Labor Force Participation in Romania

Florian Misch and Alexander Pitt

2023
DEC

SIP/2023/062

IMF Selected Issues Paper
Romania

**Labor Force Participation in Romania; Romania
Prepared by Florian Misch and Alexander Pitt**

Authorized for distribution by Jan Kees Martijn
December 2023

ABSTRACT: Labor force particiaption (LFP) in Romania is—at 66.8 percent in 2022—significantly lower than the EU average, especially among women and less educated people. With a declining working-age population, rasing LFP could yield signifcant benefits including by boosting long-term growth, mitigating the fiscal impact of an ageing society, and reducing inequality. Key policies to boost LFP include provision of affordabel high-quality childcare, and improving education standards.

RECOMMENDED CITATION: Misch, Florian and Pitt, Alexander (2023); Labor Force Participation in Romania, Selected Issues Paper (SIP/2023/062), International Monetary Fund, Washignton, D.C.

JEL Classification Numbers:	J11, J16, J21
Keywords:	Labor force participation; gender gap; demographics
Author's E-Mail Address:	FMisch@imf.org; APitt@imf.org

Labor Force Participation in Romania

Romania

Prepared by Florian Misch and Alexander Pitt[1]

INTERNATIONAL MONETARY FUND

ROMANIA

Approved By	Prepared By: Florian Misch and Alexander Pitt
European Department	

CONTENTS

LABOR FORCE PARTICIPATION IN ROMANIA[1]
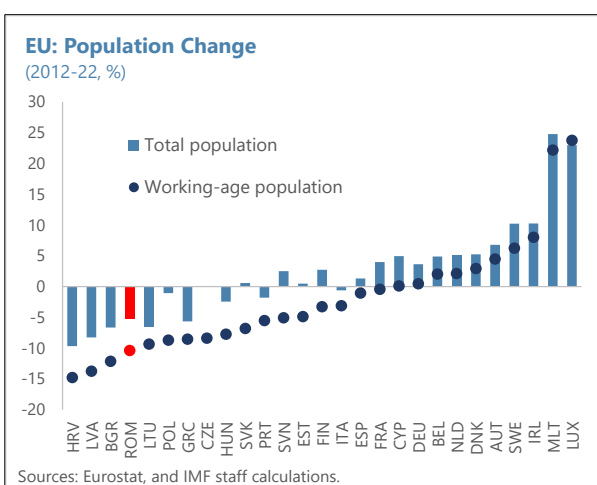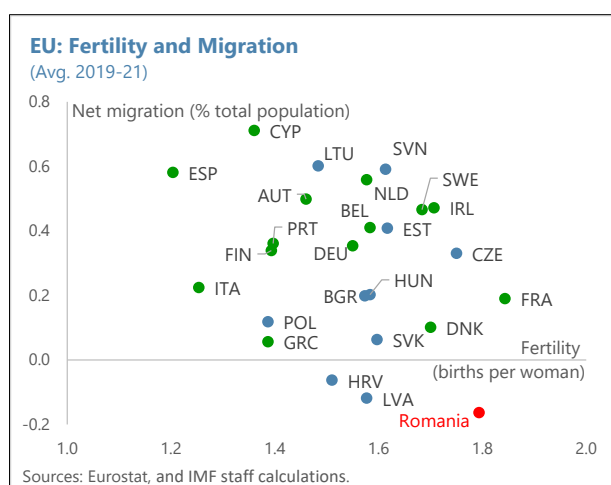
A. Introduction

1.   Romania is facing demographic challenges. The size of the working-age population is falling, while the dependency ratio (working-age persons to young and old persons) is rising. This undermines potential output growth, thereby prolonging the convergence to Western European income levels. Labor force participation therefore plays a central role in determining the prospective path of Romania's economy and living standards.

2.   Romania's labor force participation (LFP) is relatively low. The overall LFP in 2022 was 66.8 percent, the second lowest in the EU, and 9½ percentage points lower than the average of EU countries (excluding Romania). LFP is lower in Romania than the EU average across almost all demographic groups, as defined by gender, education levels, and age. This suggests that measures to boost LFP could be a natural way to at least partially offset the effects of demographic decline.

3.   This paper analyzes the reasons for Romania's low LFP, and outlines policy options to raise it. Section B provides an overview over Romania's demographic challenges. Section C analyzes LFP across demographic groups and identifies possible causes. Section D outlines policy options that could help raise LFP of specific population groups and presents simple simulations of the impact on overall LFP and potential GDP if LFP of particular groups were to increase.

B. Background: Demographic Challenges[2]

4.   Romania's population is falling. The birth rate (live births per woman), while among the highest in the EU, is below the replacement level of 2.1, and net outmigration (mostly of people in working age) continues, albeit at a slower pace than in years past. As a result, the total and working-age population are falling.

EU: Fertility and Migration (Avg. 2019-21)

Sources: Eurostat, and IMF staff calculations.

EU: Population Change (2012-22, %)

Sources: Eurostat, and IMF staff calculations.

---

[1] Prepared by Florian Misch and Alexander Pitt.

[2] Data in this analysis are from Eurostat.

5.   Net outmigration has abated but continues. Emigration was particularly strong during the Global Financial Crisis after EU accession in 2007 which facilitated immigration to other EU member states—but has since then gradually diminished as employment prospects and living standards in Romania have risen. Nonetheless, net migration remains negative, at a time when net migration in almost all other EU countries has turned positive.

