFIEG, including as an interim solution. This will be less burdensome because it requires only economic growth trends and not detailed tabulations of the real value of economic production. An HFIEG will give a greater picture of economic developments. The HFIEG can also be an important new input to GDP nowcasting exercises.

3. This new indicator would complement the currently available quarterly composite business cycle indicator. It will draw more heavily on quantitative transactions data to capture real economic activities.

B. KonSens

4. Recognizing the need for more timely information, the Liechtenstein Institute[2] developed KonSens, a concurrent quarterly composite business cycle indicator. KonSens is based on systematic aggregation of 16 indicators, which can be grouped into the following categories:

[1] Prepared by Andrew Baer (STA).

[2] The Liechtenstein Institute is a research institute in Liechtenstein.

- Quantitative measures of **economic activity** (goods exports, goods imports, employees, commuters, unemployed, vacancies, share prices of companies, electricity consumption, overnight stays, and new vehicle registrations).

- Qualitative measures of **business sentiment and perception** (results from the Liechtenstein economic survey, which asks business respondents to assess the general situation, plant utilization, incoming orders, and earnings on a scale of good, satisfactory, or poor.

- Qualitative measures of **consumer sentiment** in Switzerland and Austria.

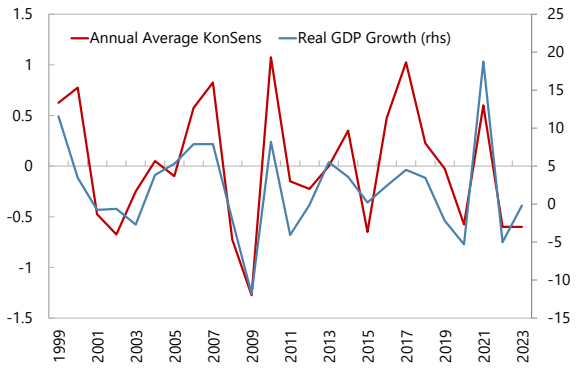
5. Each indicator is standardized to ensure comparability, accounting for variations in scale and units. Principal component analysis is employed to identify the underlying patterns and correlations among the indicators. This reduces the dimensionality of the data, allowing for the extraction of a composite score that reflects the overall economic condition.

6. The KonSens index operates on a continuous scale where values indicate the state of the economy in relation to its long-term average, newly calculated each quarter. Positive values indicate growth above the long-term average since 1998, while negative values indicate growth below this long-term average. Note that a negative value may indicate slow real growth as opposed to negative growth.

7. A limitation of the KonSens is that direct quantitative comparisons cannot be made between index values at different points in time. For example, if the index value declines from 2 in Q1 to 1 in Q2, we can say that economic growth slowed, but we cannot say that it slowed by 50 percent. Another important limitation is that we cannot decompose KonSens to determine economic conditions by activity, such as manufacturing or financial services.

Figure 1. Konsens and Real GDP

Annual Average KonSen and Real GDP Growth Rate (Percent)



Source: Liechtenstein Institute. A KonSens value above 0 is interpreted as seasonally adjusted quarterly growth above average for the period beginning in the second quarter of 1998. Axes are set so that a KonSens value of 0 is aligned with the average annual growth in real GDP – 1999–2023 (2.06 percent).

8. Figure 1 compares the annual average of KonSens quarterly figures with changes in GDP in constant prices, which are available on a substantial lag. This demonstrates the strong value of the KonSens as a predictor of changes in the business cycle since its inception.

C. High-Frequency Indicator of Economic Growth (HFIEG)

9. An HFIEG would be a valuable complement to the KonSens because it will more closely mirror the target measure of national production. The IMF has recently developed a program to support member countries with the process of identifying and aggregating sources to develop HFIEGs based on national accounting principles. One such example is Mongolia, where a monthly indicator of economic growth is now compiled by the National Statistical Office. Other countries that compile HFIEGs include Canada, Mexico, Argentina, Chile, and Uganda. While many countries target a monthly indicator (or MIEG), a quarterly indicator would be beneficial as a first step.

10. This indicator has the following characteristics (Stanger 2020b):

- **Bottom-up approach.** The indicator of total economic activity is calculated as an aggregation of estimates of changes in economic production for each of the most important activity sectors (i.e. manufacturing, trade, financial services, professional services, and public administration).

- **Based on a national accounting framework, with activity value-added weights consistent with the annual national accounts.** This facilitates benchmarking and improves the coherence between the indicator and the target to be forecasted GDP. Changes in production volumes for each activity sector are aggregated to a total economy-wide indicator of growth, using the updated value-added figures available with each new release of the official annual national accounts.

- **Relies heavily on transaction data that are directly tied to specific economic output produced in Liechtenstein, generated from a statistically representative panel of domestic producers.** These include both observed quantities of production and sales values, sourced from administrative tax filings such as value-added tax (VAT) records and/or targeted surveys of large companies. Business sentiment indicators are not used.

- **Estimated on a constant-dollar basis, excluding price effects.** Where values of production are used in the calculation, they are deflated with the most relevant available price index measures. These are likely to include detailed producer price indices (PPIs) from Switzerland. For example, the estimated nominal value of machinery manufacturing in Liechtenstein would be deflated using the Swiss PPI for machinery manufacturing.

- **Provides growth rates showing direct quantitative comparisons** of the value of economic activity over time.

D. Key Steps to Establishing an HFIEG

11. The first step of compiling an HFIEG is analyzing the structure of the economy to determine the most important productive activities. This can be done by listing production activities by value-added in descending order by size. Table 1 shows a list of the largest activities in Liechtenstein based on the preliminary 2022 national accounts compiled by the OS.

Table 1. Liechtenstein: Gross Value Added by NACE Activity - 2022

NACE Activity Classification	2022 Gross Value Added (nominal, Million CHF)	Share	Cumulative Share
28 Manufacture of machinery and equipment n.e.c.	1359.0	20.01%	20.01%
69 Legal and accounting services	638.9	9.41%	29.42%
45-47 Wholesale and retail trade; motor vehicle repair	628.8	9.26%	38.68%
64-66 Financial service activities, insurance, and related services	533.3	7.85%	46.54%
68 Real estate services	461.8	6.80%	53.34%
84 Public administration and defence; compulsory social security	407.0	5.99%	59.33%
31-33 Manufacture of all other products n.e.c; machinery and equipment repair	301.7	4.44%	63.78%
41-43 Construction	273.8	4.03%	67.81%
29-30 Manufacture of motor vehicles and other transport equipment	225.1	3.32%	71.13%
62-63 Computer programming, data processing, hosting, and related services	207.0	3.05%	74.17%
70 Activities of head offices and management consultancy	201.1	2.96%	77.14%
10-12 Manufacture of food, beverage, and tobacco products	186.1	2.74%	79.88%
24-25 Manufacture of basic metals and fabricated metal products	170.3	2.51%	82.38%
26 Manufacture of computer, electronic and optical products	159.4	2.35%	84.73%
77-82 Rental and leasing; business support activities n.e.c.	145.7	2.15%	86.88%
86 Human health activities	117.8	1.73%	88.61%
71 Architectural and engineering activities; technical testing and analysis	108.7	1.60%	90.21%

Source: Liechtenstein Office of Statistics.

12. Next, source data are identified for either values or quantities of output produced by activity. This typically starts with assessing the availability of value-added tax (VAT) data. The Fiscal Authority currently provides the OS with a broad indicator of changes in VAT receipts for large enterprises every six months. This data sharing could be expanded further—the OS should explore with the Fiscal Authority the possibilities of receiving these data on a higher frequency, ideally with expanded coverage of enterprises, and mapping the results to the Nomenclature of Economic Activities (NACE) classification that is currently used by the OS.

13. Monthly merchandise trade exports information can be used to supplement the VAT records. Large Liechtenstein enterprises are mandated to report goods exports data on a quarterly basis to the Swiss National Bank (SNB) as part of the Swiss current account survey. These company reports would provide a strong indicator of changes in production if obtained on a regular basis from the SNB. Expanding the quarterly Liechtenstein economic survey to include quantitative data on sales, production, inventories, expenses, and services exports would also improve measurement of this sector.

14. For other activities, direct estimation of production volumes instead of deflation of production values may be more realistic as a first step. Table 2 lists potential data sources by

activity. These include non-tax administrative records, such as employment and wage data, FMA financial reports, and data from the public health authority.

Table 2. Liechtenstein: Potential Sources for Estimating Real Output

NACE Activity Classification	Potential Sources to Estimate Change in Value of Production	Potential Source to Estimate Change in Prices
Manufacturing	Merchandise exports reported to the SNB, company surveys	Swiss PPIs for manufacturing
Construction	Building permits, government investment, supply of construction inputs, private investment reports of large projects, records of public tenders.	Direct volume estimation (no deflation)
Wholesale and retail trade	Value-added tax data	Swiss CPIs
Financial service activities, insurance, and related services	Assets under management, premiums and claims for insurance, stocks of deposits and loans and interest flows for banking, FMA statistics	Direct volume estimation (no deflation)
Real estate services	Employment, register of realtors, number of transactions	Direct volume estimation (no deflation)
Non-financial services activities	Employment, hours worked	Direct volume estimation (no deflation)
Public administration	Employment, hours worked	Direct volume estimation (no deflation)
Human health activities	Use of services by type of care, usage of hospital beds.	Direct volume estimation (no deflation)

15. In compiling a new HFIEG, emphasis is placed on continual refinement and improvement over time. While the process of developing data sources may take time, interim estimates based on preliminary sources or modeled estimates may be used until the preferred data sources are developed. The indicator may rely on interpolation/estimation to fill data gaps when sources are unavailable.

16. Once data sources are identified and organized, activity-specific volume indices are calculated and aggregated to form the economy-wide HFIEG. A Laspeyres formulation, relying on value-added activity weights from the most recently compiled annual national accounts, is recommended to allow for timely compilation. Seasonal and calendar adjustment methods used to compile the KonSens should be adapted for the HFIEG.

17. The HFIEG should be disseminated by OS on a regular, pre-announced schedule. While it will not be feasible to disseminate detailed volume indices for the entire NACE classification, summary sub-indices such as those for manufacturing, financial services, and other activities would be useful. Developing timely, constant-price growth estimates for specific economic activities will also support faster preliminary estimates of annual real GDP. In this way, development of the HFIEG provides synergies with the key priority of improving the timeliness of annual constant-price GDP in Liechtenstein.

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LIECHTENSTEIN: THE FISCAL SECTOR FRAMEWORK[1]

The paper provides an in-depth analysis of Liechtenstein's fiscal sector, highlighting successful consolidation following the global financial crisis and a fiscal framework anchored by a budget balance rule. Liechtenstein maintains a lean government and a strong fiscal position notwithstanding low corporate and personal income tax rates. Additionally, the paper emphasizes the potential benefits of capital investments in enhancing productivity.

A. Introduction: Post GFC Consolidation

1. Liechtenstein effectively pursued fiscal consolidation following the global financial crisis (GFC). Weak fiscal conditions primarily prompted fiscal consolidation. Real GDP growth averaged 4 percent during 2003-07 but experienced a decline by 12 percent in 2009 in the aftermath of the GFC and international pressure to adhere to the OECD standards on tax information exchange. Consolidation emerged as a policy priority primarily due to deteriorating public finance conditions. The multi-year rolling budget forecast for 2010–14 projected a cumulative deficit 14.4 percent of 2010 GDP, potentially straining state fiscal reserves. The tax reforms prompted structural reforms in the financial sector's regulatory framework.

