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# Overall and Specific Economic Activity Rate Projections by Age Groups and Sex. 2016-2029 

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## Introduction

## 1 Economic Activity Rate Projections 2016-2029

The prediction of the population's future behaviour in relation to the labour market is of great interest as this is valuable information for multiple purposes: assessment of the sustainability of social protection systems, establishment of general lines of future economic development and policies related to the labour market and the training of workers, etc.

In this new publication, the Overall and Specific Economic Activity Rate Projections by Age Groups and Sex 2016-2029, projections of overall activity rates regarding the national total and that of each of the Autonomous Communities are presented for the population aged 16 years and over and for those aged 16 to 64 years. It also contains projections of specific activity rates by age group and sex for the national total.

These projections are an update of those previously published by the National Statistics Institute (NSI) in 2011. They incorporate the new future forecasts of the population structure by age, sex and Autonomous Community of residence for the period 20162029 and also take the new population base into account, a result of the 2011 Population and Housing Census that resulted in an update of the historical series of activity rates in the Economically Active Population Survey (EAPS) from 2002 onwards.

In addition, forecasts for the active population by age group and sex for the national total and forecasts for the active population for the national total and for the total of each Autonomous Community are presented. This forecast is highly demanded by international bodies such as the International Labour Organisation (ILO), the European Central Bank (ECB), etc.

Therefore, the base information will come from the EAPS itself and the long-term Population Projections. Both sources are prepared by the NSI.

## 2 Overview of previous editions

In 1995, the National Statistics Institute published the first projections of economic activity officially carried out in Spain in the volume Economic Activity Rate Projections by Age Groups and Sex. Only national economic activity rate projections by five-year age groups of men and women were calculated for the period between 1994 and 2008.

At the beginning of 2000, the NSI published the volume Economic Activity Rate Projections 1998-2013 that included national activity projections for men and women, by ten-year age groups, up to 64 years old, between the third quarter of 1998 and the second quarter of 2013. From these rates, the complete activity rate series were calculated for the total population and for each sex, including those aged between 16 and 64 years.

In 2002, in a new publication, the Economic Activity Rate Projections2000-2013, the NSI presented the first economic activity rate projections for the population between the ages of 16 and 64 years by Autonomous Community and, at the same time, updated the activity projections for the population aged under 65 years at the national level, published in 2000.

In 2008, the volume An Economic Activity Rate Projection by Autonomous Communities 2006-2011 was published, which presented activity rate projections for the population
aged between 16 and 64 years, in each Autonomous Community and for the national total. These projections included the methodological changes introduced to the EAPS in the period 2002-2005 relating to the implementation of a new operational definition of unemployment, the survey's treatment of the growing foreign population, the introduction of a new, more 'friendly' questionnaire and the inclusion of the CATI system (computer-assisted and centrally controlled telephone interviewing).

Finally, in 2011, the Overall and Specific Economic Activity Rate Projections by Age Groups and Sex 2011-2026 was published with the same methodology as this publication, so that the present edition reviews and updates these 2011 projections and incorporates the developments that have occurred since then.

In particular, and as has already been mentioned, these developments include the following: the use of a new base population in the data due to the latest 2011 Population Census and the updating of the predictions of future population structures (primarily as a result of the recent departure of foreigners from the national territory). These developments have resulted in a downward revision of the activity rates forecasted for the future. The period now considered is 2016-2029.

# Methodological description 

## 1 Summary

The economic activity rate projections of the Spanish population residing in family dwellings under a dual classification of sex and age, as well as the geographic disaggregation of the overall results, are based on the analysis and modelling of the trends of specific economic activity rates in the period 1977-2015 (provided by the Economically Active Population Survey) for elementary or primary groups resulting from a triple classification according to sex, age at five-year intervals, and Autonomous Community of residence.

Subsequently, the projections resulting from the best modelling obtained for the previous elementary groups are aggregated in two ways: in projected rates at the national level by sex and five-year age group, and in general rates by sex at the Autonomous Community level. To carry out both aggregations, it is necessary to have the projections for populations residing in family dwellings under the triple classification established in the primary groups considered and over the same projection period. These population projections were made 'ad hoc' by the Sub-directorate General for Population Statistics (SGPS) and serve as weighting coefficients in the aggregation of the projected rates in the elementary groups towards wider groups that contain them.

