

5 December 2023

EFFORT RATES WITH PERMANENT HOME LOANS
2021

IN 2021, THE 20% OF BORROWERS WITH THE HIGHEST EFFORT RATES WITH PERMANENT HOME LOANS USED MORE THAN 1/5 OF THEIR INCOME TO PAY THEIR HOUSING CREDIT INSTALMENTS

In 2021, the median effort rate with permanent home loans for borrowers was 12.78% and 130 municipalities (42% of the total), located mainly in the Norte, Centro and Algarve regions, had median values higher than the national reference. The municipality of Albufeira (16.45%) had the highest effort rate in the country. Considering only borrowers with at least one contract celebrated in 2021 (6.8% of all borrowers), the median effort rate was 15.45%.

In Portugal, the 20% of borrowers with the highest effort rates used more than 1/5 (20.99%) of their income to pay their housing credit instalments in 2021. The municipal analysis highlighted 13 municipalities with values above 25% in this indicator, with Albufeira (29.23%) scoring the highest value.

The median effort rate with permanent home loans in 2021 was higher for borrowers aged 34 or under (14.15%), compared to borrowers aged 65 or over (13.03%) and borrowers aged between 35 and 64 (12.56%). In 21 of the 25 NUTS 3 sub-regions, younger borrowers had higher effort rates than borrowers in the other age groups. Algarve, Alto Tâmega and Madeira recorded effort rates for younger borrowers above 15%. Considering only borrowers aged 34 or under belonging to the first half of the distribution of net taxable income (IRS) of all taxable persons – incomes of up to 844 € per month – in 2021, the median value of the effort rate with home loans rose to 19.40% at national level and in the sub-regions of the Algarve (24.07%), A.M. Lisboa (22.54%) and R.A. Madeira (20.74%) the instalments with permanent home loans exceeded 1/5 of income.

The median effort rate for borrowers with home loan contracts involving 2 or more borrowers was 12.21%, being 15.14% for those with a single borrower. The segmentation by gender of borrowers in single borrower contracts showed higher housing effort rates for women (15.39%) comparatively to men (14.84%). This pattern was also found in 17 of the 25 sub-regions. The Algarve was the sub-region with the highest housing effort rates for single borrowers of both genders.

The median effort rate with permanent home loans for borrowers with at least one contract celebrated in 2021 (15.45%) was higher than the effort rate for all borrowers (12.78%). Among the NUTS 3, Algarve had the highest difference (3.92 p.p.) and the highest median effort rate for borrowers with at least one housing credit contract celebrated in 2021 (18.52%).

Introductory Note

With this press release, Statistics Portugal (INE) starts releasing the effort rates with permanent home loans, referenced to 2021, based on the collaboration protocol established with the National Central Bank (Banco de Portugal – BdP) and the information systems of the two Statistical Authorities.

In the case of information from INE, this initiative takes advantage of the development of the **IND** - National Data Infrastructure, which corresponds to the corollary of a path pursued in recent years of integrating data from various sources, and in particular of projects that are part of the Statistics in Development – **STATSLab**: [Income Statistics at local level](#) and the [Resident Population Database](#). In the case of information from the BdP, the project benefits from the information associated with the Central Credit Register, which compiles information on credit instalments for the acquisition or construction permanent owner-occupied housing for borrowers with responsibilities to the national financial system (see methodological note).

This is a new project to integrate administrative data from various sources, which aims to provide information on the use of income to access permanent home ownership using bank credit and which reflects a framework of collaboration between INE and the BdP to address a central issue, both from the point of view of households' living conditions and from the perspective of macroprudential policy.

The target population for effort rates with permanent home loans are borrower's resident in Portugal with credit agreements for the acquisition or construction permanent owner-occupied housing of up to 300 000 euros, with variable interest rates, celebrated with financial institutions operating in the country. In the results presented, the median (the value that separates the ordered set of effort rates with permanent home loans into two equal parts) is the reference statistic for analysing the diversity of borrowers' effort rates in the different territories. In addition, the values of the deciles (values that divide the ordered distribution of effort rates with permanent home loans into 10 equal parts) are presented for interpreting the different situations of borrowers in each territorial unit, making it possible to identify situations in which borrowers are more vulnerable.

The press release is structured in two parts. The first focuses on characterizing the distribution of the effort rate with permanent home loans at local level and privileges analysis at the level of the municipality and NUTS 3. The second delves into the territorial diversity of access to permanent housing by segmenting the information by the sociodemographic characteristics of the borrowers and by the characteristics of the contracts, focusing on the analysis of NUTS 3 sub-regions and NUTS 2 regions.

These results are integrated in **StatsLab** – Statistics in development. The statistics presented in this area are distinguished by two characteristics: i) they are part of projects aiming at creating new statistical products which are still under development and, yet, ii) they already contain useful information for economic and social analysis.

This initiative also contributes to the development of the **IAssLocal** – Asymmetry Indicators at local and interregional level project at INE¹ with the aim of providing new indicators to characterise the socio-economic diversity of the territories taking advantage of the potential of the information associated with the **IND**.

¹ Co-financed by the Technical Assistance Operational Programme (POAT/PT2020).

