



Institute for Fiscal Studies

Country Studies: Inequalities in Europe and North America

A parallel study to the IFS Deaton Review

Nikos Vettas
Svetoslav Danchev
George Gatopoulos
Niki Kalavrezou
Antonis Mavropoulos
Grigoris Pavlou

Inequality in Greece: 2004-2021



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Nikos Vettas, Svetoslav Danchev, George Gatopoulos, Niki Kalavrezou, Antonis Mavropoulos,
Grigoris Pavlou

Foundation for Economic and Industrial Research (IOBE)

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1. Executive summary

Employment, wages, hours and individual earnings

Employment trends are driven by long-term social trends and short- to medium-term economic developments. In Greece, the employment rate is the highest for prime working-age men (aged 25–60), remaining broadly at the same level during 1987–2009. Meanwhile, the employment rate for prime working-age women recorded a steady rise (by 20 percentage points) for almost two decades (1991–2010) and up until the advent of the economic crisis, reflecting the gradually shifting social patterns in favour of women participating in the labour force. Over the same period, the employment rate for men aged 16–25 declined by about 10 percentage points, as the Greek higher education system expanded and the social norm for university education strengthened. The employment rate for the same age group among women also declined over the same period, by about 3.5 percentage points. A similar trend, with a sharper reduction among men than women, was observed for the 61–74 age group, which was probably supported by the increasing generosity of the Greek pension system (in terms of replacement rates and early retirement eligibility conditions). The COVID-19 pandemic does not appear to have affected employment rates in 2020, with the exception of women in the 16–24 age group, for which the employment rate recorded a decline.

Real median hourly wages rose steadily between 2004 and 2010, for the total population and for both genders. However, the economic crisis caused a significant drop in real wages until 2015–17, which has not yet been fully reversed. The largest drop in wages is observed for those with university qualifications (men and women), even though these categories have the highest wages throughout the whole period examined.

Wage inequality (as measured by the Gini coefficient) fell gradually after 2005, while wage inequality is greater among women. The difference between the income of two random persons fell from 34% (of the mean equivalised disposable income) in 2005 to 26% after 2018. Wage inequality across most of the distribution (as captured by the 90:10 ratio) has been significantly reduced over the last 15 years for both men and women. By contrast, inequality measured by the 50:10 ratio decreased until 2008 but increased slightly after 2009. This means that the gap between high and low wages has shrunk but the gap between medium wages and low wages has widened. In the period between 2004 and 2008 wages increased for all percentiles for men, but changes were more pronounced among lower categories, with spikes at the top and bottom of the wage distribution. Wages increased for bottom half of the distribution for women. The economic crisis after 2009 affected all income percentiles, even though the effect was a bit more pronounced among higher income categories for both men and women and the lower income category for men.

Average **hours worked** among employees grew for both women and men until 1993, when they surpassed the statutory level of 40 hours per week that corresponds to 8 hours per day in a 5-day working week. The average hours worked then fluctuated until 2001, when the trend shifted to a gradual decline, again with fluctuations. After 2001, mean hours worked gradually declined until 2020, with small bumps in 2021, after the COVID-19 pandemic crisis. Mean hours worked remain fairly steady during the 1993–2010 period for most of the educational categories, except the upper educational group for women, which gradually increased over time. The outcomes of lower educational groups for both men and women seem to be strongly pro-cyclical, as their mean

hours decreased notably after 2008 and 2010 and partially recovered after 2014 and 2016 respectively, with the end of the economic contraction.

Median real earnings increased for both genders from 2004 until 2009–10. Real earnings contracted by 18% on average in the period during the economic crisis (2010–15), with a gradual recovery in subsequent years. However, they currently remain below their pre-crisis levels. There is no difference in the trends of the median real gross earnings between men and women across educational categories.

Earnings inequality (as measured by the Gini coefficient) has gradually decreased over the last 15 years. Inequality among men is lower than among women over time, showing a smoother decline until 2011. The economic crisis and the accompanying reforms seem to have increased inequality among men during 2009–14 and lowered inequality among women during 2007–14. After 2016, the Gini coefficient declined and remained stable until 2021 for both genders.

The Greek labour force has traditionally had the highest share of **self-employed population** in the EU. Yet, there has been a systematic, gradual decline in self-employment in Greece, from above 37% of total employed population in the early 1980s to around 27% in 2021. The gradual decline is driven by solo self-employed men, which more than offset the rise of self-employment among women. Rates of self-employment have dropped most among those with low earnings (in which category wage earners gained share), while they have increased in the upper quintile of the earnings distribution.

Labour market institutions

The **power of the Greek trade unions** has gradually yet systematically declined since the early 1990s. Union coverage has dropped from a peak of above 48% in the late 1970s to below 20% nowadays. The proportion of employees whose contracts are impacted by collective bargaining has declined drastically, following a set of labour market measures in the early 2010s, aiming at decentralising collective bargaining, to below 15% in 2017. The bite of the Greek minimum wage increased considerably until 2012, when it eased abruptly following the adoption of extensive labour policy measures, including a reduction of the minimum wage by 22%.

Greece's **unemployment insurance** system has been unusual in that the benefit was linked only to the minimum wage, but not to the unemployed person's previous earnings (this is under discussion to change as of 2024). As a share of the total unemployed population, the effective unemployment benefit coverage has been systematically higher for short-term than for long-term unemployed. Still, only about 40% of short-term unemployed persons effectively received a benefit in 2019, while for the long-term unemployed the ratio was less than 10%. The effective replacement rate is lower for longer unemployment durations, while increasing with the number of children.

Greece's **social protection system** faces many challenges which are discussed in more detail in Section 2. Our analysis indicates that **benefits** represent a higher share of overall income for lower-income groups, which is largely expected. The reliance of lower-income groups on benefits starts to increase sharply after 2013, a year in which the unemployment rate in Greece exceeded 30%. Benefit support in 2020 (when COVID measures were implemented) appears to have been mainly targeted at the bottom quartile.

Taxation in Greece is based on progressivity while also various tax exemptions and discounts apply for more vulnerable individuals and households. Nevertheless, certain characteristics of the Greek economy may *de facto* undermine the progressivity and fairness of the tax system. We find that, during the crisis, the progressivity of the system was somewhat compromised, as the tax burden of the bottom quartile exceeded the rates of the middle (second and third) quartiles. Also, the tax rate of the top quartile did not record a very sharp increase during the crisis. In contrast, increases in the rates for the remaining quartiles were quite sharp. Across the income distribution, average tax rates began to decrease after 2014–15, but still remain above their pre-crisis levels.

Household incomes

Two main factors affect the way in which inequality in individual earnings translates into inequality in household incomes: patterns of assortative matching and the tax and benefit system.

With respect to **assortative matching**, we find that throughout the period examined, working males in the higher gross earnings percentiles are more likely to be married, or to have a working partner, whereas conversely, in the pre-crisis period, women who earned more were less likely to be married or cohabitating. We also find no strong inequalities between genders with respect to an individual's earnings and the earnings of their partner or spouse.

In terms of **household composition**, we firstly observe a general decline in the proportion of married or cohabiting individuals across all educational attainment levels. The decline is especially prominent in the period after 2012 for individuals of higher education attainment (ISCED 6–8). We also find that higher-educated individuals (both men and women) are more likely to represent a single household. We find that women are more likely to be single parents rather than men, a trend which is consistent across years and educational attainment level. We also observe that men and women at lower educational attainment levels are more likely to be in a marriage or partnership without any children, whereas the opposite is true for higher-educated individuals of both genders. Finally, we find that higher-educated women are more likely to be adult children in a household in comparison to men.

We observe parallel **trends in gross earnings and disposable income** across households, while larger fluctuations can be observed in the pre-crisis years. With Greek household earnings and disposable income strongly hit by the financial crisis of the previous decade, where on average gross earnings and incomes declined by around 30% between 2009 and 2014, we find that fluctuations between the two measures were more visible at the upper and lower ends of the earnings distribution. With respect to the decline in disposable income, we observe similar trends across all education attainment levels.

Lastly, as expected, since we find no large discrepancies in the trends between household disposable incomes across education attainment levels and the income distribution. **Inequality in disposable income** as measured by the Gini coefficient appears to have remained rather stable from 2005 to 2020, with slightly decreasing trends (more evident around the peak of the recession, during 2013–16). The share of households in relative poverty also recorded a small reduction, whereas the share of household incomes in the top 1% remained rather stable, at around 9%.

2. Institutional background

Social protection system

The social protection system in Greece has three main components: social insurance, social welfare and healthcare. While these represent three self-sustaining systems, they complement each other and constitute the country's social protection net.

Social insurance includes pension, health, unemployment and other benefits granted on a contributory basis through mandatory insurance of the working population. There are various social insurance funds in Greece. The main ones operating under the supervision of the Ministry of Labour and Social Insurance include the e-National Social Security Fund (e-EFKA) which manages contributory pensions and various other benefits, and the National Employment Service (DYPA) which manages unemployment benefits. The National Organization for the Provision of Healthcare Services (EOPYY) manages contributions-based health insurance (mainly as a buyer of services for the insured population) and operates under the supervision of the Ministry of Health.

The Greek unemployment benefit granted by DYPA is a flat rate benefit not linked to the level of earnings (equal to 55% of the prevailing minimum wage). Specifically, as of 1 April 2023, it amounts to €479, which increases by 10% for every dependent household member. It is also subject to tax in cases where the annual personal income exceeds €10,000.

Healthcare insurance contributions under EOPYY are linked to the level of earnings for wage earners. Insured persons have access to the same set of benefits and services, irrespective of their occupation or level of contributions paid into the system.

Pension benefits, by contrast, are calculated based on several factors such as years of insurance and total contributions paid, even though the replacement rate has a rather flat scale, following the extensive cuts in higher pensions during the first Economic Adjustment Programme (2010–12) and the introduction of a non-contributory national (minimum) component of every pension. Some contributory maternity benefits are also linked to the level of earnings (earnings' replacement) while others are not.

In contrast to social insurance, **social welfare** focuses on non-contributory benefits aimed at addressing poverty and social exclusion. Social welfare in Greece is quite fragmented as multiple entities and governance levels are active in providing various cash and in-kind non-contributory benefits. However, the main jurisdiction lies with the Ministry of Social Cohesion and Family¹ and the Organization of Welfare Benefits and Social Solidarity (OPEKA) that is under its supervision.

Some of the largest social welfare benefits (in terms of spending) in Greece include the following:

1. Guaranteed minimum income (GMI). This programme is comprised of three pillars and is aimed at supporting households facing extreme poverty and social exclusion. The first pillar provides monetary income support, the second complementary social services and goods and the third labour activation policies. The GMI was legislated in 2016 and has been effective in reducing the soaring poverty rates in Greece since the crisis. However, income

¹ The Ministry of Social Cohesion and Family was established in June 2023. Its jurisdictions on social welfare and family policies were formerly under the Ministry of Labour and Social Insurance.

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- criteria are quite strict and a significant share of poor households are not eligible for the benefit.
2. Social solidarity allowance for the elderly. This benefit is a non-contributory pension received by individuals who have reached the statutory retirement age of 67 and do not receive a pension above €350. In addition to this, there is also a housing benefit for the uninsured elderly.
 3. Child benefit. This is the main family benefit in effect in Greece paid to parents. The amount of the benefit is defined based on the number of children and household income bracket.
 4. Childbirth benefit. This benefit (€2,000 one-off payment) is paid to new mothers. It is provided to those with household income below €40,000.
 5. Childcare voucher. The 'Harmonization of family and professional life' programme is funded by EU resources and provides vouchers for childcare in nurseries, kindergartens and Centres of Creative Activities (KDAP) and Centres of Creative Activities for Children with Disabilities (KDAPmeA). As public slots are not sufficient, the subsidy system is based on several criteria set at the municipal level.
 6. Housing benefit. Monetary assistance is provided to low-income households living in rented primary residences (the total amount of the rent subsidy cannot exceed €210 per month). Social housing in Greece is very limited for the time being and Greek households face one of the highest housing cost overburden rates among EU countries.
 7. Heating allowance. This allowance is paid once a year to low-income households. It can be spent on heating costs of primary residences and for buying subsidised fuels.
 8. Transport benefits. Various transport benefits and programmes apply for students, unemployed and other categories of vulnerable citizens, in the form of exemptions or discounts.
 9. Disability benefits. An array of disability benefits is in effect in Greece based on the severity of the disability or type of ailment. In addition to welfare benefits (paid by OPEKA), there is also a separate set of contributory disability benefits administered by e-EFKA.

For the above benefits, eligibility criteria, definitions and rules vary considerably. However, the majority of social welfare benefits in Greece are means-tested and non-taxable. Means-testing expanded considerably during the crisis of the previous decade due to limited fiscal resources and the need to target the population segments most in need.

However, Greece is a country with extremely high levels of self-employed persons and one of the largest shadow economies in Europe, which may pose significant challenges in terms of effective targeting. Furthermore, the social welfare system is administratively fragmented (between competent ministries and between the central government and regional authorities) and there is no single database for eligibility checks or for mapping the benefits citizens receive at the individual or household level from all sources combined.

The main public provider of **healthcare** services is the National Healthcare System (known as 'ESY' in Greek). It was established in 1983 and its goal is the provision of universal healthcare services at the primary (health centres) and secondary (hospitals) level irrespective of insurance status. ESY is financed through social security contributions (EOPYY) and general taxation and, in practice, functions both on a Beveridgean and Bismarckian basis depending on the insurance status of the patient.

The Greek healthcare system has many particularities that lead to an exceptionally high level of private health expenditure and self-reported unmet needs for healthcare according to all available surveys. The largest share of private healthcare expenditure assumes the form of out-of-pocket

payments which exacerbate health-related inequalities and fail to adequately protect the population against the risks of serious or unexpected illness. For the insured population, various co-payments are in place so as to minimise moral hazard and induced demand related to the overprescription and overconsumption of medical services and pharmaceuticals that are recorded in Greece. For certain categories of socially or medically vulnerable citizens, discounts and exemptions from these co-payments apply.

Tax system

Tax policy and legislation in Greece is formulated by the Ministry of Finance and implemented by the Independent Authority for Public Revenue (IAPR). The latter was established in 2017 as the country's operationally autonomous tax administration authority and is mainly responsible for the determination, assessment and collection of taxes as well as for promoting tax compliance and combating tax evasion and smuggling. By contrast, the authority for social security issues, including the determination of the level of social security contributions, lies with the Greek Ministry of Labour and Social Insurance. Contributions are collected through e-EFKA.

There are several **taxes and levies** in Greece. The main taxes burdening households include the following:

1. **Personal income tax (PIT).** This is based on a progressive scale with rates ranging from 9% to 44% and applying uniformly to incomes from salaries, self-employment and pensions. Separate rates apply for taxes on capital.
2. **Social security contributions (SSCs).** As of 2023, total contributions are withheld at 13.87% of the salary on the employee's side and 22.29% on the employer's side (6.67% and 13.33% for main pensions respectively, while the remainder mainly concerns supplementary and lump-sum pension benefits, healthcare and unemployment insurance). A separate system applies for self-employed persons and freelancers with a menu of social security categories (6 for main pensions, 3 for supplementary and 2 for health insurance) from which the insured persons can choose freely by paying a corresponding flat amount of contributions.
3. **Single property tax (ENFIA).** The annual property tax was introduced in 2014 and applies to all real estate property in Greece. The tax amount is calculated based on various property characteristics such as its square footage, elevation above ground level, age of the property as well as the zonal value. Despite plans to reform the system in line with practice in other countries, ENFIA revenues are collected and managed at the state budget level and not at the regional level.
4. **Value-added tax (VAT).** The standard VAT rate in Greece is 24%. A reduced 13% rate applies for basic foodstuffs, baby products, motorcycle helmets, home-based care services, food services and tourism. A super-reduced 6% rate applies to pharmaceuticals, utilities, books and cultural goods and events.
5. **Excise tax.** Excise taxes are levied on fuel, alcohol and tobacco, with the tax amount depending on the quantity purchased.
6. **Municipal taxes.** The main municipal taxes applying in Greece include (i) a real estate ownership tax in favour of municipalities and communities calculated on the basis of the property value and a rate ranging between 0.25% and 0.35%, (ii) cleaning and lighting services duties, and (iii) a tax on real estate property connected to the electricity grid. All three are levied through electricity bills.
7. **Inheritance tax.** Rates range from 0% to 40% depending on the value of the estate and the relationship of the beneficiary to the deceased.

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8. Road tax. The calculation of the road tax amount for vehicles depends on the year of first registration, engine capacity and CO₂ emissions.
 9. Luxury tax. In addition, a luxury tax applies for cars of higher engine capacity, as well as for private boats, aircraft and swimming pools.

In principle, most of the taxes in Greece are based on **progressivity** so that individuals and businesses are burdened with higher tax rates as their income, profits or property value increase. Also, various tax exemptions and discounts apply for low-income or unemployed individuals and households. Tax exemption thresholds vary according to the number of children (starting from €8,636 for a single person), and on condition that the taxpayer has made a minimum of electronic transactions in the previous year.

Despite these rules, certain characteristics of the Greek economy may *de facto* undermine the progressivity and fairness of the tax system. These characteristics include a narrow income tax base, the very large shadow economy in Greece, the large share of self-employed individuals as well as a structure skewed towards retail sectors and activities (such as tourism and catering), where concealing incomes is relatively easier.²

In addition to this, tax revenues in Greece rely disproportionately on taxes on consumption which tend to be more regressive than taxes on income. According to 2022 data from the General Accounting Office of the Ministry of Finance, direct taxes on products and services accounted for 57.2% of total tax revenues in 2022 as opposed to just 30.8% coming from taxes on income.

Also, the introduction of the ENFIA property tax during the period of economic adjustment programmes has been a controversial issue. While proponents argue it is important in terms of fiscal revenues (mainly due to its high collectability), the tax has been found to have an overall regressive distributional effect as *ceteris paribus*, inequality and relative poverty indicators rose after the introduction of the tax.³ ENFIA and other smaller taxes on property accounted for roughly 5% of total tax revenues in 2022 and are levied by the general government.

Last but not least, Greece has an overall high tax wedge according to available international comparative statistics. During the crisis of the previous decade, Greece underwent numerous PIT, SSC, VAT, property and other tax reforms, with the tax system often being characterised as unstable and unpredictable. This is one of the main factors contributing to the low competitiveness of the Greek economy, tax and social security contribution evasion, the accumulation of arrears as well as high-skilled human capital flight (emigration), among other important issues.

Education system

Access to publicly provided education in Greece is free of charge up to the first degree of tertiary education (tuition fees often apply as of postgraduate studies). It is also compulsory for all children aged 4–15: the minimum schooling duration for all children as mandated by the Greek law is 8 years

² According to official IAPR data, 69.1% of self-employed persons in Greece (including high-status professionals such as doctors, engineers, lawyers and owners of tourist businesses) declared incomes up to €10,000 in 2020, as opposed to 51.5% of employees and 94% of farmers.

³ Andriopoulou, E., Karakitsios, A. and Tsakloglou, P., 2018. Inequality and poverty in Greece: Changes in times of crisis. In D. Katsikas, D. A. Sotiropoulos and M. Zafiropoulou (eds), *Socioeconomic Fragmentation and Exclusion in Greece under the Crisis*, pp. 23–54. Cham: Palgrave Macmillan. doi:10.1007/978-3-319-68798-8_2.

of primary education (2 in kindergarten and 6 in primary school) followed by 3 years of lower secondary education (junior high school).

From an administrative point of view, the Ministry of Education and Religious Affairs is the competent authority supervising all educational units in Greece (both public and private entities), assisted by the Directorates of Primary and Secondary Education (regional bodies) as well as the Institute of Educational Policy (the main advisory body regarding educational policies in Greece). The Greek education system is one of the most centralised in the OECD, with general government funding and most schooling decisions taken at the central level. This strengthens the coherence of the system, yet it limits the scope for flexibility and innovation.

Despite the fact that access to the public education system is free of charge, there are important barriers to equitable access, with the most important one arising from the very high level of household payments for private education services. These include afternoon tutorials preparing students for the final national exams ensuring admission to tertiary education. Private tutorials are also becoming increasingly prevalent among younger students (at lower secondary and even primary levels) as there is a widespread perception that the average quality of lessons offered in public schools does not suffice or that students need additional help in coping with school obligations. Private household expenditure on foreign language lessons is also very high and prevalent among households with children in Greece.

It is estimated that households with children in lower and upper secondary education annually spent over €900 million (0.5% of GDP) on private lessons amidst the crisis (in 2016), excluding private school tuition fees.⁴ This has implications in terms of inequality and intergenerational mobility while, at the same time, the public educational system is essentially deprived of incentives to improve the quality of the services it provides.

⁴ IOBE, 2019. *Educational Inequalities in Greece: Access to Higher education and Impact of the Crisis* [in Greek]. Athens: Foundation for Economic and Industrial Research IOBE.

3. Notes on measurement and definitions

Unit of analysis and sample:

- We exclude the top and bottom 1% of the gender-specific wage distribution to compute the Gini coefficient in Figure 11. We have not excluded any households for the household income figures.

Definitions:

- **Reference year:** data have been adjusted so that the reference year for income and earnings coincides with the survey year in the charts presented throughout the report.
- **Employment rate:** the fraction of the population that is employed according to employment status (using Labour Force Survey microdata from ELSTAT).
- **Earnings:** gross annual real individual earnings (includes self-employed individuals). Data are drawn from the Euromod platform for the period 2004–21 (income years), using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.
 - If an employee has multiple jobs, earnings from all jobs are summed together.
 - Most figures include taxes, pension contributions and other contributions (e.g., health insurance) paid by employees but *not* taxes and contributions paid by employers.
 - In Greece, the EU-SILC earnings data are obtained as follows:
 - Information on employee earnings is obtained by asking respondents the amount they were paid during the previous calendar year.
 - Self-employed respondents are asked questions on their gross cash income during the previous calendar year. (Income includes net operating profit or loss accruing to working owners of, or partners in, an unincorporated enterprise, less interest on business loans and also royalties earned on writing, inventions (patents) not included in the profit/loss of unincorporated enterprises.)
 - Earnings for employees and self-employed are converted to monthly amounts by dividing the annual amount by 12, regardless of the actual number of months of receipt.
 - Nominal earnings are converted to real terms in calendar year 2019, using ELSTAT's CPI (not adjusted for mortgage interest).
- **Hourly wage:** We use the Euromod platform for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020. The hourly wage is calculated through the Euromod platform, using EU-SILC microdata, for the period 2004–21. The hourly wage is a division of monthly gross income from labour and hours worked per month. To

get hours worked, the monthly hours are divided by 4.3 weeks per month. The calculation excludes self-employed workers.

- **Hours of work:** This refers to the total number of hours actually worked in the enterprise during the reference period. It includes hours actually worked during regular working hours; overtime hours worked, whether paid or unpaid; hours worked during night shifts, Sundays or public holidays. It also includes the time spent at the workplace on tasks such as preparing the site and short periods of rest. This variable excludes hours paid but not actually worked, such as for annual leave, holidays and sickness leave.
- **Gross earnings:** Gross annual real individual earnings concept: labour income plus self-employed income. Self-employed income includes employers or self-employed. Total earnings based on reported and non-reported earnings of employees and self-employed.
- **Disposable household income (household equivalised income after deducting taxes and social contributions and adding benefits):**
 - The main measure of household income used in this report is income before housing costs have been deducted, and after direct taxes and transfers have been deducted from or added to household income.
 - Income includes: usual net earnings from employment, profit or loss from self-employment, state support (all benefits and tax credits), income from occupational and private pensions, investment income, income from rental of property or land, child maintenance payments and the cash value of using a company car
 - Income is net of income tax payment, social security contributions and regular taxes on wealth
 - Incomes are equivalised using the modified OECD equivalence scale, normalised to a single individual.