This bottom-up approach gives the advantage of being able to analyse the sensitivity of overall economic activity rates projected to the future population structures by age.

As a preliminary stage to the analysis and modelling of activity rates in the established elementary groups, the total active and inactive groups of the Economically Active Population Survey (EAPS) must be adjusted so that they are comparable over time and the projections made on these groups have the same reference date used by the population projections.

Below, the starting information used, the adjustments made to the totals indicated in the EAPS series, the projection models of activity rates used for the elementary groups and the weighted aggregation of these to obtain the final overall projections are described in more detail.

## 2 Starting information

### 2.1 THE ECONOMICALLY ACTIVE POPULATION SURVEY (EAPS) (1977-2015)

The quarterly activity rates series estimated by the EAPS for persons aged 16 years and over, by Autonomous Community, sex and five-year age group are used as base data. The main characteristics of these rates are: the progressive closing of the gap between female rates and male rates, the stagnation and slight decrease of male rates, the continuing decline in the rates of young people aged 16 to 19 years, the strong influence of the economic cycle phase on youth aged 20 to 24 years and the decline and stagnation in the rates of persons over 65 years old.

The EAPS, aimed at the population residing in family dwellings, was first carried out in 1964. Its methodology and preparation has undergone many changes over time and currently there is a homogeneous methodological series of quarterly results available from the third quarter of 1976, with it not being advisable to consider data prior to this
date (for the period between 1964 and the second quarter of 1976, there are no final microdata files, but rather only paper publications, which is why the homogenisation of these results was not possible). For this reason, the economic activity rates series that we use begin in that quarter, with the exception of Ceuta and Melilla, whose series begins in the second quarter of 1988. The latest data available when beginning this work corresponds to the fourth quarter of 2015.

Among the methodological changes that the EAPS has undergone that are relevant to the present study, it is worth noting the change in 1987 that introduced a new questionnaire in order to a) adapt the survey to Regulation 577/98, which lays down the specifications for the European Union's labour force surveys, (b) incorporate new information on the Spanish labour market, (c) adapt definitions to those provided by the XIII International Conference of Labour Statisticians of the International Labour Organisation.

In 2002, a technical improvement was introduced to the EAPS that affects the process of calculating the results by adjusting survey estimates by sex and age to base population data (re-weighting or calibration of elevation factors). In addition, the new definition of unemployment set out in Regulation 1897/2000 of the Commission was applied. This change significantly affected the unemployment figures that the LFS had been publishing and consequently affected the activity rates.

Subsequently in 2005, with the definitive results of the 2001 Population Census and the successive updates of the Continuous Register available, the EAPS updated the population base to adapt to Spain's new demographic and labour reality. Now the population projections are replaced with projections based on the 2001 Census. In addition, the survey questionnaire was amended to incorporate the new European regulations and information collection has been modernised. In addition, in 2005 the Spanish-foreigner distinction was incorporated into the re-weighting process.

Since 2005, there have been a number of adjustments to the EAPS, in some cases arising from the introduction of new activity, occupation and education classifications, and in others arising from the need to adapt the population projections to census results. The latter took place in 2014, when the new census base of 2011 was adopted for the current population estimates.

The INE provides links that overcome the influence of the changes made, reconstructing results series, although in some cases (in general, when arising from modifications to the questionnaire that it is not possible to replicate in the past) these are limited to the period in which these changes have taken place.

The concept of activity considered in this methodology is exclusively that of economic activity according to the International Labour Organization (ILO) definitions and the operational standards of Eurostat (Reg. EC 1897/2000). The concept of active estimated is the active person ${ }^{1}$. For this reason, each active person counts as one unit regardless of how long their working day is if they are employed. This means equating full-time work with part-time work.

[^0]Due to the lack of data on the type of working day in years prior to 1987, it has not been considered advisable to make estimates of active people equivalent to full-time or separate projections for each type of working day.

As all definitions and criteria used by the EAPS are based on ILO recommendations, its results are comparable with those of the different official statistics dealing with labour issues. This allows a comparative analysis of the evolution of Spanish activity with that of other neighbouring countries to be carried out, in particular with European Union member states through data from their respective Labour Force Surveys, which in Spain is included in the Spanish Labour Force Survey (EAPS) ${ }^{2}$.