1. Characterization of the distribution of effort rates with permanent home loans at local level

Figure 1. Proportion of borrowers with permanent home loans in the resident population aged 18 and over, Portugal, NUTS 3 and municipality, December 2021

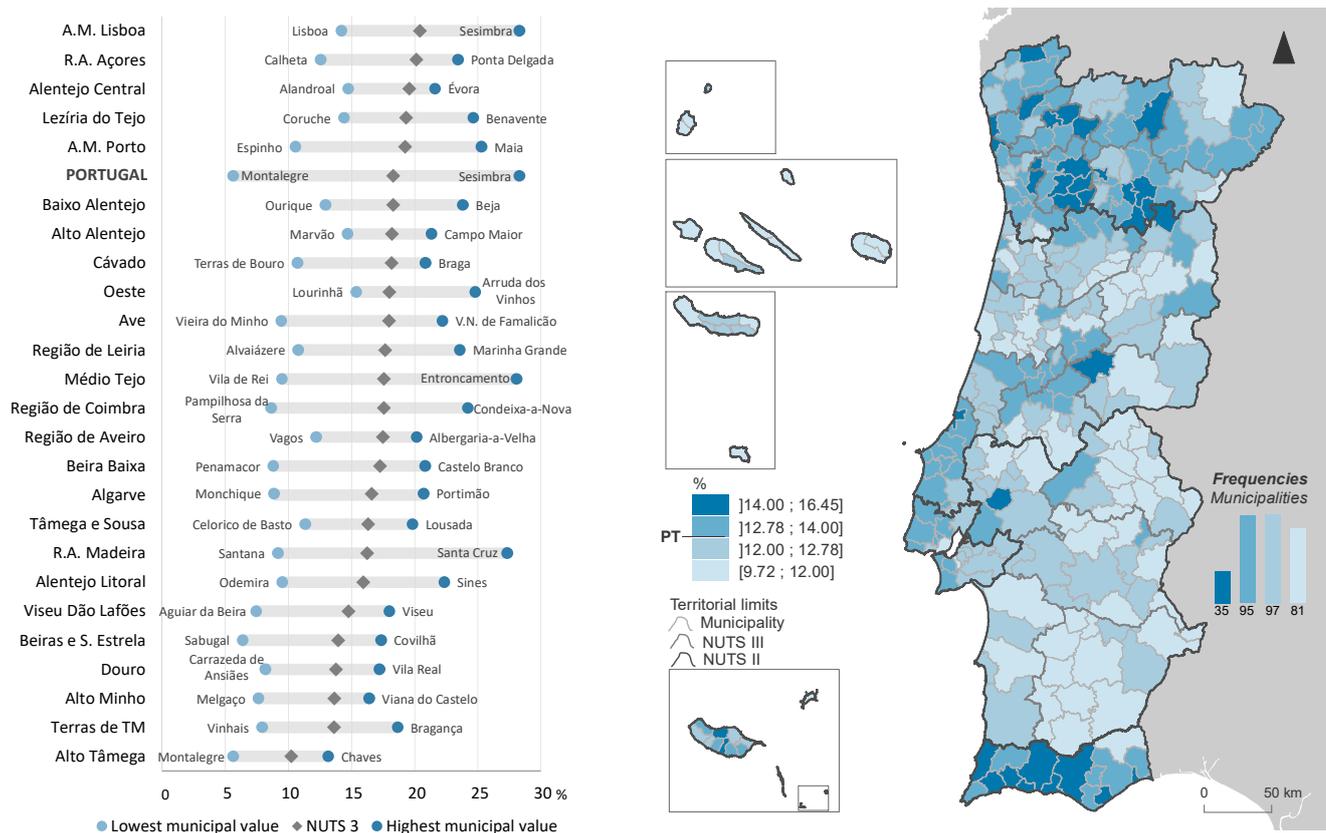


Figure 2. Median effort rate with permanent home loans, Portugal, NUTS 3 and municipality, December 2021