Romania: Net Migration
(%)

Sources: Eurostat, and IMF staff calculations.
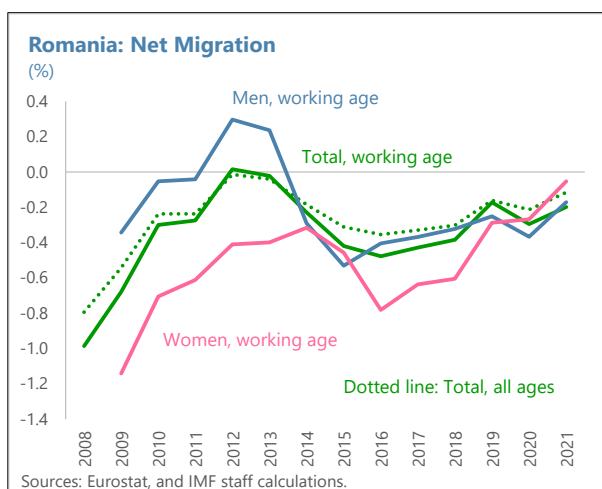
**6.   In 2022, the population has increased, the first time in 30 years.** While more recent migration data are not yet available, the increase in population in 2022 is likely to be the result of positive net migration due an influx of around 80,000–100,000 Ukrainian refugees who stayed in Romania and migrants from non-European countries.[3] The authorities have also begun to issue work visas to non-EU nationals to alleviate labor shortages, especially in the construction and hospitality sectors. The number of work visas has increased significantly, from 3,000 in 2017 to 100,000 in 2022 (The Economist 2023a).

7.   The working-age population is falling and is becoming older. In 2007, the working-age population stood at 14.5 million, of which 21 percent were aged 15 to 24, while only 16 percent were aged 55–64. By 2019, the working-age population had declined to 12.2 million, with 16 percent aged 15 to 24 and 18 percent aged 55–64. A similar development is taking place for employment, but with older persons' participation in the labor force relatively low (see below), the increase in the share of 55–64 year-olds has been less pronounced than for the working-age population overall. An ageing labor force could lead to lower productivity growth (IMF 2019 and The Economist 2023b) and hence output growth. In Romania, this effect could reduce total factor productivity (TFP) growth by 0.4 percentage points annually between 2020 and 2050 (IMF 2019).

Romania: Average Age
(2022, years)

Sources: Eurostat, and IMF staff calculations.
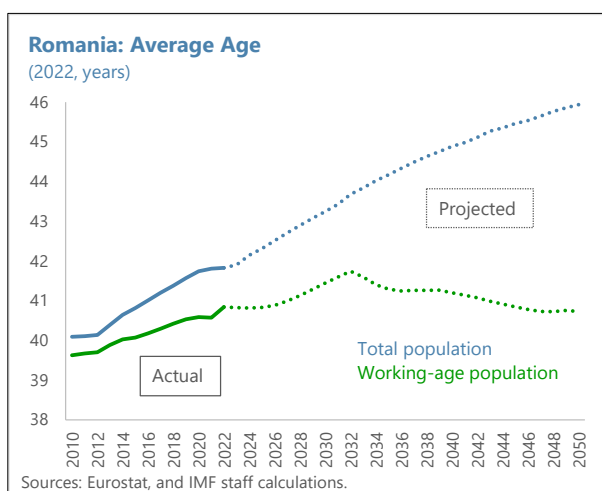
8.   The dependency ratio is rising. At the same time, life expectancy is increasing, reinforcing the rise of the old-age dependency ratio that occurs in a shrinking population.[4] In 2022, for each

---

[3] Since the beginning of the invasion, more than 1 million refugees have crossed the Romanian border with Ukraine, but most went on to other countries.
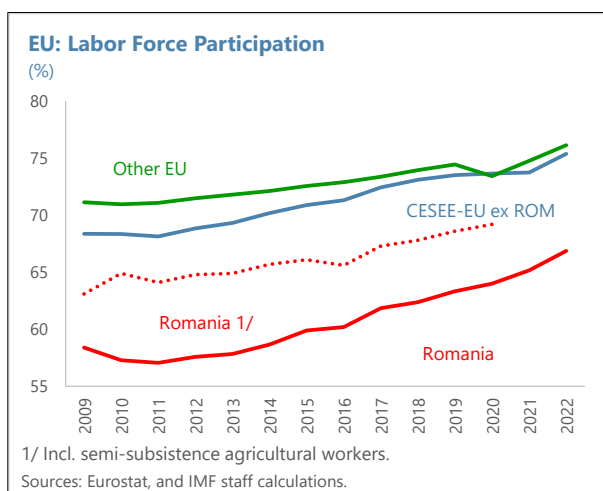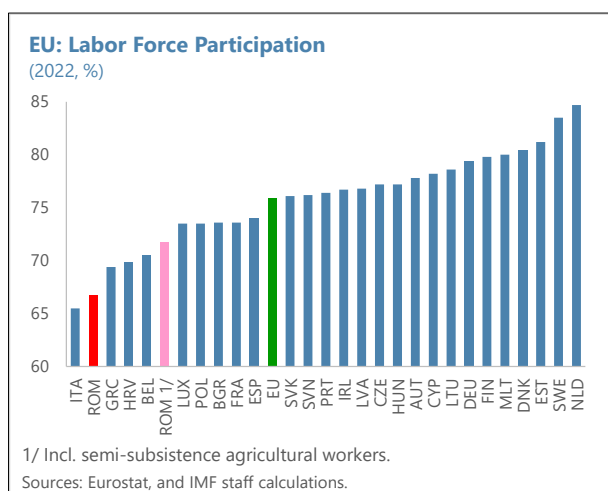
[4] Calculated as persons aged 65 and over as a percentage of people aged 15–64.

person aged 65 and over, there were 3.3 working-age persons, down from 4.6 in 2007. For 2050, the ratio is projected to reach 2.0. Rapid economic growth has so far contained spending on pensions as a percentage of GDP, but as the economy converges toward higher per-capita incomes and growth slows over the longer term, fiscal pressures will increase. IMF (2019) estimates that the deficit-to-GDP ratio will increase by 3¾ percentage points by 2050. This is at the lower end of estimates for CESEE countries,