2. The pace of consolidation was sizeable and frontloaded. The fiscal balance improved by 4.1 percent of GDP during 2014–18. The significant and quick consolidation reflected sustainability concerns and the desire to signal a credible reform commitment. Consolidation was based on revenue and expenditure measures. Expenditure savings comprised current expenses, state pension and health contributions, aid, and subventions to municipalities. The state's contribution towards pensions was reduced and decoupled from current expenditure and civil service recruitment slowed. Revenue measures focused on broadening the tax base targeting income and wealth taxes, and rationalization of administrative fees.

3. Against the backdrop of this successful and enduring consolidation, this paper benchmarks Liechtenstein's fiscal sector against peers, while analyzing factors that have contributed to outcomes. It starts with a discussion of the fiscal framework, benchmarks key fiscal aggregates, and concludes with a review of emerging spending pressures for the conduct of fiscal policy going forward.

B. The Fiscal Framework

4. The quality of fiscal institutions is key to the success of consolidation. Countries with stronger institutions deliver stronger fiscal adjustments and are better positioned to respond to external shocks (IMF 2014; Balasundharam et al. 2023). A strong track record of fiscal management also improves the likelihood of successful consolidation (Alesina, Favero, and Giavazzi 2015). The

[1] Prepared by Rodgers Chawani and Tara Iyer (both EUR).

implication is that fiscal consolidation should be underpinned by a credible medium-term fiscal framework, supported by strong institutions for sound policy design and robust implementation (IMF 2022). Well-functioning institutions can promote credibility and sustainability, enhance transparency and controls, and help assess risks.

5. Liechtenstein's fiscal framework is centered on a budget balance rule (BBR). BBRs may target the overall balance, the structural or cyclically adjusted balance, or the balance over the cycle as an anchor for fiscal policy (IMF 2009). In Liechtenstein, the BBR targets balancing income and expenses in the income statement of the central government over the medium term (Art. 2). The income statement comprises the results of business activities, financial, and extraordinary results—revenues minus expenses. A key component is net results from assets under external management—interest and dividend income and capital gains *less* asset management costs. Dividends derive from companies like the Landesbank, Post AG, and Telecom. Extraordinary results refer to occasional and unusual expenses or income of more than CHF10 million.

6. Liechtenstein aims to achieve a balanced nominal budget in practice. Accordingly, the rule offers clear guidance for communication to parliament and the public. However, it does not systematically use macroeconomic assumptions for revenues or expenses, nor does it consider shocks. The rule is embedded in statutory norms, aiming at discipline and sustainability. The Financial Budget Act (FHG) 2010 envisages a multi-annual framework covering four years, updated annually. Since the rule is enshrined in higher-level legislation, it is difficult to reverse and largely insulated from changes in government conferring stability.

7. Coverage is limited to the central government. Municipalities and social security funds operate autonomously. The rule has escape clauses that provide some flexibility in dealing with rare events, including one-off future-oriented projects. If key financial parameters cannot be met and the additional expenditure or shortfall in revenue is not one-off, the FHG obliges the government to draw up proposals for measures to meet the key financial parameters within six months of the financial plan being discussed in parliament. The measures are presented back to parliament which decides whether they are necessary and instruct the government accordingly.

C. Budget Rule Principles

8. The budget rule is anchored on five principles. The first three parameters must be met on average over the financing plan; the last two must be met at the end of the financial plan period.

- *At least a balanced annual income statement*. This has contributed to budget surpluses and accumulation of sizeable fiscal buffers. Strict adherence to the rule could limit flexibility to respond to shocks given the need to be aligned irrespective of the economic cycle. The focus on *net operating balance* or change in net worth excludes net capital investments.

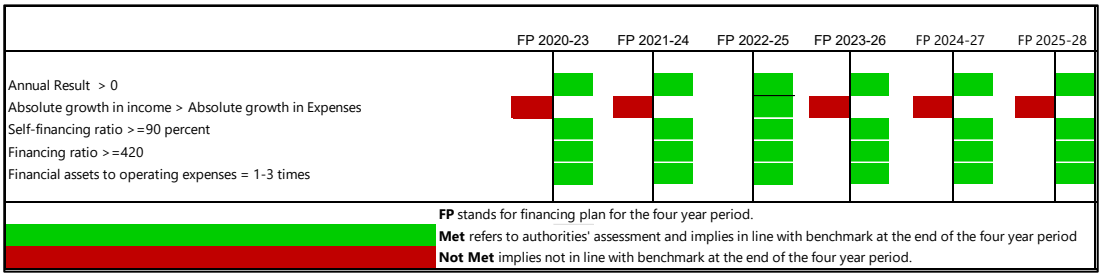
- *The absolute growth of expenditure must not exceed the growth of income*. Strict adherence to this parameter could affect the response to shocks.

- *The ratio between self-financing funds and net investments should be at least 90 percent,* instilling discipline that public investments should primarily be funded through internal resources rather than borrowing. The benchmark has contributed to the current virtually zero debt level. However, it may limit investment in infrastructure or other long-term projects. During a downturn, self-financing may become challenging, leading to underinvestment when it may be needed. Focusing on self-financing may involve high opportunity costs for fiscal buffers. This notwithstanding the Financial Budget Act provides for exceptions for forward-looking and important investments from compliance with the budget rule.

- *The ratio between financial assets and external funds should be at least 420 percent,* providing buffers against market stress, reducing vulnerability to sudden funding disruptions, and signaling enhanced creditworthiness. However, may incentivize a higher-than-norm asset accumulation and involve a higher opportunity cost of maintaining high liquid assets.

- *The ratio between financial assets and operating expenses should be between one and three times,* prioritizing fiscal buffers to cover operational costs and *de facto* being considered as a target for the size of the financial assets. This may risk holding excessive assets with lower overall returns. There is need for analyses of the adequacy of the precautionary balances.

Table 1. Liechtenstein: Central Government Budget Balance Rule



Source: Liechtenstein Authorities

9. Outcomes have been in line with the budget rule except for Benchmark 2. This benchmark has not been met based on the multi-year financing plans. The escape clause has helped to facilitate performance as applying the netting of one-off expenses or income eventually leads to realignment with the rule. There may be scope to review the benchmark given the potential to restrict or delay spending in the context of rising pressures and the track record of frequent breaches.

D. Expenditures

10. Liechtenstein maintains a small government footprint. During the fiscal consolidation, spending declined by 5 percentage points and was significantly lower compared to the Euro area average and Switzerland during 2011–22. Current spending accounted for the bulk of the spending adjustment. The wage bill is among the lowest in Europe at 5.2 percent of GDP. General government employment levels are relatively low at 7.7 percent of the workforce compared to the EU median of

about 16–17 percent. Capital spending was below 2 percent of GDP compared to 3½ percent on average for the EU (2011–22).

11. Social protection spending and public investment are low compared to peers. Social protection is about 36 percent of total government outlays or 8.1 percent of GDP, well below the Euro area average of 16 percent of GDP in 2022. Low social spending is primarily driven by relatively low pension spending following the pension reform of 2013 and reduced state contributions. Public investment is also low and averaged 1.5 percent of GDP during 2013–2022.

12. Liechtenstein spending envelope is stable but experienced unique trends over the last decade (see functional breakdown in Figure). There was the upscaling of public expenditures in the period following the GFC and subsequent structural changes in the regulatory framework for the financial sector. Without policy measures the central government was projected to accumulate a deficit of 13½ percent of GDP by the end of 2014. This led to restructuring of the budget by reducing current expenses and state contributions to the pensions. More recently, the pandemic and energy prices crisis induced another spike in public spending reverting to 31.3 percent of GDP in 2020, reflecting largely discretionary relief measures and augmentation of the Pillar 1 pension.

13. A functional breakdown of expenditures shows social protection and education as the main drivers of public outlays.[2] Spending on social protection was 8 percent of GDP in 2022, significantly lower than Euro area (16 percent) while education expenditure reached 4 percent of GDP in 2022, comparable to that of the Euro area. Reflecting the lean civil service public services outlay were only 4.3 percent of GDP in 2022.

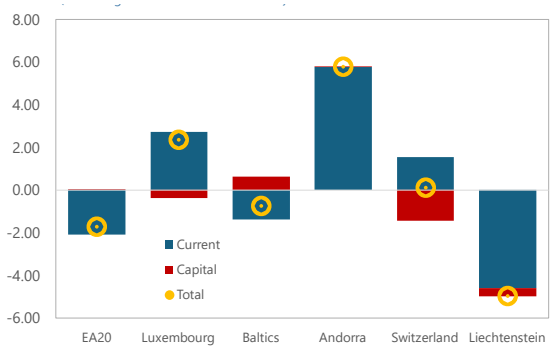
- *Social protection*. Primarily based on a three-pillar system, including old-age and survivors' insurance, disability insurance, family allowances, unemployment insurance, and mandatory health insurance for all residents. The maximum old age pension is CHF 2,450 (paid 13 times a year), and the minimum is CHF 1,225. Old age and survivors' insurance covers old age pensions, widows, and widowers' pensions amounting to 80 percent of the maximum old age pension. A family compensation fund pays one-time childbirth, monthly children, and single parents' allowances.

- *Education*. Public education expenditure reached 4 percent of GDP in 2022 of which government contributed 78 percent while the municipalities funded 22 percent. The state operates own public schools and further provides scholarships and interest-free loans to support education. Education is free and compulsory for children ages 6–15. After compulsory schooling, several paths open relating to general or vocational education and training based on teachers and parents' evaluation. With the excellent vocational training opportunities available, Liechtenstein has a low youth unemployment rate.

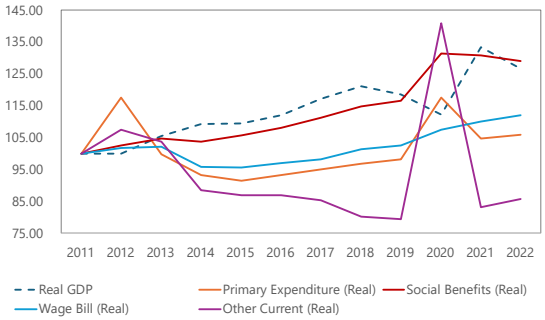
[2] A functional breakdown of spending keeps the analysis tractable makes it easier to incorporate estimates of future spending needs already in the literature.

