- Full view -

EARNINGS_SES10EQ_A_CY_2018_0000

National Reference Metadata in ESS Standard for Quality Reports Structure (ESQRS)

Compiling agency: Statistical Service of Cyprus (CYSTAT)

Time Dimension: 2018-A0

Data Provider: CY1

Data Flow: EARNINGS_SES10EQ_A

Eurostat metadata

Reference metadata

1. Contact
2. Statistical presentation
3. Statistical processing
4. Quality management
5. Relevance
6. Accuracy and reliability
7. Timeliness and punctuality
8. Coherence and comparability
9. Accessibility and clarity
10. Cost and Burden
11. Confidentiality
12. Comment
Related Metadata
Annexes (including footnotes)

For any question on data and metadata, please contact: EUROPEAN STATISTICAL DATA SUPPORT

1. Contact   Top

1.1. Contact organisation	Statistical Service of Cyprus (CYSTAT)
1.2. Contact organisation unit	Methodology, Statistical Dissemination, Prices, Labour Market and Information Society
1.3. Contact name	Marilena Loukaidou
1.4. Contact person function	Statistics Officer A'
1.5. Contact mail address	Statistical Service of Cyprus CY-1444 Nicosia Cyprus
1.6. Contact email address	mloukaidou@cystat.mof.gov.cy
1.7. Contact phone number	+357 22602244
1.8. Contact fax number	+357 22601313

2. Statistical presentation   Top

2.1. Data description

The Structure of Earnings Survey (SES) for the reference year 2018 is the fifth of a series of four-yearly earnings surveys conducted under the Council Regulation 530/1999 and the Commission Regulation 1916/2000 as amended by Commission Regulation 1738/2005.

The objective of the survey is to provide accurate and harmonised data on earnings in EU Member States and Candidate Countries, for policy-making and research purposes. The 2018 SES gives detailed and comparable information on relationships between the level of remuneration, individual characteristics of employees (sex, age, occupation, length of service, highest educational level attained, etc.) and their employer (economic activity and geographic location of the local unit ; size of the enterprise). The SES collects the earnings actually received by an employee of a business in the reference month and year. The information collected relates to the earnings paid to each "job holder". It does not cover earnings by the same employee elsewhere in a second or third job.

2.2. Classification system

The SES results are produced in accordance with the relevant international classification systems. The main classifications used were:

(a) Economic activity (industry): Industrial classification of economic activities within the European Communities (NACE Rev. 2) - Resutls disseminated at the 2 digit level.

(b) Occupation: International Standard Classification of Occupations (ISCO-08) - Results disseminated at the 2 digit level.

(c) Educational Level: International Standard Classification of Education (ISCED 2011) - Results disseminated in groupings as specified by EUROSTAT (basic education, secondary education, tertiary education of up to 4 years length and tertiary of more than 4 years length).

(d) Region: Nomenclature of territorial units for statistics (NUTS) - Results disseminated at level 1 (Cyprus is a whole region at this level).

For further details regarding the above mentioned classifications, please refer to the URLs attached.

Annexes:
NACE Rev.2 Classification system (economic activities)
ISCO-08 Classification system (occupations)
ISCED 2011 Classification system (education)
NUTS (Nomenclature of Territorial Units for Statistics)

2.3. Coverage - sector

According to the relevant European legislation, the statistics of the 2018 SES refer to enterprises with at least 10 employees in the areas of economic activity defined by sections B to S excluding O of NACE Rev.2. The inclusion of section O, as well as information on enterprises with fewer than 10 employees were optional in the 2018 SES.

In Cyprus, the SES 2018 covered enterprises in all economic activities, excluding Agriculture, Fishing, Activities of Private Households and Extra-territorial Organisations (Sections B-S of the Nace Rev.2 classification system - including O). All enterprises covered had one or more employees.

2.4. Statistical concepts and definitions

There is no divergence between the national and European concepts and definitions.

However, it should be noted that concerning the employee categories included in the survey, due to confidentiality reasons, the military personnel of the army of Cyprus was not included in the results of the survey.

The statistical concepts and definitions are provided in the relevant European legislation and in EUROSTAT's implementation arrangements for the SES 2018 (see attached files).

The definitions of the main variables of the SES 2018 are given below:

Economic Activity: The main economic activity of the enterprise. The classification of the economic activities was based on the NACE Rev. 2 Classification of Economic Activities System, of the European Union.