Splits:

- **Sex:** female, male
- **Education:** qualification type using ISCED11, split in three different groups: ISCED 0–2, ISCED 3–5 and ISCED 6–8.
- **Household type:** Single without dependent children; single with dependent children; couples without dependent children; couples with dependent children; adult child; other. Parents of adult children go in the 'other' category. A dependent child is a child aged 0–15 or 16–19 and in full-time education, living with parents.

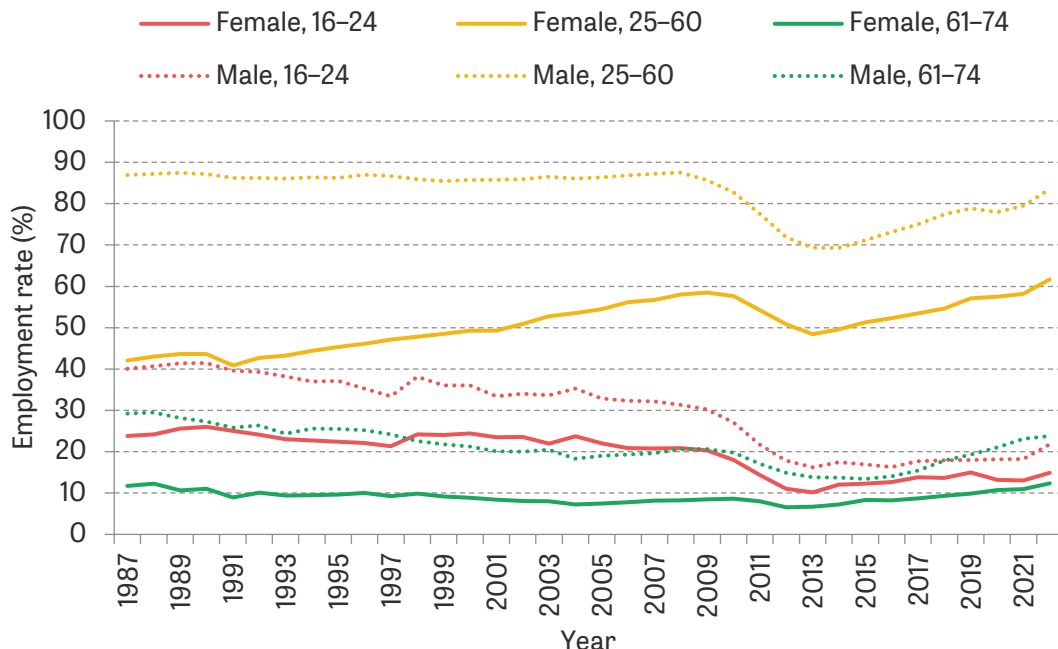
4. Individual employment and earnings

This section looks at trends in individual employment and earnings. With respect to earnings, we first look separately at hourly wages and hours worked, before bringing them together in a set of charts on earnings inequality. Analysis of wages and hours refers to employees, but we include both employees and the self-employed in the analysis on total earnings.

4.1 Trends in employment

Figure 1 shows that the employment trends are driven by long-term social trends and short- to medium-term economic developments. In particular, the employment rate is highest for prime working-age men and remained broadly at the same level during 1987–2009. Meanwhile, the employment rate for prime working-age women (aged 25–60) for almost two decades (1991–2010) and up until the advent of the crisis saw a steady rise (by 20 percentage points), reflecting the gradually shifting social patterns in favour of women participating in the labour force. Over the same period, the employment rate for men aged 16–25 declined by about 10 percentage points, as the Greek higher education system expanded and the social norm for university education strengthened. The employment rate for the same age group among women also declined over the same period, by about 3.5 percentage points. A similar trend, with a sharper reduction among men than women, was observed for the 61–74 age group, which was probably supported by the increasing generosity of the Greek pension system (in terms of replacement rates and early retirement eligibility conditions).

Figure 1. Employment rates by age and sex, over time



Source: Authors' calculations using LFS data (ELSTAT) for the period 1987–2022.

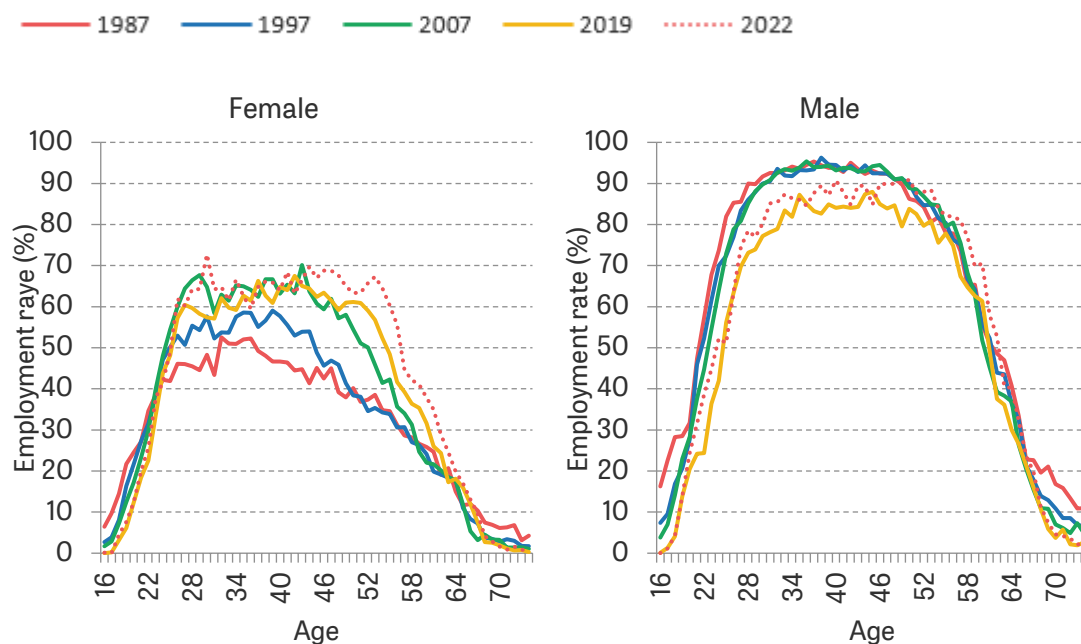
<https://www.statistics.gr/en/public-use-files>

The fall observed in the period 2010–13, can be attributed to the contraction of the economy during the first years of Greece's sovereign debt crisis. Employment rates started to recover

after 2013 but remain currently lower compared to the pre-crisis period. The economic crisis that hit the Greek economy after 2009 resulted in lower employment rates for men which are still at a lower level compared to the pre-crisis period. Employment rates among young people (16–24) showed one of the sharpest declines for both men and women since 2010 and still remain low. The COVID-19 pandemic does not appear to have affected employment rates in 2020, with the exception of women in the 16–24 age group, for which the employment rate recorded a decline. For older men and women (61–74 years old), the employment rate in 2015–22 recovered fully to the pre-crisis level and in the case for women the employment rate returned to levels not seen since the late 1990s. The stricter rules on early retirement as a result of the reforms of the three economic adjustment programmes implemented in Greece over the 2010s have probably contributed to this development.

Figure 2 shows that the economic crisis profoundly affected employment rates for men, especially in the 16–56 age group, which has much lower rates in 2019 than in previous years, with a small improvement in 2022. By contrast, employment rates for women gradually increased between 1987 and 2007, especially for the 24–59 age group. Employment rates in 2019 and especially in 2022 are similar to 2007 levels, and higher for the 48–63 age group.

Figure 2. Employment rates over lifecycle by sex, selected years

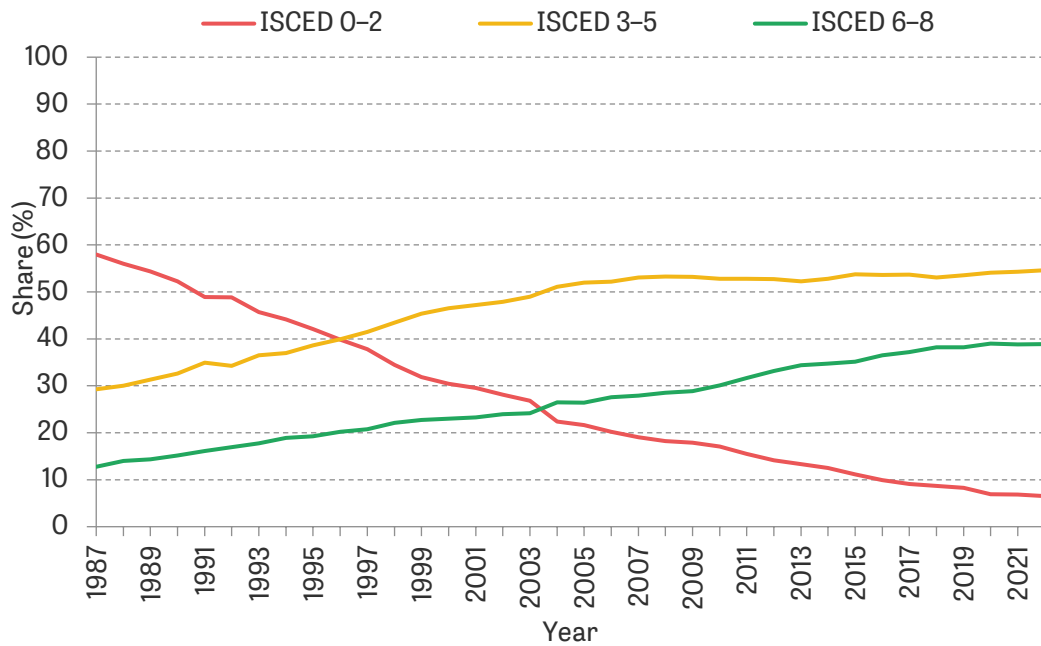


Source: Authors' calculations using LFS data (ELSTAT) for the period 1987–2022.
<https://www.statistics.gr/en/public-use-files>

Next (Figure 3), we focus on individuals in their prime working years (aged 25–60). Since the 1960s, there has been a significant expansion of access to education and especially to higher education in Greece. As a consequence, educational attainment has increased significantly. As shown in Figure 3, 39% of individuals had an undergraduate or higher degree as of 2022 (ISCED 6–8), three times higher than in 1987 (13%). The percentage of individuals who have completed secondary education (ISCED 3–5), after significant growth, has stabilised to around 50–55% since 2004. Correspondingly, the lower categories of educational attainment have fallen sharply, from nearly 60% in 1987 to only 7% in 2022.

Attainment of upper-level education (ISCED 6–8) for women has been steadily increasing throughout the whole period (Figure 4). The ISCED 6–8 category for women has been gradually increasing and is the largest group between the three aggregate educational groups among females in 2022 with a small margin compared to the ISCED 3–5 category. For men, educational attainment increases for the ISCED 3–5 category and falls slightly for the ISCED 6–8 group.

Figure 3. Educational attainment over time

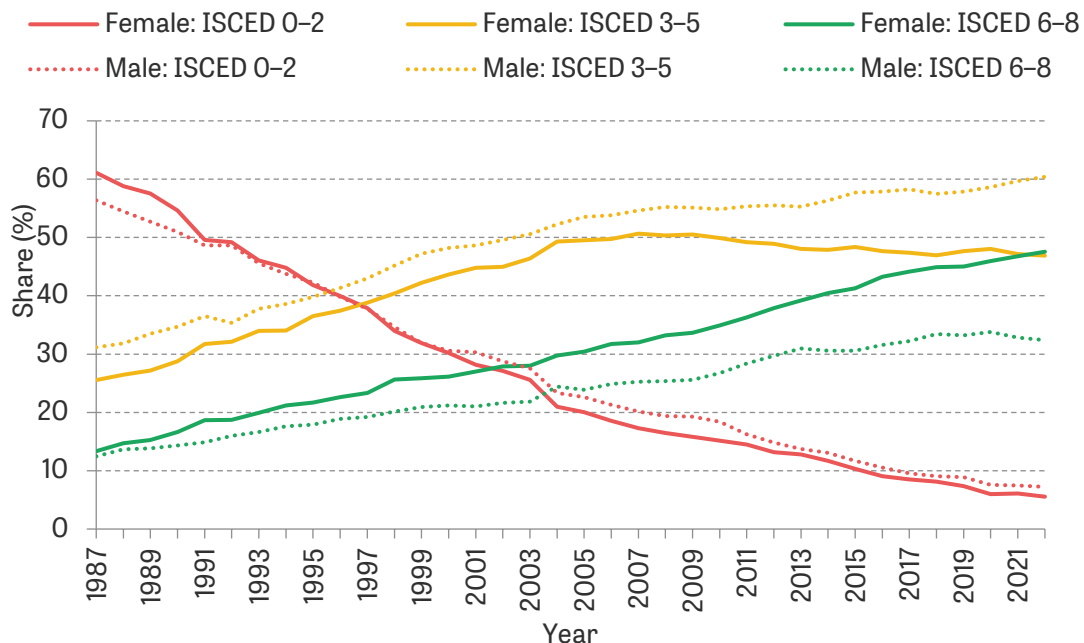


Note: Sample is individuals aged 25–60.

Source: Authors' calculations using LFS data (ELSTAT) for the period 1987–2022.

<https://www.statistics.gr/en/public-use-files>

Figure 4. Educational attainment by sex, over time



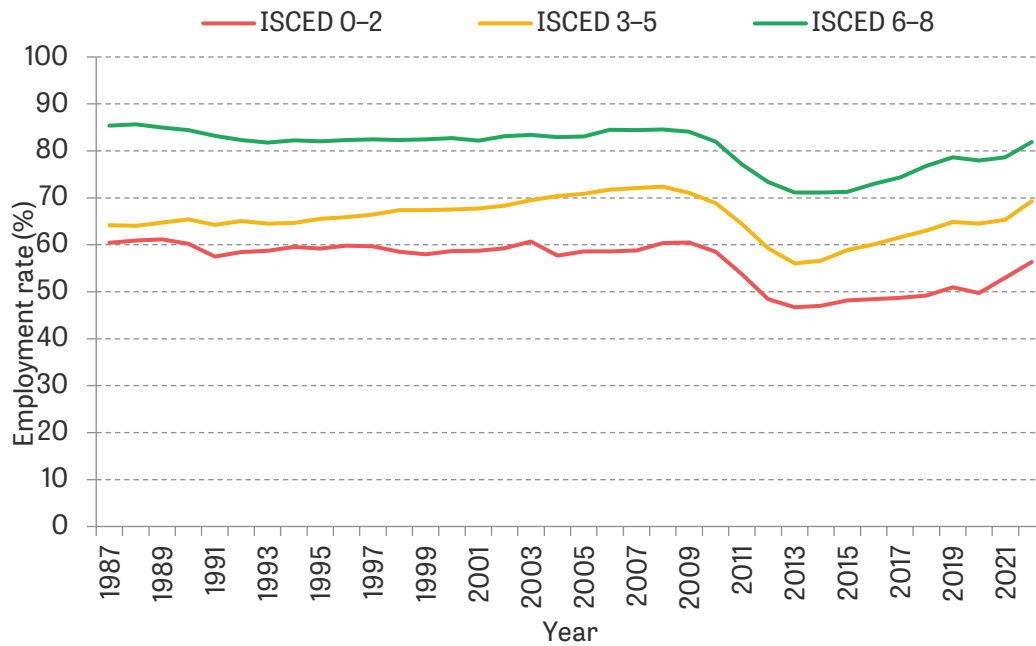
Note: Sample is individuals aged 25–60.

Source: Authors' calculations using LFS data (ELSTAT) for the period 1987–2022.

<https://www.statistics.gr/en/public-use-files>

Figure 5 shows how trends in employment have differed by educational background. Employment rates remain almost stable in the period 1987–2010 for those with high-level and low-level education, while the share of individuals with middle-level educational attainment increased slightly over the same period. The economic crisis after 2009–10 affected all education groups, whereas the recovery of the economy after 2015–16 was stronger for people with medium and high education levels (ISCED 6–8 and ISCED 3–5). The effect of the COVID-19 pandemic was more pronounced for the ISCED 0–2 category, even if only temporarily.

Figure 5. Employment rates by education, over time



Note: Sample is individuals aged 25–60.

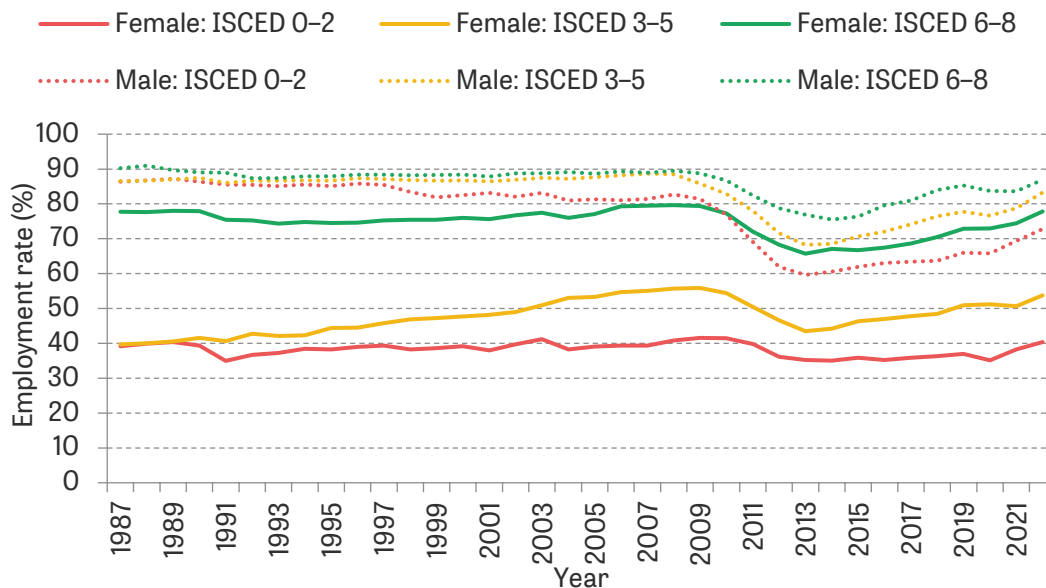
Source: Authors' calculations using LFS data (ELSTAT) for the period 1987–2022.

<https://www.statistics.gr/en/public-use-files>

Male employment rates remained stable between 1987 and 2009 for upper and middle educational groups, while it fell slightly after 1997 for lower educational groups, with the stronger integration of neighbouring eastern European countries and other developing economies (e.g., China) into the global trade chains. The most dynamic educational group are middle-level (ISCED

3–5) females, whose employment rate gradually increased by 16 percentage points up to 2010 (Figure 6).

Figure 6. Employment rates by sex and education, over time



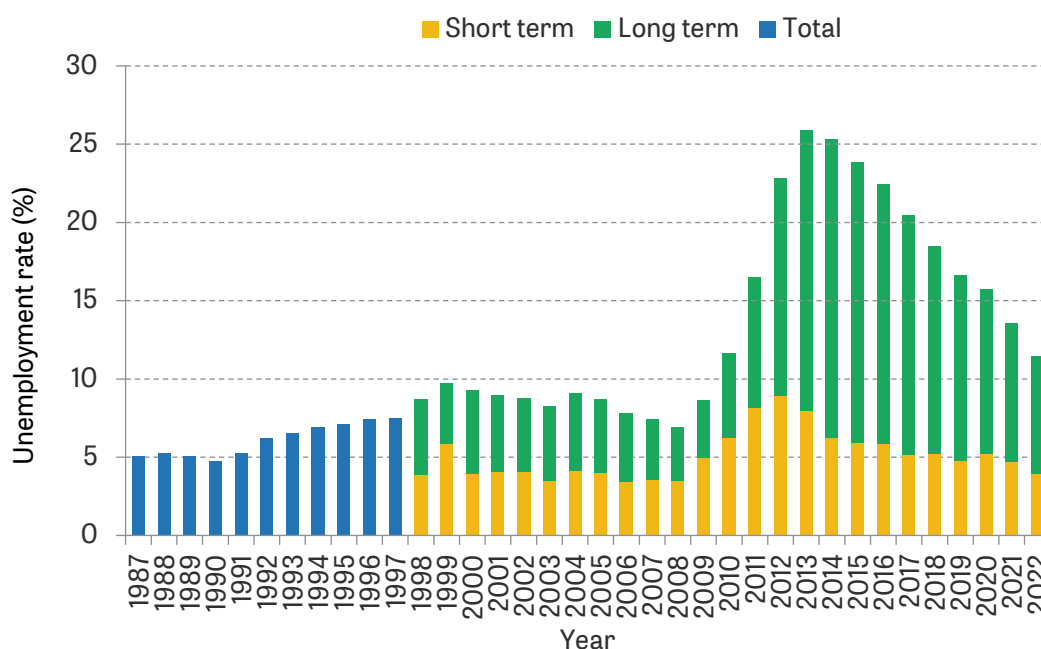
Note: Sample is individuals aged 25–60.

Source: Authors' calculations using LFS data (ELSTAT) for the period 1987–2022.

<https://www.statistics.gr/en/public-use-files>

Unemployment rates in Greece rose after 1992, reflecting structural problems in the labour market, while the majority of unemployed persons remain without a job for over 1 year (long-term unemployed). Unemployment rates soared as a result of the economic crisis after 2010. The unemployment rate hit 26.0% in 2013 (for the 25–60 age group), with a gradual fall after 2014. The largest share of unemployed persons after 2011 remain in this situation for over 1 year, three times the short-term unemployment rate recorded between 2014 and 2017 (Figure 7).

Figure 7. Unemployment rate by duration of unemployment, over time



Note: Sample is individuals aged 25–60. Unemployment rate is calculated as the fraction of labour force aged 25–60, split between short-term (up to 1 year) and long-term (1 year or more) duration of unemployment.

Source: Authors' calculations using LFS data (ELSTAT) for the period 1987–2022.

<https://www.statistics.gr/en/public-use-files>

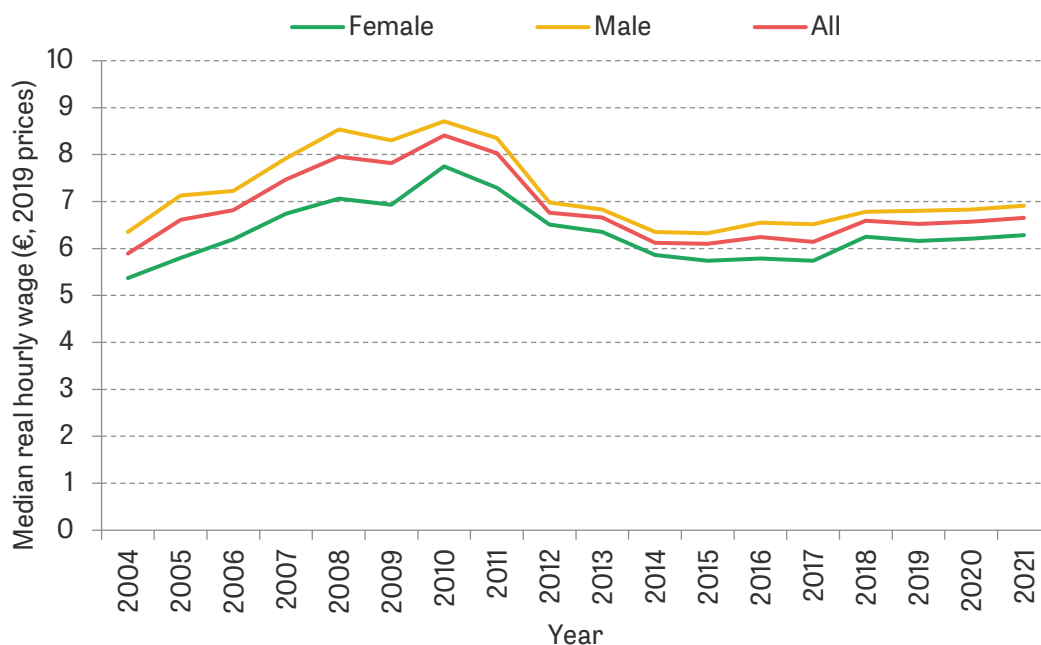
4.2 Trends in hourly wages (employees only)

Real median hourly wages⁵ rose steadily between 2004 and 2010, for the total population and for both genders (Figure 8). However, the economic crisis caused a significant drop in real wages until 2015–17 and they have not yet fully recovered.