EU: Dependency Ratio
(2022, %)

largely due to relatively low pensions in Romania. Fiscal pressures could further increase if the replacement rate of pensions (currently about 33 percent) were to increase.
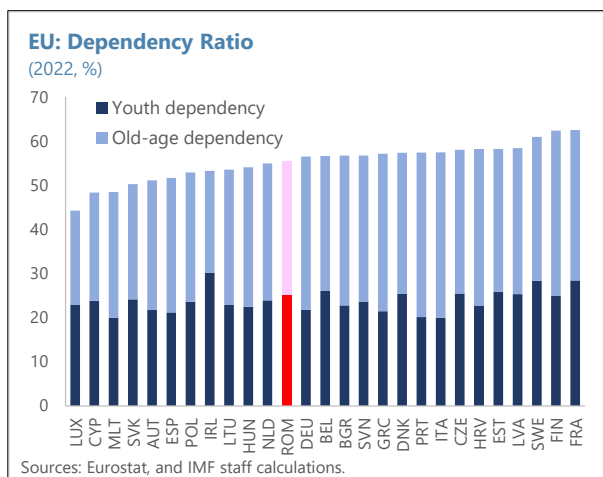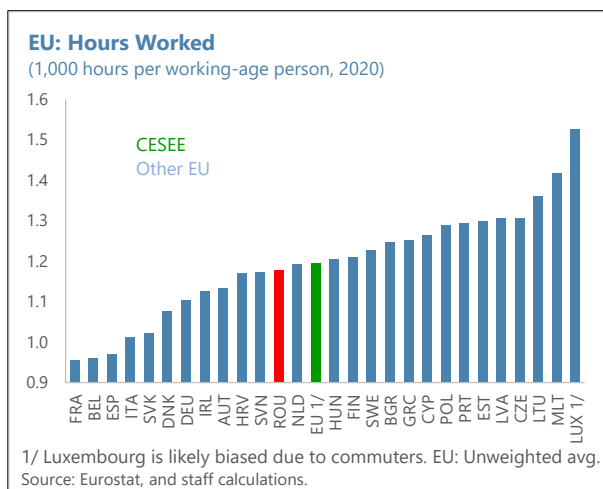
C.   Labor Force Participation

9.   Romania's LFP is well below peers'. To some extent, this is because semi-subsistence agricultural workers are, by Eurostat's methodology, not counted in the labor force, and the share of employment in the agricultural sector, at 21 percent, is much higher in Romania than in other EU member states.[5] Nonetheless, even adjusting for this factor by including such workers, Romania's LFP rate is, at around 72 percent, still well below most peers. This is somewhat mitigated by longer hours worked: total hours worked by the working-age population are close to the EU average. However, the hours worked are still relatively low compared to EU CESEE peers (people in poorer countries tend to work longer hours than those in richer ones as the latter use some of their higher productivity to 'purchase' more free time; see Bick et al., 2018). This suggests a significant

EU: Labor Force Participation
(2022, %)

1/ Incl. semi-subsistence agricultural workers.
Sources: Eurostat, and IMF staff calculations.

EU: Labor Force Participation
(%)

1/ Incl. semi-subsistence agricultural workers.
Sources: Eurostat, and IMF staff calculations.

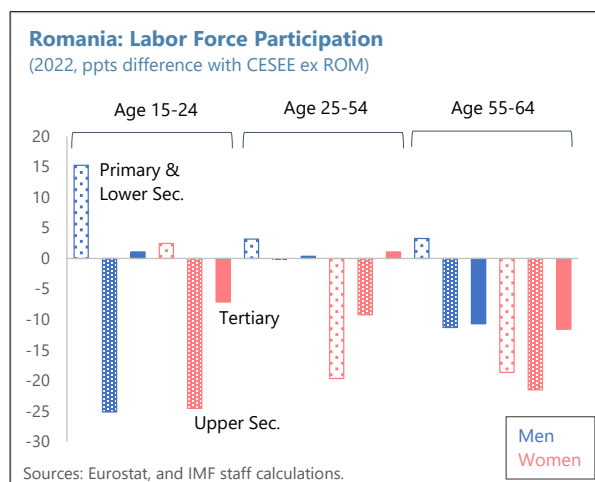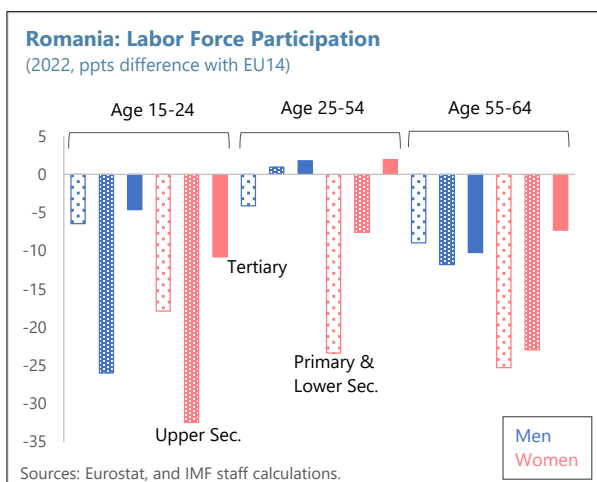[5] This methodology was introduced in 2021. Comparing retroactively revised data using the old methodology whereby semi-subsistence agricultural workers were counted as part of the labor force, with the revised data suggests a difference in LFP of between 9 (in 2009) and 5 (in 2020) percentage points in Romania. The difference in other EU countries is much smaller—typically less than 1 percentage point.

opportunity for mobilizing additional labor supply to continue to drive Romania's convergence with advanced European economies (Section D).