Figure 1. Evolution of Spending

Change in Total Spending
(Percentage points of GDP, 2021–2022)



Real Primary Expenditure Growth
(In index, 2011=100)



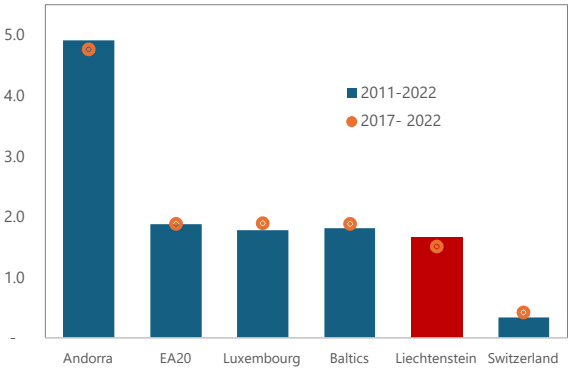
Compensation of Employees
(Percent of GDP)

Sources: Government Finance Statistics, IMF, and IMF Staff Calculations

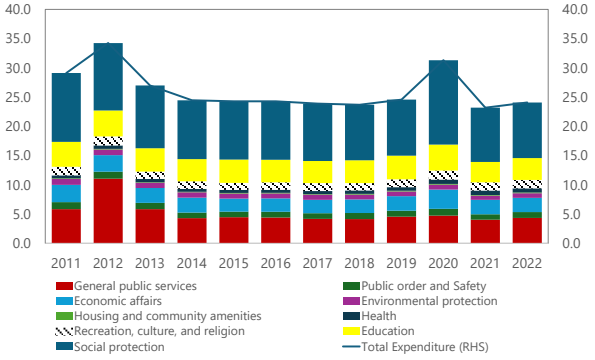
Social Security Benefits
(Percent of GDP)

Sources: Government Finance Statistics, IMF, and IMF Staff Calculations

General Government Capital Spending
(Percent of GDP)



Government Expenditure by Function
(In percent of GDP)



- *Health* – The quality of life is high—life expectancy is 84.3 years (EU 80.6), with women expected to live 2.3 years longer. Liechtenstein has a universal healthcare system that includes public and private healthcare options. Health insurance is mandatory financed by employer and employee based on per capita premium. Government however subsidizes low-income individuals, children, and young adults but only account for 40 percent of health care insurance.

E. Revenue

14. Liechtenstein maintains a low tax regime. The tax-to-GDP ratio has generally been low compared to peers, averaging 14¾ percent of GDP in the last two decades, significantly lower than that of the Austria, Euro area, and Switzerland and at a similar level as Andorra for the past decade. While VAT, customs, heavy goods vehicle tax, CO_2 tax, and stamp duties are levied in line with Swiss regime, the rest of the taxes are determined domestically.

15. Taxation relies on direct taxes. PIT and CIT contribute about 60 percent of the tax revenue. CIT revenue was, on average, higher at 4.5 percent of GDP during 2000-22 for Liechtenstein compared to the Austria (2.4 percent), the Euro area (2.9 percent), and Switzerland (2.7 percent). PIT revenue was lower on average at 3.7 percent of GDP during 2000-22 compared to Austria (9.8 percent) and Switzerland (8.3 percent).

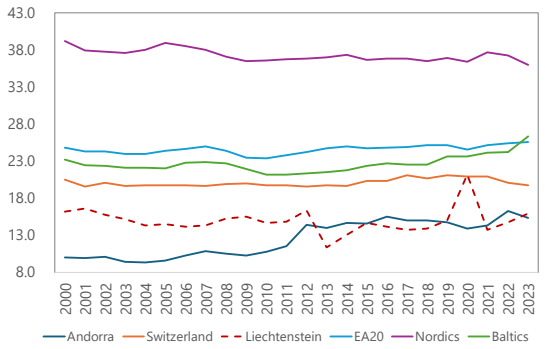
- *PIT*. Residents pay unlimited worldwide income taxes. Individual income taxes cover employment, self-employment, agriculture, forestry, pensions, and other income. A wealth tax is determined by applying a standard return of 4 percent to the net worth of notional income. Non-residents are subject to taxation on income sourced from Liechtenstein, which includes earnings from employment and pensions. This taxation is however limited due to double tax agreements. Progressive PIT rates vary from 2.5 to 24 percent.

- *CIT*. Levied on a company's profit, allowing for tax-related adjustments, including a 4 percent notional interest. Dividend income and capital gains from the sale of participations are generally exempt from taxation if the anti-abuse provision does not apply. Income on assets under the management of investment funds is not taxed at the level of the investment fund company. The CIT rate has remained at 12.5 percent. The Principality has signed numerous double tax agreements with countries worldwide.

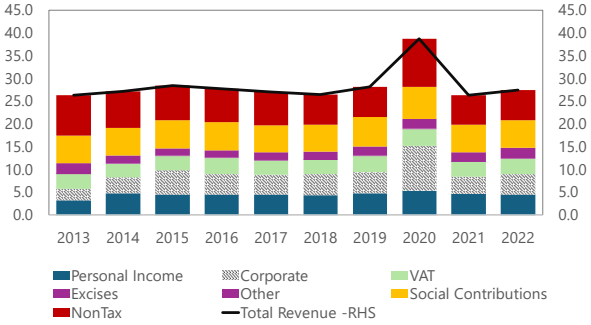
16. Indirect taxes comprise VAT; excise taxes have remained very low. The VAT rate recently increased from 7.7 to 8.1 percent in line with Switzerland, still much lower compared to EU peers. A reduced VAT rate of 2.6 percent applies for some goods and services, including water and cultural services, and to certain sectors, notably agriculture. The hotel and lodging industry is subject to a reduced VAT rate of 3.8 percent. Medical treatment and real estate are exempted.

Figure 2. Evolution of Revenue and Taxes

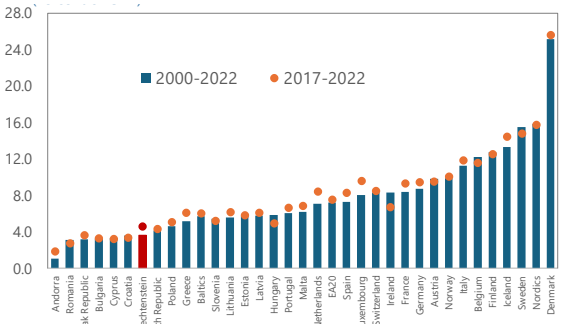
General Government Taxes
(Percent of GDP)



General Government Revenue by Type
(In percent)

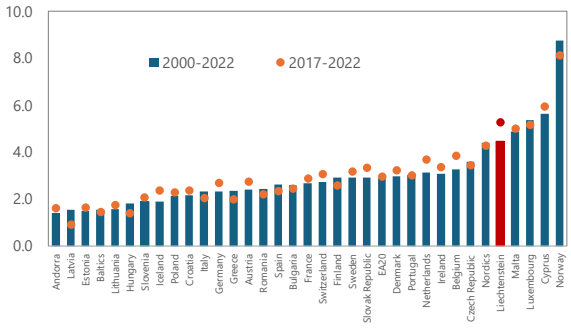


Personal Income Tax
(Percent of GDP)



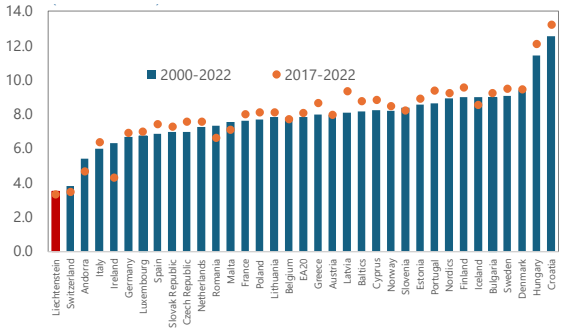
Sources: Government Finance Statistics, IMF, and IMF Staff Calculations

Corporate Income Tax
(Percent of GDP)



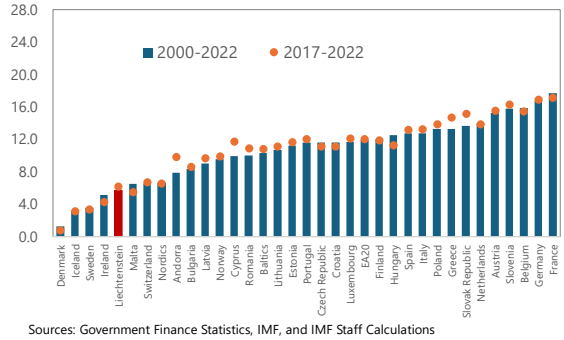
Sources: Government Finance Statistics, IMF, and IMF Staff Calculations

Value Added Tax
(Percent of GDP)



Sources: Government Finance Statistics, IMF, and IMF Staff Calculations

Social Contributions
(Percent of GDP)



Sources: Government Finance Statistics, IMF, and IMF Staff Calculations

17. Despite the existing preferential treatments, collection of VAT is broader compared to peers. In terms of performance, the OECD VAT revenue ratio (VRR) provides a measure of the extent to which a VAT regime collects on the natural base of the tax i.e., final consumption expenditure. To achieve this, the VRR estimates the difference, if any, between the VAT revenue collected under a country's VAT regime and what would theoretically be raised if VAT was uniformly applied at the standard rate to the entire potential tax base. The formula is:

$$VRR = VR/(\beta\ X\ r)$$

Where: VR = actual VAT revenues; β = potential tax base and r = standard VAT rate (default VAT rate applicable to the tax base). The significant data limitations notwithstanding, the OECD unweighted VRR for Liechtenstein and Switzerland is about 0.7 on average which suggests that, on average, an estimated 30 percent of theoretical potential VAT revenue is not collected, lower compared to the OECD average of 42 percent. This implies VAT compliance is high.

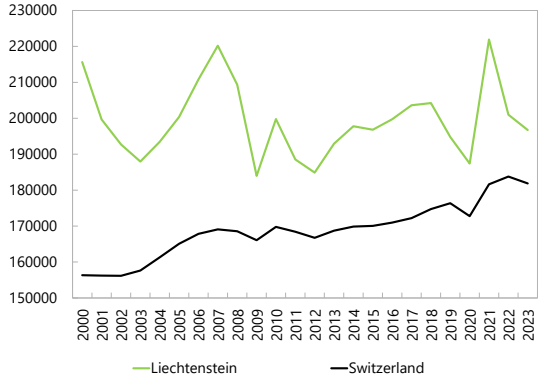
18. Aligning with international tax standards remains a policy priority. Liechtenstein joined the inclusive framework on Base Erosion and Profit Shifting (BEPS) in 2016, complies with all international standards on exchange of tax information, elimination of harmful tax practices, and artificial tax structures. Liechtenstein is implementing the OECD Pillar II tax reforms although the impact has not been quantified. Liechtenstein introduced an income inclusion rule (IIR) and a qualified domestic top-up tax (QDMTT) effective January 2024. This measure ensures that all domestic group companies are subject to the effective taxation of 15 percent. The undertaxed payment rule (UTPR) is not effective yet. The impact on tax revenue has not been quantified; if foreign jurisdictions in which multinational corporate groups operate already ensure sufficient taxation, then IIR does not lead to any additional income.

F. Impact of Infrastructure Investment on Productivity

19. Productivity in Liechtenstein has been flat over the past two decades. Productivity, measured as real GDP per full-time equivalent (FTE), has been volatile but not grown over time. Productivity is higher than in Switzerland, but the gap has narrowed. Based on other estimated measures (e.g., productivity measured through hours worked), productivity has been declining in Liechtenstein while it has increased in Switzerland. Liechtenstein is exposed to some structural and cyclical factors that have led to a stagnation in productivity in Europe. One contributor is an aging workforce, which reduces labor

Figure 3. Productivity in Liechtenstein and Switzerland

(Real GDP per FTE, CHF)



Source: Liechtenstein Authority.

supply and can lower overall productivity. In recent years, geopolitical uncertainties have affected business confidence and investment.