Figure 9 illustrates these trends by sex and across education groups. The largest drop in wages is observed for those with university qualifications (both men and women), even though these categories have the highest wages throughout the whole period. The drop in wages between 2009 and 2015 was larger among men than women for all educational categories.

Figure 10 shows median wages over the life cycle by sex and education, for different time periods. Before the economic crisis (2004–08) those with lower levels of education had a flatter wage profile over the life cycle. Those with middle levels of education (ISCED 3–5) had medium wage growth over their working lives and, finally, those with higher degrees (ISCED 6–8) had a stronger increase in wages over their life cycle (both men and women). The economic crisis (2008–13) did not significantly affect these trends, but after downward minimum wage adjustments and significant wage cuts in the public sector (2009–12) there was a drop in the positive slope of the wages over the life cycle for the upper educational group, while the low and middle groups remained broadly similar.

Figure 8. Median real hourly wage among employees, overall and by sex, over time

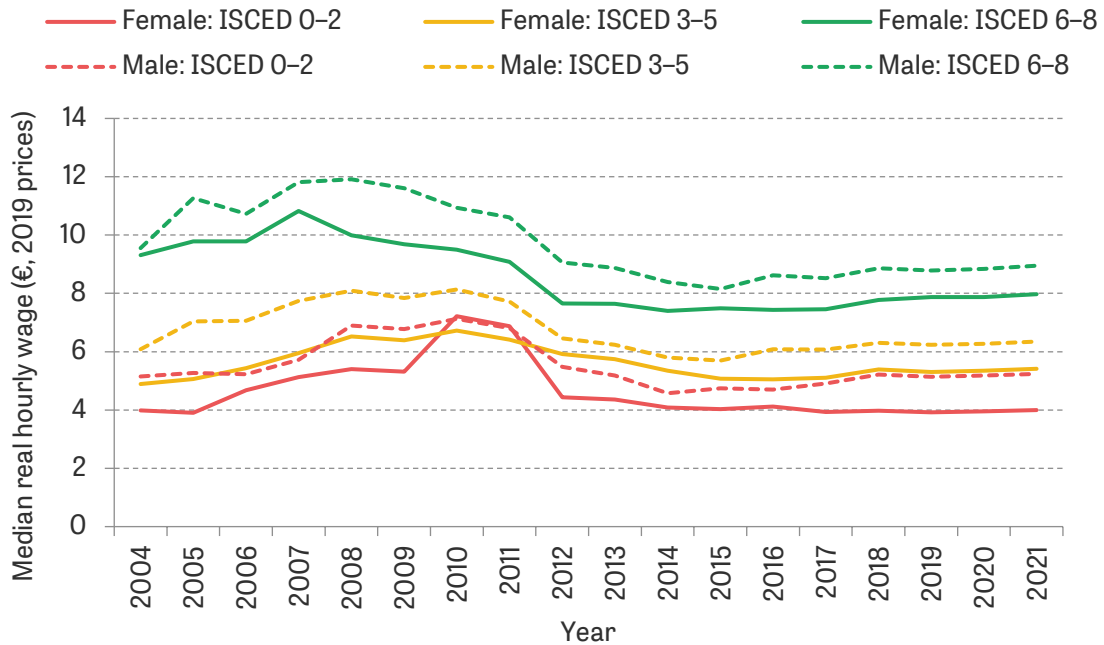


Note: Sample is employees aged 25–60. Wages are in 2019 prices.

⁵ For wages and earnings during 2005–2020, we use EU-SILC data instead of the LFS due to the lack of data on wages and earnings in the LFS.

Source: Authors' calculations using Euromod results for Greece for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.

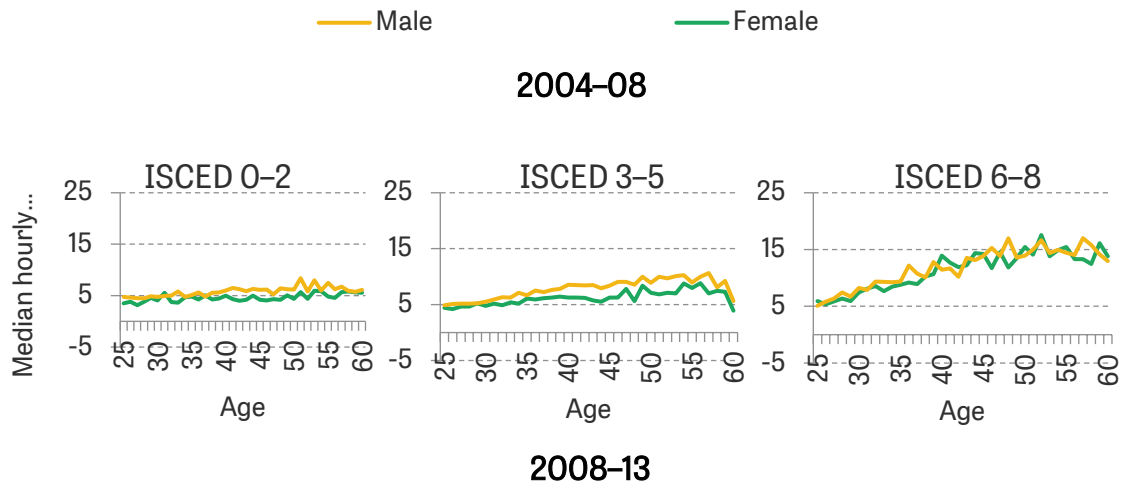
Figure 9. Median real hourly wage among employees, by sex and education, over time

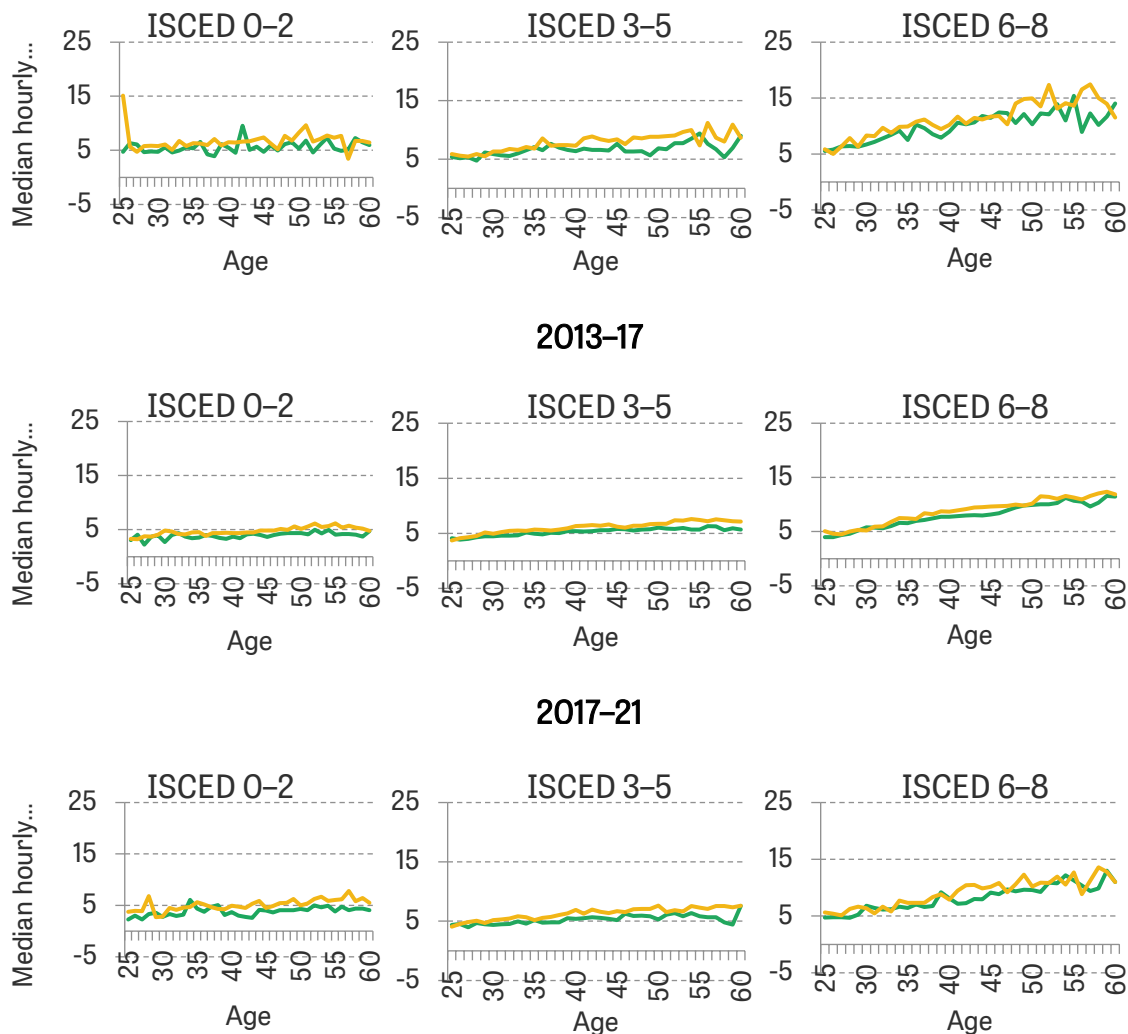


Note: Sample is employees aged 25–60. Wages are in 2019 prices.

Source: Authors' calculations using Euromod results for Greece for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.

Figure 10. Median real hourly wage among employees over life cycle, by sex and education



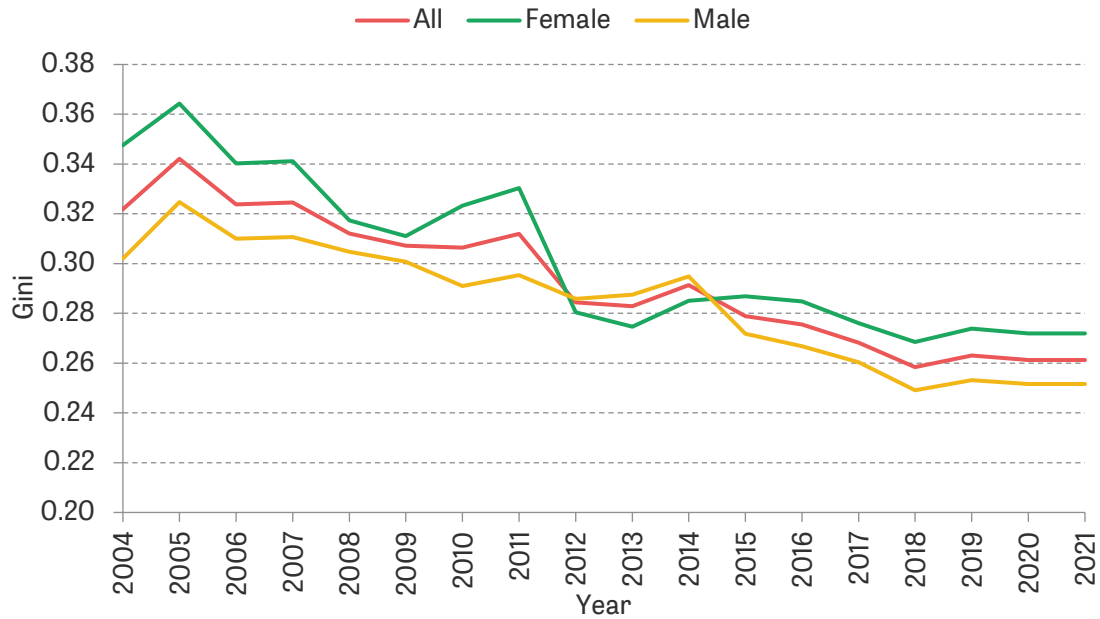


Note: Sample is employees aged 25–60. Wages are in 2019 prices.

Source: Authors' calculations using Euromod results for Greece for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.

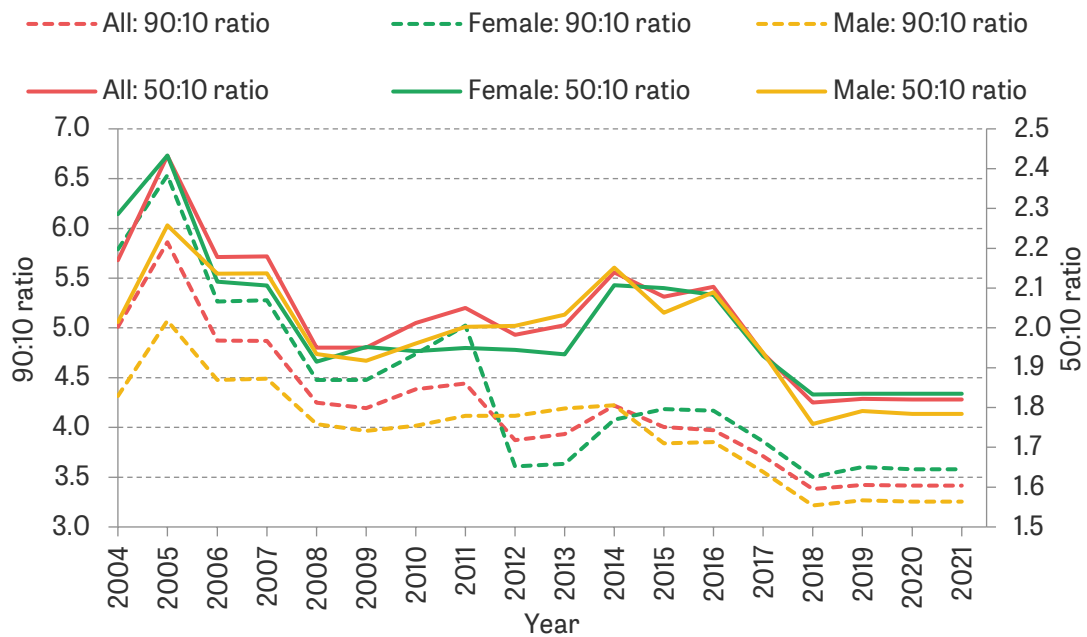
Figures 11 and 12 plot trends in wage inequality using the Gini coefficient, the 90:10 ratio and the 50:10 ratio. Wage inequality, as measured by the Gini coefficient, which captures inequality across the entire income distribution, fell gradually after 2005. Meanwhile, the coefficient has been greater among women for most of the period examined. The difference between the income of two random persons fell from 34% (of the mean equivalised disposable income) in 2005 to 26% after 2018. Wage inequality across most of the distribution (as captured by the 90:10 ratio) has been significantly reduced over the last 15 years for both men and women. By contrast, inequality as measured by the 50:10 ratio decreased until 2008 but slightly increased after 2009. This means that the gap between high and low wages has shrunk but the gap between medium wages and low wages has widened during the period 2008–16.

Figure 11. Gini coefficient of hourly wages among employees, overall and by sex, over time



Note: Sample is employees aged 25–60. Wages are in 2019 prices. The top and bottom 1% of the gender-specific wage distribution are excluded.
Source: Authors' calculations using Euromod results for Greece for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.

Figure 12. 90:10 and 50:10 ratios of hourly wages among employees, overall and by sex, over time

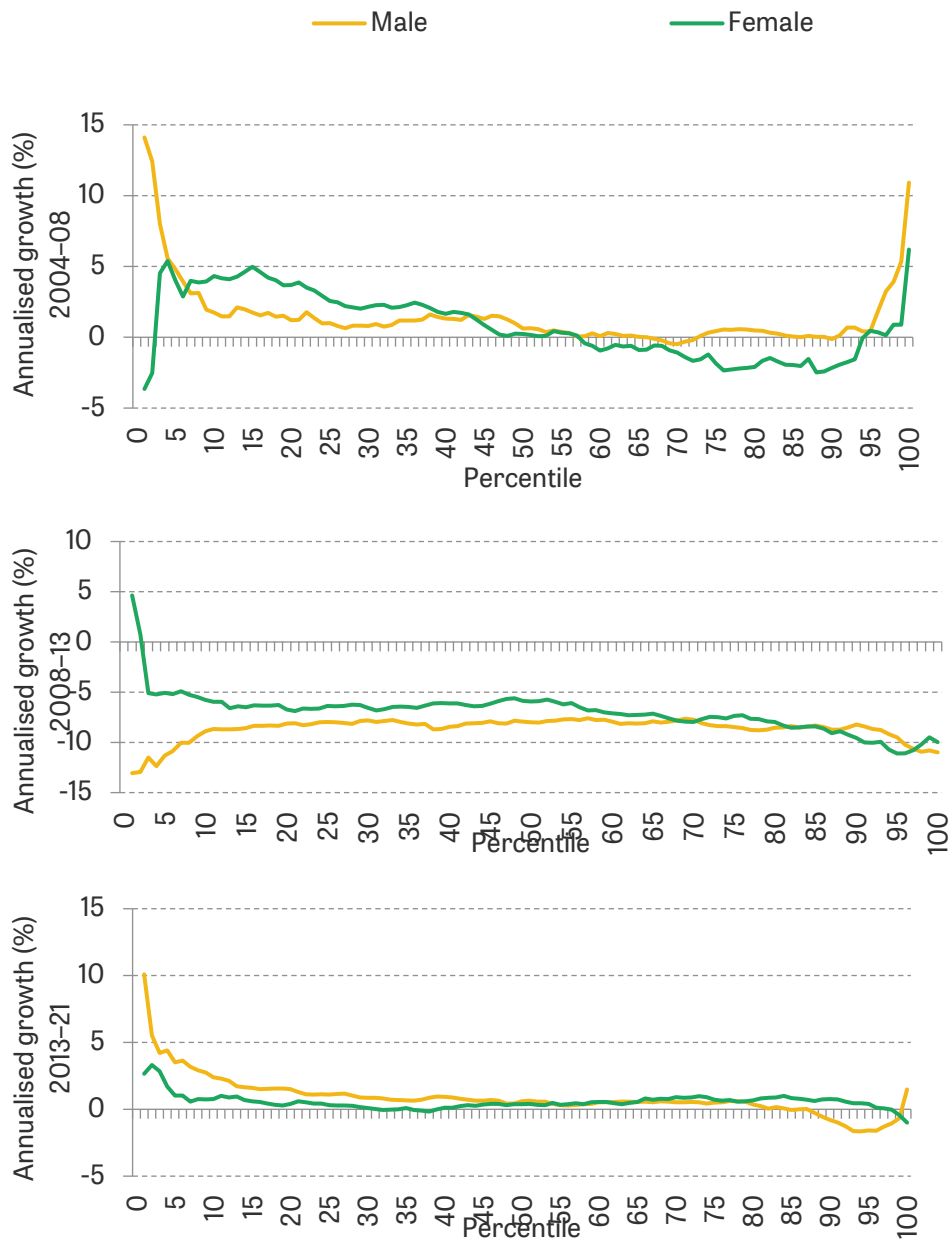


Note: Sample is employees aged 25–60. Wages are in 2019 prices.
Source: Authors' calculations using Euromod results for Greece for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.

Figure 13 looks at changes in hourly wages across the wage distribution in more detail. In the period between 2004 and 2008 wages increased for all percentiles for men, but changes were more pronounced among lower categories, with spikes at the top and bottom of the wage

distribution. Wages increased for the lower half of the distribution for women. The economic crisis after 2009 affected all income percentiles, even though the effect was slightly more pronounced among higher income categories for both men and women and the lower income category for men. Wages decreased by between 5% and 10% annually for women and men in this period. After 2013 there was a gradually increasing in hourly wages for both men and women, except the upper percentiles. Additional data for the 25–74 age group can be found in the Appendix (Figure 47).

Figure 13. Annualised growth in hourly wages among employees by wage percentile, overall and by sex, selected periods

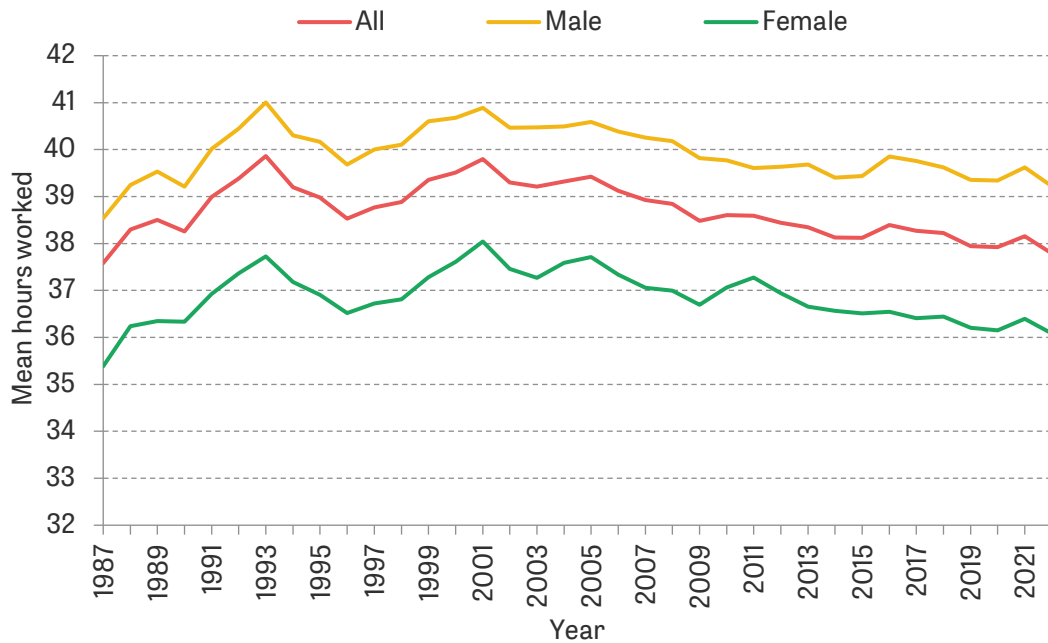


Note: Sample is employees aged 25–60. Wages are in 2019 prices.
 Source: Authors' calculations using Euromod results for Greece for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.

4.3 Trends in hours worked (employees only)

Figure 14 shows that the average hours worked by employees grew until 1993 both for women and men, when they surpassed the statutory level of 40 hours per week that corresponds to 8 hours per day in a 5-day working week. The average hours worked then fluctuated until 2001, when the trend shifted to a gradual decline, again with fluctuations. Different factors affected the labour market during this period, such as the contraction of the Greek economy in the early 1990s, the gradual shift of production patterns due to globalisation effects (decline of labour-intensive manufacturing activities, such as textiles), the convergence process of the Greek economy to join the euro, inflows of economic migrants, and public and private investments for the Olympic games in 2004. After 2001, mean hours worked gradually declined until 2020, with small bumps in 2021, after the COVID-19 pandemic crisis.