10.   Cross-border commuting for work complicates the assessment. People who work in other countries but maintain their residence in Romania are not counted as part of Romania's labor force but still count towards its population, lowering the LFP rate. Estimates suggest that 3–5 million Romanians—21 percent of the population, and the highest absolute number of any EU country—may work abroad (Paul, 2020), but how many of them are cross-border commuters is unknown. That said, other countries with a significant number of workers abroad, such as Poland and Bulgaria, report higher LFP rates than Romania, though also below the EU average. The closest comparator to Romania is Bulgaria, where agricultural sector employment (17 percent) is almost as large as in Romania, and a similar share of the population is estimated to work abroad (about 23 percent). Bulgaria's LFP rate, however, is 74 percent, significantly higher than Romania's (67 percent).

EU: Hours Worked
(1,000 hours per working-age person, 2020)

1/ Luxembourg is likely biased due to commuters. EU: Unweighted avg.
Source: Eurostat, and staff calculations.

11.   Romania's LFP is relatively low across almost all population groups, with some parts of the population showing extremely low LFP. Women of all ages and education levels (except prime-age tertiary-educated women), older men with secondary education and younger working-age men have a significantly lower LFP than in the EU14 and to a lesser extent CESEE countries. Only prime-aged men (ages 25–54) of all education levels and middle-aged women with tertiary education have LFP rates comparable to EU14 levels.

Romania: Labor Force Participation
(2022, ppts difference with EU14)

Sources: Eurostat, and IMF staff calculations.

Romania: Labor Force Participation
(2022, ppts difference with CESEE ex ROM)

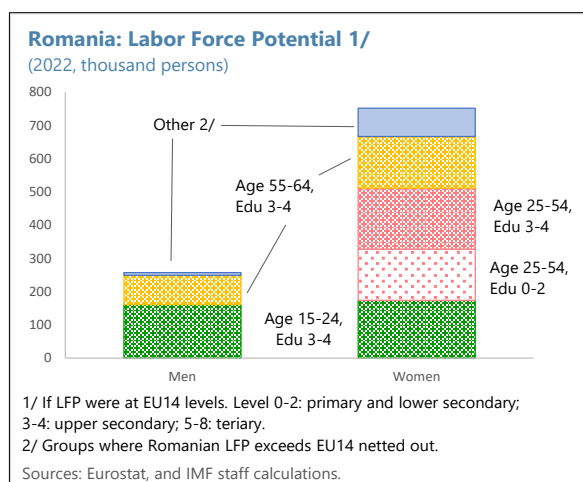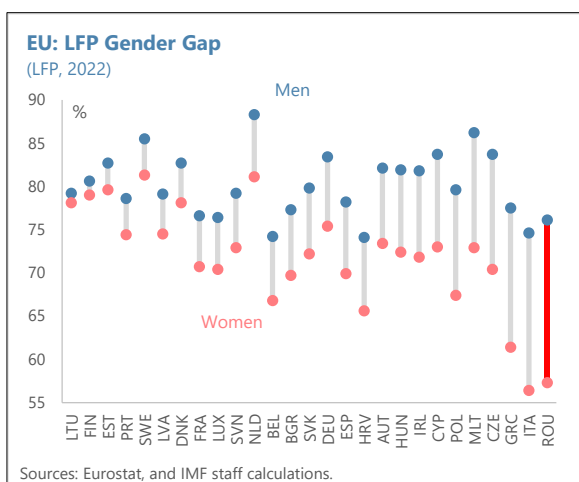Sources: Eurostat, and IMF staff calculations.

12.   A simple simulation analysis suggests that attaining EU LFP levels would significantly boost Romania's labor force. In a scenario where the LFP of all gender/age/education groups is at par with EU14 levels, Romania's labor force would be higher than the current level by 1 million. The increase in LFP of women accounts for the bulk of this increase.

Women's LFP

13.   Romania's LFP gender gap is the largest in the EU. The literature identifies a range of factors affecting women's LFP including the structure of the economy, technology in the workplace and in the household, health care, discrimination, divorce law, prevalence of flexible working-time, and the availability of childcare (Fernandez, 2013). Some of these factors are very similar across EU member states (e.g., the level of technology or divorce law), and cannot, therefore, explain differences in female LFP.

Romania: Potential Labor Force Gain 1/

	Women	Men	Total
	(Thousand persons)		
By gender	752	257	1,010
By education			
Primary and lower sec (0-2)	240	13	252
Upper secondary (3-4)	513	242	754
Tertiary (5-8)	0	3	3
By age			
15-24 years	208	155	363
25-54 years	323	-3	320
55-64 years	221	105	326
	(Percent)		
By gender	74.5	25.5	100.0
By education			
Primary and lower sec. (0-2)	23.7	1.3	25.0
Upper secondary (3-4)	50.8	23.9	74.7
Tertiary (5-8)	0.0	0.3	0.3
By age			
15-24 years	20.6	15.3	36.0
25-54 years	32.0	-0.3	31.7
55-64 years	21.9	10.4	32.3

1/ If LFP were at EU14 levels.

EU: LFP Gender Gap
(LFP, 2022)

Sources: Eurostat, and IMF staff calculations.

Romania: Labor Force Potential 1/
(2022, thousand persons)

1/ If LFP were at EU14 levels. Level 0-2: primary and lower secondary; 3-4: upper secondary; 5-8: teriary.
2/ Groups where Romanian LFP exceeds EU14 netted out.
Sources: Eurostat, and IMF staff calculations.