20. Additional public investment spending may boost productivity and potential growth.[3] For example, investment in infrastructure might support increased productivity by stimulating additional private investment and reducing congestion and travel times (see the Labor Market SIP).

[3] A tractable empirical model estimated on Liechtenstein data with variables including public investment, productivity, and GDP growth also indicates that there is a positive impact on productivity of increased public capital spending. If capital spending/GDP were to increase by 1pp, the model predicts that there would be a temporary boost to productivity growth by around 3 percent. There is some uncertainty on these effects given data limitations, and it would be useful to extend the analysis to include more variables as macroeconomic statistics are extended.

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LIECHTENSTEIN AS A FINANCIAL CENTER[1]

Liechtenstein actively pursues an international financial center strategy. Following the global financial crisis and international demands for transparency, Liechtenstein focused on transparency and compliance. This paper describes the financial center, its strategy, its evolution, and related risks.

A. Introduction: The Financial Center Strategy

1. Liechtenstein pursues an international financial center strategy. The strategy aims to secure growth and development through well-paying jobs, a robust economy, and a strong tax base. An international financial center concentrates financial institutions that mainly serve non-resident clients. For Liechtenstein, the sector primarily focuses on asset management for international institutional investors and private clients. Liechtenstein has leveraged its dual access to the EU and the Swiss financial markets and low taxes to attract international business. The authorities adhere to and enforce international standards and rules, transparency, and a predictable legal system.

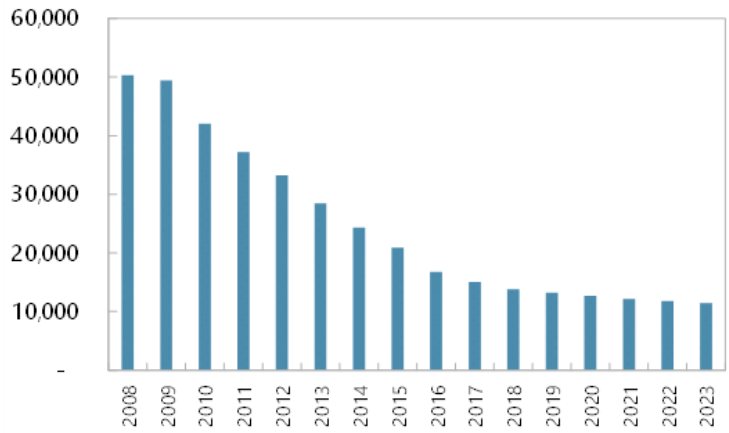
2. Liechtenstein has shifted away from a model of secrecy to transparency and compliance. Money laundering and tax evasion scandals occurring between the 1970's–2000's put pressure on Liechtenstein, particularly immediately after the Global Financial Crisis. It repositioned the financial center model, with adherence to international norms becoming the cornerstone of the new strategy. Liechtenstein's approach to international cooperation was overhauled and a completely new regulatory framework according to international standards was established including the implementation of FATCA and Automatic Exchange of Information in Tax Matters as an early adopter.

3. The shift has had an important impact on the regulatory approach. FMA was established in 2005 to ensure financial market stability, protect clients, prevent abuse, and comply with international standards. FMA publishes an annual stability report. Supervision is fully integrated with the European System of Financial Supervision framework, and Liechtenstein, as a member of EEA, is compliant with European financial market regulations, which are transposed to national law.

4. The shift has also had an important impact on the financial sector. The sector has internalized the value of adherence to international regulations, including AML/CFT requirements and sanctions adherence. The strongest impact has been on the fiduciary sector. Since the authorities enacted a new law in 2008, the number of trusts and foundations has decreased by 80 percent (see Figure 1). The regulatory framework is constantly being adapted. For instance, the Professional Trustee Act is under review to strengthen the fit & proper requirements for trustees, provide FMA with more power to intervene, and enhance data availability, including data on interlinkages with the financial sector.

[1] Prepared by Thomas Elkjaer (EUR).

Figure 1. Number of Trusts and Foundations



Source: Liechtenstein Authorities.
Note: There are no data on the size of trusts, type of assets and interlinkage with the financial sectors.

B. Structure of the International Financial Center

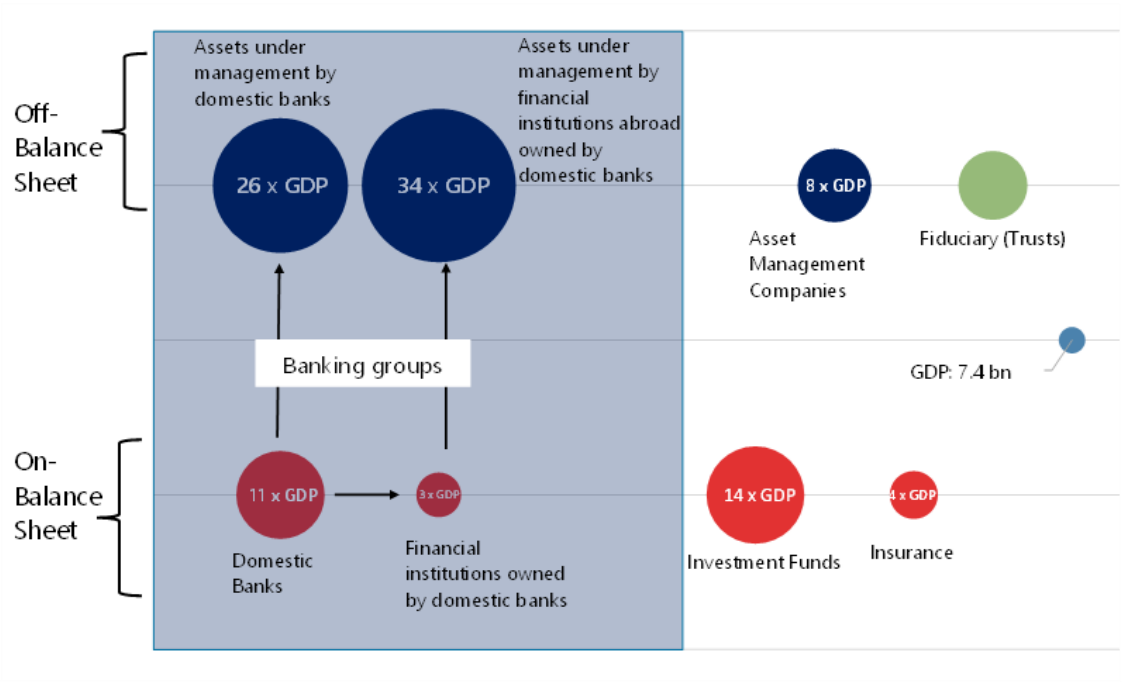
Characteristics

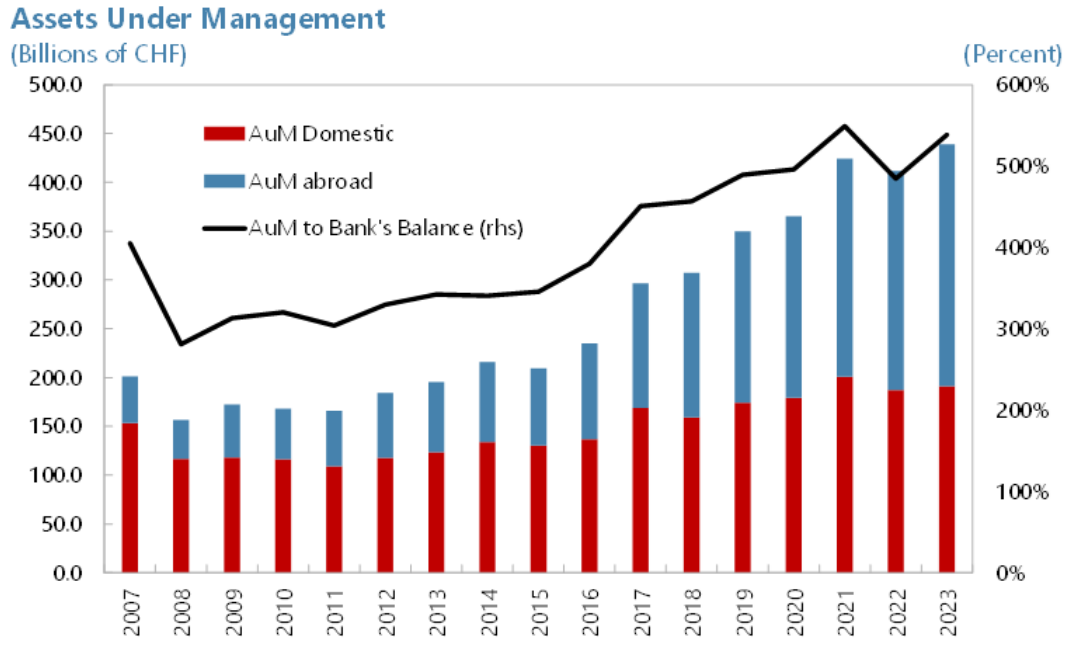
5. Like other international financial centers, the financial sector in Liechtenstein is outsized compared to the economy. The financial sector in the broadest measure, i.e. including both on-balance and off-balance sheet and activities in foreign subsidiaries, was CHF 773 billion in 2023, 100x GDP, while in the narrowest measure, i.e. domestic banks, it was CHF 81.5 billion or 11x GDP (see Figure 2).[2] A proxy for international clients' holdings is the combined size of assets under management (AuM), either by banks or asset management companies, and investment funds, which is CHF 539 billion and makes up 75 percent of the total financial sector. These activities are either off-balance sheet (AuM) or unleveraged (investments funds). Since 2007, AuM has more than doubled, and the growth has mostly been abroad as banks have expanded their management networks in Europe, the Middle East, and Asia, (see Figure 2). In addition, insurance companies write premiums overwhelmingly for non-residents.

6. Unlike some financial centers, Liechtenstein is not a host for shell corporations. Some offshore centers host Special Purpose Enterprises (SPEs), companies with few or no employees, minimal production, and no activities beyond holdings and financing. Liechtenstein is different in that inward FDI into resident SPEs as a percentage of GDP is low and that most inward FDI is not in SPEs but in companies with physical production presence in Liechtenstein (Figure 3).

[2] Some caveats apply to the size of the financial sector, see note 1 in Figure 2.