Figure 14. Mean hours worked among employees, overall and by sex, over time



Note: Sample is employees aged 25–60.

Source: Authors' calculations using LFS data (ELSTAT) for the period 1987–2022.

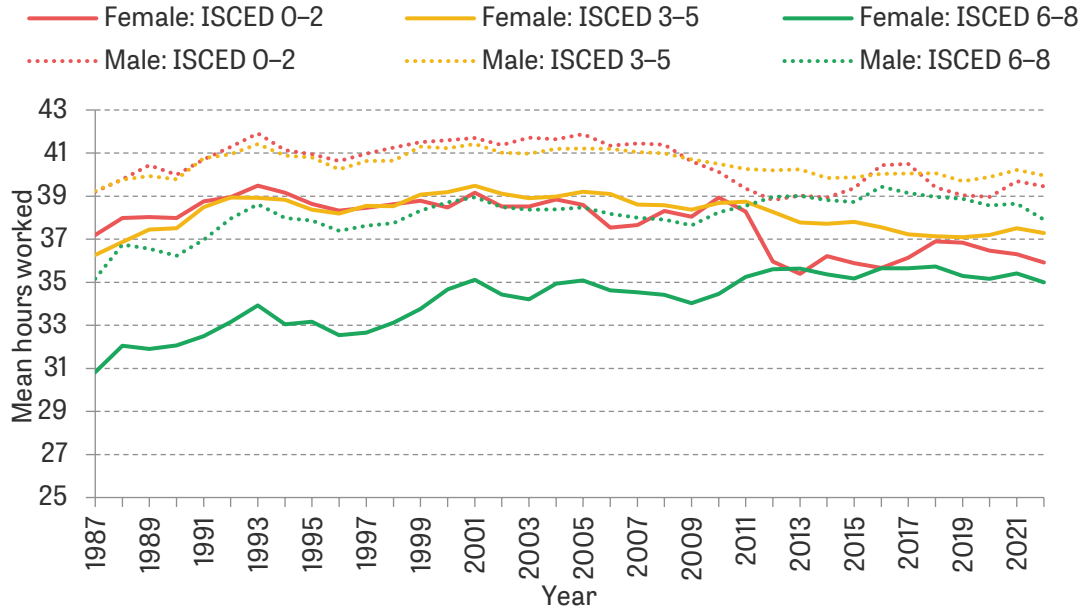
<https://www.statistics.gr/en/public-use-files>

Figure 15 shows that mean hours worked remain fairly steady during the period 1993–2010 for most educational categories, except for women in the upper educational group, which gradually increased over time. The lower educational group for men and women seems to be strongly procyclical, as their mean hours decreased notably after 2008 and 2010 and partially recovered after 2014 and 2016 respectively, with the end of the economic contraction. The decline in the overall population between 2001 and 2010 seems to have come mostly from employees with medium education, as their mean hours worked have steadily decreased since 2001 for women and since 2005 for men in this education group.

Figure 16 shows that average hours worked by women and men mostly decreased across the wage distribution between 2004 and 2008, with the sharpest declines recorded in the upper middle ventiles. During the economic recession, average hours worked were volatile and

recorded mixed percentage changes, while the percentage change in upper ventiles exceeded 25%. In the post-crisis period, average hours worked have remained for the most part stable with only marginal percentage changes. Additional data for the 25–74 age group are available in the Appendix (Figure 48).

Figure 15. Mean hours worked among employees, by sex and education, over time

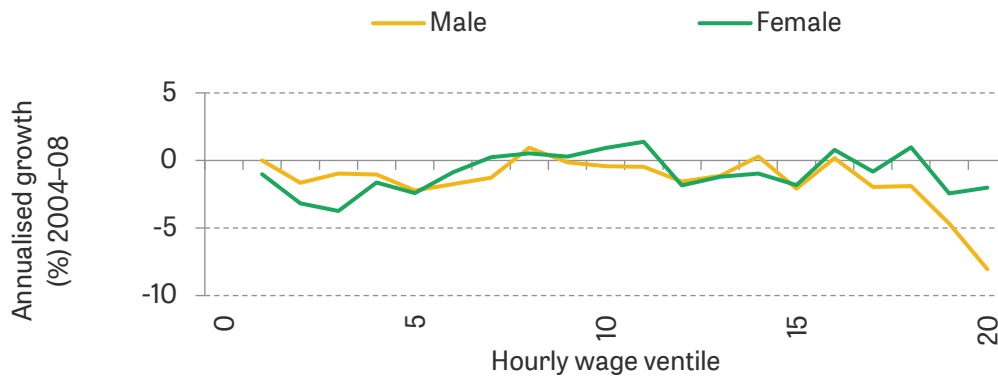


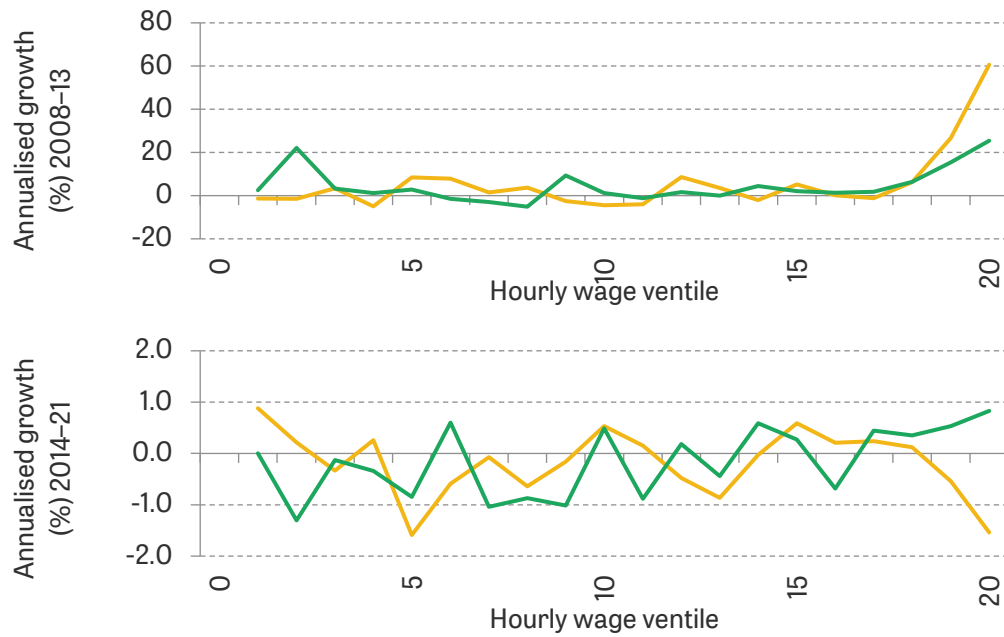
Note: Sample is employees aged 25–60.

Source: Authors' calculations using LFS data (ELSTAT) for the period 1987–2022.

<https://www.statistics.gr/en/public-use-files>

Figure 16. Annualised growth in mean hours worked among employees by hourly wage ventile, overall and by sex, selected years





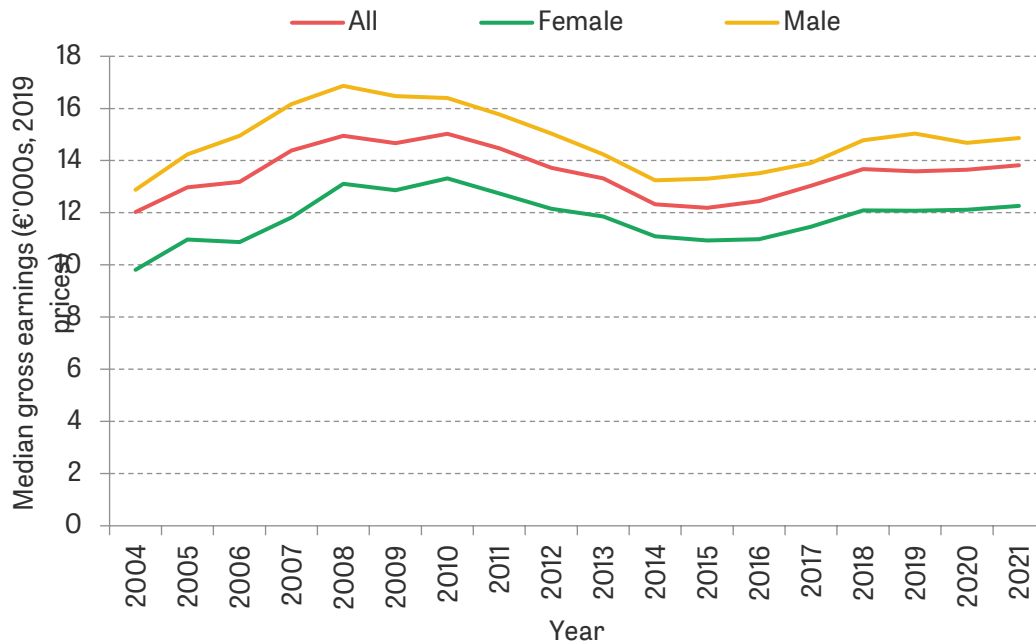
Note: Sample is employees aged 25–60.

Source: Authors' calculations using Euromod results for Greece for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.

4.4 Inequality in individual earnings among those in work (employees and self-employed)

Figure 17 shows that median real earnings increased from 2004 until 2009–10, by 31% for women and by 28% for men. Real earnings contracted by 18% on average for men and women in the period during the economic crisis (2010–15), with a gradual recovery in subsequent years, but they still remain below their pre-crisis levels.

Figure 17. Median real gross individual earnings, overall and by sex, over time



Note: Sample is individuals aged 25–60. Gross earnings are in 2019 prices.

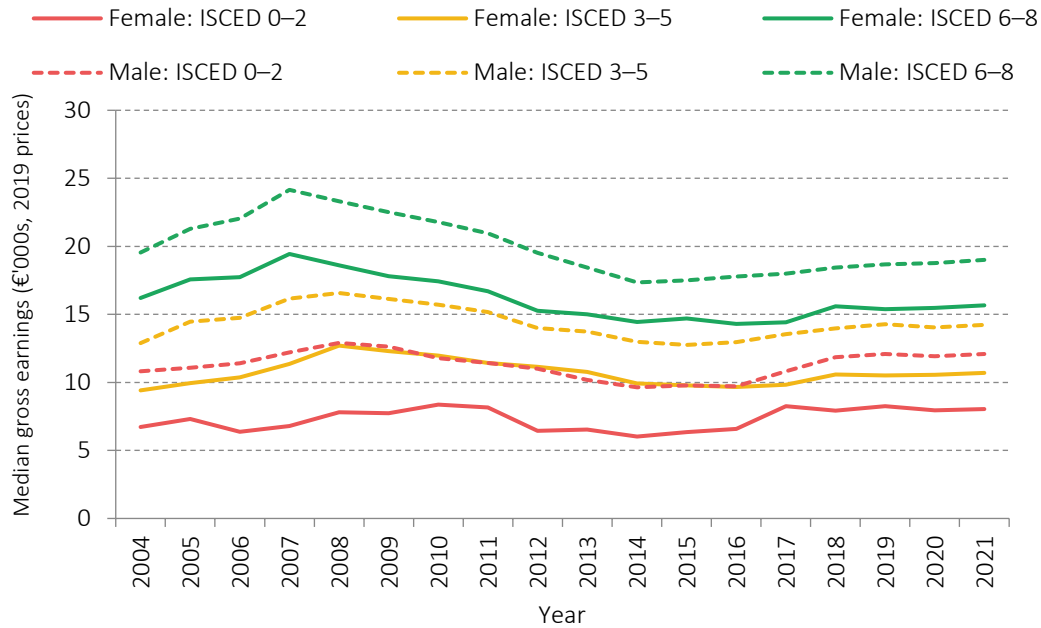
Source: Authors' calculations using Euromod results for Greece for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.

Figure 18 shows that there is no difference in the trends of median real gross earnings between men and women across educational categories, with the gender gap remaining at similar levels over time and across educational categories. Earnings in 2021 stood at 84–88% of 2009 levels for all categories, except for the lower educational category of men where they are at a higher level (104% of 2009 median earnings for women and 96% for men).

Figure 19 shows that overall earnings inequality, as measured by the Gini coefficient, has decreased gradually over the last 15 years and stood at 0.35 in 2021, down from 0.39 in 2005. Inequality among men was lower than among women up until the economic crisis. After this point inequality among men became greater than inequality among women. The economic crisis and the accompanying reforms seem to have increased inequality among men in 2009–14 and lowered inequality among women in 2007–14. After 2016, the Gini coefficient declined and remained stable until 2021 for both genders. Additional data for the 25–74 age group are available in the Appendix (Figure 49).

Figure 20 shows how the Gini coefficient for earnings differs when it is computed on an 'employer cost' basis, including employer social contributions to better reflect the true cost of labour. Trends have been very similar between the two measures, while inequality in gross earnings is greater than inequality in total employer cost over time.

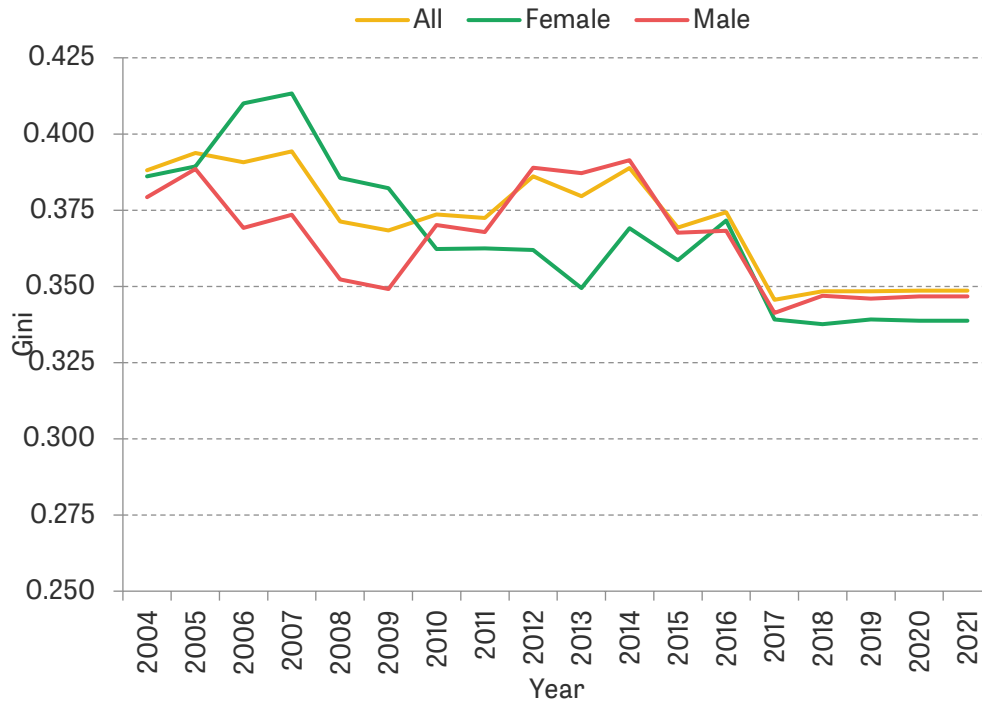
Figure 18. Median real gross individual earnings, by sex and education, over time



Note: Sample is individuals aged 25–60. Gross earnings are in 2019 prices.

Source: Authors' calculations using Euromod results for Greece for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.

Figure 19. Gini coefficient of gross individual earnings, overall and by sex, over time



Note: Sample is individuals aged 25–60.

Source: Authors' calculations using Euromod results for Greece for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.

Figure 20. Gini coefficient of gross individual earnings and total employer cost, over time

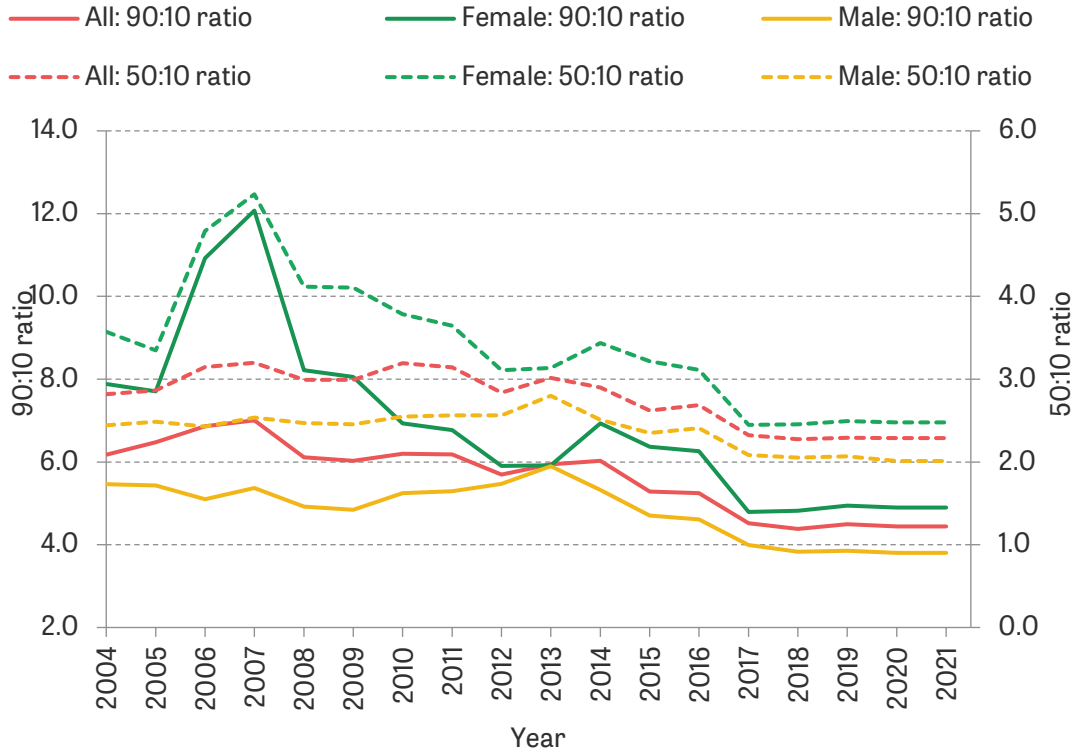


Note: Sample is individuals aged 25–60. The 'employer cost' series includes employer social contributions.

Source: Authors' calculations using Euromod results for Greece for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.

Figure 21 shows that earnings inequality among women contracted after 2007, as captured by both the 90:10 and 50:10 ratios. Inequality among men stands at lower levels compared to inequality among women and remains broadly at the same level over time.

Figure 21. 90:10 and 50:10 ratios of gross individual earnings, overall and by sex, over time

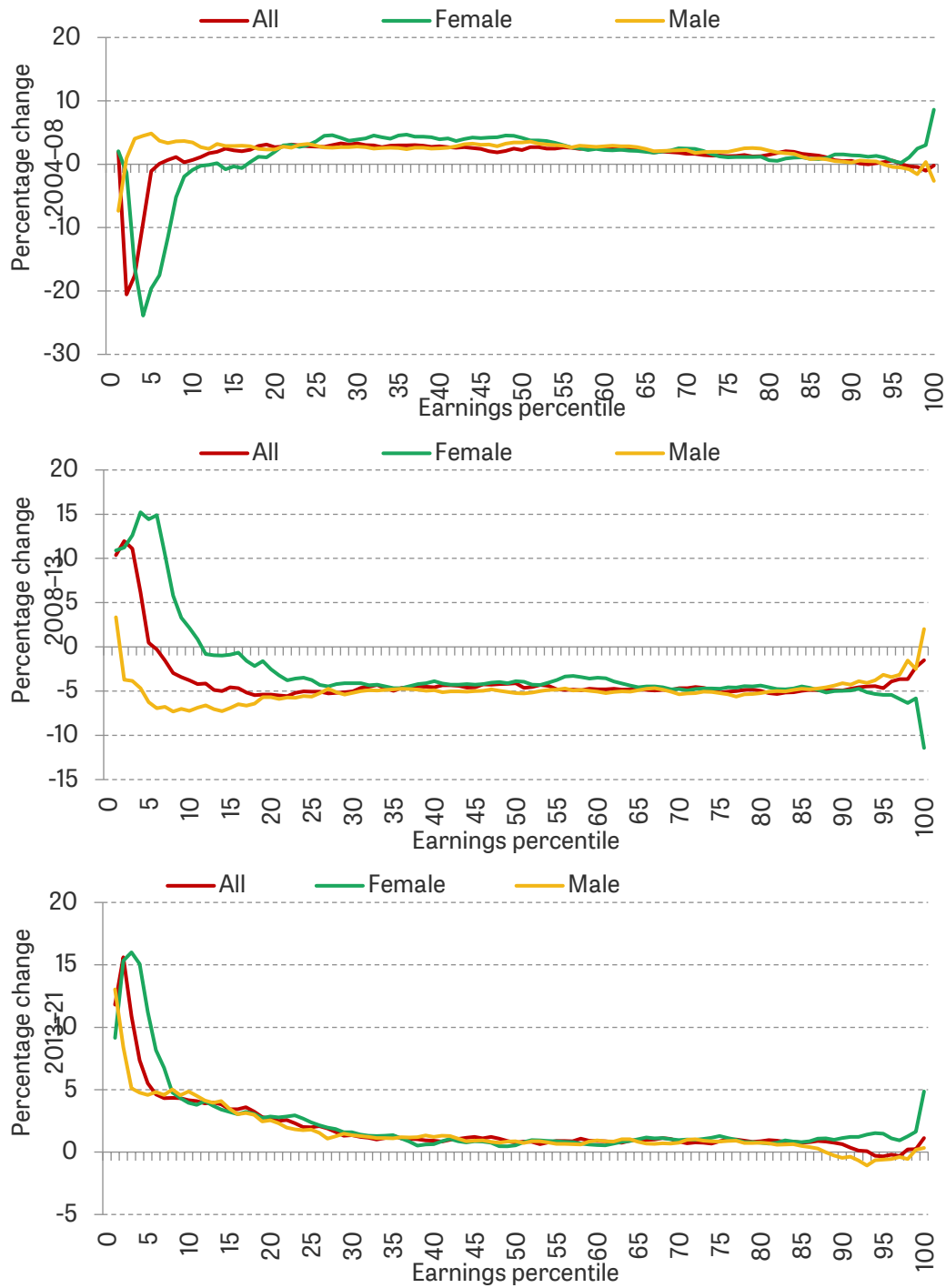


Note: Sample is individuals aged 25–60.

Source: Authors' calculations using Euromod results for Greece for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.

Figure 22 shows the growth in earnings across the distribution. Earnings increased in the period 2004–08 both for men and women, except for lower percentiles. The economic crisis affected all income percentiles, except women at the bottom end of the distribution. Earnings increased after 2013 for both men and women, especially in the bottom quarter of the earnings distribution, and with a slight fall among the top percentiles. Additional data for the 25–74 age group are available in the Appendix (Figure 50). Finally, Figure 23 shows that including employer taxes makes little difference to the trends.