14.   Financial (dis)incentives appear to play a limited role in explaining low female LFP in Romania. The income tax rate is flat, and there is no joint filing of spouses that could impose a high marginal tax rate on women's labor income. While a large gender pay gap can also disincentivize women to work, Romania's (unadjusted) gender pay gap across all education levels is the second-lowest in the EU, suggesting that the contribution of this factor is small.[6] However, the statutory

---

[6] The reliability of data (not only in Romania), however, is limited. The gender pay gap for all education levels in Romania in 2018 was 2.1 percent, while the pay gaps for each education segment (primary and lower secondary, upper secondary, and tertiary) were higher (though still at the low end in the EU).

retirement age for women is lower than for men (61¾ vs. 65 years), which may explain low LFP for women in the age group 55–64 (see below).

15.   The availability of childcare could be a major factor contributing to Romania's low LFP of women. The percentage of children from age 3 to school entry in formal childcare is low in Romania. Lokshin and Fong (2006) argue that the relative cost of staying at home for women declines with the number of children, as income from work might not increase but the benefit from taking care of children would rise. The adverse effects of insufficient childcare could hence be magnified by Romania's relatively high fertility rate. Chevalier and Viitanen (2002) argue that childcare facilities are a determinant of female LFP. While private provision of (formal) childcare services can be expected to respond to rising demand, their higher price— when compared to public services—would alter the cost-benefit calculation of working for mothers. Women with higher education—and hence higher earnings potential—may still opt to work, while the net benefit of working for women with lower earnings potential is reduced. Indeed, there is some evidence that suggests that the LFP of women with tertiary education is not correlated with the proportion of young children cared for only at home, while that of women with lower education levels is.

16.   Women also tend to perform the bulk of old-age care. While there does not appear to be a significant link between the old-age dependency ratio and LFP across EU countries, this burden is likely to increase in an ageing society and could adversely affect female LFP when formal care for the elderly is insufficient.

EU: Gender Pay Gap 1/
(2018, all education levels, %)
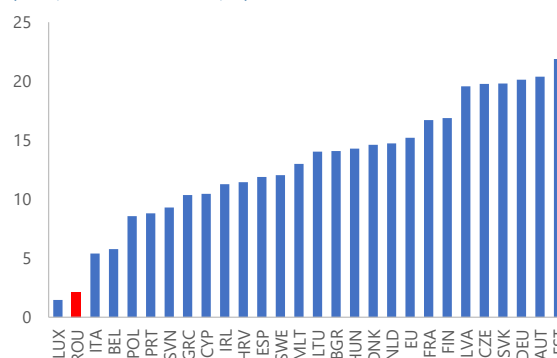
1/ Based on mean hourly earnings. Companies with 10+ employees.
Sources: Eurostat, and IMF staff calculations.

EU: Childcare Supply and Female LFP 1/
(2021)
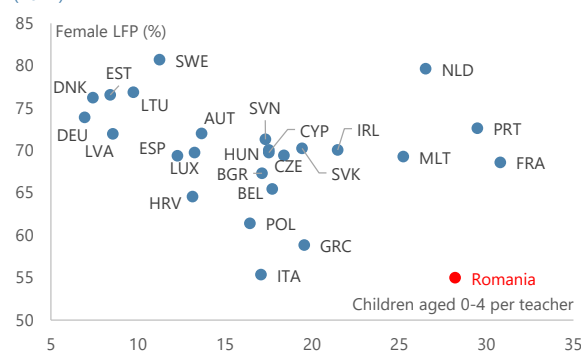
1/ 2021 or latest avilable. Finland n/a.
Sources: Eurostat, and IMF staff calculations.

EU: Children in Formal Childcare
(Age 3 to compulsory school age, 2022, %)

Source:s Eurostat, and IMF staff calculations.

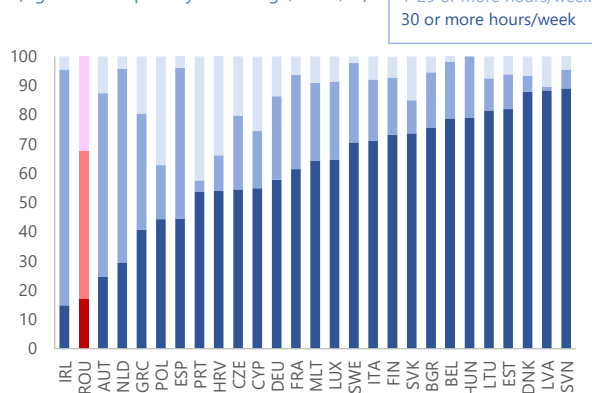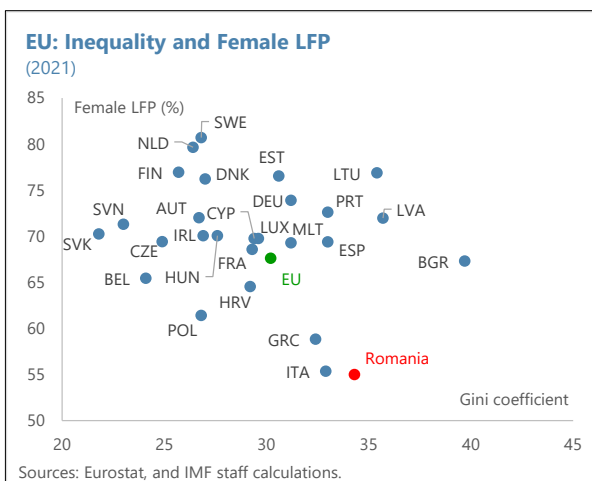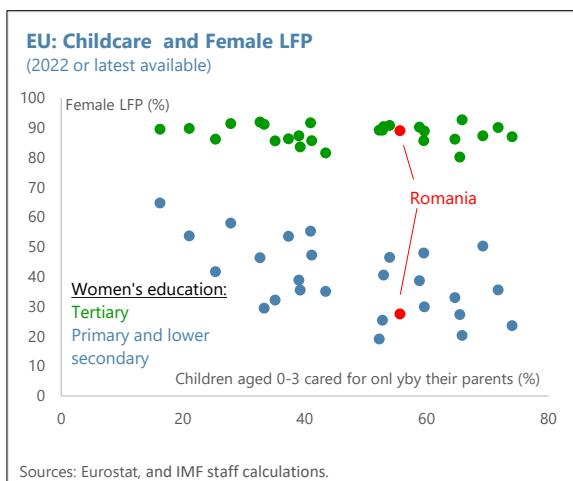**EU: Childcare and Female LFP**
(2022 or latest available)

Female LFP (%)

Women's education:
Tertiary
Primary and lower secondary

Children aged 0-3 cared for onl yby their parents (%)

Romania

Sources: Eurostat, and IMF staff calculations.