Figure 2. Financial System 1/ 2/

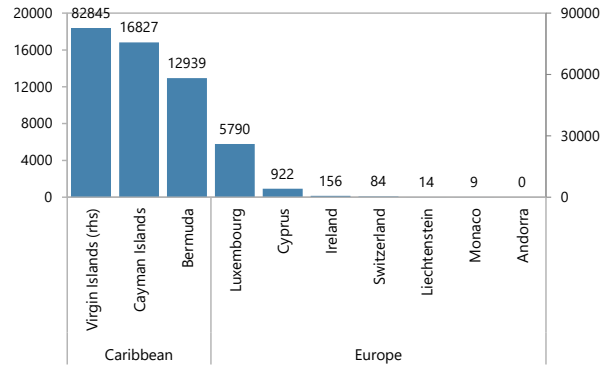




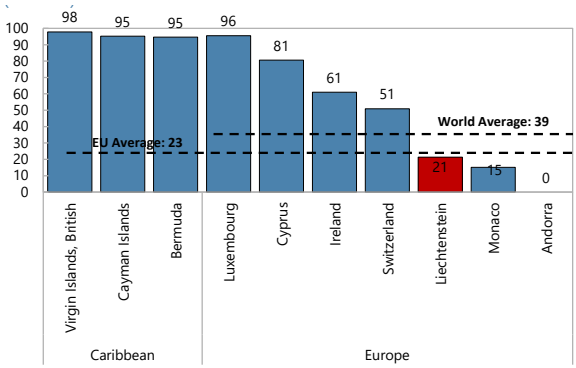
Sources: Liechtenstein Authorities and IMF staff's calculation
1/ Staff estimates based on FMA's "Liechtenstein Financial Centre 2024" report. Three main caveats apply: first, data do not align fully with statistical standards on residency; second, double counting may occur; third, since no data are available on the size of fiduciary sector, the size of the dot does not represent an estimate but only serves as an illustration.
2/ Banks' balance sheets on a consolidated level.

Figure 3. Inward FDI

Inward FDI Position Into Resident SPEs to GDP, 2017
(Percent)



Ratio of Inward FDI Into SPEs to Total Inward FDI end-2017
(Percent)



Source: Damgaard, Elkjaer and Johannesen (2024) and IMF staff calculations.
Note: The chart data is uncertain due to (i) Liechtenstein does not report these data, instead the data is either mirror data, i.e. data from other countries, or estimated based on Orbis company database, (ii) some FDI relationships through trust holdings may not be reflected.

C. Risks

7. Being a financial center carries important risks. There are compliance and reputational risks, particularly in AML/CFT, cross-border activities, and wealth management. Obfuscation of ownership or the origin of assets through complex structures can be a complication for both the financial sector and the supervisory authority. Nonadherence can jeopardize international banking relationship and Liechtenstein's statue as a financial center.

8. There are also specific operational and legal risks. Liechtenstein relies on Swiss financial market infrastructure, but Switzerland is not in EU/EEA. Against this background, the access of Liechtenstein's financial sector to Swiss FMI is subject to legal uncertainty, particularly in cases where the Swiss regulatory and supervisory regime is not considered equivalent to the EU regime. The use of alternative providers in the EU could be costly and potentially undermine Liechtenstein's access to the Swiss franc currency area in the worst case. These risks are less urgent given a moratorium until 2030 on the EU's equivalence decisions on key components of the Swiss FMI.

9. AuM are off-balance sheet and investments funds are unleveraged, mitigating balance sheet risks. Wealth management activities are mostly off-balance sheets with the related on-balance sheet activities largely consisting of collateralized Lombard loans (around 20 percent of total assets) and simple deposits from AuM clients. Off-balance sheet activities present no direct risks to the banks. While the activities of investment funds are on-balance sheet, funds in Liechtenstein are typically unleveraged and maturity profiles does not point to liquidity mismatches. Therefore, the fund sector is not likely to be a source of systemic risk.

10. The international business model entails high touch service and compliance costs. The AuM business model is operationally challenging. Private banking and wealth management entails high-touch service and high compliance demands, which are labor intensive and drives cost. Employees (on an FTE basis) in banks in Liechtenstein (foreign subsidiaries not included) has increased from 2.300 in 2016 to 3.300 in 2023. Higher growth in cost than revenue is driving the cost-to-income ratio up (78.3 percent at second quarter 2024). AuM are banks' main business model and important for long-term profitability. In the first half of 2024, 56 percent of revenue came from net commissions mostly generated from the AuM business, which is sensitive to global financial conditions and geopolitical fragmentation.

D. Conclusion

11. Liechtenstein pursues an international financial center strategy. Like other IFCs, the financial sector in Liechtenstein is outsized compared to the economy. Unlike many financial centers, Liechtenstein is not a host for shell corporations. In response to the Global Financial Crisis in 2008-09 and international pressure, Liechtenstein shifted away from secrecy to transparency. This shift profoundly impacted the regulatory approach, with a strong focus on compliance with international standards and regulations, including for the financial sector. A significant part of the financial operations is either off-balance sheet or unleveraged and thus present no direct financial risks. However, the international financial center strategy carries inherent risks given the international client base. Robust financial sector oversight and compliance with international regulations, including AML/CFT requirements, should continue to be key elements of Liechtenstein's international financial center strategy.

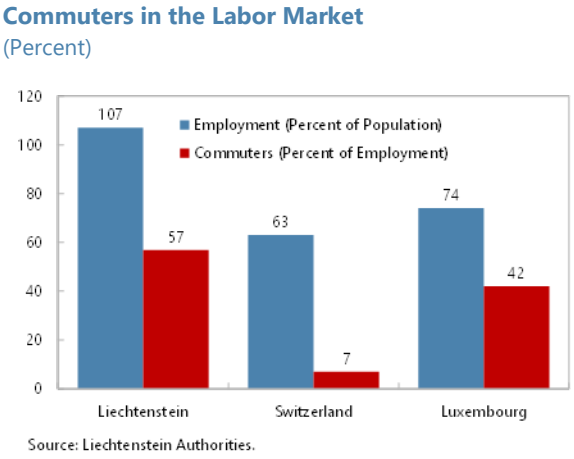
LABOR MARKET IN LIECHTENSTEIN[1]

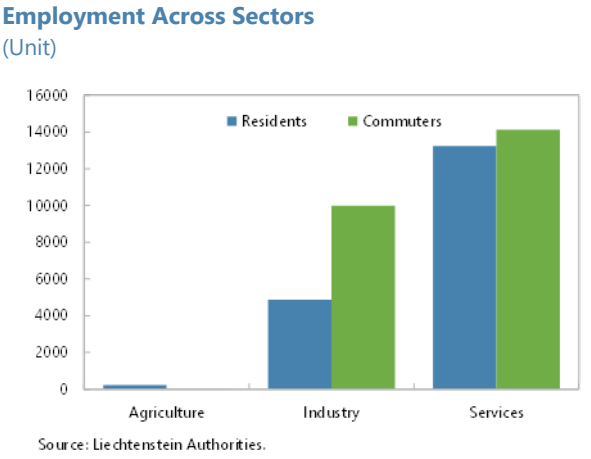
Liechtenstein's labor market is characterized by a high reliance on non-resident workers, with commuters comprising the greater share of employment, particularly in higher-skilled occupations. With the steady inflow of skilled labor, infrastructure constraints have come into play and productivity has stagnated over time. Furthermore, a sizeable gender pay gap exists and the labor force participation of women and older workers remains relatively low.

A. Labor Market Characteristics: Cross-border Commuters and Foreign Nationals

1. Liechtenstein's labor market is influenced by commuters. Liechtenstein is an export-oriented economy, specializing in engineering and financial services. Businesses rely strongly on non-resident workers, who outnumber residents (Figure 1b). This has been enabled by a well-connected regional transportation system. The growth in commuters has led to employment exceeding population (Figure 1a), and the job market becoming more comprised of foreign nationals (Figure 2). The vast majority of commuters travel from Switzerland and Austria, and the share of Swiss commuters has increased over time (Figures 1c, d). In recent years, eight out of ten vacancies have been filled by non-resident workers.

Figure 1. Integration of Commuters in the Labor Market

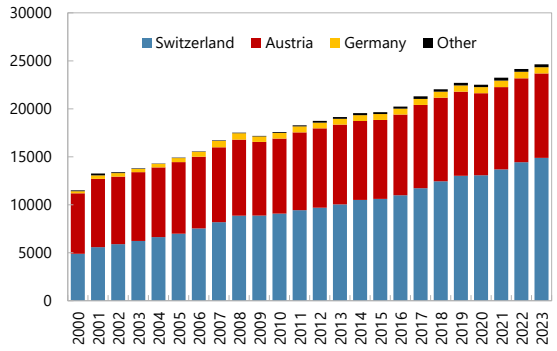




[1] Prepared by Tara Iyer (EUR).

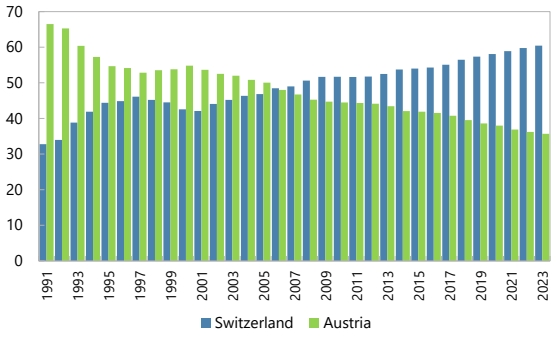
Figure 1. Integration of Commuters in the Labor Market (Concluded)

Composition of Commuters to Liechtenstein
(Person)



Source: Liechtenstein Authorities.

Share of Overall Commuters
(Percent)



Source: Liechtenstein Authorities.

B. Skills Mismatch and the Distribution of Wages

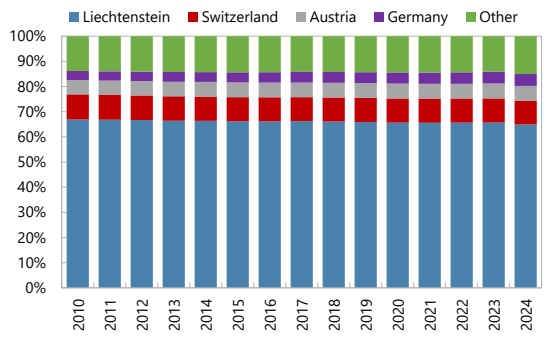
2. Commuters are more likely than residents to be employed in higher-skilled occupations (Figure 3). For example, in the industry sector, 23 percent of commuters are engineers, compared to 13 percent of residents, while 12 percent of commuters are construction workers compared to 29 percent of residents. In the services sector, 21 percent of non-resident workers worked in financial services compared to 12 percent of residents.[2]

3. The need for skilled workers has led to a wage premium for commuters (Figures 3c, 3d), and implementation of labor policy measures to upskill residents. A number of labor policy measures have been enacted to foster the development of skilled resident workers including promoting vocational training, strengthening dual training, promoting digital skills, and partnering with educational institutions to integrate digital content into training programs.

[2] The categorization by level of skills is indicative. An alternate method accounting for each subsector's share relative to the total resident and commuter workforce also yields similar qualitative results.