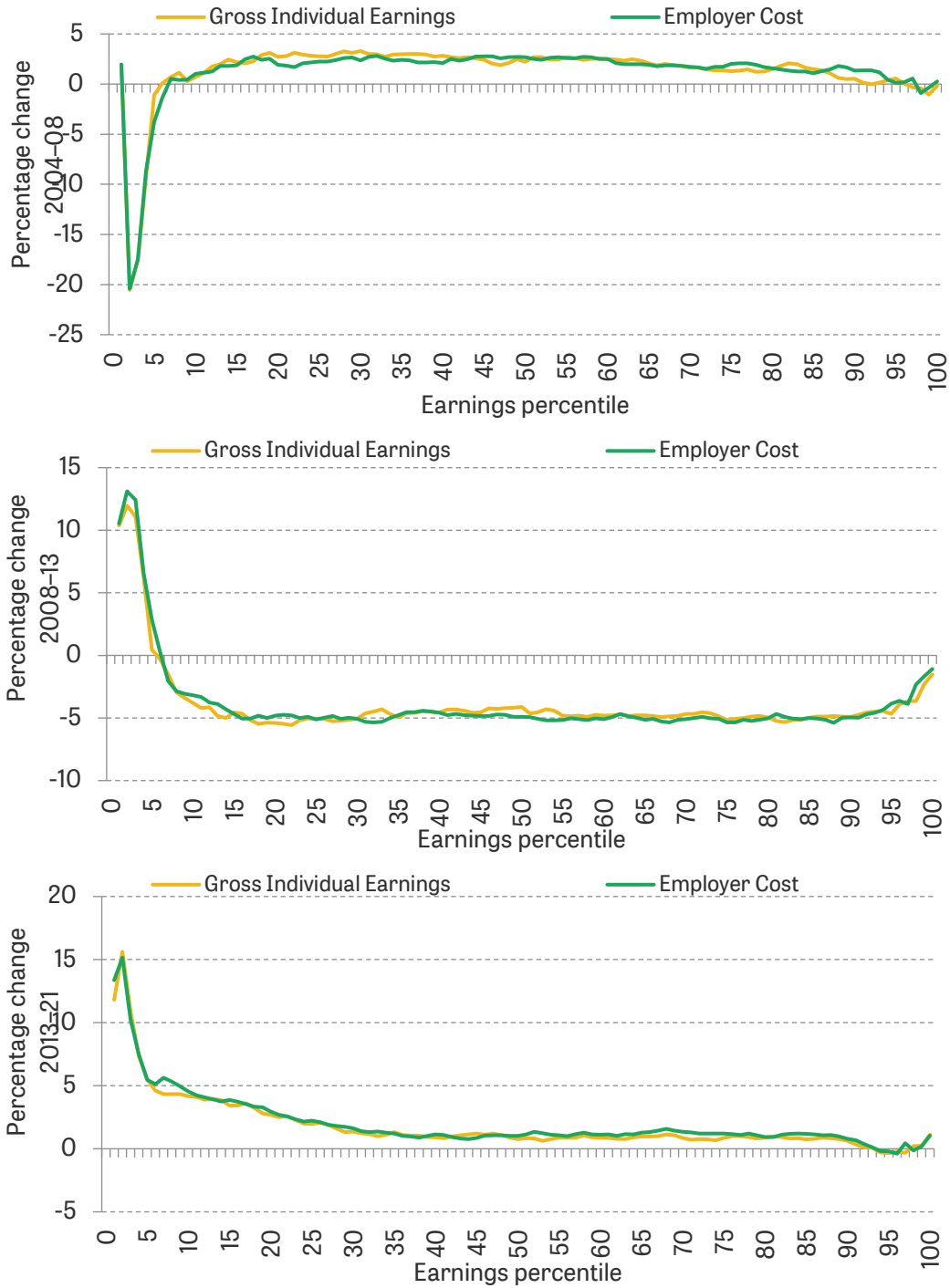
Figure 22. Annualised growth in gross earnings by earnings percentile, overall and sex, selected periods



Note: Sample is individuals aged 25–60.

Source: Authors' calculations using Euromod results for Greece for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.

Figure 23. Annualised growth in gross earnings and employer cost by earnings percentile, selected periods

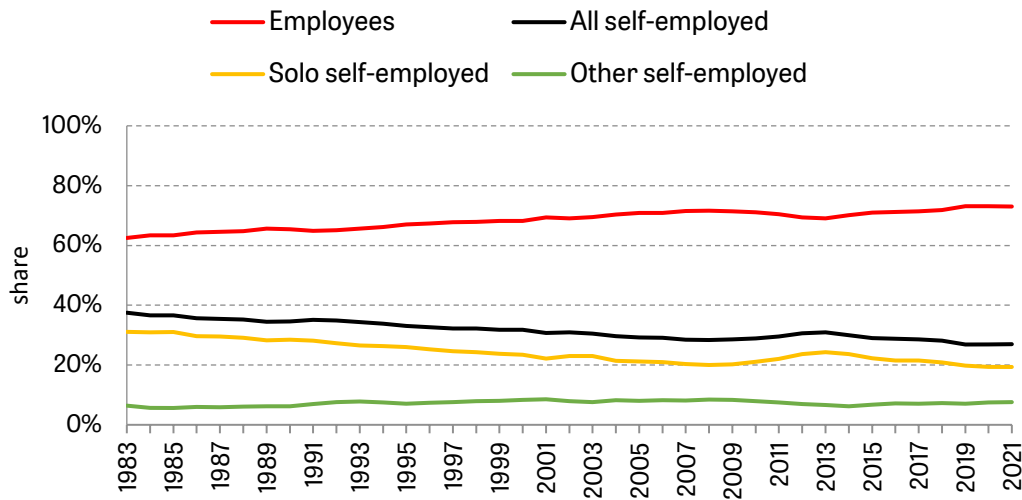


Note: Sample is employees aged 25–60. The 'employer cost' series includes employer social contributions.
Source: Authors' calculations using Euromod results for Greece for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.

4.5 Self-employment

The Greek labour force traditionally exhibits the highest share of self-employed population in the EU. Yet, there has been a systematic, gradual decline in self-employment in Greece, from above 37% of the total employed population in the early 1980s to around 27% in 2021 (Figure 24). The gradual decline is driven by solo self-employed, some of whom have shifted to employee status; the share of workers who are self-employed with employees has remained rather stable over this period. The drop of the self-employment share was driven mainly by men, which more than offset the rise of self-employment among women, especially those with less education, as recorded during the 2000s and 10s (Figure 25). Rates of self-employment have recently dropped most among those with low earnings (in which category wage earners gained share), while increased in the upper 20% of the earnings distribution (Figure 26).

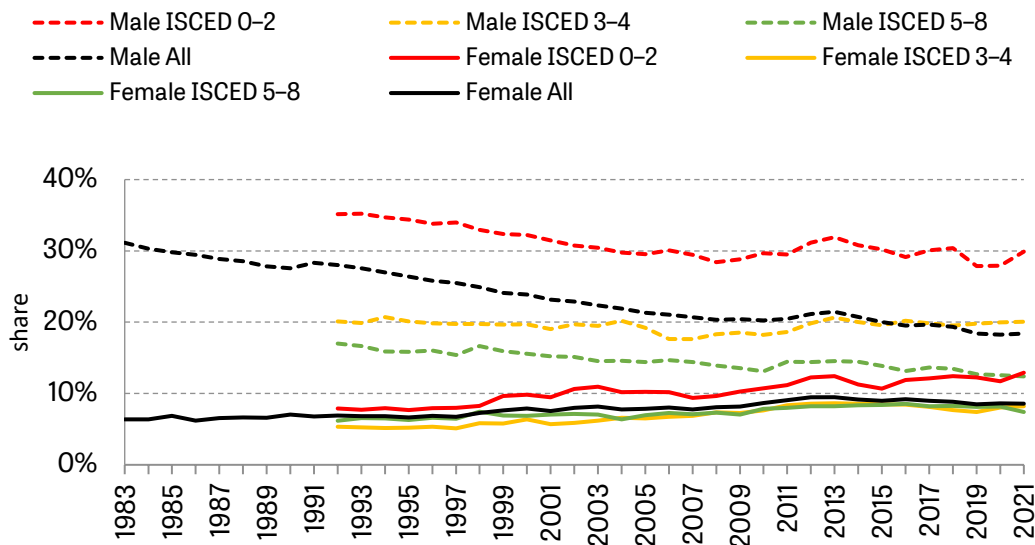
Figure 24. Share of employees and self-employed workers, over time



Note: Individuals 25–60 years of age. 'Solo self-employed' are self-employed without employees, 'other self-employed' includes self-employed with employees and family workers. The share is expressed as a ratio of total employed.

Source: Authors' calculations using LFS data.

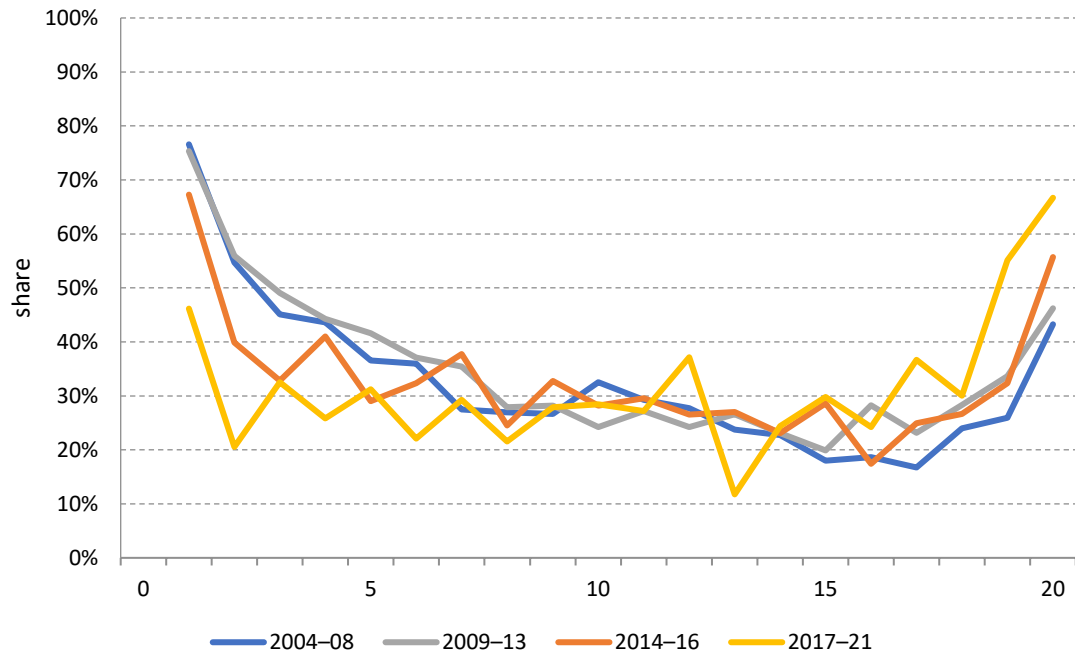
Figure 25. Share self-employed by sex and education, over time



Note: Individuals 25–60 years of age. Self-employed includes both 'solo self-employed' (self-employed without employees), and 'other self-employed' (self-employed with employees and family workers). The share is expressed as a ratio of total employed.

Source: Authors' calculations using LFS data.

Figure 26. Share self-employed by ventile of individual earnings, selected years



Note: Individuals 25–60 years of age. 5-year smoothing has been applied

Source: Authors' calculations using Euromod results for Greece for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.

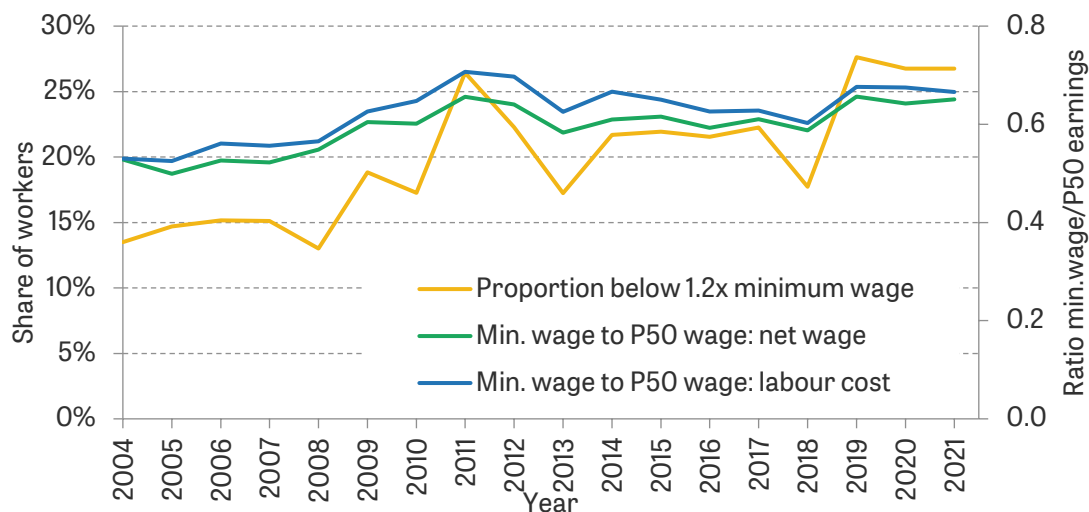
5. Labour market institutions

This section looks at labour market institutions that affect earnings and incomes: minimum wages and collective bargaining, self-employment and social insurance. As in most of the report, the analysis focuses on workers aged 25–60.

5.1 Minimum wage and unions

The bite of the minimum wage increased sharply during 2006–12, as shown in Figure 27, while it eased significantly following the adoption of extensive labour policy measures in 2012, including a reduction of the minimum wage by 22%. It has been on the rise since 2019, when the minimum wage started increasing again. Its level, as a share of median net wages (gross labour cost), rose from 50% (52%) in 2005 to 66% (71%) in 2011, before oscillating around 65% (67%) in 2021. The share of workers earning below 120% of the minimum wage rose from 13% in 2008 to around 27% in 2021.

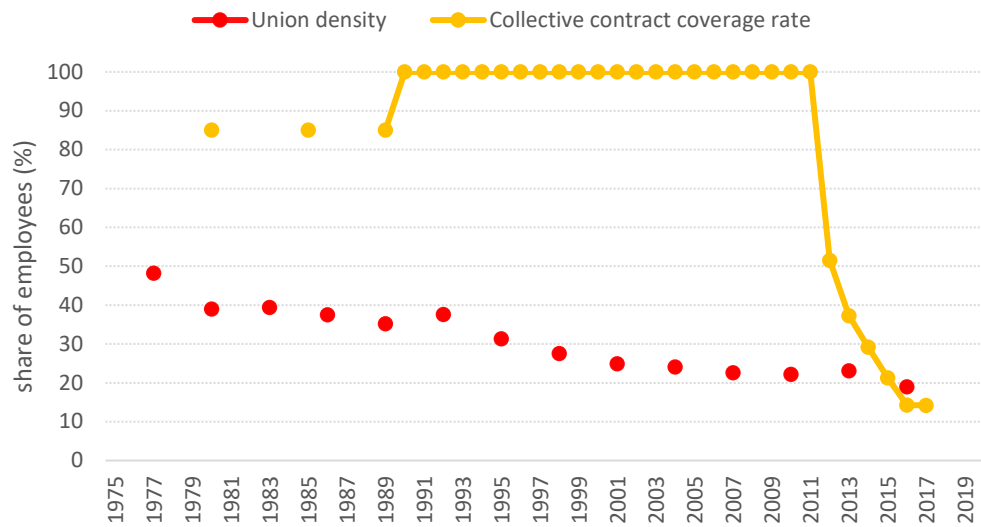
Figure 27. Bite of the minimum wage, over time



Note: Full-time employed individuals aged 25–64. The minimum wage used is that for over-25s without work experience. The minimum wage in Greece is defined as a set of wage floors which are increasing in the number of years of work experience (from 0 to 9 years). This figure uses only the minimum value from this set of minimum wages, hence it may underrecord the effective bite of the minimum wage in Greece. The figure presents the share of workers with a wage lower than 1.2 times the minimum wage (left-hand axis). The green and blue lines (right-hand axis) are the ratio of the minimum wage to the median wage for the net wage and the labour cost. Periods in which the minimum wage was at a given value do not exactly correspond to calendar years, so for example in this figure '2005' on the horizontal axis corresponds to the average of 1 January and 1 June 2005.

Figure 28 shows union density for all employees in Greece since 1977, and the proportion of workers for whom trade union negotiations affect pay and conditions. The power of trade unions shows a systematic, gradual decline since the early 1990s. Union coverage has declined from a peak above 48% in 1978 to below 20% in 2016. During the 1980s, 1990s and 2000s, almost all employees were covered by the National General Collective Labour Agreement. The proportion of employees whose contracts are impacted by collective bargaining has declined drastically following a set of labour market measures aiming at decentralising collective bargaining which took place during the 2010s, from a high of 100% to below 15% in 2017. This suggests that the spill-over influence of trade unions on non-members has declined drastically over time.

Figure 28. Union density and fraction of workers covered by collective bargaining agreements, over time



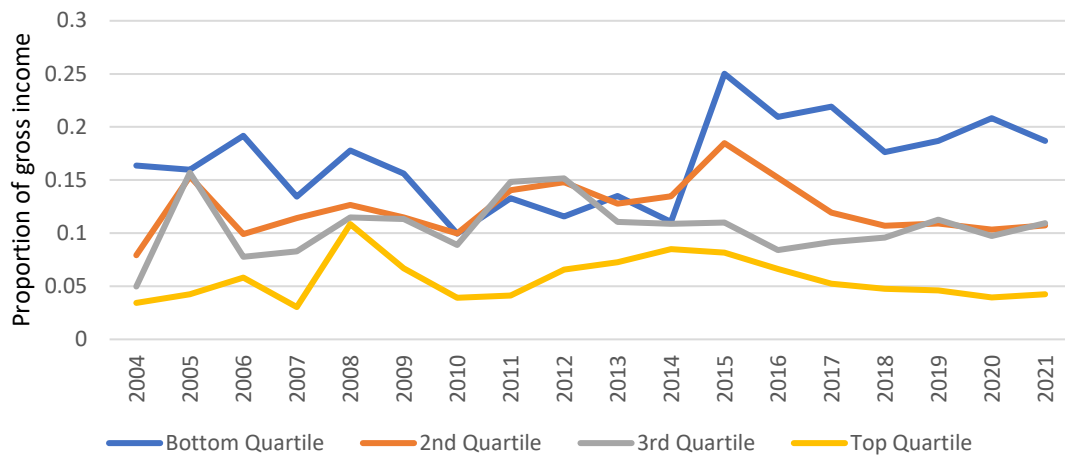
Note: The sample covers all employees. In both cases the denominator is the number of employees.

Source: OECD.

5.2 Role of direct taxes and benefits (financial transfers from the state)

We now present a few charts on the role of direct taxes and benefits across the disposable household income distribution. As expected, benefits (our definition includes pensions) represent a higher share of overall income for lower-income groups (Figure 29). Indicatively, benefits represented approximately 19% of gross income for the bottom quartile in 2021, almost 10% for the second and third quartiles and 4% for the top quartile. During the first years of the economic crisis (2011–13), some small distortions can be observed as the relative share of income from benefits to overall household income was higher for the middle-income categories than for the bottom one, which may hint at some degree of ineffective targeting of benefits. The reliance of lower-income groups on benefits starts to increase sharply after 2013, a year in which the unemployment rate in Greece exceeded 30%. In 2015, the relative share of income from benefits reached 25% and 18% of gross income for the first and second quartiles, respectively. Benefit support in 2020 (when COVID measures were implemented) appears to have been mainly targeted at the bottom quartile. It should also be noted that, after 2010, several important changes were introduced in Greece regarding the parameters and expenditure of various benefits (pensions, family benefits, etc.).

Figure 29. Benefits as a proportion of gross income, by net household income quartile

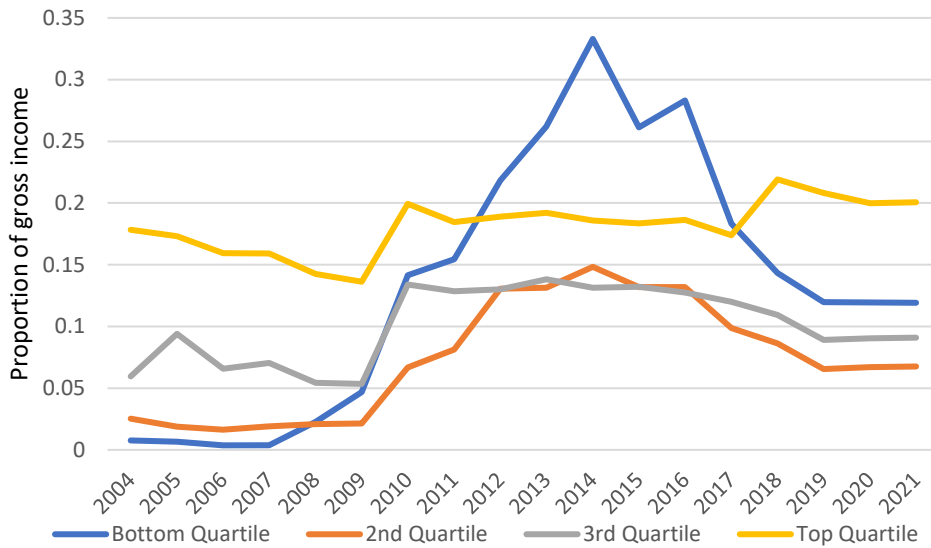


Note: Benefits cover pensions, means-tested and non-means tested benefits. Gross income includes employee contributions.

Source: EU-SILC data.

Figure 30 presents tax payments as a proportion of gross income. The chart reveals that the progressivity of the tax system was compromised after 2011, with the average tax rate of the bottom quartile exceeding the rates of the other three income categories. After 2017, the relative share of tax payments increases for the top quartile and exceeds that recorded for the bottom quartile. However, tax payments for the bottom quartile continue to be disproportionate when compared to the middle income categories. Overall, the system was more progressive up to the advent of the economic crisis. Under this definition, average tax rates remained rather stable for the top quartile during the crisis and increased for the other three income categories, with the increase being particularly sharp for the lowest category.

Figure 30. Tax payments as a proportion of gross income, by net household income quartile

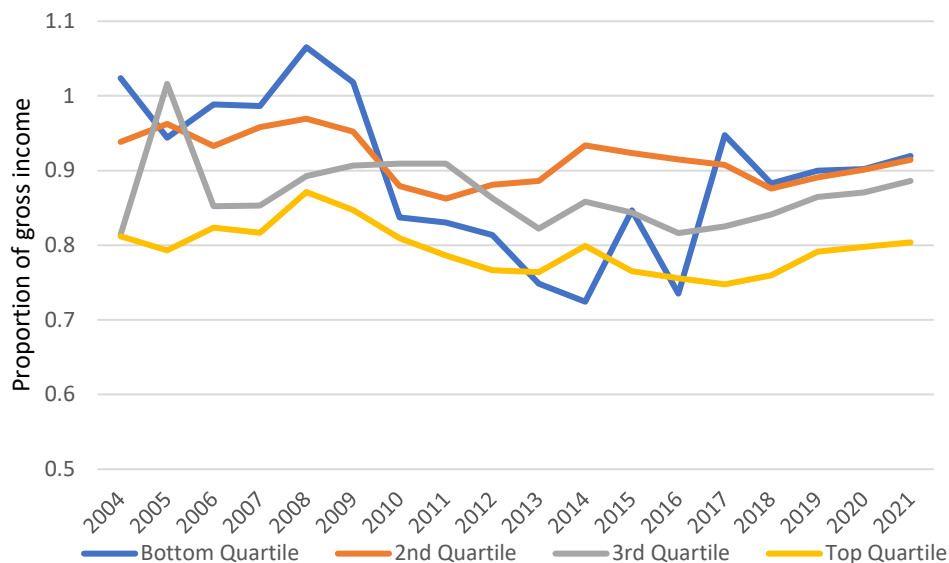


Note: Benefits cover pensions, means-tested and non-means tested benefits. Gross income includes employee contributions.