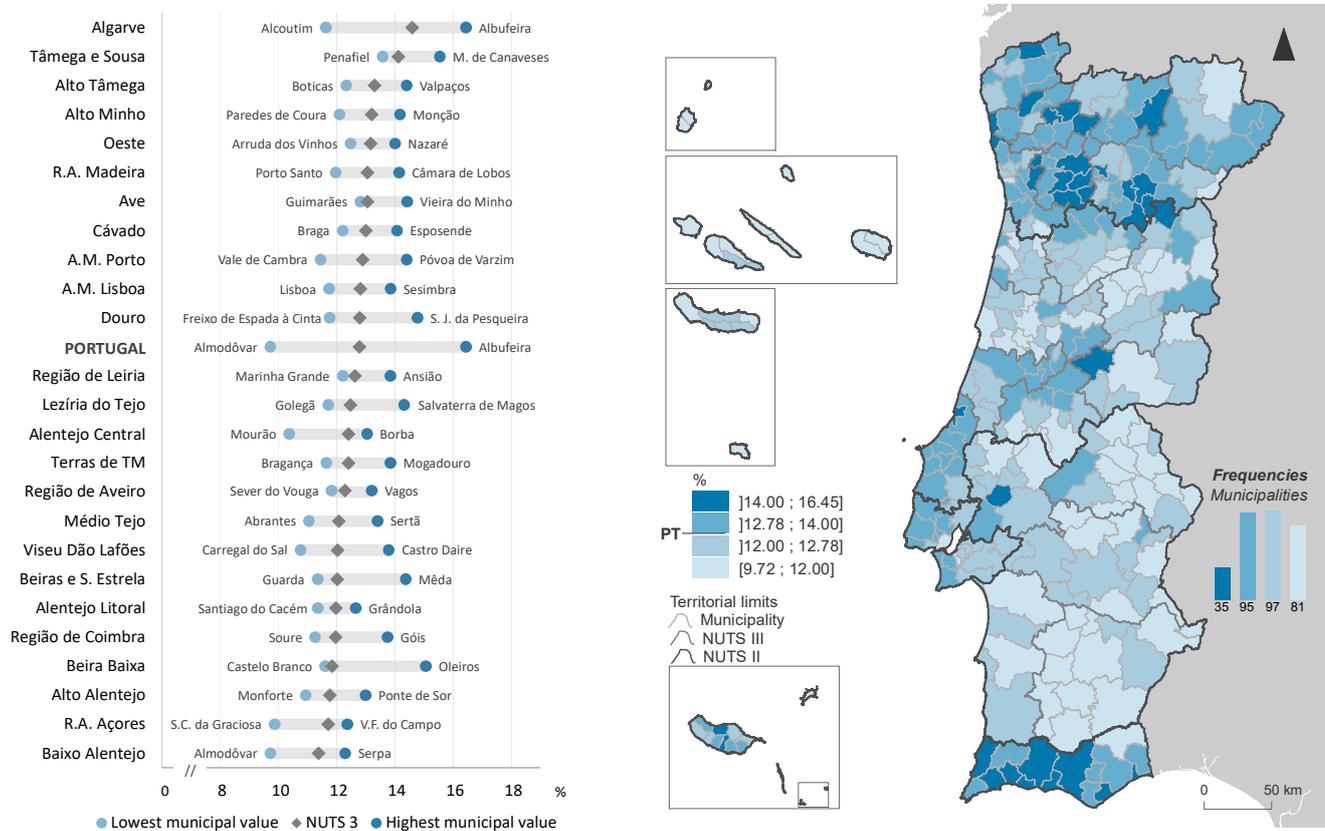


Figure 3. Deciles of the effort rate with permanent home loans, Portugal and NUTS 3, December 2021

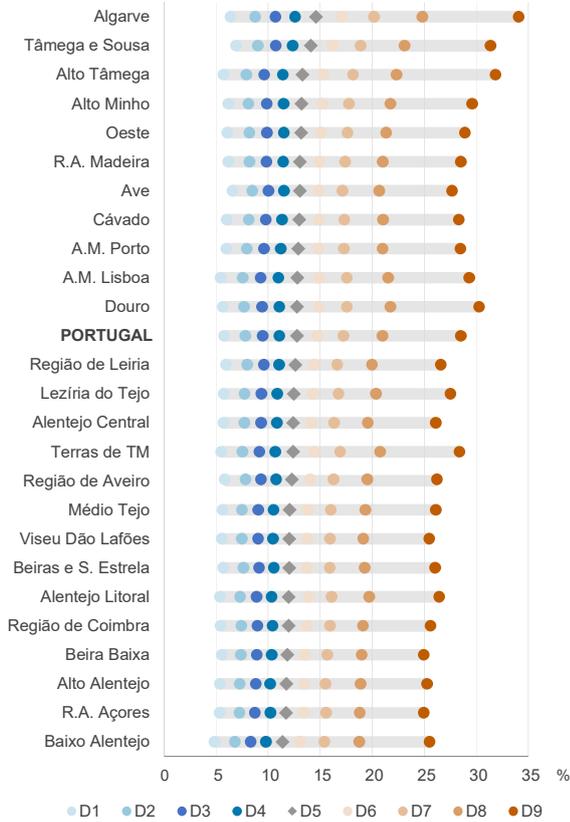


Figure 4. Decile 9 of the effort rate with permanent home loans, NUTS 3, December 2021