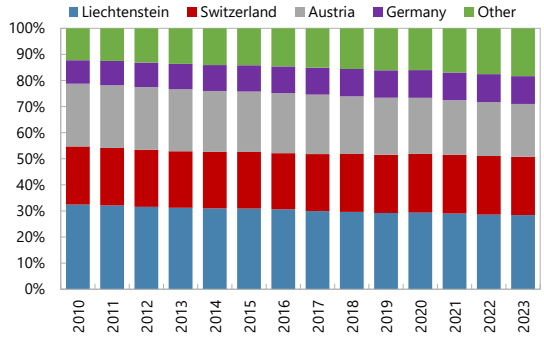
Figure 2. Nationality of Workers in the Labor Market

Population by Nationality
(Percent)



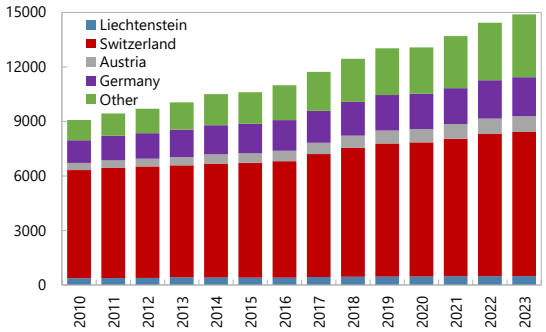
Source: Liechtenstein Office of Statistics.

Employment by Nationality
(Percent)



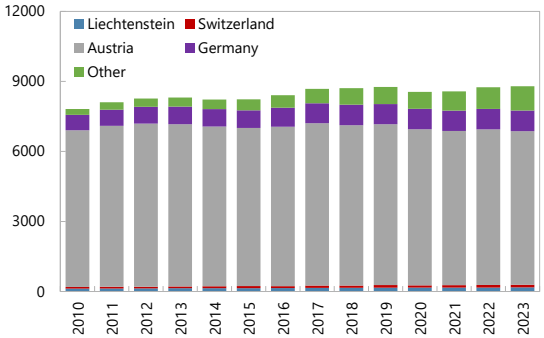
Source: Liechtenstein Office of Statistics.

Nationality of Commuters From Switzerland
(Person)



Source: Liechtenstein Office of Statistics.

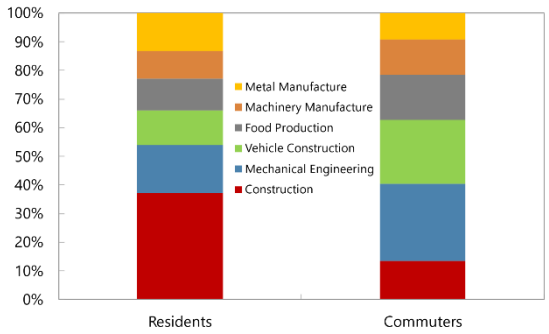
Nationality of Commuters From Austria
(Person)



Source: Liechtenstein Office of Statistics.

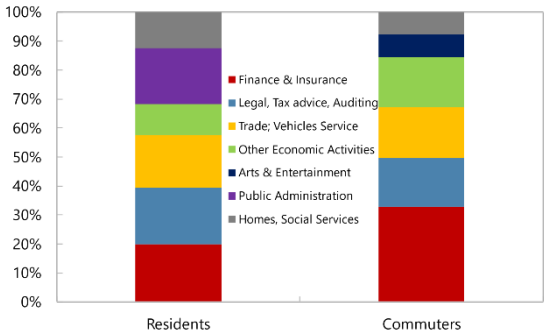
Figure 3. Employment and Wage Distribution by Resident Status

Industry Employment (Top 6 Sectors)
(Percentage point contributions)



Source: Liechtenstein Authorities.

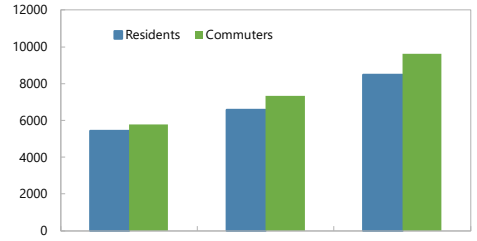
Services Employment (Top 6 Sectors)
(Percentage point contributions)



Source: Liechtenstein Authorities.

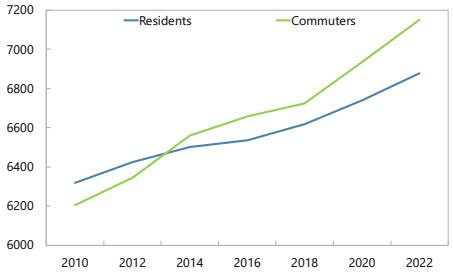
Figure 3. Employment and Wage Distribution by Resident Status (Concluded)

Wage Distribution by Resident Status: Industry
(CHF)



Source: Liechtenstein Office of Statistics.
Note: For services, there is a slight wage premium for residents in the lower quartile and the median, and a slight wage premium for commuters in the upper quartile.

Evolution of Wages by Resident Status
(Median Wages, CHF)



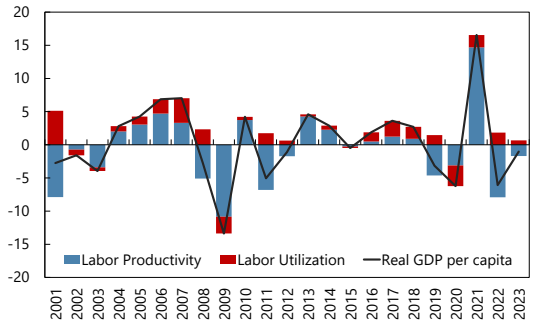
Source: Liechtenstein Office of Statistics.

C. Infrastructure Constraints and Productivity

4. To promote productivity and growth, the enhancement of skills and infrastructure is important. Productivity has not grown despite the inflow of high-skilled labor. Without the skilled imported labor into Liechtenstein, productivity growth is likely to have been even lower. This underscores the importance of continuing to invest in skills training and productivity-enhancing infrastructure.[3] High traffic and congestion during peak commuting hours has become a much-discussed topic (Mobility Concept Report, 2030).

Figure 4. Real GDP per Capita Decomposition

Contribution of Labor Productivity and Utilization
(Percent year-on-year and contributions in percentage points)



Source: Liechtenstein Authorities and IMF staff calculations.

[3] An extensive academic literature documents a significant, positive impact on productivity and economic outcomes of (i) skills (eg. Mankiw, Romer, and Weil, 1992; Card, 1999; Katz and Autor, 1999, Acemoglu and Autor, 2011; Heckman, Stixrud, and Urzua, 2006); and (ii) infrastructure investments (eg. Aschauer, 1989; Munnell, 1992; Fernald, 1999; Calderón and Servén, 2017; Duranton and Turner, 2018).

D. Increasing Labor Supply

5. Aggregate labor supply has increased over time, even as the labor market has become tighter. The labor force participation rate of residents increased to 77.8 percent in 2023 from under 74 percent a decade ago. Over the same time period, the labor market has become tighter as the unemployment rate declined. The unemployment rate is now lower than the EU average and other comparator countries.

6. The labor supply of women and older workers remains relatively low (Figure 5). The labor force participation rate of women has increased over the past two decades but, at 72.2 percent in 2023, remains more than 10 percentage points below that of men. Notably, the unemployment rate of women is lower than that of men, having declined by more over the past decade and a half (Figure 5c), possibly reflecting that women are more likely than men to leave the labor force if they cannot find a suitable job, and as one salary may be enough in some households given the income distribution. The participation rate of older workers is even lower than that of women at 56.6 percent in 2023. Improving the labor supply of women and older workers can yield significant economic benefits (e.g. IMF, 2013, 2020). Retaining older workers may alleviate labor shortages and leverage experience.

7. A sizeable gender wage gap exists that increases with age and leads to lower lifetime earnings for women. The gender wage gap averages around 14 percent, higher than the EU average. This gap has decreased across the age distribution since 2006 but remains significant (Figure 5b). The gap rises with age, and averages above 21 percent for female workers above age 45. The taxable income of women tends to drop with age, while it keeps rising until age 60 for men (Figure 5d). The gender gap in the labor market exists despite a narrowing of the gap in tertiary educational enrollment. For tertiary school, the percent of males enrolled declined from 58 percent in 2015 to 50 percent in 2022, while it increased from 42 percent to 50 percent for females. The Gender Equality Act seeks to ensure workplace equality between women and men and to guarantee equal access to goods and services. It prohibits discrimination based on gender, marital or family status, and pregnancy or maternity in employment relationships, whether in private or public law.

Figure 5. Labor Supply and Earnings by Gender and Age

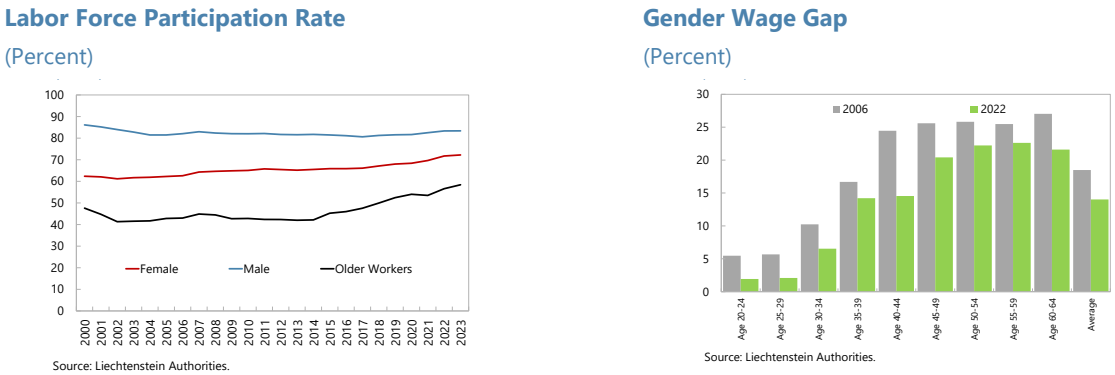
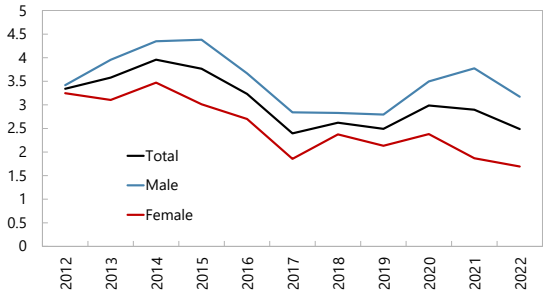


Figure 5. Labor Supply and Earnings by Gender and Age (Concluded)

Unemployment Rate

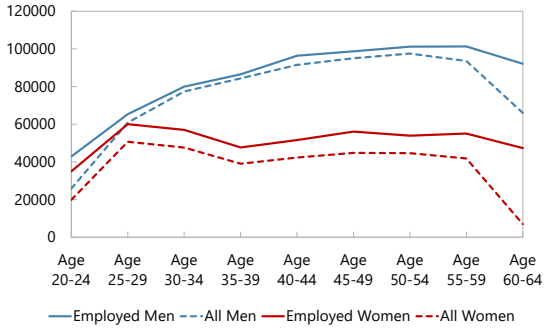
(Percent)



Source: Liechtenstein Authorities.
Note: The unemployment rate in the chart follows ILO's definition which includes both registered and unregistered unemployment.

Taxable Income by Gender and Age

(CHF)



Source: Liechtenstein Office of Statistics.