Form of Financial Control of the Enterprise: Distinction between "Public Control" and "Private Control" of the enterprise. The first category refers to cases where public ownership is more than 50% and the second category to cases where private ownership is more than 50%.

Full-time Employees: Employees whose normal working hours are the same as the collectively agreed or customary hours worked in the enterprise, even if their contract is for less than one year.

Part-time Employees: Employees who work fewer hours than the normal working hours of full-time employees.

Age: The difference between the reference year (2018) and the year of birth.

Length of Service in the Enterprise: The number of completed years of service in the enterprise. The total length of service relates to the period since the employee joined the enterprise. Career breaks of more than 1 year of

continuous duration (if they occurred), were subtracted from the total length of service. Where enterprises had been merged or there had been changes of ownership through the years, the length of service was recorded as counted by the enterprise.

Occupation: The occupation of the employee during the reference month of October 2018. The classification of the occupations was based on the International Standard Classification of Occupations ISCO-08 of the International Labour Office (ILO). Trainees or apprentices with an employment contract, were classified in the occupation for which they carried out their apprenticeship or training period. Foremen were also classified in the occupation in which they supervised.

Highest Completed Level of Education: The level of general, professional or higher education which the employee has received and has successfully completed. Classification for this variable was based on the International Standard Classification of Education, 2011 (ISCED 2011).

Hourly Earnings: The average gross earnings per hour, paid to the employee (full-timer or part-timer) during the reference month of October 2018. This is derived from total gross earnings for the reference month divided by the number of hours paid during the same period.

Total Monthly Earnings: This variable covers gross remuneration paid in cash to employees during the reference month of October 2018, before any tax deductions and social security contributions. In cases where the employees were paid a reduced salary due to absence, the amount was adjusted accordingly in order to represent a full month of regular work of the employee. In the broad public sector, earnings reductions have been deducted from monthly earnings.

Total monthly earnings include all payments relating to the month of October 2018 (even if paid outside the representative month), payments for overtime, shift work premium, allowances for team work, night work, weekend work, commissions, payments for periods of absence and work stoppage paid for entirely by the employer, family allowances and other gratuities in cash fixed by collective agreements or voluntarily agreed, payments to employees' savings schemes and in general, bonuses and allowances paid regularly in each pay period even if the amount varies monthly.

Total monthly earnings exclude payments made during the reference month of October 2018, but relating to other periods, payments for periods of absence paid by the employer at a reduced rate, payments in kind, reimbursements or payments for travel, subsistence, etc., expenses incurred in carrying out the employers business, allowances for work clothes or tools, statutory family allowances and in general, periodic bonuses and gratuities not paid regularly at each pay date.

Monthly Overtime Earnings: The amount of overtime earnings paid to full-time employees for overtime hours which occurred during the reference month of October 2018. The full rate is counted, not just the premium element added to the normal hourly rate.

Monthly Payments for Shift Work: This relates to the special premium payments for shift work, night work or weekend work, made for the month of October 2018, where these were not treated as overtime. The amount included is the premium element or supplementary payment, not the total payment for such shift work.

Total Annual Earnings: This variable covers gross remuneration in cash and in kind paid to employees during the reference year of 2018, before any tax deductions and social security contributions. In cases where the employees were not paid for a full year due to absence, the amount was adjusted accordingly in order to represent a full year of regular work of the employee. In the broad public sector, earnings reductions have been deducted from annual earnings.

Total annual earnings include all payments relating to the reference year 2018. This covers all regular payments that are paid in every pay period, payments for overtime, shift work premium, allowances for team work, night work, weekend work, commissions, bonuses and allowances paid regularly in each pay period even if the amount varies monthly, payments for periods of absence and work stoppage paid for entirely by the employer, family allowances and other gratuities in cash fixed by collective agreements or voluntarily agreed, payments to employees' savings scheme.

Furthermore, total annual earnings also include irregular bonuses and allowances that are not paid in each pay period (13th salary, 14th salary, end year bonuses, productivity bonuses, holiday bonuses, retirement bonuses, etc.) as well as payments in kind during the reference year, where the value of all goods and services made available to employees through the enterprise is taken into account (company products, company cars and mobile phones, etc.).