EU: Inequality and Female LFP
(2021)

Female LFP (%)

SWE
NLD
EST
FIN
DNK
LTU
SVN
AUT
CYP
DEU
PRT
LVA
SVK
IRL
LUX MLT
CZE
FRA
ESP
BGR
BEL
HUN
EU
HRV
POL
GRC
Romania
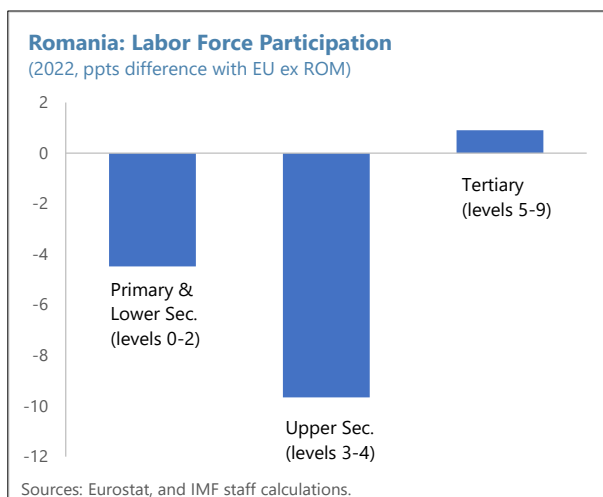ITA

Gini coefficient

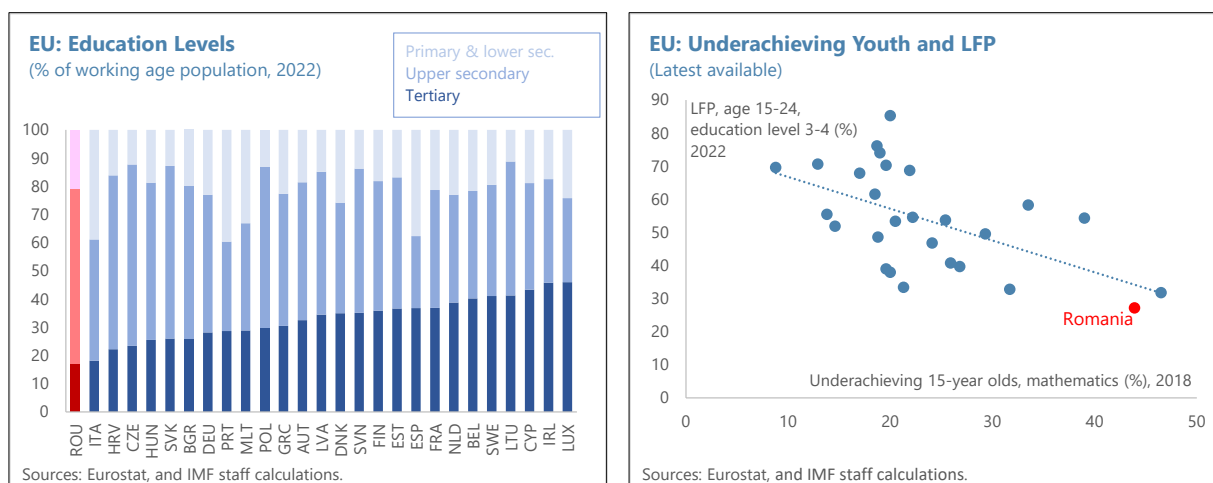Sources: Eurostat, and IMF staff calculations.

17.   Inequality is also related to female LFP. Semyonov (1980) argues that in more economically unequal societies, the incentive to protect lucrative positions against 'newcomers' (in this case, women who want to enter the workforce) is higher. There is indeed a correlation between income inequality and women's LFP, and Romania's relatively high inequality may be a factor in explaining its low female LFP. Also, the gender wage gap is generally larger for women with tertiary education, supporting the argument that protection of incumbents is stronger in higher-paid jobs. On the other hand, the LFP of women with tertiary education, is similar to that of men and slightly above the EU average, which suggests that women do not face discrimination of entry into higher-paid jobs (though they do face pay discrimination). However, the causality may also be inverted: higher female LFP, especially of lower-educated women, tends to reduce inequality because poverty risks are reduced. Thereby it also promotes intergenerational mobility—provided external childcare is available and of adequate quality (Esping-Andersen, 2007).

Education

18.   Education is an important determinant of LFP. People with higher levels of education generally have a higher earning potential, and their opportunity cost of not working is hence higher. Correspondingly, LFP rises with education (Marois et al, 2019). Indeed, in Romania the LFP of people with tertiary education is similar to levels in other EU countries. However, the share of people with higher education in Romania is lower than in other EU countries, which explains about 2 percentage points of the overall LFP gap.

Romania: Labor Force Participation
(2022, ppts difference with EU ex ROM)

Primary & Lower Sec. (levels 0-2)

Upper Sec. (levels 3-4)

Tertiary (levels 5-9)

Sources: Eurostat, and IMF staff calculations.

EU: Education Levels
(% of working age population, 2022)

Primary & lower sec.
Upper secondary
Tertiary

Sources: Eurostat, and IMF staff calculations.