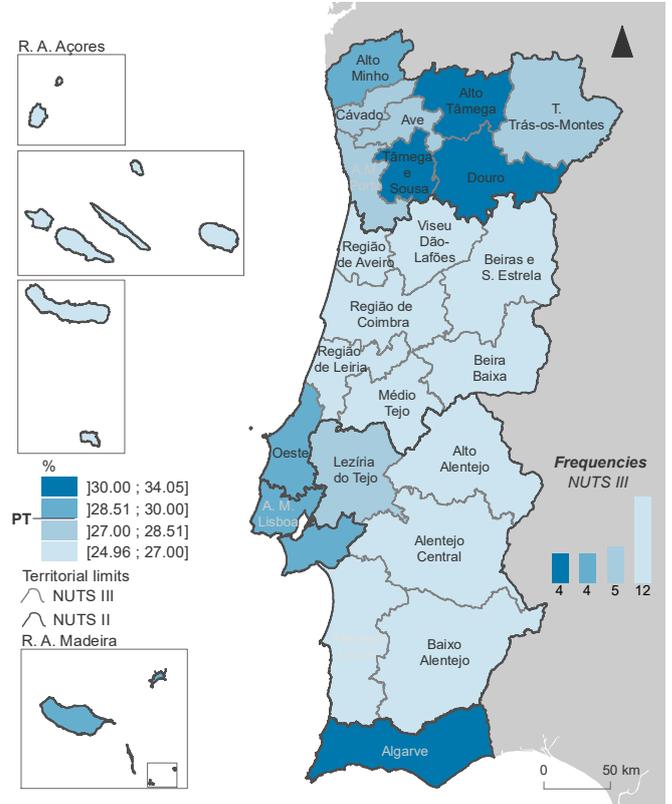
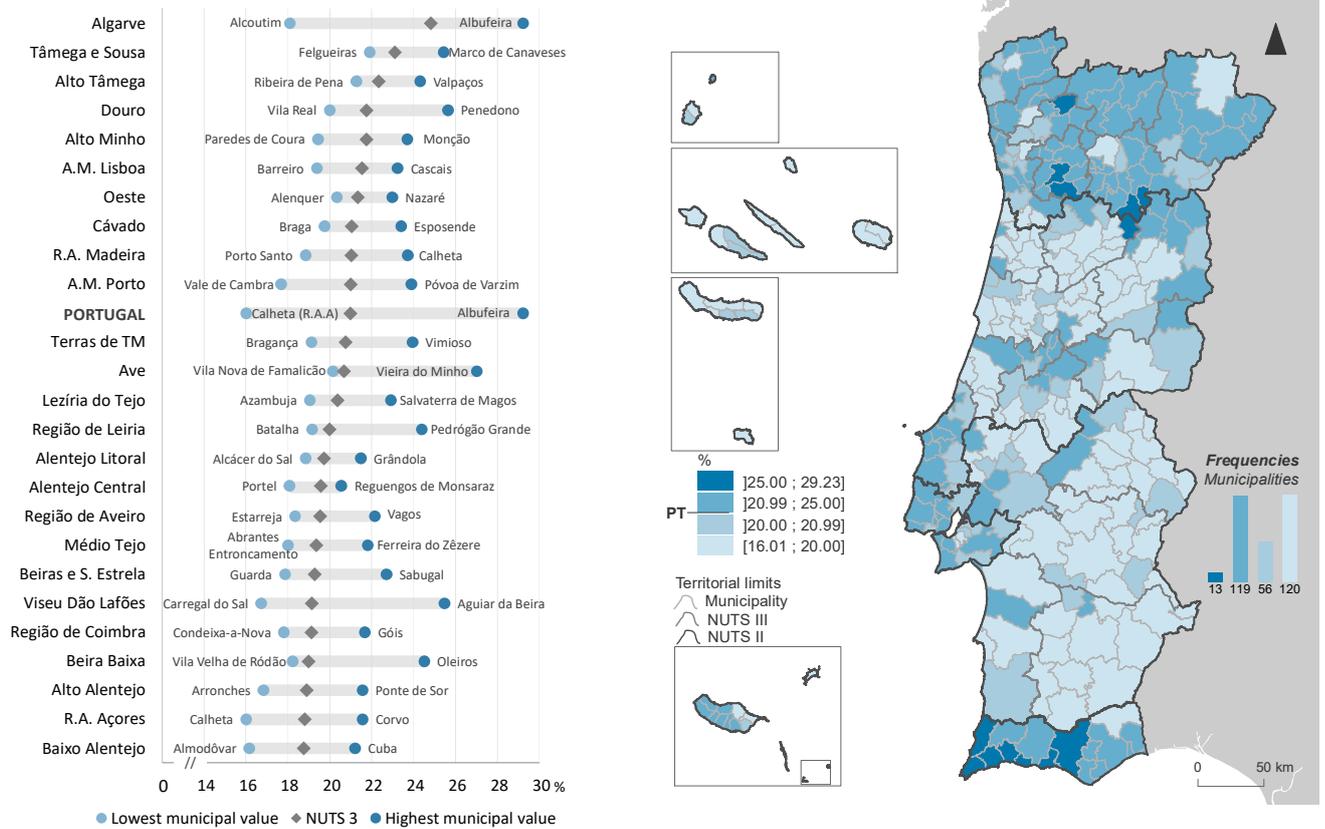
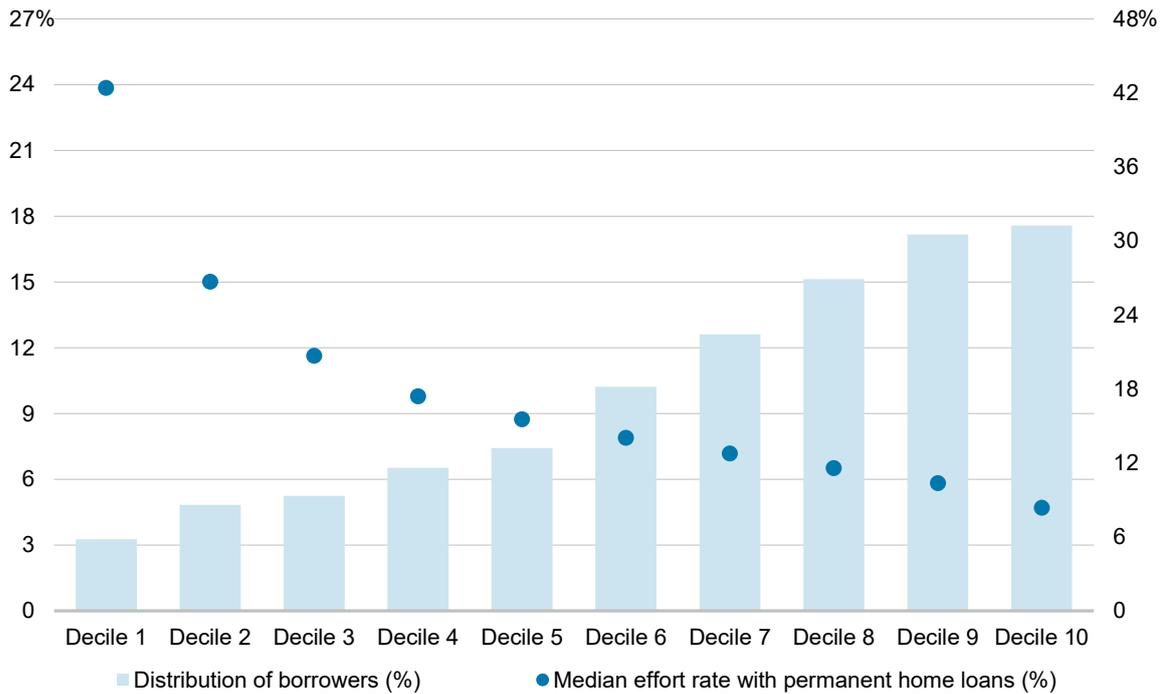


Figure 5. Decile 8 of the effort rate with permanent home loans, Portugal, NUTS 3 and municipality, December 2021



2. Effort rates with permanent home loans and sociodemographic characteristics of borrowers and contracts

Figure 6. Distribution of borrowers (left axis) and median effort rate with permanent home loans (right axis) by decile of gross reported income less personal income tax paid², Portugal, December 2021



² Decile of gross reported income less personal income tax paid to which the borrower belongs in the distribution by taxable person of the Income Statistics at local level for the year 2021.