### 2.2 POPULATION PROJECTIONS (2016-2029)

Demographic factors have a decisive influence on participation in the labour market, as they determine the structure of the overall population and, therefore, the structure of the economically active population.

The population structure is covered in the short- and long-term Population Projections. For this work, ad-hoc projections by age group, sex and Autonomous Community of residence, referring to those residing in family dwellings, have been used. The reference date is $1^{\text {st }}$ of January of each year, from 2016 to 2029.

Progressive ageing of the population can be observed between 2016-2029. This will result in a decrease in overall activity rates, given the lower activity rates in older age groups, as well as an ageing active population.

## 3 Adjustments in the quarterly series of the EAPS

The basic modelling and projections for some specific activity rates by sex, five-year age group and Autonomous Community of residence (with a separate group for Ceuta and Melilla) firstly require a total for the number of employed, unemployed and inactive people in each elementary group considered and for each of the quarters on the different EAPS series available since the third quarter of 1976 until the fourth quarter of 2015 (except for the groups of Ceuta and Melilla, as differentiated data on these two Autonomous Cites only began to be recorded since the second quarter of 1988). Then, the adjustments made to the previous totals and the reasons behind these are explained.

[^1]
### 3.1 OPERATIONAL DEFINITION OF UNEMPLOYED

Since the first quarter of 2001, the new operational definition of unemployed, according to the rules of Commission Regulation (EC) No 1897/2000 of $7^{\text {th }}$ of September of 2000, began to be applied to the EAPS. This change entailed classifying some of those previously considered as unemployed as inactive. As a result, it was necessary to correct the totals of unemployed and inactive people in the historical series of the elementary groups preceding the aforementioned quarter.

The working paper 03/08 "Revision of the 1976-2000 unemployment series under the EAPS-2000 definition" (INE. J. Trejo - L. Ortega) estimates, using the Probit regression model with a binary response variable, the quarterly series of unemployed people under the new definition, by Autonomous Community, sex and age (whether they are over 25 years old or not), from the third quarter of 1976 to the fourth quarter of 2000.

### 3.2 REFERENCE DATE

Given that the 2016-2029 population projections will be used in the weighting of elementary projected activity rates for the construction of aggregated activity rates, and as these population projections also have a reference date of $1^{\text {st }}$ of January of each year, the quarterly EAPS series have been adjusted to this date through the average of the figures of employed, unemployed and inactive people of the two quarters immediately preceding and the two quarters immediately subsequent to that date in each elementary group.
As well as centring dates on $1^{\text {st }}$ of January of each year and switching to an annual rather than a quarterly series, the seasonal effect of the series is eliminated in order to better analyse the trend of the series in each elementary group.

## 4 Projections of activity rates in the elementary groups

Once we have a series of employed, unemployed and inactive people that is comparable over time and centred on $1^{\text {st }}$ of January of each year, the activity rates that will be used to adjust the possible models with which to prepare the elementary group projections are calculated.

The projections of the elementary groups' activity rates are based on the modelling of their historical data in the EAPS, noting their general trend throughout the series, especially in the latest periods, and the minimum and maximum values reached in each series. In the case of female groups, in order to put a maximum quota on their continuous increase, the behaviour of male rates in the same age group and community must be considered alongside the evolution of the female rate, so it cannot be ruled out a priori that for some of these female groups, the rates might be higher than those of their male counterparts in the future (in fact, female activity rates are already higher than male in one of the elementary groups).

The same models as those used for previous projections have been applied to these projections, as these have been proven to be completely valid, whilst adapted to the
new figures of the EAPS 2011 base and the new estimates of the future population and incorporating, in addition, the real information available on 2011-2015 activity rates.

### 4.1 THE LOGISTICAL TRANSFORMATION OF ACTIVITY RATES

The objective of the logistical transformation of activity rates is that the projections made can later be adjusted between a minimum and maximum asymptotic value. The models will therefore be estimated on the transformed series of activity rates and subsequently the inverse transformation will be carried out to obtain activity rate projections limited to each elementary group established.

The two variables considered for the logistical transformation for the subsequent adjustment of the model and the projections of the activity rates are the following:

## 1. Logical variable:

This logistical transformation variable simply ensures that no absurd results are reached, in the sense that the activity rate projections are always focused between the values of 0 and 1 however abrupt the ascending or descending trends are.