Source: EU-SILC data.

Figure 31 presents disposable income as a proportion of gross income across disposable household income quartiles. As in Figure 30, progressivity of state transfers is more evident up to 2009. During the economic crisis disposable income collapses for all income categories but the negative effects are much sharper for the second and, especially, the bottom quartile. The situation becomes somewhat smoother after 2017 with the end of the recession in terms of progressivity. However, differences between lower quartiles are rather small. Figure 32 adds employer contributions to the definition of gross income. Trends are very similar to Figure 31 but disposable income is overall smaller using this definition.

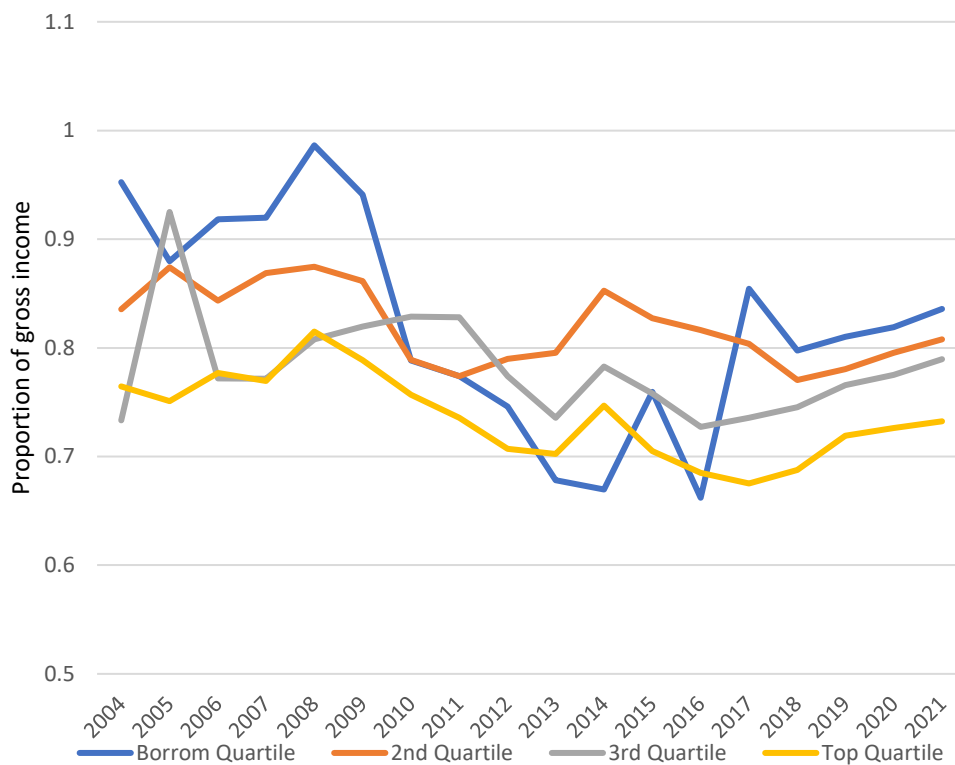
Figure 31. Disposable income as a proportion of gross income, by net household income quartile



Note: Gross income includes employee contributions.

Source: EU-SILC data.

Figure 32. Disposable income as a proportion of gross income plus employer payroll cost, by net household income quartile



Note: Gross income includes employee contributions and employer contributions.

Source: EU-SILC data.

6. Household incomes

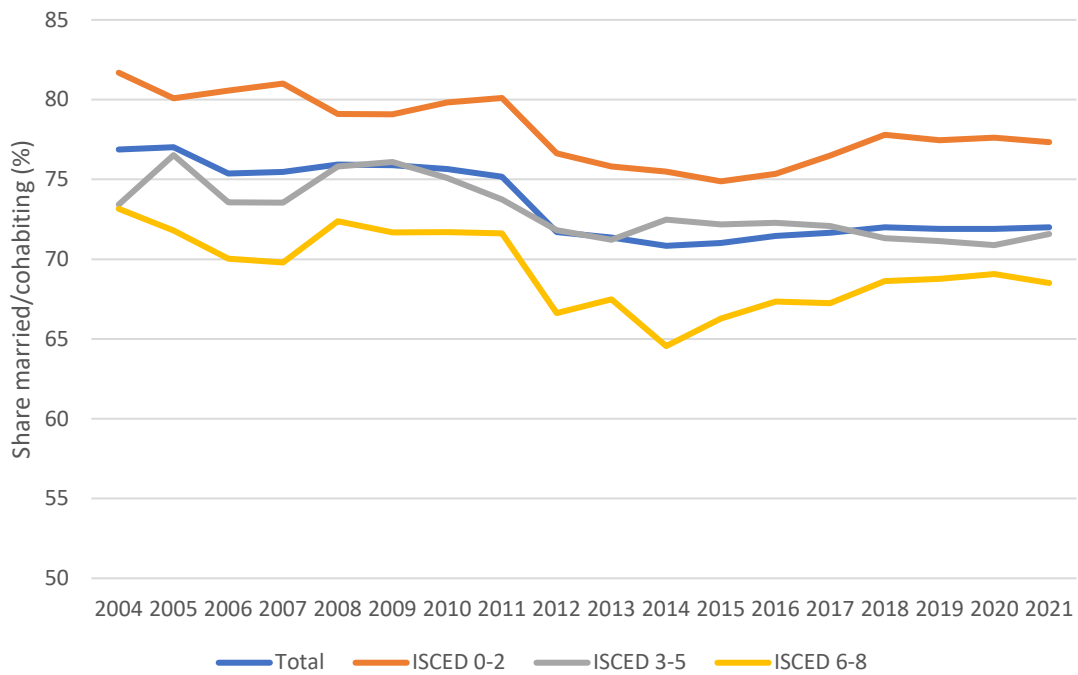
This section looks at trends in household incomes. We start by looking at trends in household composition and the degree of assortative matching, which partly determine household earnings. We then compare trends in gross household earnings and household disposable income for working households, drawing out the role of the tax and transfer system over time. Finally, we show a set of charts on trends in household income inequality across all households (including those where no one is in work).

Trends in household income inequality are driven by earnings inequality, patterns of assortative matching and other trends in family composition, and the tax and benefit system. This section will first consider patterns in household composition, and how individual earnings inequality translates into household earnings inequality. It then looks at household disposable income, taking account of taxes and benefits, and looking at individuals from all households rather than just workers or working households.

6.1 Trends in household composition

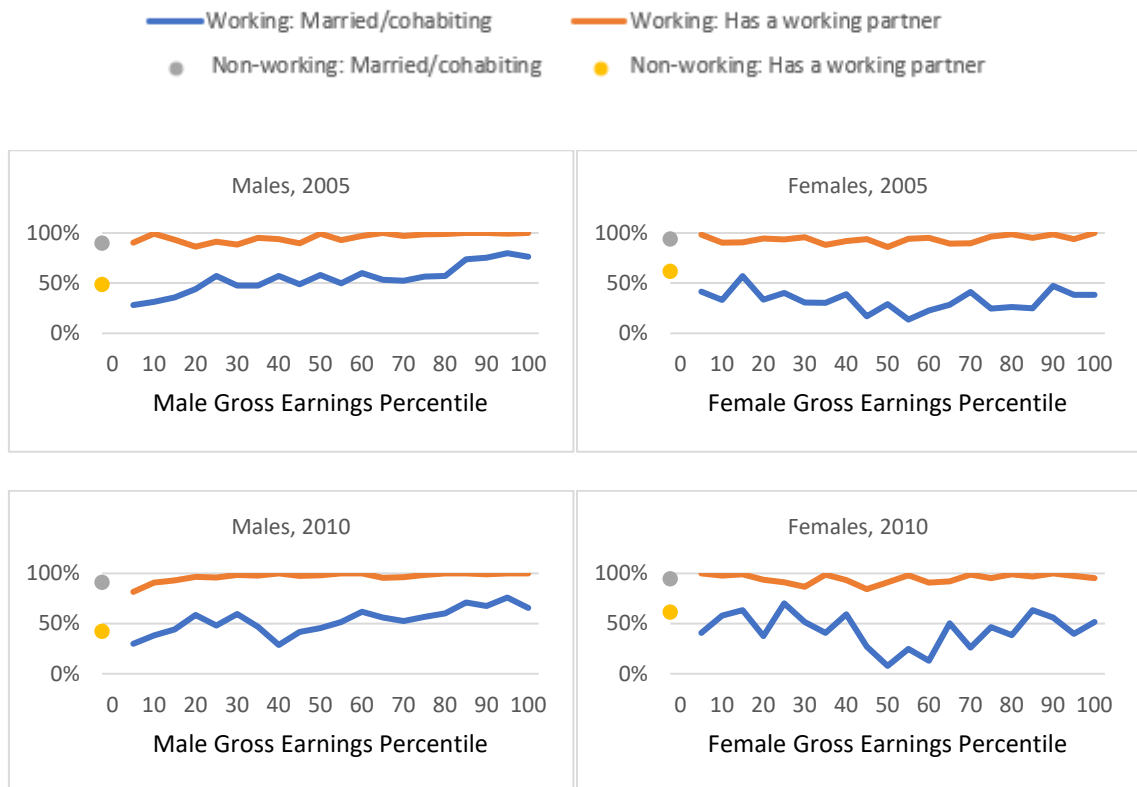
We first examine trends in assortative matching using data from EU-SILC (spanning from 2004 to 2021). As we disentangle the total declining trend of the share of married or cohabiting persons over the total number of individuals after 2011, we find that the sharpest decline in marriage and cohabitation rates can be observed among highly educated individuals. Figure 33 shows that over the sample period, university graduates (ISCED 6–8) were less likely to be married or cohabiting than individuals in lower educational categories. Whereas the share of married persons in the entire population fell from 76.8% in 2004 to about 72% in 2021, the share of married university graduates (ISCED 6–8) fell from almost 73% to 68%. Marriage rates for individuals with middle educational attainment (ISCED 3–5) declined from 76% to about 72%, whereas for individuals with lower educational attainment (ISCED 0–2) the share declined from 81.7% to 77.3%.

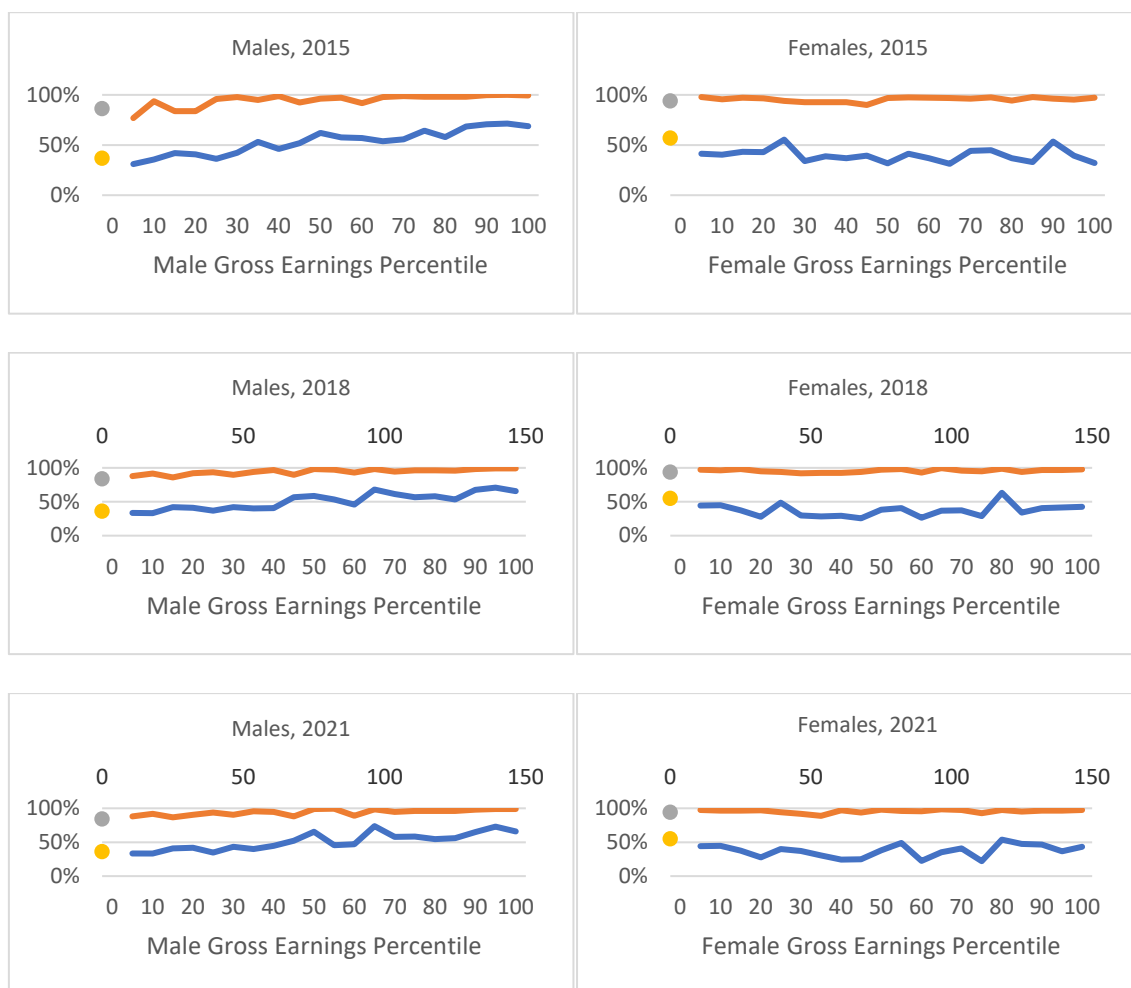
Figure 33. Share married/cohabiting, overall and by education, over time



Note: Sample is individuals aged 25–60 who have completed full-time education.
 Source: Authors' calculations using EU-SILC data.

Figure 34. Share married/cohabiting and share with working partner, by sex and individual gross earnings percentile, selected years





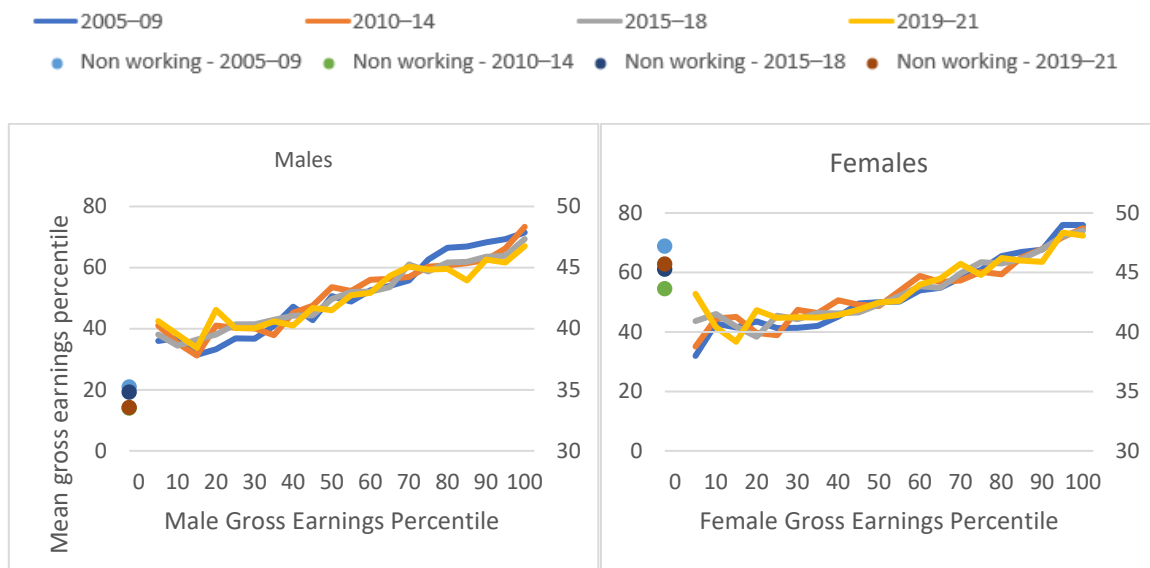
Note: Sample is individuals aged 25–60. Married/cohabitating also includes civil partnerships. The proportion with a working partner is conditional on being married/cohabitating.

Source: Authors' calculations using EU-SILC data.

A similar pattern is revealed when looking at individual earnings by gender, rather than by education (Figure 34). We select five different snapshots during the 2004–21 period, as within these periods structural breaks in macroeconomic trends can be observed in the Greek case. In all five snapshots we observe a positive correlation between the level of gross earnings and being married for working men. The findings above suggest that higher-earning men are more likely to be married or cohabiting across time, whereas for women there are less prominent differences in marital status across the earnings distribution. For non-working individuals, we find that men are slightly less likely to be married or have a working partner than women.

Figure 35 illustrates the matching between an individual's and their partner's gross earnings percentile by gender, across four time periods defined from the snapshots above. We observe positive earnings matching across both genders. Higher-earning working individuals match with higher-earning spouses across all periods examined. The average correlation coefficient across all time periods is around 0.96 and 0.95 for working men and working women, respectively. In terms of non-working individuals, we find no significant differences in terms of their partners' earnings, as shown in the right-hand axis of Figure 35.

Figure 35. Mean gross earnings percentile of partner/spouse by individual's gross earnings percentile, selected years (non-working in right axis)

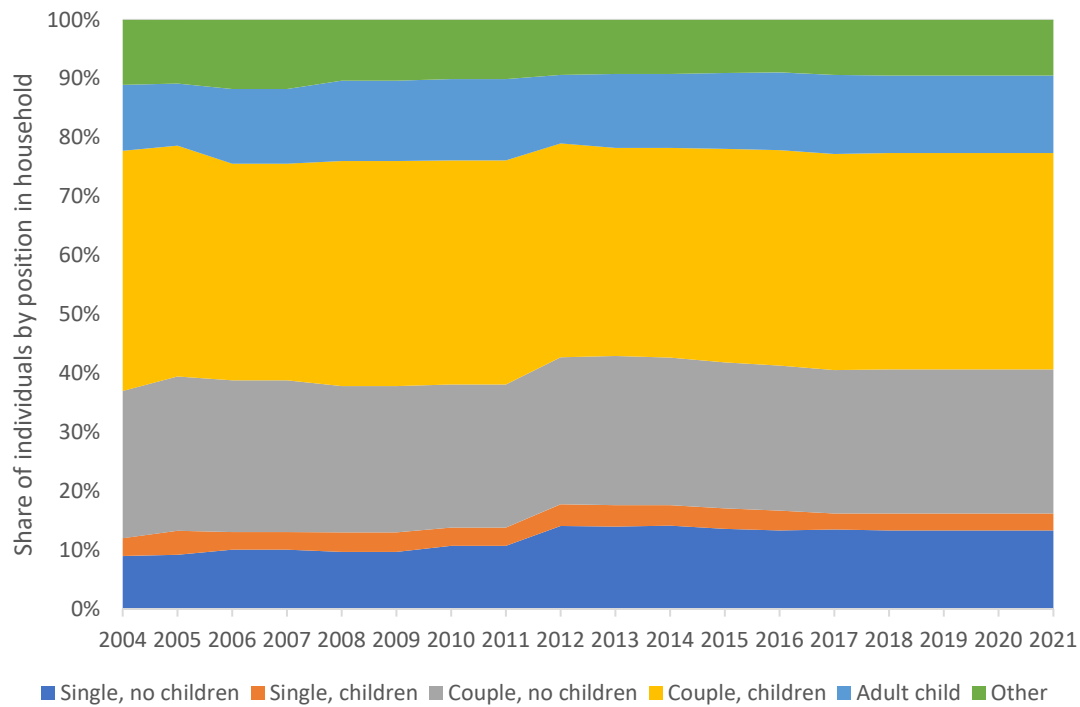


Note: Sample is individuals aged 25–60. Married/cohabitating also includes civil partnerships. Mean earnings of partners are plotted as five-point moving averages across the earnings distribution. Mean gross earnings for non-working households correspond to the right-hand axis of each chart.

Source: Authors' calculations using EU-SILC data.

Looking at family structure more broadly, the share of prime working-aged adults who are single without children increased from 9% in 2004 to 13% in 2021. The share of single parents remained stable within the same period at 3%. Couples without any children historically represent around 25% of the total number of households and the share of couples with dependent children is stable at around 37%. The share of adult children in a household increased from 11% in 2004 to 13% in 2021.

Figure 36. Share of individuals by position in the household, over time



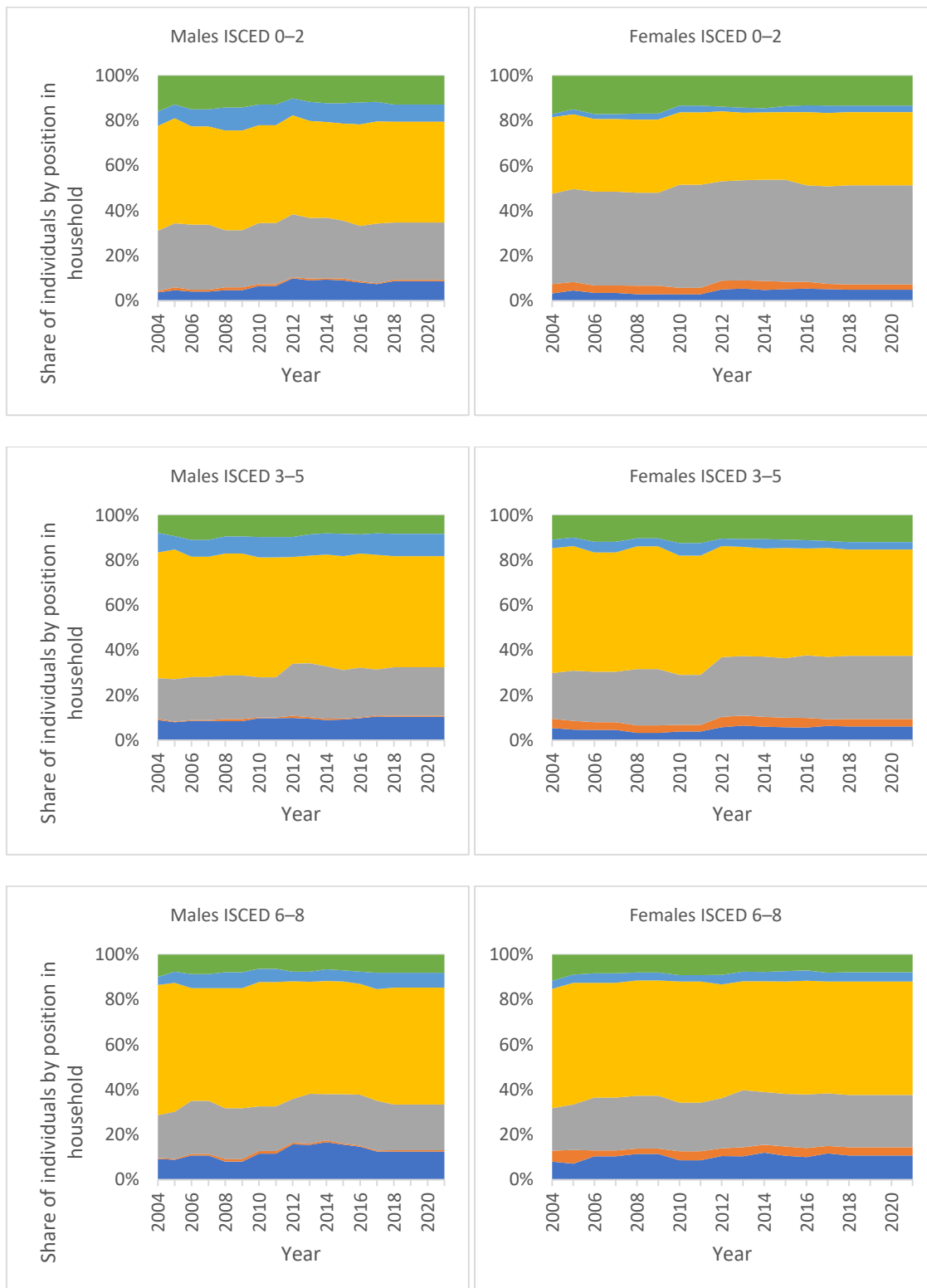
Note: Sample is individuals aged 25–60. ‘Single, children’ and ‘couple, children’ refer to dependent children only.