DIÍSTAQUE

press release

Figure 7. Distribution of borrowers (left axis) and median effort rate with permanent home loans (right axis) by decile of gross reported income less personal income tax paid, NUTS 2, December 2021



Note: The values of gross reported income less personal income tax paid deciles are based on the distribution for the country.

Figure 8. Median effort rate with permanent home loans by age group, Portugal and NUTS 3, December 2021

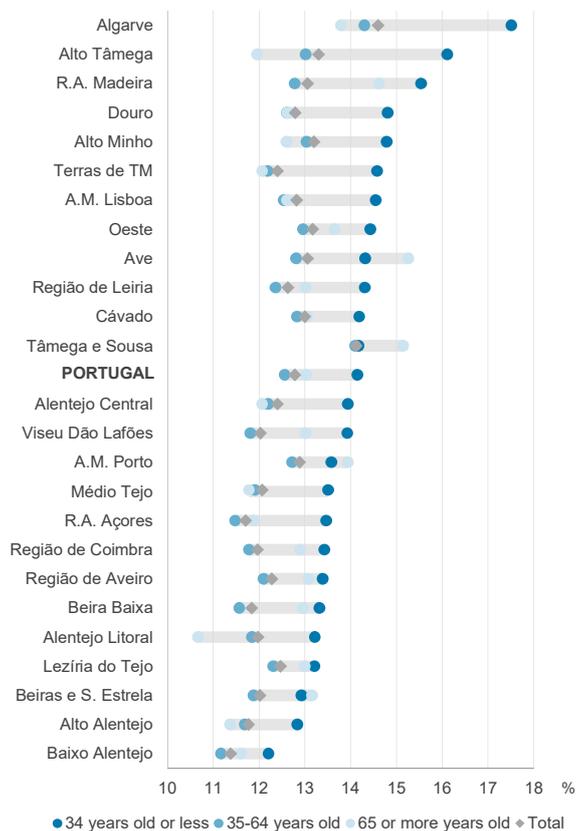


Figure 9. Median effort rate with permanent home loans for borrowers aged 34 and under, NUTS 3, December 2021

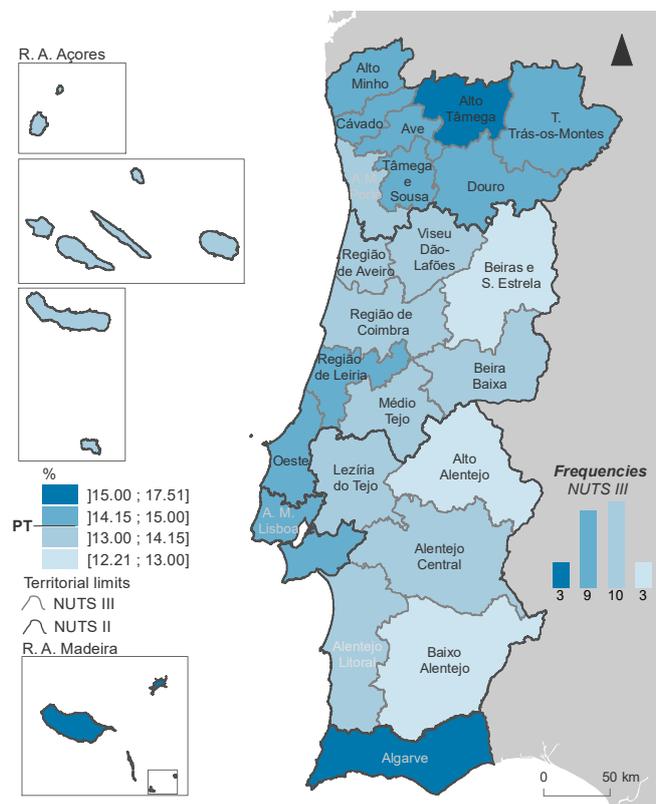


Figure 10. Median effort rate with permanent home loans for borrowers aged 34 and under and borrowers aged 34 and under in deciles 1 to 5 of gross reported income less personal income tax paid, NUTS 3, December 2021