This "logical variable" uses the following formula:

$$
\begin{equation*}
\mathrm{TAT}_{1}=\log [\mathrm{TA} /(1-\mathrm{TA})] ; \tag{1}
\end{equation*}
$$

$\log []$ is the Napierian logarithm of the formula found inside the square brackets and TA is the activity rate of an elementary group, centred on 1 January of a given year.

## 2. Adapted variable:

This logistical transformation variable will take into account the behaviour cycles of its activity rates, limiting the projections in each primary group between their historical minimum and maximum obtained in the EAPS. In addition, in the case of female groups, this transformation will take into account the process of equalising with the activity rates of similar male groups and the activity rates projected for these.

Therefore, the asymptotic maximum level of the projections of male groups will be their maximum in historical EAPS series and for the female groups it will be the higher of the two following values: their maximum value in historical EAPS series and the minimum of the values projected for the group of males in the same five-year age bracket and Autonomous Community of residence. For both men and women, the minimum asymptotic level will be their minimum historical value in the EAPS.

The transformation now uses the following formula:

$$
\begin{equation*}
\mathrm{TAT}_{2}=\log \left[T A^{\prime} /\left(1-\mathrm{T} A^{\prime}\right)\right] ; \tag{2}
\end{equation*}
$$

With $T A^{\prime}=\left(T A-T A_{\text {min }}\right) /\left(T A_{\max }-T A_{\text {min }}\right)$ and where $T A_{\text {min }}$ and $T A_{\max }$ are, respectively, the minimum and maximum levels established for each elementary projection group.

As can be seen, transformation (1) becomes a specific case, less demanding or weaker, than transformation (2) with a minimum value of 0 and a maximum value of 1 .

### 4.2 THE ESTIMATES OF THE MODELS' PARAMETERS

The projection model established for each elementary group on activity rates transformed by the expression (1) or expression (2) has two components: a temporal trend that could be constant, linear or quadratic plus a residual that follows an autoregressive model (AR) with $p$ delays (AR-p).

The procedure followed for the estimate of the parameters first adjusts the transformed series to a constant, linear or quadratic trend using the ordinary least squares (OLS) method. Then, the residuals from the previous regression are automatically adjusted to an auto-regressive model that first considers all the delays with significant parameters to a level of 0.20 and later rejects, one by one, delays with less significant parameters, until only significant auto-regressive parameters remain at a level of 0.05 .

### 4.3 THE SELECTION OF THE TREND MODEL

Once the estimates of the parameters of each model have been carried out as described above, the forecasts for transformed activity rates for each year are calculated, to later carry out an inverse transformation. In this way, forecasts of activity rates according to each model are obtained whose values are necessarily between 0 and 1 in the case of the logical variable (1) and between the higher and lower levels indicated in the case of the adapted variable (2).

Therefore, for each elementary group series and in each of the two logistical transformation variables, adjustments to three trend models have been made: constant, linear or quadratic. Finally, the trend that best fits the historical series in the latest periods is selected, meaning the trend that has the least absolute deviation from the adjusted series compared to the original series.

Table 1 shows the logistical transformation variables and trends finally considered for the Economic Activity Rate Projections 2016-2029, by sex and age of the elementary groups. In general, the adapted, more restrictive variable (2) is preferred over the logical variable (1). However, in the most recent periods, young people aged between 16 and 19 have already surpassed their historic lows and continue their downward trend, which has resulted in the disregarding of the restricted adapted version (2) and the logical variable (1) has been considered. Furthermore, in the group of men aged between 20 and 24 years and women aged 65 years and over, the logical variable (1) has been chosen as, in this way, they adjusted better to their historical series.

With regard to the selected trends, and as can also be seen in table 1, generally the linear or constant trend is chosen, by selecting that with the least prediction error in absolute value in the latest periods. In the case of groups of women aged between 45 and 64 years, the linear or quadratic trend has been chosen to incorporate the increased acceleration in the growth of their activity rates in recent years. In the groups aged 65 years and over, a practically constant trend has been considered in most cases.