E. Conclusion

8. Skill shortages across industry and services characterize the labor market despite growth in commuters. The government has aimed to expand educational offerings, offer career counseling for employees, recognize qualifications, increase the attractiveness of jobs in shortage occupations such as STEM, and promote and establish lifelong learning. Measures to upskill residents that have been implemented are: (i) state-supported vocational training in new technologies and industry-specific skills; (ii) a dual-training system linked to the private sector that includes courses in fintech and automated manufacturing; (iii) a digital skills transformation program aimed to boost IT skills in finance and engineering; and (iv) programs that promote retraining for workers from other sectors into finance and engineering. Infrastructure development, including in cross-border transport, could reduce congestion and travel time for high-skilled commuters, leading to higher aggregate productivity. Further planned measures to upskill residents include:

- Centers to support R&D, fostering collaboration between business and education to prepare skilled workers for future technologies.
- Further education for mechanical engineers on energy-efficient machines and in the financial sector for sustainable investments.
- Training programs to enhance skillsets of older workers for new technological roles.
- Collaboration with the EU and Switzerland in education and research to attract highly qualified specialists to Liechtenstein.
- Further training in fintech, blockchain, cryptocurrencies, and automated advisory services.

- Further training in automation, robotics, and additive manufacturing processes.

9. Measures to address gender pay disparities and the lower labor supply of women and older workers would improve macroeconomic outcomes. The lifetime earnings of women are well below that of men in Liechtenstein. Moreover, the labor force participation rate of women and older workers is still relatively low. Empirical evidence indicates that retaining women and older workers in the labor force can boost growth and lead to improved labor market outcomes. The authorities have recognized these issues in a 2024 report "Measures to Increase Workforce Potential and Labor Force Participation." Specific actions include offering flexible work options, extending parental leave for men, creating part-time positions aligned with qualifications, and supporting childcare facilities and expanding childcare options within schools. Other measures might include greater public investment in childcare facilities, and enhanced job re-training and integration programs for new mothers returning to the labor force. To promote the labor supply of older workers, planned measures include an extension of the retirement age, flexibility in work schedules, offering pre-retirement career counselling, encouraging longer employment within the public administration, and improving work environments for extended employment in later years.

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LIECHTENSTEIN'S PENSION SYSTEM[1]

Liechtenstein's pension system is structured around a three-pillar framework designed to provide a balanced, sustainable, and secure retirement income. This well-capitalized system aims to safeguard a basic income level for all employees while encouraging supplemental private savings and income.

A. Overview of the Pension System

1. Liechtenstein's pension system rests on three complimentary pillars: (i) Old Age and Survivors' Insurance (AHV-IV-FAK); (ii) an occupational scheme; and (iii) voluntary insurance. The multi-tiered system helps secure and sustain a post-retirement minimum standard of living. The system has accumulated savings exceeding 150 percent of GDP, third globally after Denmark and Iceland, and higher than in Switzerland.

B. Pillar I

2. The public pension aims to guarantee a secure standard of living for retirees. It comprises mainly three distinct arms that are supervised by government and report to parliament Benefits are influenced by salary levels and duration of contributions. The retirement age is 65 years for both men and women; early retirement can be initiated at 60 or deferred until 70. The system aims at redistribution: high-income earners typically contribute significantly more to the AHV than they receive upon retirement, while low-wage earners receive higher returns relative to contributions. The system guarantees a minimum monthly pension with a replacement ratio of about 35 percent (see Figure 2), below the recommended international minimum of 40 percent, yet complemented by Pillar 2.

3. Funding of the AHV-IV-FAK statutory pension is diverse.

- *Old Age and Survivors Insurance (AHV)* – While a pay-as-you-go system, considerable balances have been built. The funding basis is employers (4.2 percent), employees (4.0 percent), self-employed individuals (8.3 percent), and non-active persons who benefit from state contributions.

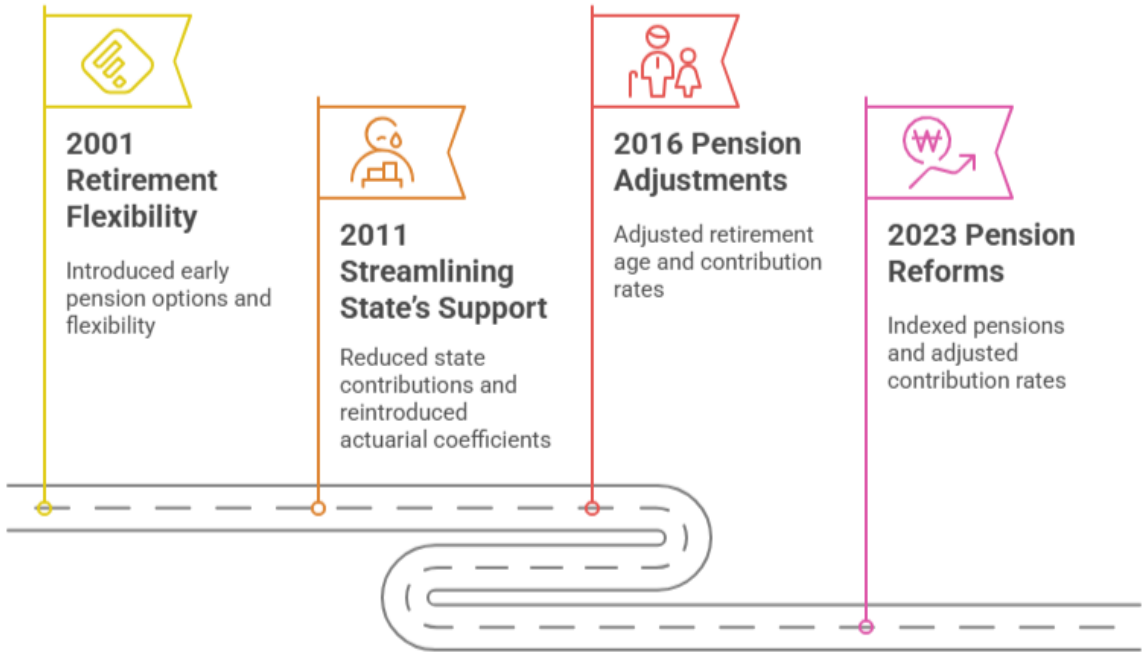
- *Invalidity Insurance (IV)* – A pay-as-you-go disability system funded by AHV contributors. Also holds reserve. Contributions from employees (0.7 percent), employers (0.7 percent) and self-employed (1.4 percent). No funding from state resources.

- *Family Compensation Fund (FAK)* – Solely funded by employers (1.9 percent), self-employed (1.9 percent), and non-active people.

[1] Prepared by Rodgers Chawani

- *Additional Contributions* – The State and Municipalities provide mean-tested supplementary benefits for pensioners, vulnerable, blind, homecare, and medical rehabilitation.

Figure 1. Key Pillar I Pension Reforms



4. Several reforms have anchored sustainability of the AHV-IV-FAK. These aimed at greater retirement flexibility, streamlining state support, aligning effective retirement ages, and addressing the evolving economic landscape.

- *2001*. Reforms paved the way for early retirement at 60.

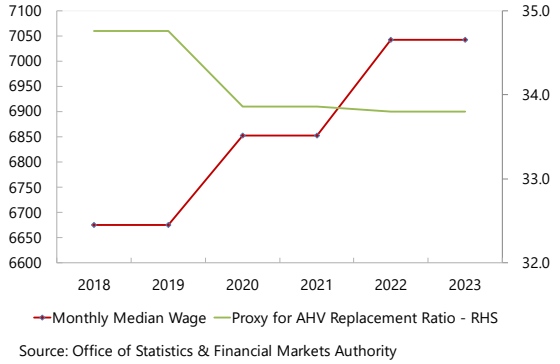
- *2011*. Reforms implemented in the context of budget pressures following the global financial crisis. Measures included reducing the state's contribution, adjusting pensions in line with the consumer price index, re-introduction of actuarial reduction coefficients for early pensioners, and re-allocation of 0.2 percent of wage contributions from the FAK which was overfunded.

- *2016*. Parliament approved an annual state contribution of CHF 30 million to AHV, with inflation adjustment, and increased and equalized the statutory retirement for men and women to 65 years. It implemented an intervention mechanism mandating a financial examination of the AHV every five years. Should the audit reveal assets below five years of annual expenditures, the government must present measures to parliament to rectify the situation within one year. The most recent report to parliament indicates that the ratio of the AHV fund to annual expenditure

is projected to decline from 9.9 to below 5.0 by 2043, thereby requiring specific proposals to be presented to parliament (Government of Liechtenstein, 2024).

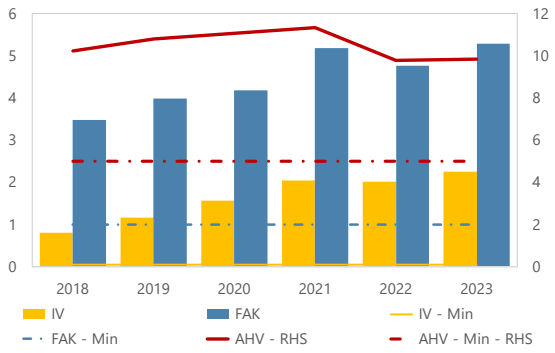
Figure 2. The Pillar I Pension System

Average Monthly Wage and AHV Replacement Ratio
(CHF, Percent)

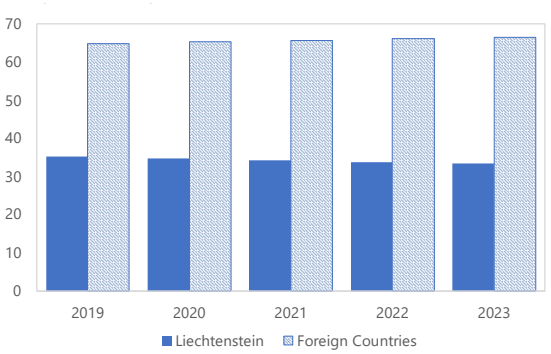


Source: Office of Statistics & Financial Markets Authority

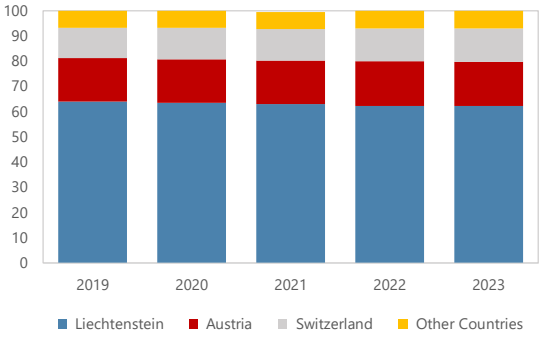
Assets Relative to Annual Expenditure
(Percent)



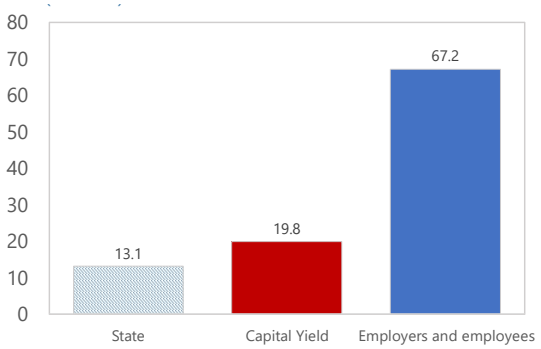
Pension Recipients by Residence
(Percent of Total)



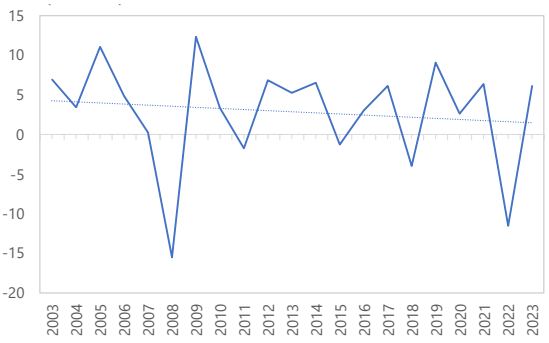
Pension Payments by Nationality
(Percent of Total)



Source of Funds for the Pillar I Pension Fund
(Percent)



Pillar I Pension Investment Performance
(Percent)



- *2022–23.* Shifted contribution rates from the overfunded IV towards the FAK and indexed pensions to an arithmetic average of consumer price index and wage index.