EU: Underachieving Youth and LFP
(Latest available)

LFP, age 15-24, education level 3-4 (%) 2022

Romania

Underachieving 15-year olds, mathematics (%), 2018

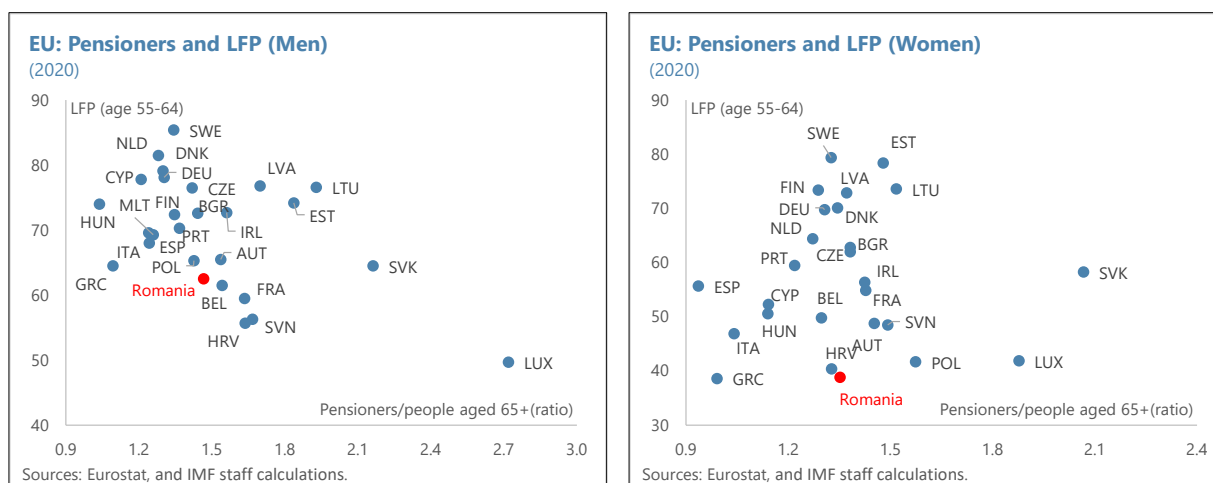Sources: Eurostat, and IMF staff calculations.

19.   The lower quality of education in Romania may also contribute to low LFP. The low LFP of young workers with upper secondary education (level 3–4 education) may be related to the quality of education. Romania has one of the highest rates of low achievers at age 15 in mathematics, science, and reading in the EU (irrespective of the ultimate level of education), and the gap with other countries is large. This is correlated with low LFP for level 3–4 education (i.e., education levels generally achieved after the age of 15), but not with LFP for those with up to level 2 education (which is generally completed by age 15).[7] This is likely to contribute to limited employability and higher unemployment among this group, which may discourage potential workers from even joining the workforce. In addition, less qualified workers may also be more likely to work abroad on a seasonal basis and not work in Romania (and thus reducing LFP) which is consistent with the increasing shortage of low-skilled labor in Romania that the authorities are trying to alleviate through a work visa program for people from outside of the EU.

Older Workers

20.   Age appears to more adversely affect LFP in Romania compared to peers, but the reasons are unclear. LFP of people aged 55–64 is lower than in peers, especially of women. One explanation could be that women's retirement age is lower than men's (61¾ years, rising to 63 years by 2030 vs. 65 years for men). However, the total number of pensioners relative to those aged 65 and over—an indication of the prevalence of early retirement (or, in the case of Romanian women, a lower retirement age) or disability pensions—is not particularly high in Romania when compared to other EU countries. This implies that eligibility for pensions before the age of 65 does not seem to be the key driver for low LFP among older people.

---

[7] Österholm (2010) and Jamie (2011) find a robust inverse relationship between overall unemployment rates and LFP. However, their analysis looks at the total unemployment rate in individual countries over time. In a cross-country analysis, the impact of total unemployment on total LFP is low but remains strong for the young.

EU: Pensioners and LFP (Men)
(2020)

Sources: Eurostat, and IMF staff calculations.

EU: Pensioners and LFP (Women)
(2020)

Sources: Eurostat, and IMF staff calculations.

21.   Other possible factors to explain low LFP of older men or women are difficult to ascertain. Disability and life expectancy irrespective of the exact metric used does not seem to be correlated with LFP, not least because number of disability pensioners in Romania is low.

D.   Conclusions and Policy Implications

22.   Romania's low overall LFP mainly reflects a large gender gap, relatively low levels of education, and perhaps statistical issues. The statistical methodology to (not) account for some workers in the large agricultural sector reduces measured LFP since semi-subsistence workers are already working but are just not counted in the labor force. Moreover, the seasonal employment abroad of a significant number of workers is also likely to contribute to an underestimation of LFP.

23.   Boosting Romania's low LFP opens opportunities to mitigate the impact of an ageing society and to support Romania's convergence to Western European peers. Closing the LFP rate gap of 9½ percentage points to the EU average would increase the labor force by about 14½ percent, and GDP by about 6½ percent. Even taking into account that part of this increase would reflect a move of labor from the informal sector and/or semi-subsistence agriculture to the formal and/or non-agricultural sector, the shift of workers from relatively low-productivity to higher-productivity activities would imply a significant boost in aggregate productivity. Such an increase in the labor force would have to be gradual to avoid rising unemployment. However, the declining working-age population should minimize labor market friction from new entrants.

24.   Higher LFP could also help mitigate the fiscal impact of an ageing society. Closing the LFP gap could improve the fiscal deficit by around 2 percentage points of GDP, even taking into account the increase in GDP due to higher LFP. Revenues from income and social security taxes would rise by close to 1 percentage point of GDP, while higher GDP would reduce total spending as a share of GDP by around 1¼ percentage points. However, while pensions are set to increase based on a formula based on inflation and wages, rising GDP per capita is likely to lead to pressures to raise pensions—which are, compared to other European countries, already very low.