Table 1. Transformations and trends finally considered in primary or elementary groups by sex, age and Autonomous Community

| Sex | Five-year age groups | Logistical transformation | Minimal error trends considered |
| :---: | :---: | :---: | :---: |
| Men | 16-19 years old | (1) | Linear or constant |
|  | 20-24 years old | (1) | Constant |
|  | Five-year age groups of 25 years and over | (2) | Linear or constant |
| Women | 16-19 years old | (1) | Linear |
|  | 20-24 years old | (2) | Linear or constant |
|  | 25-44 years old | (2) | Linear |
|  | 45-64 years old | (2) | Linear or quadratic |
|  | Five-year age groups of 65 years and over | (1) | Linear or constant |

Logical (1) or adapted (2) variable of the logistical transformation

## 5 Aggregation of the projected activity rates

For the preparation of projections of total activity rates or activity rates for larger groups than the elementary groups, weighted aggregations on the activity rates projected for the primary groups will be carried out, as mentioned previously.

In effect, given that mathematically the activity rate of aggregate group $h$ at $1^{\text {st }}$ of January of the year $t$, TA $^{t}(h)$, can be expressed as:

$$
\begin{equation*}
\mathrm{TA}^{\mathrm{t}}(\mathrm{~h})=\Sigma_{\mathrm{i}} \mathrm{TA}^{\mathrm{t}}(\mathrm{~h}, \mathrm{i}) * \mathrm{w}^{\mathrm{t}}(\mathrm{~h}, \mathrm{i}) ; \tag{3}
\end{equation*}
$$

with

$$
\begin{equation*}
\mathrm{w}^{\mathrm{t}}(\mathrm{~h}, \mathrm{i})=\mathrm{P}^{\mathrm{t}}(\mathrm{~h}, \mathrm{i}) / \Sigma_{\mathrm{i}} \mathrm{P}^{\mathrm{t}}(\mathrm{~h}, \mathrm{i}) ; \tag{4}
\end{equation*}
$$

where:

TA ${ }^{t}(h, i)$ : The activity rate at $1^{\text {st }}$ of January of the year $t$ for elementary group $(h, i)$ included in the aggregate group $h$.
$\mathrm{P}^{\mathrm{t}}(\mathrm{h}, \mathrm{i})$ : The population residing in family dwellings and the activity rate at $1^{\text {st }}$ of January of the year $t$ for the elementary group $(h, i)$ included in the aggregate group $h$.
$\Sigma_{i} P^{t}(h, i)$ : The sum of the population residing in family dwellings at $1^{\text {st }}$ of January of the year $t$ of aggregate group $h$.

The weighting coefficients of each elementary group, $w^{t}(j, k)$, will, therefore, be the proportion of the total of the elementary group compared to the total of the biggest group
at $1^{\text {st }}$ of January of each year and, as has been said, the projections of the population residing in family dwellings by sex, age and Autonomous Community of residence at $1^{\text {st }}$ of January each year from 2016 to 2029 will be used for its estimation.

As shown in table 2, the final step in the projections of activity rates will be to aggregate the projections of elementary groups (cell 1) into projections for larger groups in its two aspects: to national activity rates by sex and age (cell 2 ) and to the general activity rates by sex in each Autonomous Community (cell 3). Finally, other projections are aggregated to reach the same result: overall activity rates by sex at the national level (cell 4).

Table 2. Outline of aggregation of elementary activity rates

|  | Overall rates | Specific rates by five- <br> year age groups |
| :--- | :---: | :---: |
| Total national rates | (4) (2) |  |
| Rates by Autonomous | (3) |  |

Note: From right to left, as well as from bottom to top implies a higher level of aggregation in the respective activity rates.

## 6 Active population projections

Even though obtaining projections for the number of active persons for the period 20162029 was not the aim of the statistical operation, given its obvious interest, it was considered necessary to include the projections of active persons by age group and sex for the national total, as well as total active persons projected by Autonomous Communities for the period 2016-2029.

The total active population projected in each group will be the result of the product of the activity rate projected for the group multiplied by the total population projected for the same group.