Annual Irregular Bonuses: This variable covers bonuses that do not occur each pay period, such as 13th or 14th month salary, holiday bonuses, quarterly or annual company bonuses, productivity bonuses depending on pre-set targets, employee recognition awards, recruitment incentives, leaving or retirement bonuses, etc.

Annual Overtime Earnings: The amount of overtime earnings paid to full-time employees for overtime hours which occurred during the reference year of 2018. The full rate is counted, not just the premium element added to the

normal hourly rate.

Annexes:
[COMMISSION REGULATION (EC) No 1916_2000](#)
[COMMISSION REGULATION (EC) No 1738_2005](#)
[Implementing arrangements for SES 2018](#)

2.5. Statistical unit
The statistical unit for the survey was the employee. Information was also collected for the enterprise (economic activity, size group, etc.) but the results of the survey are disseminated for employees.

2.6. Statistical population
The SES 2018 covered enterprises in all economic activities, excluding Agriculture, Fishing, Activities of Private Households and Extra-territorial Organisations. All enterprises covered had one or more employees. Data were collected data both for the reference year 2018 and the reference month of October 2018. The population of employees targeted for the SES were those employed, which had an employment contract in the observation unit in the reference month. Employees who did not receive remunaration during the reference month (October 2018), should not be included in the sample. **The specific definition of the population of employees according to the implementation arrangements for the SES 2018 is as follows:** Employees are all persons, irrespective of their nationality or the length of their working time in the country, who have a direct employment contract with the enterprise or local unit (whether the agreement is formal or informal) and receive remuneration, irrespective of the type of work performed, the number of hours worked (full-time or part-time) and the duration of the contract (fixed or indefinite). The remuneration of employees can take the form of wages and salaries including bonuses pay for piecework and shift work, allowances (e.g. for leaves not taken), fees, tips and gratuities, commission and remuneration in kind. The employees to be included in the 2018 SES sample are those who actually received remuneration during the reference month. Employees who did not receive remuneration in the reference month should be excluded.

2.7. Reference area
Data refer to the government controlled areas of Cyprus. The whole of Cyprus is considered as one single region at the NUTS 1 level.

2.8. Coverage - Time
Data for the Structure of Earnings Survey are available on EUROSTAT's website for the years 2002, 2006, 2010, 2014 and 2018. 2002 was the first time the SES was conducted. **Annexes:** [SES Data on EUROSTAT's website](#)

2.9. Base period
Not applicable.

3. Statistical processing   [Top](#)

3.1. Source data
A sample survey was conducted in order to collect the requested data on earnings, the Structure of Earnings Survey 2018. The data were collected mainly by means of computer assisted personal interviews (CAPI). Administrative sources were also used for the collection of data: 1. Treasury of the Republic: Payroll information for salary earners on wages, overtime earnings, fixed allowances and information on unpaid absence or maternity leave, in electronic form. Data regarding the hours of such

employees were calculated based on the normal and overtime rates applicable in the public sector (these were also provided by the Treasury of the Republic).

2. Treasury of the Republic: Payroll information for wage earners in electronic form.

3. Public Service Committee: Information on the education level of permanent salary earners, excluding the education sector.

4. Education Service Committee: Information on the education level, date of entry in employment, holiday leave entitlement for permanent salary earners in the education sector.

5. Cyprus Police: Payroll information and information on hours of work, holiday leave entitlement, occupation, for policemen and firemen.

6. Social Insurance Archive: Information regarding the gender, date of birth, nationality, total monthly earnings of employees in the public and private sector. This source could not be used to cover all the variables of the survey regarding earnings, because there is no breakdown available to normal salary, fixed allowances, overtime payments and shift work payments. Therefore, the relevant information had to be collected directly from the enterprises/organisations in the sample. The database was used for checking purposes or for the calculation of total earnings for the year (or monthly) in cases where the relevant information was not available from the enterprises (e.g. employees who left the company, temporary employees for which no records were kept, etc.)

3.2. Frequency of data collection

The Structure of Earnings Survey is conducted every 4 years (reference years 2002, 2006, 2010, 2014, 2018 etc.). It collects monthly (October) and annual data for the reference year.