Source: Authors’ calculations using EU-SILC data.

Figure 37 shows that there are significant differences in the distribution of single households according to gender with respect to the individual’s educational attainment level. Higher-educated individuals (both men and women) are more likely to represent a single household, without any children. We also find that women are more likely to be single parents than men, without being married or cohabiting. This trend is consistent across years and educational attainment levels, but highly educated women are more likely to be single mothers than women with lower education. We also observe that men and women with lower educational attainment levels are more likely to be in a marriage or partnership without any children, whereas the opposite is true for higher-educated individuals of both genders. Finally, we find that male individuals with higher educational attainment are less likely to be adult children in a household, whereas the opposite holds true for women, who are generally less likely to be adult children than are men, as with increasing education levels the share of adult children who are women increases.

Figure 37. Share of individuals by position in the household, by sex and education, over time

■ Single, no children ■ Single, children ■ Couple, no children ■ Couple, children ■ Adult child ■ Other

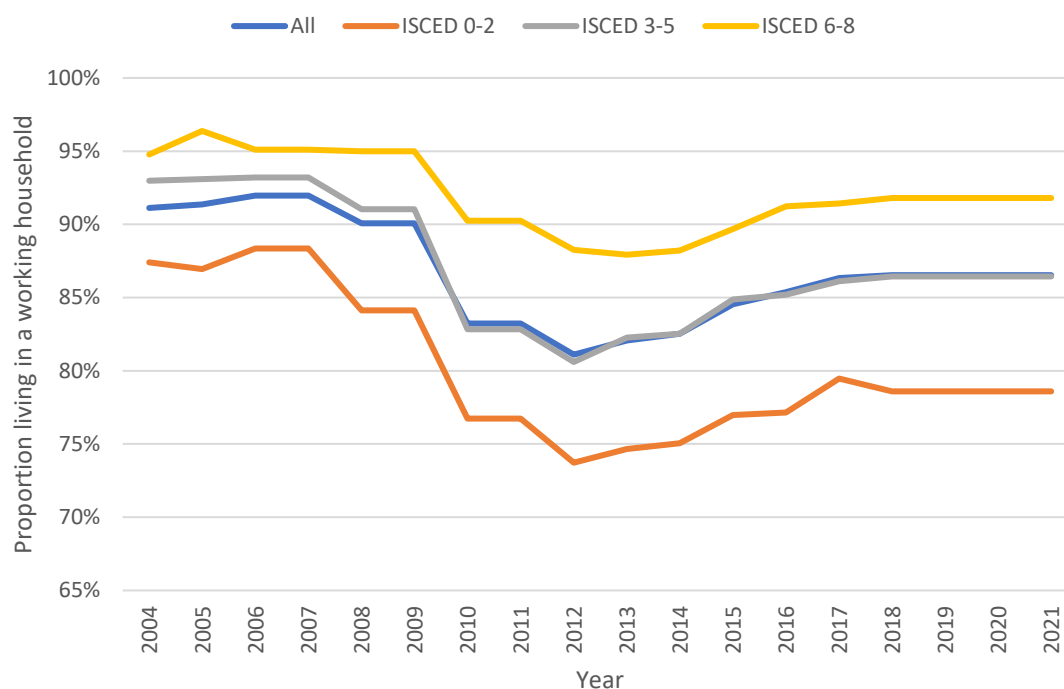


Note: Sample is individuals aged 25–60. ‘Single, children’ and ‘Couple, children’ refer to dependent children only. Adult child refers to a couple where at least one child in the household is above 19 years old. Source: Authors’ calculations using EU-SILC data.

6.2 Earnings and incomes among working households

Figure 38 shows the declining trend in the share of individuals residing in a working household across all educational attainment levels from 2004 to 2021. About 91% of the total population of Greece were in a working household in 2004, compared to 87% in 2021. We also observe that with respect to educational attainment level, more years in education correspond to a higher share of individuals in working households. Downward trends can be observed across all ISCED categories, with the shares dropping rapidly during the first few years of the Greek debt crisis (2010–13) and gradually recovering to stabilise below pre-crisis levels since 2016. Specifically, ISCED 0–2 individuals were almost 8% less likely to be in a working household in 2021 than in 2004. ISCED 3–5 individuals were 7% less likely, while ISCED 6–8 individuals were 3% less likely to be in a working household.

Figure 38. Share of individuals in a working household, overall and by education, over time



Note: Sample is individuals aged 25–60. A working household is defined as a household in which at least one adult is in work.

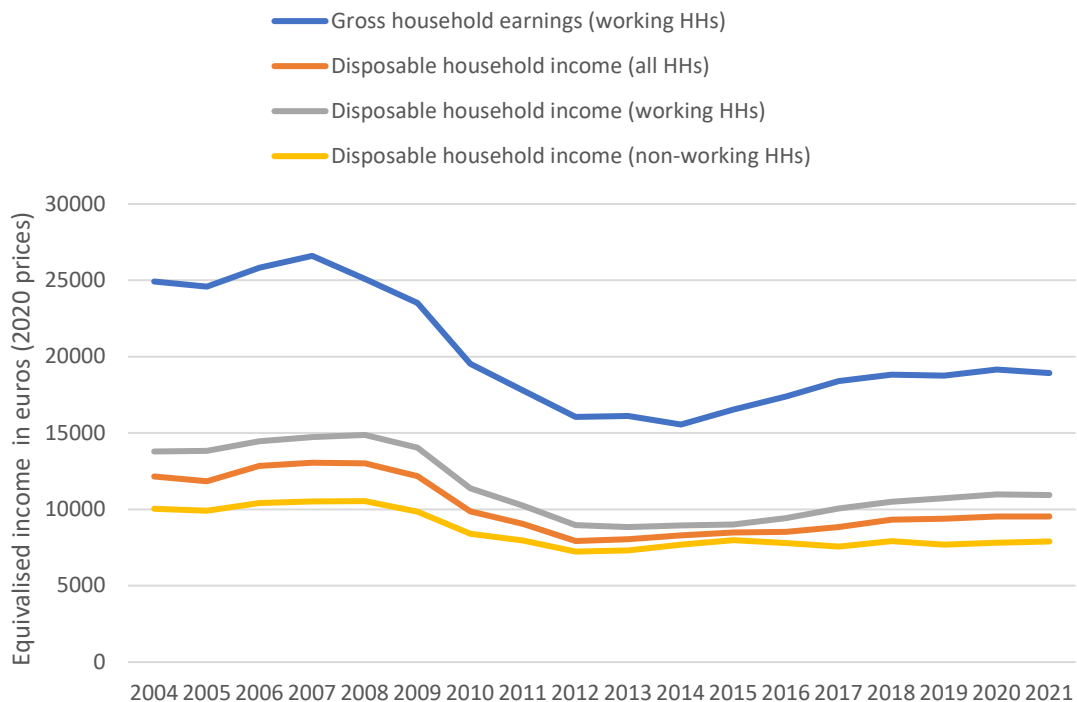
Source: Authors’ calculations using EU-SILC data.

We now consider how the trends above can be combined to explain trends in household earnings, and how interactions with the tax and benefit system generate discrepancies between gross earnings and disposable income at the household level. Figure 39 shows the evolution of gross earnings and disposable income for working households over time. Similar trends are revealed for both working and non-working households: an upward trend up to the advent of the financial crisis and a general decline afterwards. For working households, the period from 2004 to 2009 illustrates a positive (0.61) correlation between gross earnings and disposable income, which in

subsequent crisis years increases further (0.98 from 2010 to 2015, 0.99 from 2015 to 2018 and 0.70 from 2018 to 2021). Lastly, after 2015, we observe a marginally accelerating trend for gross earnings and disposable income among working households, whereas the evolution disposable income for non-working households remained rather stagnant. One interesting observation concerns the difference in disposable income between working and non-working households, which appears to be small. One factor that may help explain this finding is the high tax wedge in Greece (income taxation and social security contributions). In fact, the difference is much larger when one compares gross earnings of working households to the disposable income of non-working households. Another factor is the relatively low level of wages. In fact, the gap becomes even narrower around the peak of the recession (in 2012–13). Both of these factors (high tax wedge and low pay) are believed to significantly reduce incentives to participate in the official labour market in Greece. A third possible factor is the high level of undeclared and underdeclared labour in Greece.

Figure 40 shows that there are discrepant trends in the annualised growth between disposable income and gross earnings with respect to the four different periods in our sample. Specifically, for the period 2005–10, disposable income grew across the higher end of the earnings distribution whereas gross earnings saw a decline. Conversely, in the period after the financial crisis (2010–15), a period in which Greece faced increased fiscal liabilities and high unemployment rates, both measures of household living standards declined by about 15% across the earnings distribution. In the years that followed, both figures increased, whereas the largest increases were observed in the lower tails of the earnings distribution. These effects could possibly be attributed to policy changes implemented after 2018 (reduction of employees' social security contribution rates and abolition of the 'special solidarity surcharge' which translates into a reduction of effective personal income tax rates, except for very low-income earners).

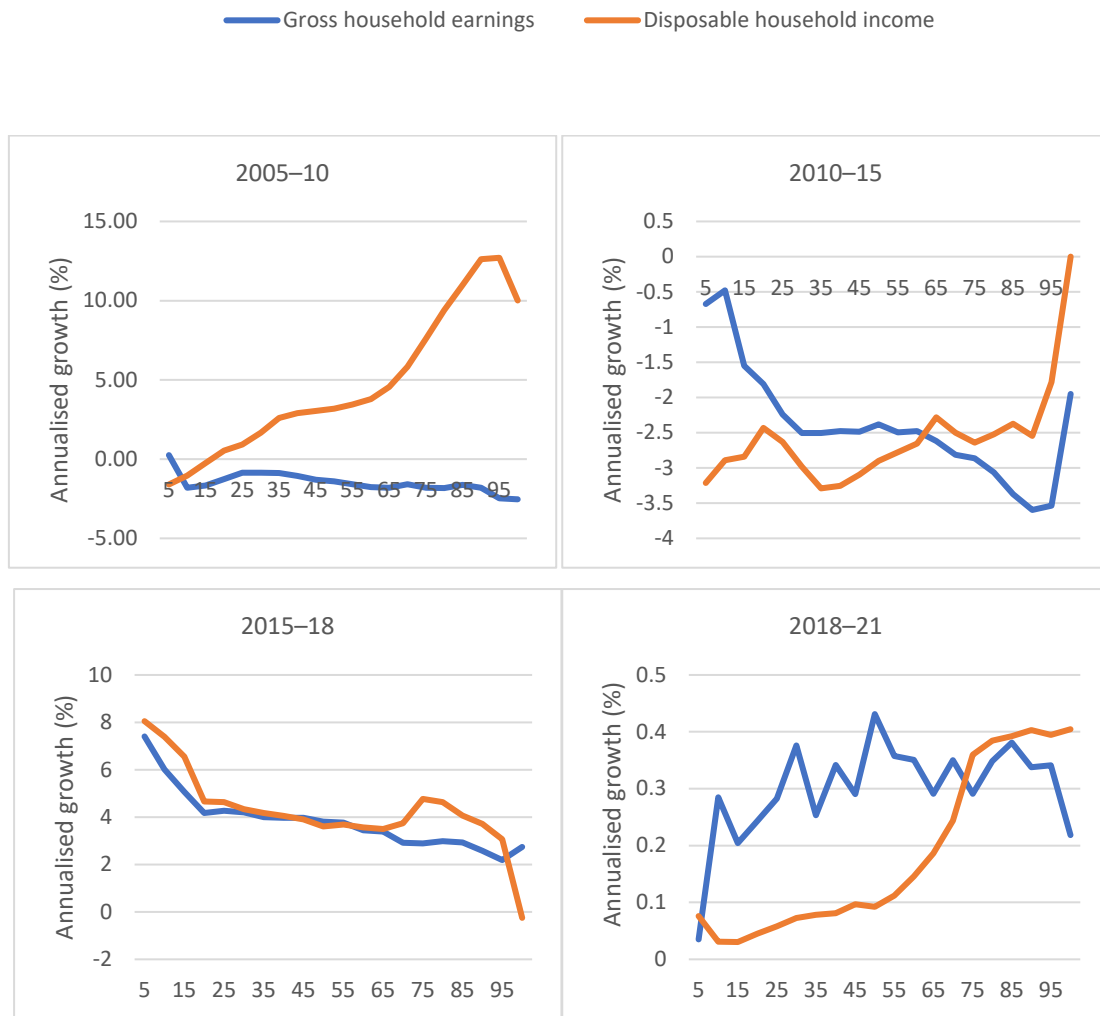
Figure 39. Median real gross household earnings and disposable household income among working households, over time



Note: Sample is individuals in working households. A working household is defined as a household in which at least one adult is in work. All incomes have been equivalised using the modified OECD equivalence scale.

Source: Authors' calculations using EU-SILC data.

Figure 40. Annualised growth in real gross household earnings and household disposable income for working households, by percentile, selected years



Note: Sample is individuals in working households. A working household is defined as a household in which at least one adult is in work. All incomes have been equivalised using the modified OECD equivalence scale.

Source: Authors' calculations using EU-SILC data.

6.3 Inequality in incomes among all households

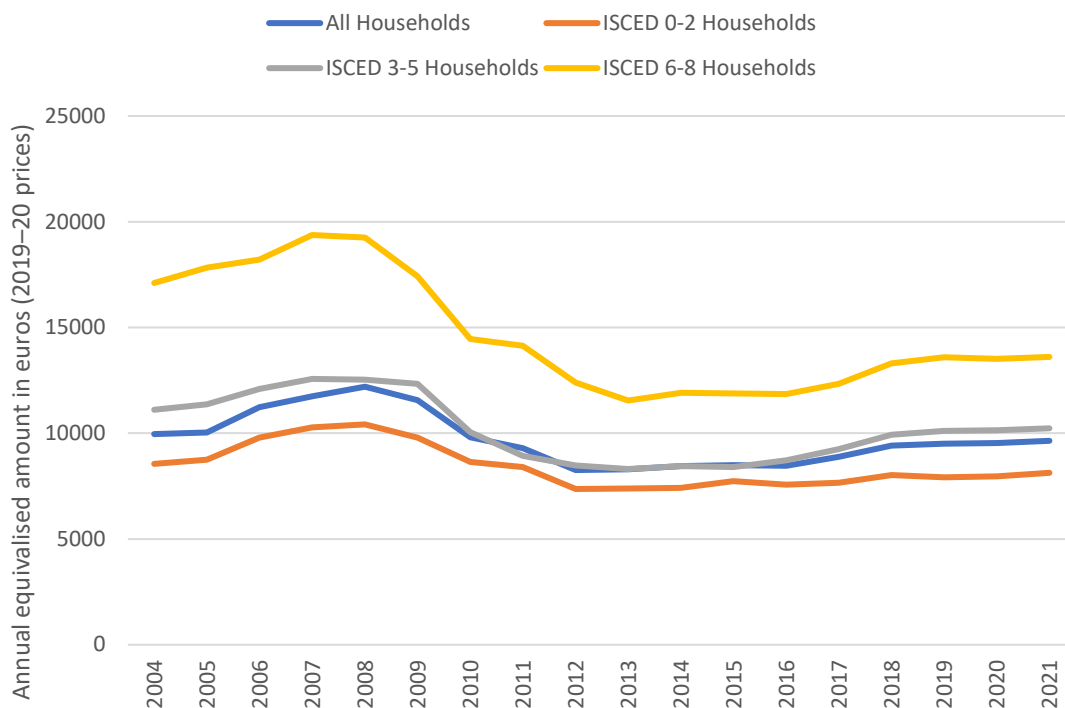
This final section consolidates the trends presented above to look at inequality in disposable household income across all households. Figure 41 shows that median real disposable household

income across all educational attainment levels recorded very similar trends during our sample period. Furthermore, the slight increase in the pre-crisis years (from 2005 to 2010), was negated by the earlier crisis years, only to remain stationary and well below the pre-crisis levels in the period from 2013 onwards.

Figures 42 and 43 show that measures of inequality in disposable household income – including the Gini coefficient (and a winsorised version of it as explained below), the top 1% share, the relative poverty rate and the 90:10 ratio – remained relatively stable from 2005 to 2020. We observe higher levels of variations at the top 1% share of total household disposable income during the 2010–17 period, against marginal fluctuations in the Gini coefficient in the same period. Nevertheless, the share of households in relative poverty as explained below declined, from 18.9% in 2004 to 16.8% in 2021.

The Gini coefficient, as a measure of disposable income inequality, shows a decline over the years, which became especially prominent in the years after 2014. In a winsorised version of the Gini coefficient, where we trim the distribution at the 99th percentile, we observe rather similar trends, but as we increase the density of observations in the upper levels of the income distribution, the Gini coefficient levels are on average about 2% lower, which indicates that households with income above the 99th percentile of the income distribution have a strong effect on increasing income inequality. In terms of the evolution of the Gini index across time, we observe a slight decreasing trend between 2004 and 2021. This decreasing trend is a little more evident around the peak of the recession (2013–16).

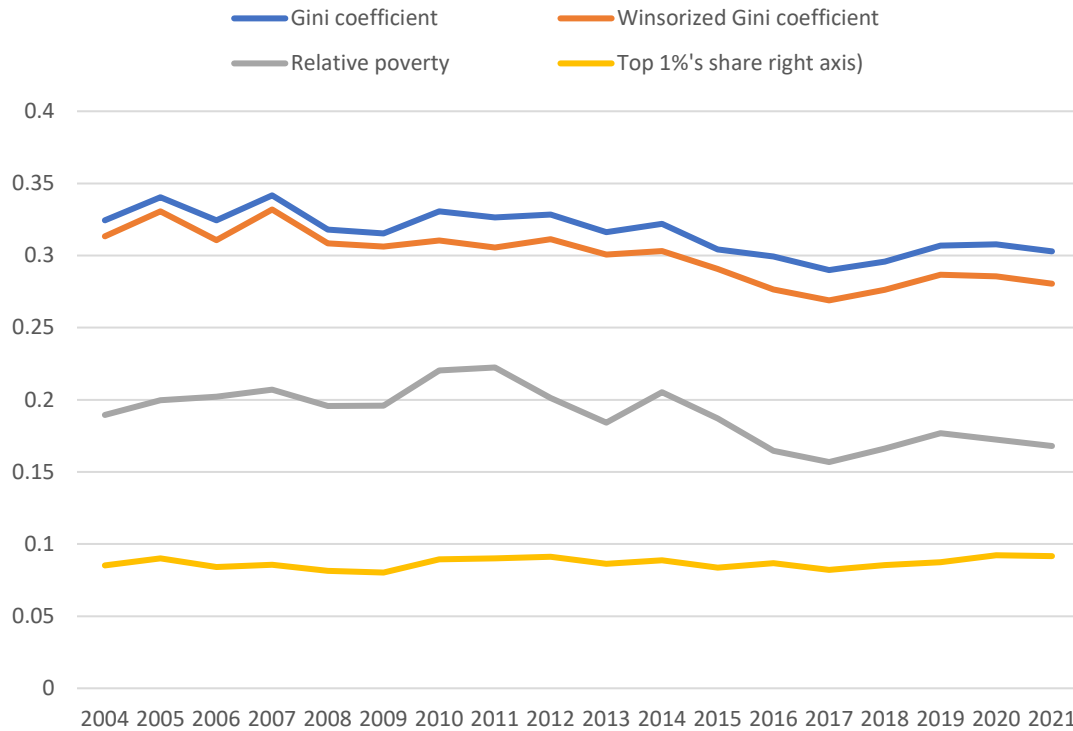
Figure 41. Median real disposable household income for all households, overall and by education, over time



Note: Incomes are in 2019– prices. All incomes have been equivalised using the modified OECD equivalence scale.

Source: Authors' calculations using EU-SILC data.

Figure 42. Gini coefficient (and Gini coefficient winsorised at the 1st and 99th percentiles), relative poverty and top 1% share of net household income for all households, over time

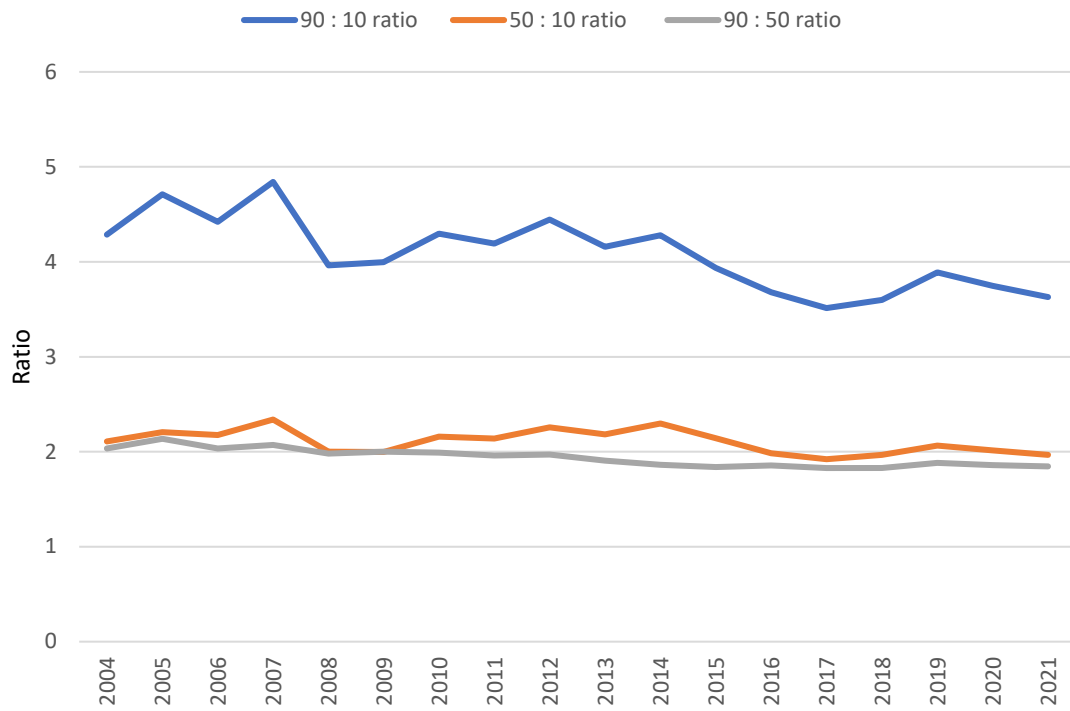


Note: The inequality measures are based on incomes measured net of taxes and benefits but before housing costs have been deducted. The relative poverty rate is defined as the proportion of people living in households with less than 60% of contemporaneous median income before the deduction of housing costs. All incomes have been equivalised using the modified OECD equivalence scale.