According to the terminology established above, the active population at $1^{\text {st }}$ of January of year $t$ for the elementary group $(h, i), P A^{t}(h, i)$, can be expressed as:

$$
\begin{equation*}
P A^{t}(h, i)=T A^{t}(h, i) * P^{t}(h, i) ; \tag{5}
\end{equation*}
$$

Obviously, the active population of aggregate group h at $1^{\text {st }}$ of January of year $t, \mathrm{PA}^{t}(\mathrm{~h})$, can be expressed as the sum of the active population of elementary groups included in the aggregate, $\mathrm{PA}^{\mathrm{t}}(\mathrm{h}, \mathrm{i})$, such that:

$$
\begin{equation*}
\operatorname{PA}^{t}(h)=\Sigma_{i} P A^{t}(h, i) ; \tag{6}
\end{equation*}
$$

## 7 Adaptation of the projections of activity rates to reality

As with any other projection exercise, it is impossible to forecast the evolution of some cyclical or accidental factors that could alter the activity rates, such as, for example, the proportion of the population who are foreign nationals or the proportion of people who become inactive due to the fact that they are studying, etc. The different variations of these factors with respect to their historical structural behaviour reflected in the EAPS series can disrupt the projections of the activity rates carried out, even projections within the elementary groups considered.

There are also other structural factors related to institutional reforms in the labour market and in the contribution and social benefits system that have an impact on activity rates that are difficult to determine and that could also disrupt the adjustment to reality of the projected activity rates.

Therefore, given the impossibility of objectively determining the future evolution of the factors indicated, these have not been explicitly considered in the models for making activity rate projections. However, these factors are implicitly reflected in the labour trends coming from the historical EAPS series, as well as in the structure of the population residing in family dwellings aged 16 years or over arising from the population projections for the 2016-2029 period.

Accordingly, a binary logit regression method has been used in this edition to evaluate the relevance of explanatory variables of the behaviour of a person aged 16 years or over regarding their labour activity situation. As a result of this study, a quantification of explanatory and statistically significant variables (with a p-value less than 0.001) but that are absent in the projection is obtained, which could be the case with nationality or level of education.

Regarding the level of education, if we adjust the model using this explanatory variable together with age, sex, birth cohort and Autonomous Community, a coefficient "c" is obtained of 0.876 . If we do not include the level of education in the model and we use age, sex, cohort and Autonomous Community of residence as the explanatory variables, the coefficient "c" becomes 0.870 . If we make the adjustment separately for each gender, we obtain a coefficient "c" of 0.908 for men compared to 0.906 if we don't include education. In the case of women, the coefficient "c" goes from 0.803 to 0.819 .

It can be concluded, therefore, that the effect of education is included in the cohort variable.

If we analyse nationality in the same way, coefficient "c" practically does not change whether this is included or not, with it being 0.870 when the explanatory variables of age, sex, cohort and Autonomous Community are considered.

Therefore, the greater influence of nationality on the rise in overall activity rates comes mainly from the fact that the population is younger in general and therefore is more active.

Thus, it seems that not considering the variables with a seemingly great influence on activity in the models does not substantially alter the validity of the projection made.

## Annexes

## 1 Total national results

## A.1. Activity rates at $1^{\text {st }}$ of January. Population aged 16 years and over.

National total


Under the assumptions considered in the preparation of these projections, the overall activity rate of the Spanish population aged 16 years or over and residing in family dwellings decreases from $59.53 \%$ in 2016 to $53.84 \%$ in 2029, with a variation for the total period of -5.69 percentage points. The variation is initially -1.58 points in the 2016-2021 period, with the rate reaching $57.95 \%$ in 2021. It then varies -2.53 points between 2021 and 2026 , taking the value of $55.42 \%$ in 2026. In the last period (2026-2029) it has a variation of - 1.57 points.

The overall activity rate of the Spanish male population aged 16 years or over and residing in family dwellings has a variation of -7.58 percentage points for the 2016-2029 period, decreasing from $64.28 \%$ to $56.70 \%$. Between 2016 and 2021, the variation is -2.80 points, -3.16 between 2021 and 2026 and -1.62 between 2026 and 2029.

For its part, the overall activity rate of the Spanish female population aged 16 years or over and residing in family dwellings varies by -3.87 points for the 2016-2029 period, from $55.03 \%$ to $51.16 \%$. The variation is -0.41 points between 2016 and 2021, -1.93 between 2021 and 2026 and -1.53 between 2026 and 2029.

Therefore, the difference between the activity rates of the male and female population aged 16 years or over reduces during the period analysed, as it goes from 9.26 points in 2016 to 5.54 in 2029.