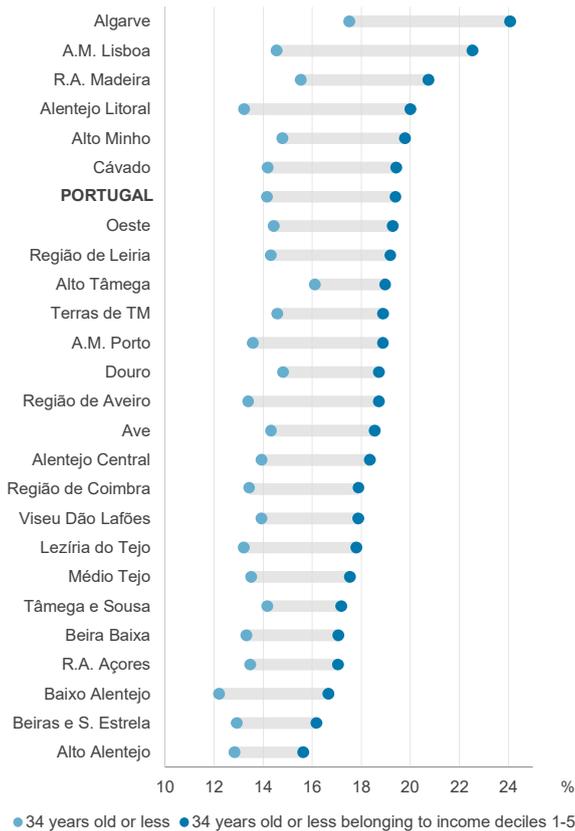
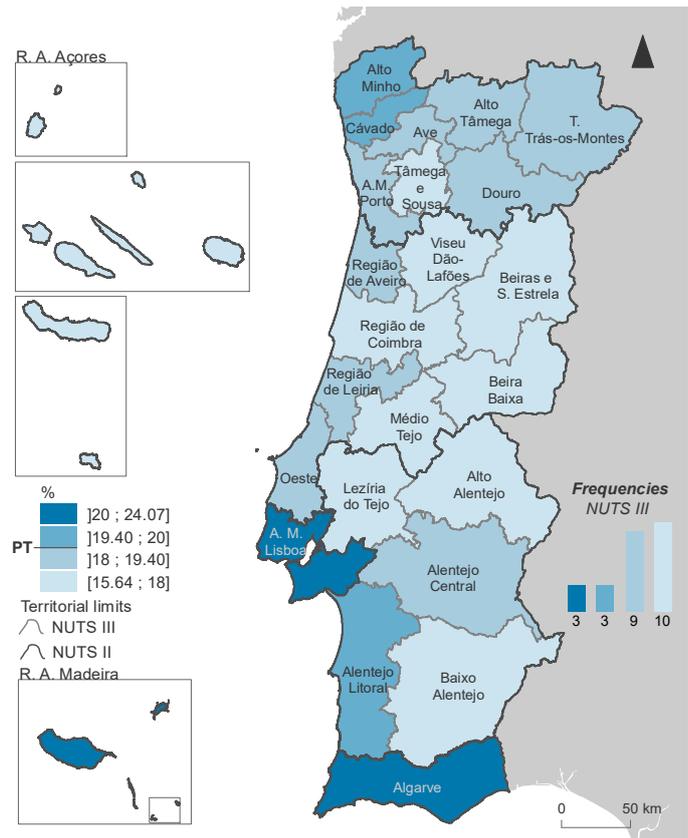


Figure 11. Median effort rate with permanent home loans for borrowers aged 34 and under in deciles 1 to 5 of gross reported income less personal income tax paid³, NUTS 3, December 2021



³ The variable that identifies the income decile to which each taxable person belongs was based on the distribution of gross reported income less personal income tax paid (IRS) provided in the Income statistics at local level for Portugal for the year 2021. The value 10 128 € corresponds to the median value of the of gross reported income less personal income tax paid, considering all taxable persons and not just those in the youngest age group (34 or under).

Figure 12. Median value of the effort rate with permanent home loans by number of individuals involved in home loans, Portugal and NUTS 3, December 2021

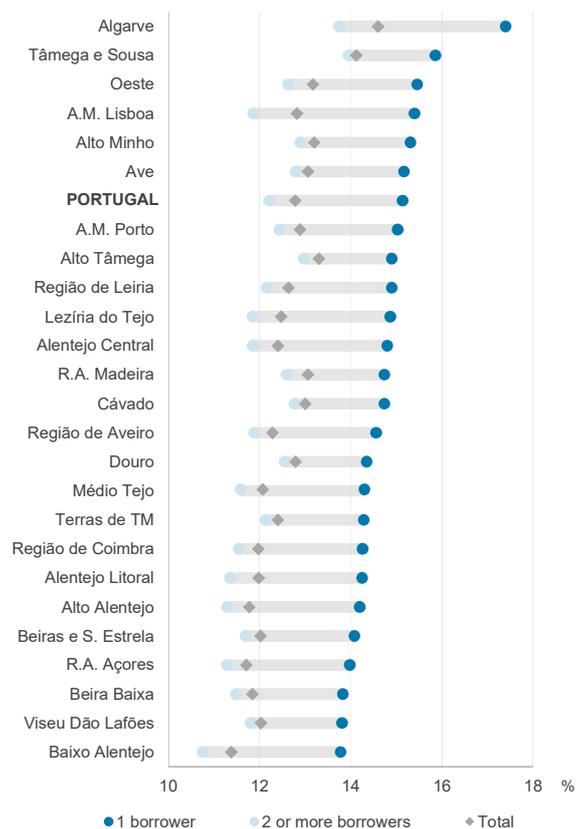


Figure 13. Median effort rate with permanent home loans for borrowers in single borrower contracts, NUTS 3, December 2021

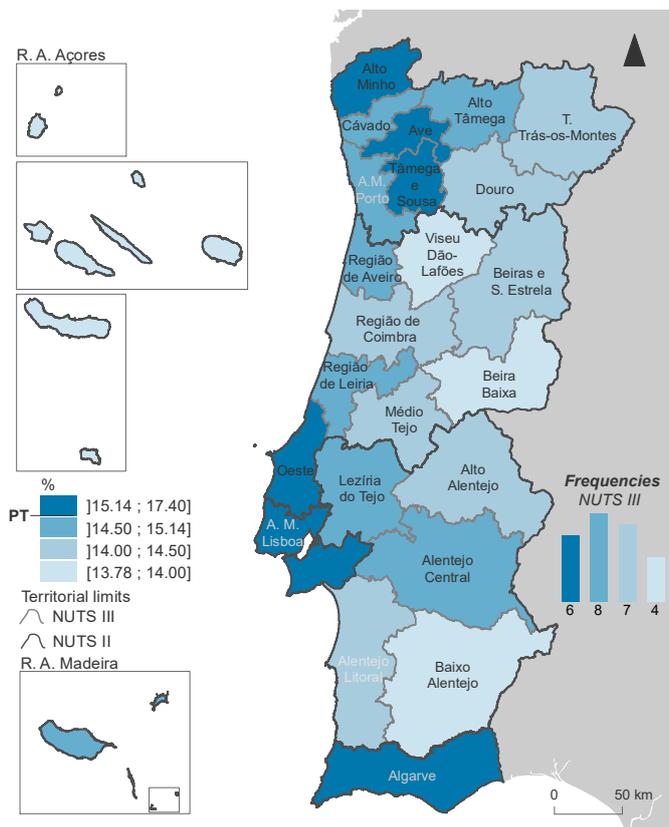


Figure 16. Median effort rate with permanent home loans and for borrowers with permanent home loan contracts celebrated in the year, Portugal and NUTS 3, December 2021