Source: Authors' calculations using EU-SILC data.

With respect to disposable household income, Figure 43 shows a small decline in the 90:10 ratio over the years, as also reflected in the Gini coefficient (Figure 42). Whereas the 90:10 ratio dropped from around 4.3 (2004) to almost 3.6 (2020), the Gini coefficient declined by around 2.4 points (from 32.4% to about 30%). The 90:50 ratio of disposable household income remained rather unchanged throughout the period, highlighting that income inequality stems mostly from the differentiating trends of the upper and lower disposable household income percentiles.

Figure 43. Percentile ratios of disposable household incomes for all households, over time



Note: The inequality measures are based on incomes measured net of taxes and benefits but before housing costs have been deducted. All incomes have been equalised using the modified OECD equivalence scale.

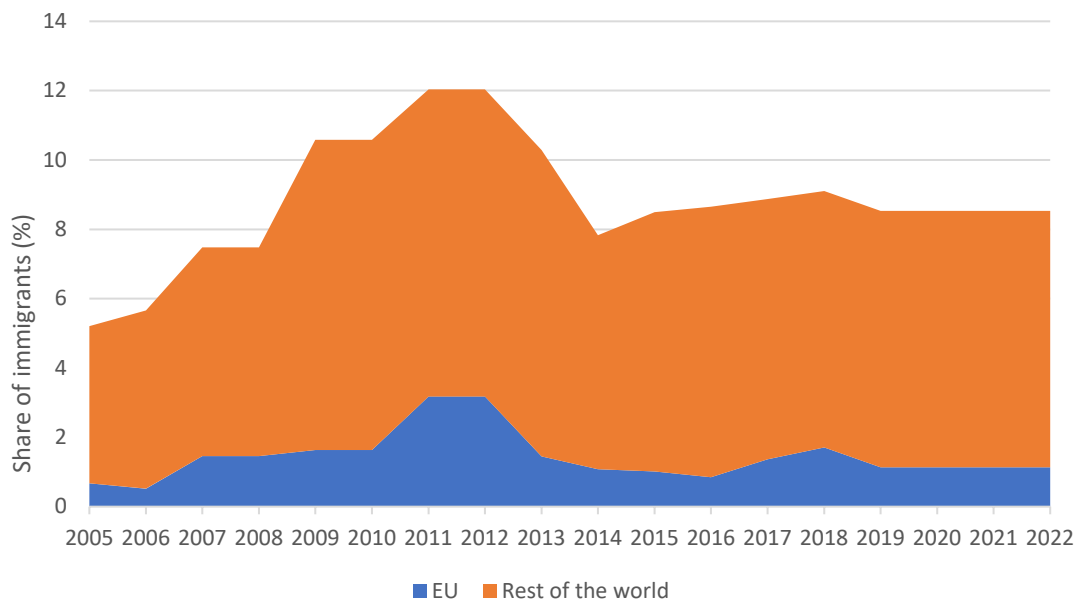
Source: Authors' calculations using EU-SILC data.

7. Inequality between migrants and natives

Finally, we examine the size of the working-age immigrant population in Greece across time and across the disposable income distribution. We also examine various outcomes of the working-age immigrant population compared to natives. Figures 44 and 45 illustrate that the share of immigrants in the Greek population increased in the period leading up to the first years of the financial crisis. It then recorded a steep decline as the Greek economy experienced financial turmoil. The latter years show a somewhat steady increase in the share of immigrants. Most of them are from non-EU countries (at about a 7:1 ratio compared with immigrants from the EU).

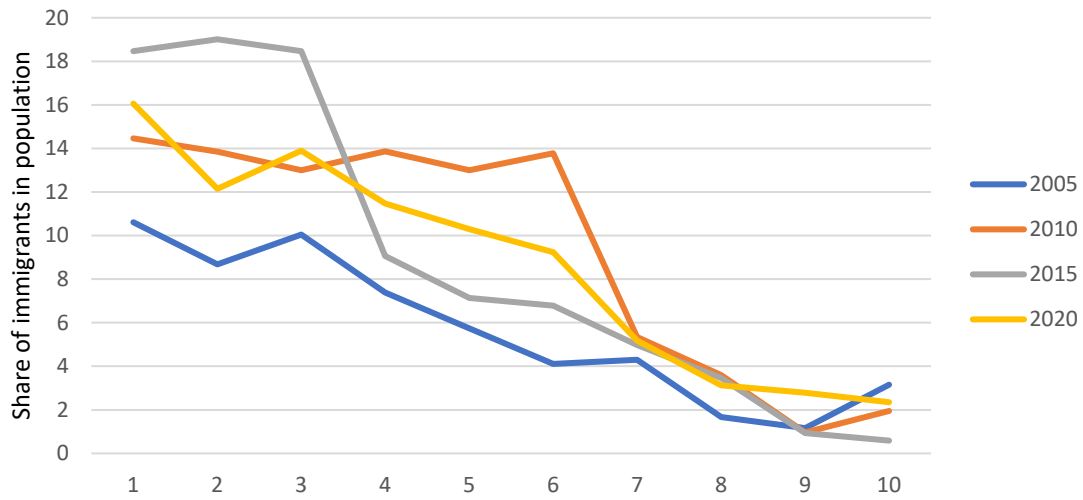
We also observe that most of the immigrants in Greece across the years are low-income individuals (Figure 46). At the highest decile of the income distribution, the immigrant population corresponds to only 2% of the respective decile population in 2020. Nevertheless, there is an indication of increasing immigrant integration and representation in a series of variables since 2005. Namely, the share of high-income immigrants grew from 2005 to 2020, especially among women. Furthermore, the immigrants represent in 2020 a larger portion of the domestic work force relative to 2005. They also record a relatively larger portion of hours worked per week, gross earnings and disposable income than in 2005 (Figure 46).

Figure 44. Share of immigrants in the population 25–60 years of age, 2005–22



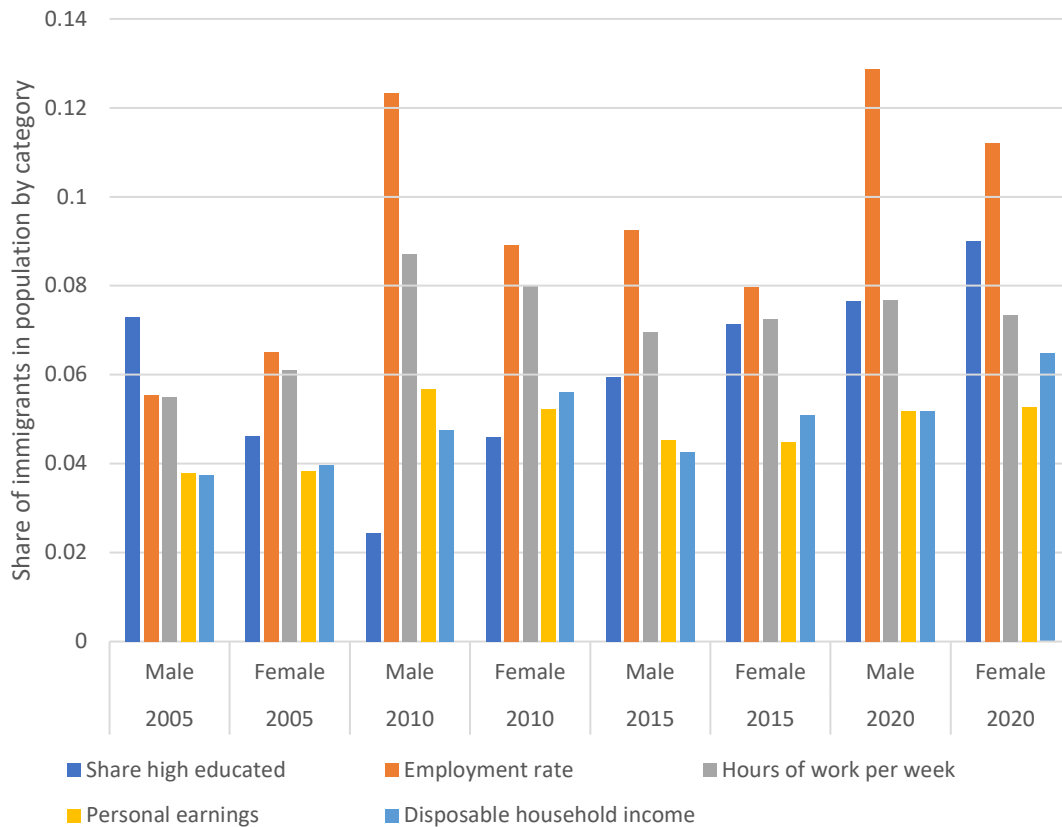
Source: EU-SILC data. Notes: The EU-SILC demographic statistics do not change, from 2019 until 2022.

Figure 45. Share of immigrants in the population, across the disposable income distribution, 26–50 years of age, 2005, 2010, 2015 and 2020



Source: EU-SILC data.

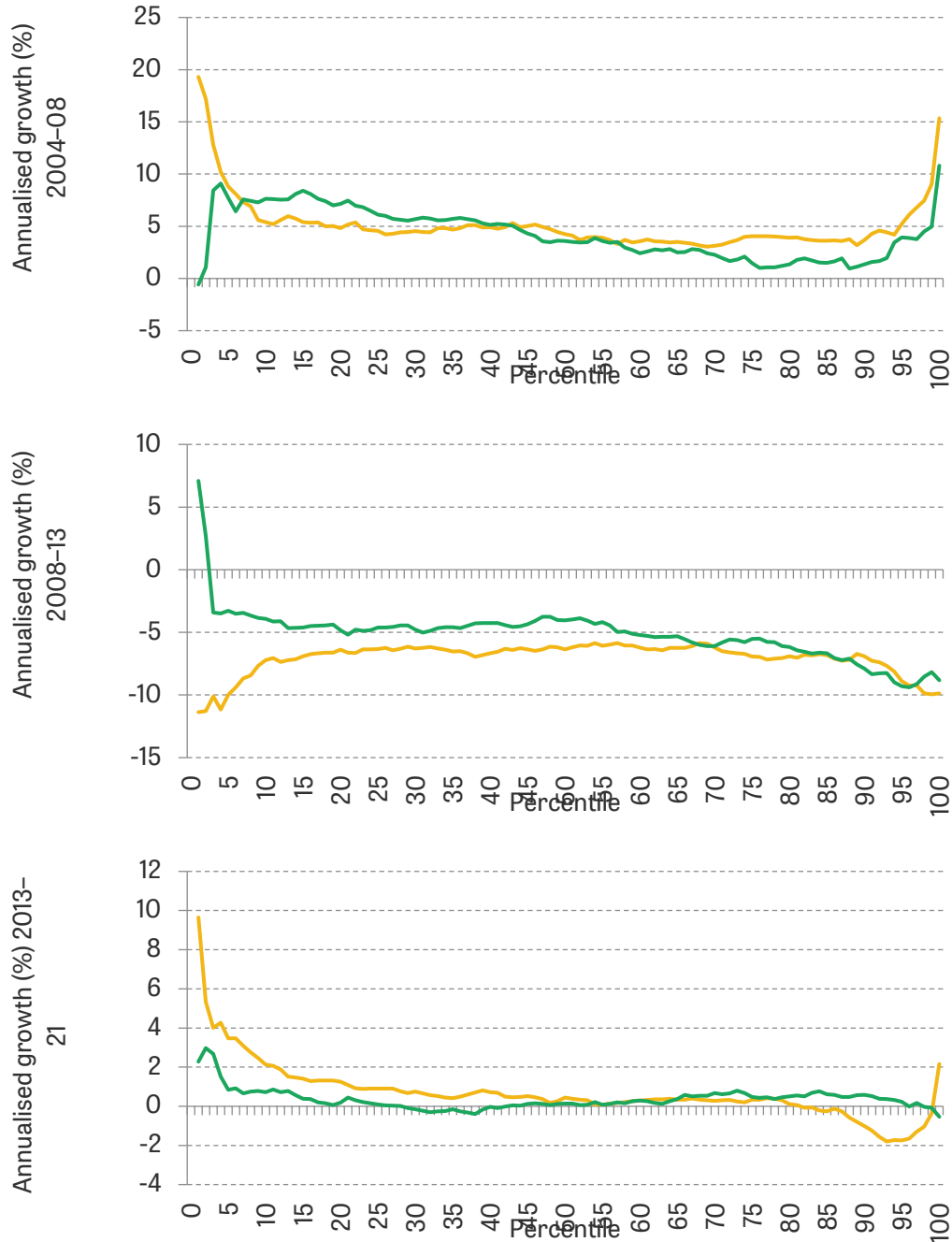
Figure 46. Outcomes of immigrants relative to natives, 25–60 years of age, 2005, 2010, 2015, 2020



Source: EU-SILC data. The y-axis is the percentage of immigrants for each corresponding category in its respective total population.

8. Appendix: 25–74 age group

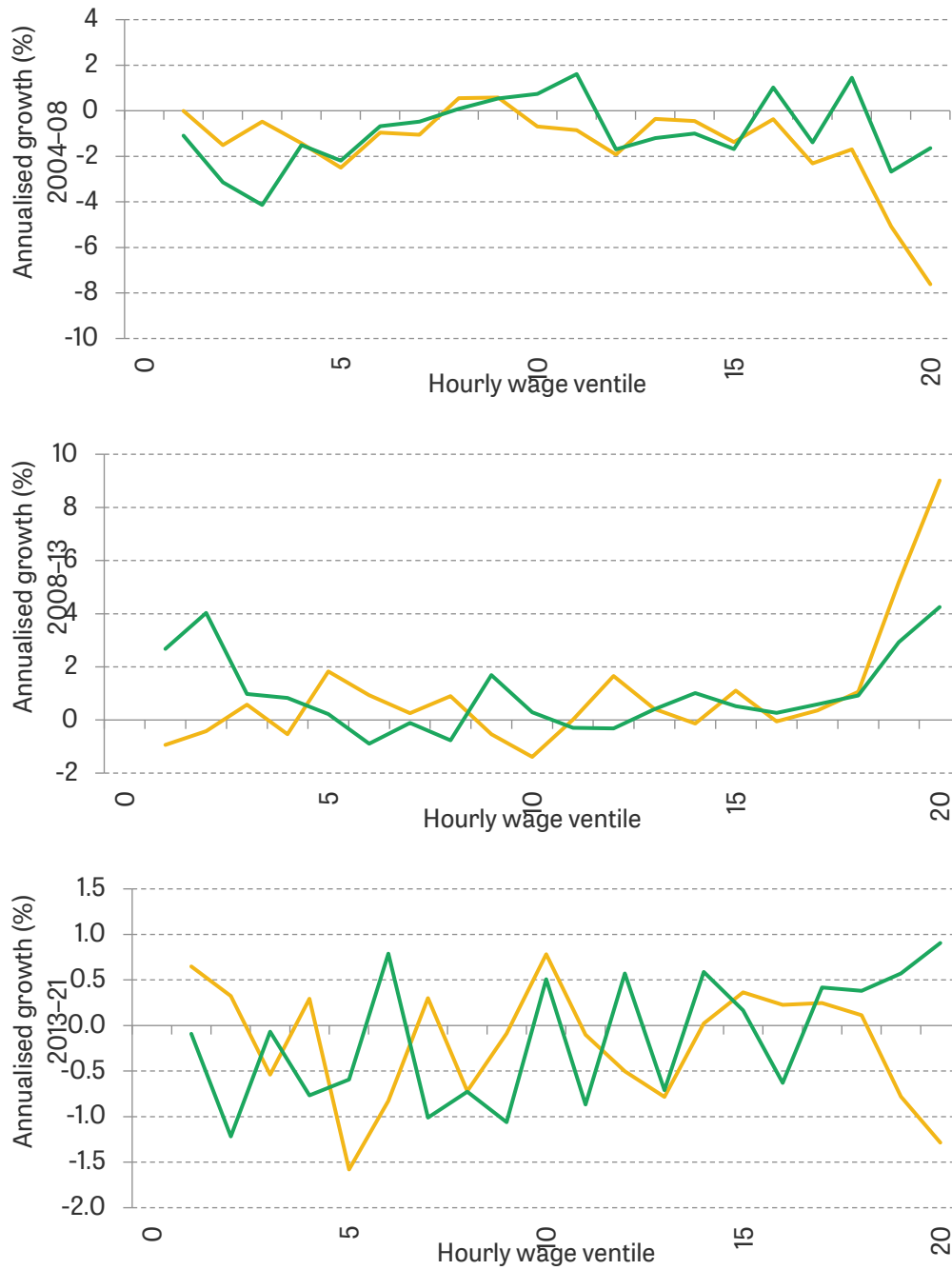
Figure 47. Annualised growth in hourly wages among employees by wage percentile, overall and by sex, selected periods



Note: Sample is employees aged 25–74.

Source: Authors' calculations using Euromod results for Greece for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.

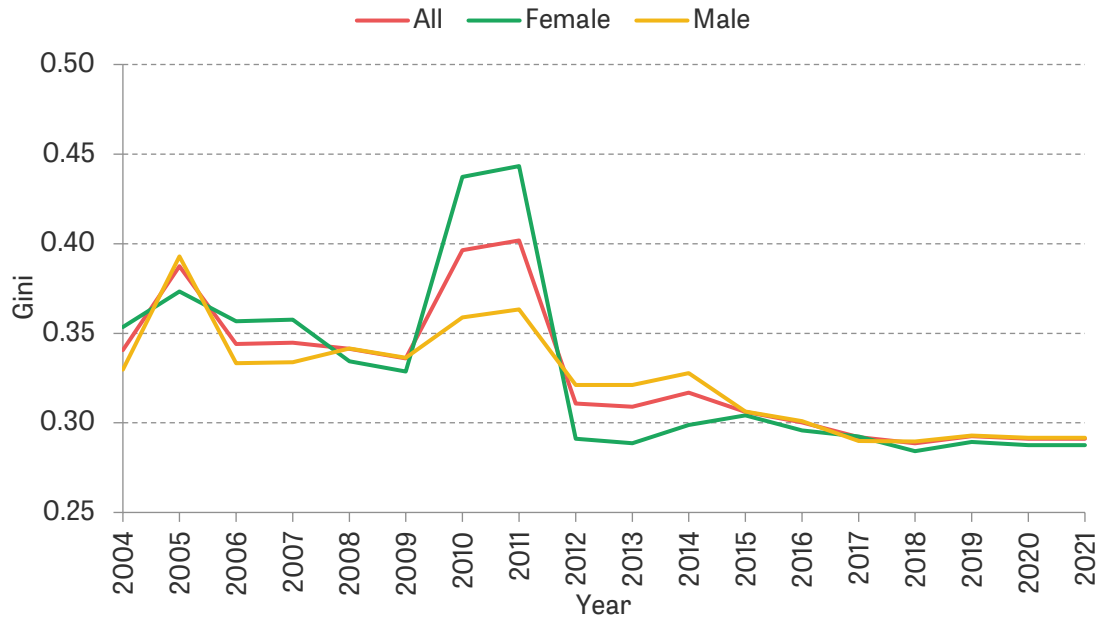
Figure 48. Annualised growth in mean hours worked among employees by hourly wage ventile, overall and by sex, selected years



Note: Sample is employees aged 25–74.

Source: Authors' calculations using Euromod results for Greece for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.

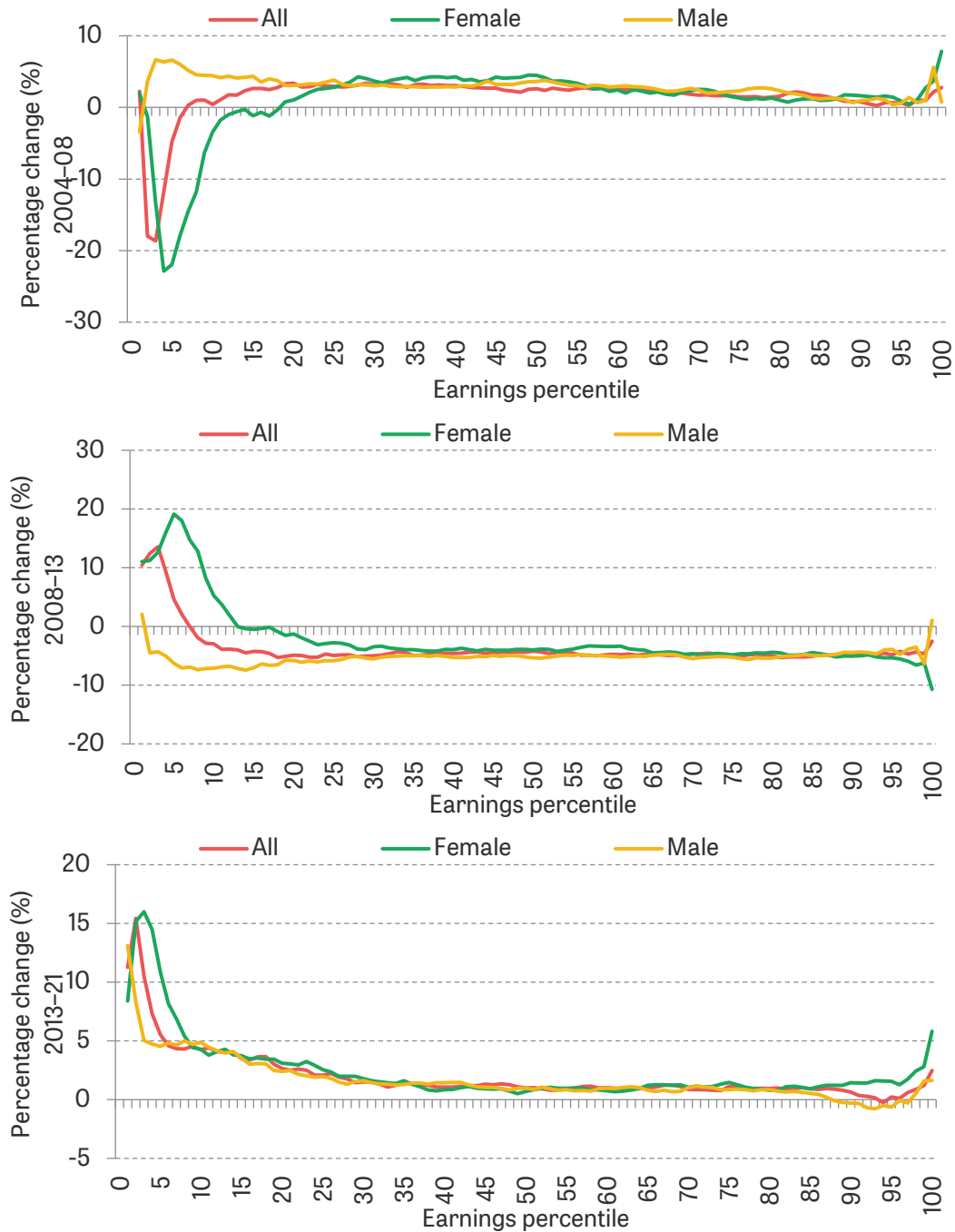
Figure 49. Gini coefficient of gross individual earnings, overall and by sex, over time



Note: Sample is individuals aged 25–74.

Source: Authors' calculations using Euromod results for Greece for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.

Figure 50. Annualised growth in gross earnings by earnings percentile, overall and sex, selected periods



Note: Sample is individuals aged 25–74.

Source: Authors' calculations using Euromod results for Greece for the period 2004–21, using EU-SILC data for the years 2004–08, 2010, 2012–16 and 2020.