## A.2. Active population aged 16 years and over. National total

Thousands of people


Under the assumptions considered in the preparation of these projections, the active Spanish population aged 16 years or over and residing in family dwellings reduces from $22,907,115$ persons in 2016 to $21,170,803$ persons in 2029 , with a variation of $-8.0 \%$ for the period. The variation is $-2.3 \%$ between 2016 and 2021, with $22,382.954$ active persons in 2021. Between 2021 and 2026 the variation is $-3.3 \%$, with $21,666,396$ active persons at the end of this period. The variation is $-2.3 \%$ for the last period (2026-2029).

The active male population aged 16 years or over varies by $-11.1 \%$ between 2016 and 2029, going from $12,039,564$ to $10,795,835$ persons. The variation is $-4.5 \%$ between 2016 and 2021, -4.3\% between 2021 and 2026 and $-2.3 \%$ between 2026 and 2029.

On the contrary, the active female population aged 16 years or over has a variation of $-4.7 \%$ in the 2016-2029 period, going from $10,867,550$ to $10,374,967$ persons. The variation is $-0.1 \%$ from 2016 to 2021, -2.3\% between 2021 and 2026 and $-2.3 \%$ between 2026 and 2029.

For every 100 active women aged 16 years or over in 2016, there are 110.8 men, while in 2029 this figure is 104.1. The decrease ( $-6.4 \%$ in total) is mainly concentrated in the 2016-2021 period (-4.4\%).

## 2 Graphs of activity rates by age and sex. National total

 Activity rates at $1^{\text {st }}$ of January. Population aged between 16 and 19 years.

Activity rates at $1^{\text {st }}$ of January. Population aged between 20 and 24 years.


Activity rates at $1^{\text {st }}$ of January. Population aged between 25 and 29 years.


Activity rates at $1^{\text {st }}$ of January. Population aged between 30 and 34 years.


Activity rates at $1^{\text {st }}$ of January. Population aged between 35 and 39 years.


Activity rates at $1^{\text {st }}$ of January. Population aged between 40 and 44 years.


Activity rates at $1^{\text {st }}$ of January. Population aged between 45 and 49 years.


Activity rates at $1^{\text {st }}$ of January. Population aged between 50 and 54 years.


Activity rates at $1^{\text {st }}$ of January. Population aged between 55 and 59 years.


Activity rates at $1^{\text {st }}$ of January. Population aged between 60 and 64 years.


Activity rates at $1^{\text {st }}$ of January. Population aged between 65 and 69 years.


Activity rates at $1^{\text {st }}$ of January. Population aged 70 years and over.


3 Graphs of activity rates by Autonomous Community. Population aged 16 years and over

## Activity rates at $\mathbf{1}^{\text {st }}$ of January. Andalucía



Activity rates at $\mathbf{1}^{\text {st }}$ of January. Aragón


Activity rates at $1^{\text {st }}$ of January. Asturias (Principado de)


## Activity rates at $1^{\text {st }}$ of January. Balears (Illes)



## Activity rates at $\mathbf{1}^{\text {st }}$ of January. Canarias



## Activity rates at $\mathbf{1}^{\text {st }}$ of January. Cantabria



## Activity rates at $\mathbf{1}^{\text {st }}$ of January. Castilla y León



## Activity rates at $1^{\text {st }}$ of January. Castilla-La Mancha



## Activity rates at $1^{\text {st }}$ of January. Cataluña



## Activity rates at $1^{\text {st }}$ of January. Comunitat Valenciana



## Activity rates at $\mathbf{1}^{\text {st }}$ of January. Extremadura



## Activity rates at $\mathbf{1}^{\text {st }}$ of January. Galicia



Activity rates at $1^{\text {st }}$ of January. Madrid (Comunidad de)


Activity rates at $1^{\text {st }}$ of January. Murcia (Región de)


## Activity rates at $1^{\text {st }}$ of January. Navarra (Comunidad Foral de)



Activity rates at $1^{\text {st }}$ of January. País Vasco


## Activity rates at $\mathbf{1}^{\text {st }}$ of January. Rioja (La)



Activity rates at $1^{\text {st }}$ of January. Ceuta and Melilla



[^0]:    ${ }^{1}$ Active people are defined as those aged 16 years or over that contribute to the production of economic goods and services or who are without work, but available and making efforts to join said production.

[^1]:    ${ }^{2}$ It should be borne in mind that the legal minimum age in Spain for the start of work activity is 16 years old, while the European Union considers the age of 15 years as the lower limit for the calculation of activity rates of its member states