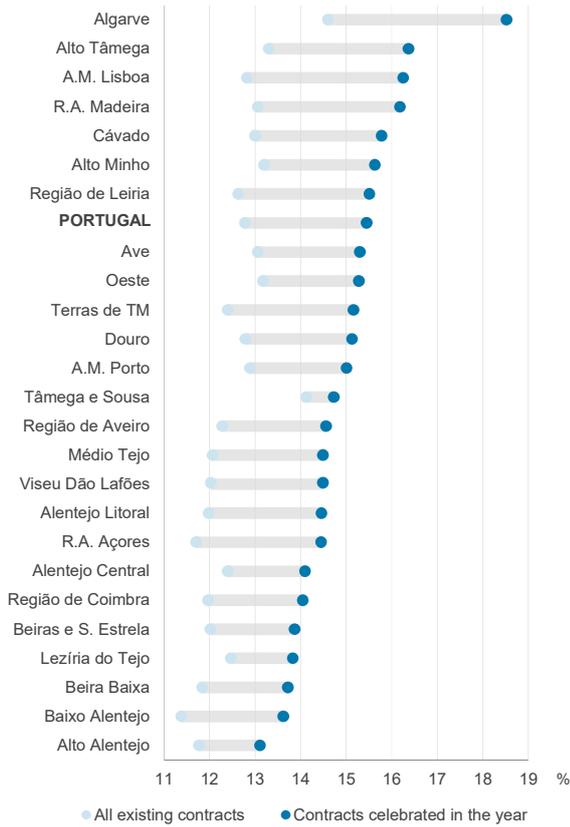
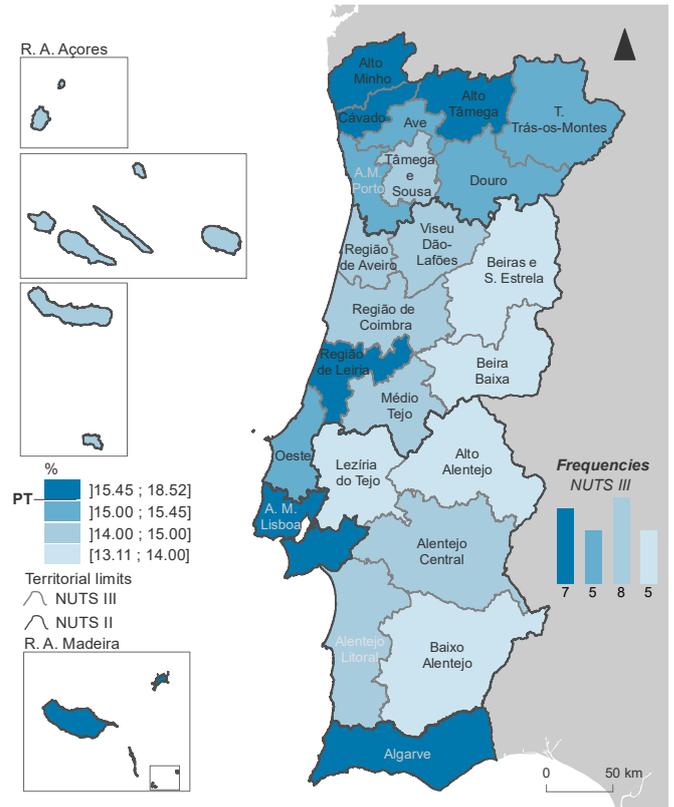


Figure 17. Median effort rate with permanent home loans for borrowers with permanent home loan contracts celebrated in the year, NUTS 3, December 2021



METHODOLOGICAL NOTE

The results presented in this press release benefit from the Collaboration Protocol signed between Statistics Portugal and the National Central Bank (Banco de Portugal – BdP), under which both statistical authorities reciprocally provide databases for the purposes of statistical analysis, in the context of their respective roles in the National Statistical System, established by Law 22/2008, of May 13.

Currently, BdP receives information on credit instalments for the acquisition or construction permanent owner-occupied housing for borrowers with responsibilities to the national financial system and INE receives information on income for tax purposes from Tax and Customs Authority (AT), making it possible to calculate the ratio between these two values, known as the effort rate with permanent home loans (ratio between the amount of the borrower's monthly housing credit instalment and monthly income).

Considering the collaboration conditions established, the process of integrating information from the BdP and INE followed an *on-the-fly* model - data integration in which data is combined and the results made available in real time or almost instantaneously - resulting in anonymized effort rates (%) according to the structure required by each of the entities, including information for evaluating the integration process. In this context, the pre-processing processes were carried out by each of the entities on the respective data provided.

Basic information for integration

Information on monthly credit instalments of permanent home loans

In this statistical study, the value of monthly credit instalment for permanent home loans referring to credit agreements for the acquisition or construction permanent owner-occupied housing celebrated with financial institutions operating in Portugal, with a mortgage debt amount equal to or less than 300 000 euros⁴, without default and with a variable interest rate, whose source is the Central Credit Register, were considered for integration purpose.

The information provided to INE by BdP for integration was structured by 'anonymized identifier of the borrower' and 'anonymized identifier of the respective permanent home loan', including the variables 'year in which the contract was celebrated' and 'amount of the monthly credit instalment of permanent home loan'. Contracts involving at least one borrower without a Portuguese tax identification number were excluded from the initial base.