- *Future reforms.* The EU directive on work-life balance for parents and carers will become effective in January 2026 and includes guaranteeing four months of parental leave for each parent for children up to three years; financial compensation for two months (about CHF 4,900 per month); additional leave of 10 days for fathers including compensation of 80 percent of wages.

5. The pension system embeds several intervention mechanisms to ensure stable financing. Should reserves decline to below five times the annual expenditures, the ability to adjust pensions according to inflation is halted. The IV includes a financing mechanism that guarantees a state contribution will be made in accordance with the Disability Insurance Act if reserves decline to below 0.05 of annual expenditures. Current annual expenditures are at a ratio of 2.25 (see Figure 2). The FAK includes a mechanism that stipulates a defined state contribution to the Fund if reserves drop below one annual expenditure. Current reserves are at 5.29 times the annual expenditure.

6. Foreign participation is a unique characteristic of the pension system. About 66 percent of Pillar I's recipients are from foreign countries (Figure). This reflects labor force characteristics and foreign commuters. Still, most payments are made to residents given the short-term nature of most of the employment (Figure 2).

7. Pillar I is funded predominantly by employer and employee contributions. Contributions from insured persons and employees are 67.2 percent; the government contributes 13.1 percent. Capital gains constitute 19.8 percent. In terms of asset allocation, the AHV-IV-FAK targets: bonds (50 percent, of which Switzerland accounts for 67 percent); shares (33 percent, of which Switzerland accounts for a third); and alternative investments and real estate 7 percent each.

C. Pillar 2

8. The public Pillar 1 is complemented by a second pillar, a mandatory occupational scheme for employed individuals. Introduced in 1989, this accounts for over CHF8.4 billion or 118 percent of GDP in 2023. It is fully funded by employer and employee contributions as well as interests and deposits. Pillar II comprises autonomous legal entities that are subject to the Occupation Pensions Act and are under the supervision of the FMA. The pillar has experienced significant consolidation, decreasing from a peak of 33 occupational plans in 2010 to 15 in 2024 driven by challenging financial market conditions, including prolonged low interest rates, and heightened regulatory demands resulting in elevated administrative costs. Small (mostly single employer) plans transferred to larger plans (or insurers).

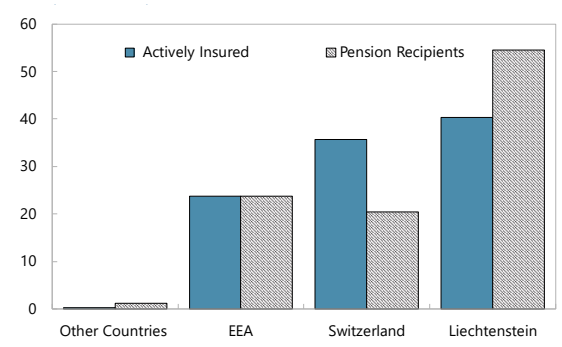
9. Non-resident participation is also a distinct feature of Pillar II. The pillar covers 45,500 people, of which 32,547 or 83 percent were actively insured, and 6,462 or 17 percent were pensioners in 2023. Sixty percent of the actively insured are foreigners (Figure 3), although

commuters comprised 46 percent of total pension payments in 2023. Once no longer employed in Liechtenstein, benefits are transferred to a vested benefit account, except for Swiss where vested benefits move to a new pension fund.

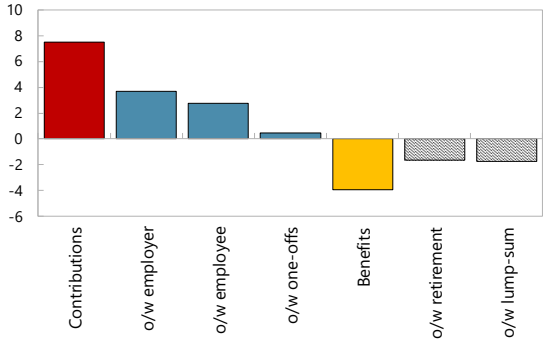
10. Employer and employee contributions and investment income finance Pillar 2. Total contributions amounted 7½ percent of GDP in 2023, of which 53 percent was employer contributions and 47 percent was employee contributions. The occupational funds, consisting of nine company foundations and six collective foundations, are defined-contribution plan (DCP), except for one entity; 96.8 percent of actively-insured individuals are covered under DCP, which provides flexibility, portability, and ownership. The final pension is influenced by contributions, accrued interest, and a conversion rate.

Figure 3. Occupational Pension Scheme

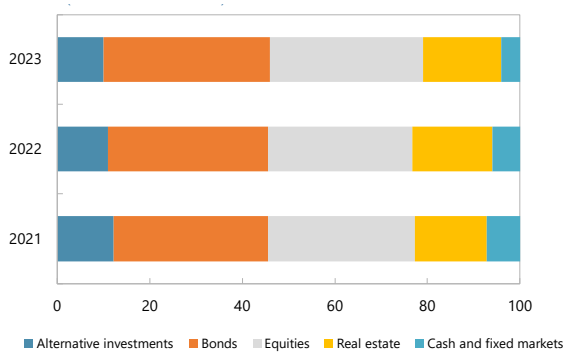
Pension Participation and Payments by Residence
(Percent, 2023)



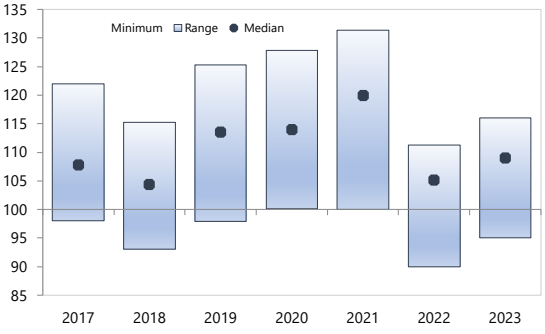
Contributions and Benefits – Occupational Scheme
(Percent of GDP, 2023)



Pension Funds: Investments
(Percent of total assets)



Occupational Pension Schemes: Coverage Ratios
(Percent)



11. Coverage ratios improved following a decline in 2022. The system is responsive to fluctuations in equity and interest rates. After the global financial crisis, funding ratios stabilized and reached 120 percent in 2021, with increased investment income. Market turbulence and lower

valuations caused the coverage ratio to decrease to 106 percent in 2022; some funds fell below the requisite 100 percent coverage ratio due to adverse equity performance. Median coverage ratios rebounded to 109 percent in 2023, facilitated by market recovery and higher interest rates.

12. Dependence on investment income exposes the system to fluctuations in interest rates. Equity and fixed-income assets dominate the occupational funds investment assets. Investment in bonds were 36 percent of total assets and equities 33 percent in 2023. Exposure to real estate was 17 percent, while alternative investments were 10 percent (Figure 3). A return to sustained low or even negative interest rates could affect the funds and may lead to accumulation of risks due to search for yield.

13. Several reforms have underpinned resilience of Pillar II.

- *EEA Accession***.** With EEA membership, legislative amendments were introduced, including, equal treatment for men and women, early retirement provisions, division of entitlements in the event of divorce, and introduction of risk insurance for the unemployed.

- *2005*. Introduced information and transparency regulations, strengthened accounting conventions, and created a security fund.

- *2017–2018*. Increase in retirement contributions, lowering of the entry thresholds for compulsory insurance while strengthening governance of the pension funds.

D. Pillar 3

14. Voluntary individual pension savings constitute the third pillar. Pillar 3 covers the provisions of pensions through private savings or private voluntary old-age insurance policies. Income from these products supplement state and occupational pension schemes.

E. Issues for Further Consideration

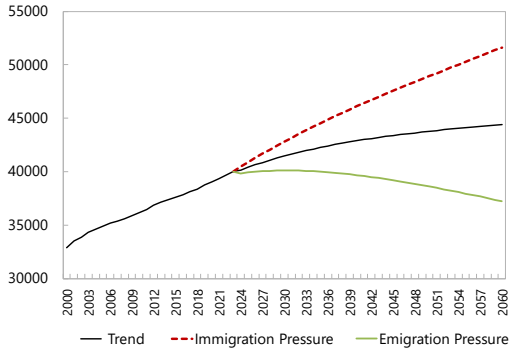
15. Demographic changes will result in additional costs. Most of the baby boomer generation has reached retirement age and exited the labor market. The population is anticipated to grow by 11 percent by 2060, but the number of individuals over the age of 65 is expected to increase by 59 percent. This will increase pension costs.

16. Higher life expectancy will increase pension spending. Life expectancy at birth has increased from 81.8 years in 2020 to 84.6 years in 2023. Life expectancy after 65 years of age has increased from 19.8 in 2020 to 23.3 years in 2023. According to the EU's 2024 Ageing Report, an increase in life expectancy at birth of around two years as compared the baseline scenario assumptions would push up average pension expenditure by 0.4 percentage points of GDP in 2070.

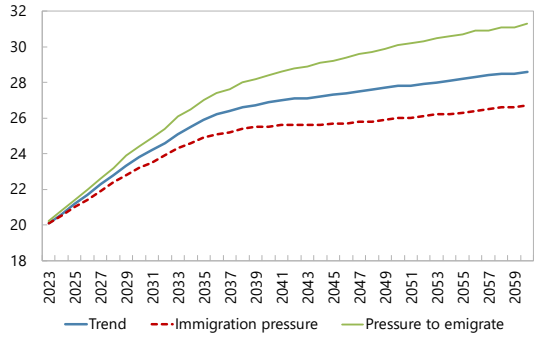
17. Closing future financing gaps in line with mandatory actuarial forecasts is important. Pillar I projections indicate that assets will fall from 9.8 to 3.1 years of annual expenditures by 2043, well below the statutory 5-year minimum. If reserves fall below the minimum threshold, the law suspends the inflation adjustment of the old-age, survivors' and disability insurance benefits. Options to address gaps include increasing the effective retirement age and/or raising contributions for employers, insured persons, or the state.

Figure 4. Demographic Changes

Population Projections 2024–2060



Proportion of 65-year Olds and Over
(Percent)



F. Conclusion

18. The pension system has substantial buffers, but actions will be needed to close future financing gaps. The system has a three-tiered structure with high accumulated assets. Yet aging will pressure the system going forward, calling for measures to ensure sustainability, including raising the retirement age and/or contributions.

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