25.   Boosting women's LFP would have the largest effect on overall LFP and could also reduce inequality. Women account for three-quarters of the difference in LFP with other EU
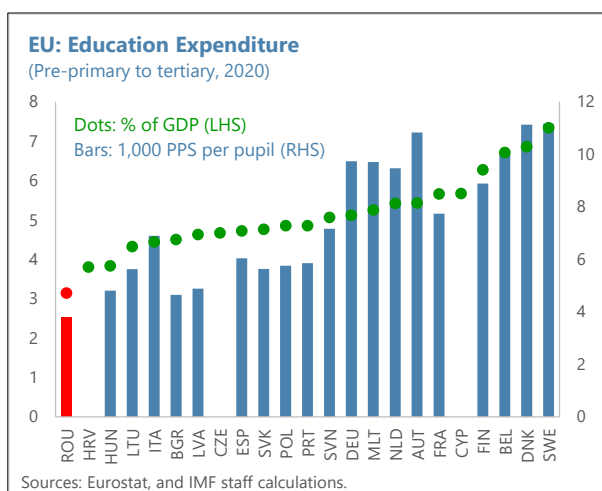
countries, hence raising their opportunities and improving incentives/reducing disincentives to participate in the labor force could potentially bring the largest numbers into the workforce. Moreover, women's labor force participation would likely contribute to reducing poverty.

26.   Policy measures to facilitate female LFP should concentrate on providing affordable high-quality childcare. This would help in particular women with lower levels of education for whom the opportunity cost of staying at home is lower than for women with tertiary education. High-quality childcare can also increase intergenerational mobility as it can improve opportunities of poorer children, and/or of children of poorer and less educated parents. Greater availability of flexible working-time arrangements including part-time work can also help boost female LFP.

27.   The quality of education at all levels needs to be increased. Romania's share of low achievers in mathematics, science, and reading is among the highest in the EU, and it scored well below the OECD and EU averages in the most recent PISA study (OECD 2018). Differences in performance across socio-economic groups were above the OECD average and have widened since the previous assessment. Both low- and high-performing students were, respectively, clustered in certain schools.

28.   The reasons for the Romania's underperformance in education are difficult to pinpoint, but public education expenditure is by far the lowest in the EU. Romania invests significantly less that other EU member states in education, both as a percentage of GDP and per pupil. School principals in Romania reported fewer staff and more material shortages than the OECD average. Results from the OECD's Teaching and Learning International Survey suggest that Romania is not an outlier in terms of teacher education, motivation, and other indicators of quality, but education outcomes still suggest that there is significant room for improvement.

EU: Education Expenditure
(Pre-primary to tertiary, 2020)
Dots: % of GDP (LHS)
Bars: 1,000 PPS per pupil (RHS)

Sources: Eurostat, and IMF staff calculations.

29.   Raising education spending would constitute a significant investment and would need to be coupled with targeted reforms in the education system (World Bank 2023). Additional expenditure of almost 2 percent of GDP would be required to bring education spending to the EU average of 5 percent of GDP. In the current fiscal situation, however, there is very limited room for additional expenditure. This implies that higher spending would require higher revenues—above those needed to reduce the deficit with current spending allocations.

References

Bick, Alexander, Nicola Fuchs-Schuendeln and David Lagakos (2018), *How do Hours Worked Vary with Income? Cross-Country Evidence and Implications*, American Economic Review, 108 (1): 170–199, January 2018.

Chevalier, A. and T. K. Viitanen (2002), *The causality between female labour force participation and the availability of childcare*, Applied Economics Letters, Volume 9, 2002 - Issue 14: 915–918.

Emerson, Jamie (2011), *Unemployment and labor force participation in the United States*, Economics Letters, Vol. 111, Issue 3, June 2011, pp. 203–206.

Esping-Andersen, Gøsta (2007), *Sociological Explanations of Changing Income Distributions*, American Behavioral Scientist, Volume 50, Issue 5, January 2007, pp. 639–658.

Fernandez, Raquel (2013), *Cultural Change as Learning: The Evolution of Female Labor Force Participation over a Century*, American Economic Review, Vol. 103, No. 1, February 2013.

IMF (2019), *Demographic Headwinds in Central and Eastern Europe*, International Monetary Fund, 2019.

Lokshin, Michael and Monica Fong (2006), *Women's Labour Force Participation and Child Care in Romania*, Journal of development Studies, Vol. 42, No. 1, 90–109, January 2006.

Marois, Guillaume, Patrick Sabourin and Alain Bélanger (2019), *How reducing differentials in education and labor force participation could lessen workforce decline in the EU-28*, Demographic Research, July – December 2019, Vol. 41, pp. 125–158.

OECD (2018), *Programme for International Student Assessment (PISA)—Country Note Romania*, available at www.oecd.org/pisa/publications/PISA2018_CN_ROU.pdf.

Österholm, Pär (2010), *Unemployment and labour-force participation in Sweden*, Economics Letters, Volume 106, Issue 3, March 2010, pp. 205–208.

Paul, Ruxandra (2020), *Europe's essential workers: Migration and pandemic politics in Central and Eastern Europe during COVID-19*, European Policy Analysis, 2020 Dec; 6(2): 238–263.

Semyonov, Moshe (1980), *The Social Context of Women's Labor Force Participation: A Comparative Analysis*, American Journal of Sociology, Vol. 86, No. 3, Nov. 1980.

The Economist (2023a), *Romania's hot economy is attracting foreign workers*, The Economist, April 27, 2023.

The Economist (2023b), *It's not just a fiscal fiasco: greying economies also innovate less*, The Economist, June 3, 2023.

World Bank (2023), *Systematic Country Diagnostic—Update*, World Bank, 2023.