The value of each borrower's housing instalment results from the sum of their share of the housing instalment value of the various contracts in which they are involved.

The information used refers to contracts in force on 31 December 2021, involving 1 809 491 single borrowers.

⁴ This value follows the aim established in point 1. from Article 2 of Decree-Law no. 80-A/2022, of November 25, which establishes measures to mitigate the effects of the increase in the reference indexes of credit agreements for the acquisition or construction permanent owner-occupied housing.

Information on income

For the purpose of integration, this statistical study has considered the income information structured for the [Income Statistics at local level 2021](#), based on the Settlement note of Personal Income Tax (IRS – Modelo 3).

In this context, the Income Statistics at the local level microdata base structured by 'taxable person with anonymized identifier' was used, considering the variables 'municipality of residence', 'income decile to which each taxable person belongs' and 'gross reported income less personal income tax paid', the latter derived from the variables:

- Gross Reported Income - Income that corresponds to: 1) the value of the income not exempt, before any specific deduction for categories A (Dependent labour) and H (Pensions); 2) the value of the net income, i.e. the value of the income after the respective deductions for the other categories;
- Personal Income Tax Paid - Amount of tax corresponding to the tax due, i.e. the amount of tax levying net of the specific deductions foreseen in Personal Income Tax and tax benefits, before deductions are made regarding payments on account of withholding taxes.

Since the Settlement note of Personal Income Tax (IRS – Modelo 3) does not allow a distinction between the income of taxable person A and B, it was assumed a uniform distribution of the income of the tax households in the results per taxable person. This option has considered the article 69 of the Personal Income Tax Code - Family Quotient, which states that, for taxable persons who are married and not legally separated from persons and goods or who are “*de facto*” united, as long as they opt for joint taxation, the rates corresponding to the taxable income divided by two are applied (see Methodological note on the publication of [Income Statistics at local level](#)).

The variable that identifies the income decile to which each taxable person belongs, is based on the distribution of gross reported income less personal income tax paid, provided in the Income Statistics at local level for Portugal.

The information used refers to income in 2021.

Other sociodemographic information

In this statistical study, the sociodemographic variables 'sex', 'age', 'anonymized identifier of the private household', 'classification of the individual in the household' (taxable persons A and B, spouse, dependent, ascendant, etc.) by 'anonymized identifier of the individual', from the Resident Population Database (BPR) were considered for integration purposes.

The BPR is a project under development at Statistics Portugal and is the framework for compliance with the Regulation of the European Parliament and of the Council on European statistics on population and housing, which is still under discussion.

The information from the BPR for integration included, whenever possible, information for 2021.

Options for integrating different sources

Effort rates' computation

In order to calculate the effort rates with permanent home loans per borrower, income was calculated based on the following conjugality options:

- For the borrower who choose to fill its personal income tax return jointly, the value of the combined income was taken into account when only one of the individuals was a borrower;
- For the borrower who choose to fill its personal income tax return jointly, the value of the combined income divided by two was taken into account when both individuals were borrowers;
- For the borrower who has opted for separate taxation, where a conjugal situation is implied, the spouse's income value was also taken into account when only one of the individuals was a borrower;
- For the borrower who has opted for separate taxation, where a conjugal situation is implied, its income value and the income value of its spouse were considered, divided by two, whenever both individuals are borrowers.

In cases where it was not possible to associate income information with borrowers and their spouses (where applicable), no effort rates with permanent home loans were calculated. For dependents and ascendants who are borrowers, the income considered for calculating the effort rate was the income of the taxable persons in the household divided by the number of elements involved (*i.e.* borrowers and taxable persons with income).

The annual values of the gross reported income less personal income tax paid were measured by dividing by 12 months⁵.

Spatial referencing of borrowers

For the referencing of borrowers to the municipality of residence, the municipality of residence variable was taken from the taxable persons microdata base from the Income Statistics at the local level combined, when necessary, with the private household variable from the Resident Population Base.

Outliers removal

Based on the distribution of the effort rate with permanent home loan variable for the universe of single borrowers with valid effort rates (with values), outliers were identified according to the following formula: $1^{st}Q - 6 * IQR$ and $3^{rd}Q + 6 * IQR$. Where $1^{st}Q$ is the first quartile, $3^{rd}Q$ the third quartile and IQR the inter-quartile range ($3^{rd}Q - 1^{st}Q$). This option only led to the elimination of observations at the upper end of the distribution.

⁵ Measuring income values over 12 months was based on the criteria defined in item i) of point 3., from Article 3 of Decree-Law no. 80-A/2022, of November 25, which establishes measures to mitigate the effects of the increase in the reference indexes of credit agreements for the acquisition or construction permanent owner-occupied housing.

Reference base and computation of effort rates with permanent home loans

The target population for effort rates with permanent home loans are borrower's resident in Portugal with credit agreements for the acquisition or construction permanent owner-occupied housing of up to 300 000 euros, with variable interest rates, celebrated with financial institutions operating in the country.

The options for integrating and processing the information generated a database representing 87.8% (1 587 899 borrowers) of the universe of unique borrowers based on the information provided by the National Central Bank.

In the results presented, the median (the value that separates the ordered set of effort rates with permanent home loans into two equal parts) is the reference statistic for analysing the diversity of borrowers' effort rates in the different territories. In addition, the values of the deciles (values that divide the ordered distribution of effort rates with permanent home loans into 10 equal parts) are presented for interpreting the different situations of borrowers in each territorial unit, making it possible to identify situations in which borrowers are more vulnerable.

The calculation of median values of effort rates according to the sociodemographic variables used to characterize borrowers - income level, gender and age group - and the variables relating to the characterization of contracts - number of borrowers involved and year of the contract - allow to delve deeper into the conditions of accessibility to permanent housing.