3.3. Data collection

The Structure of Earnings Survey was conducted by means of computer assisted personal interviews (CAPI). The enumerators (trained both in the concepts/definitions of the survey and the use of the data entry software) held netbooks with the pre-installed data entry programme and visited the enterprises after making relevant appointments (via phone) to collect the data. Informative letters and questionnaires were sent out to all selected enterprises for information and preparation before the beginning of the data collection. The data entry programme was designed using the BLAISE statistical software. The enterprises were also given the choice to send the data requested electronically to CYSTAT via email using an excel template prepared for this purpose. The enumerators were instructed to provide all the necessary explanations before the electronic data were sent in.

3.4. Data validation

Prior to the transmission of the microdata to EUROSTAT and the publication of the main results on CYSTAT's website, the data were validated using custom-made programs developed with the BLAISE software. Data were checked for valid numbers and values and consistency between variables and between employees of the same enterprise.

3.5. Data compilation

1.Weighting of the data:

The data collected were weighted in order to produce the grossed up results for enterprises and for employees.

Design weights were obtained by taking the inverse of selection probabilities of enterprises and employees.

The weight of the enterprise was based on the economic activity (Nace Rev.2 at the 2 digit level) and the size-group of the enterprise (Number of employees: 1-9, 10-49, 50-249, 250-499, 500-999, 1000+).

The weight of each employee was: (weight of employee within the enterprise) x (weight of the enterprise), where the weight of the employee within the enterprise is equal to: (number of employees in enterprise) /(number of employees in sample).

The weights for employees were then calibrated based on the Social Insurance Register for October 2018, based on the monthly earnings and the number of employees.

2. Imputation of data:

For 232 cases of missing values, the highest level of education variable was imputed, using Logistic Ordinal Regression and taking into account variables considered relevant, such as full-time/part-time employment, gender, supervisory position, employment contract, age, lenght of service, occupation (ISCO-08), public/private control.

3. EUROSTAT - Conversion of data for part-time employees to full-time units.
PT employees: conversion to full-time units.
Variable 2.7 (Contractual working time (full-time or part-time)) provides a simple head count of PT employees.

Variable 2.7.1 (Share of a full-timer's normal hours) was used to convert PT employees into full-time units (FTUs).

PT employees: adjusting gross monthly and annual earnings (variables 4.2 and 4.1) on to a full-time basis.

The actual monthly and annual earnings of PT employees provided by the countries are of interest and are disseminated on EUROSTAT's website. Additionally, because the actual earnings take no account of the hours worked by part-timers, Eurostat used the percentages for part-timers (given by variable 2.7.1) to gross up the gross monthly earnings (variable 4.2) and gross annual earnings (variable 4.1) of PT employees on to a full-time basis. This allows an approximate comparison with

corresponding earnings of FT employees. This grossing up procedure for PT employees was not undertaken for other monthly or annual variables.

3.6. Adjustment

Adjustment of Gross annual earnings and bonuses (variables 4.1 and 4.1.1):

Annual earnings data were converted to represent earnings for a full year of work, using the variable which specified the number of weeks the employee was paid for during the year.

Results on EUROSTAT's website: This was done for full-time employees who had worked for less than 52,14 weeks during 2014. However, variables 4.1 and 4.1.1 were not used in EUROSTAT's tables if variable 3.1 (Number of weeks to which the gross annual earnings relate) was less than 30 weeks.

If $30 <= $ var.3.1 < 53 weeks, then the above variables were adjusted on to an annual basis (to represent a full year of work).

For example, for variable 4.1:

Adjusted var.4.1 = unadjusted var.4.1 $*$ (52.143 / var.3.1)

Likewise, for variable 4.1.1.

Results on CYSTAT's website: Data on CYSTAT's website were adjusted in the same way, for full-time employees only, with no limitation on the number of weeks worked and paid. No annual data were released for part-time employees via CYSTAT's website.

4. Quality management

4.1. Quality assurance

The quality of statistics in CYSTAT is managed in the framework of the European Statistics Code of Practice which sets the standards for developing, producing and disseminating European Statistics as well as the ESS Quality Assurance Framework (QAF). CYSTAT endorses the Quality Declaration of the European Statistical System.

In addition, CYSTAT is guided by the requirements provided for in Article 12 of the Statistics Law No. 15(I) of 2000 as well as Article 12 of Regulation (EC) No 223/2009 on European statistics, which sets out the quality criteria to be applied in the development, production and dissemination of European statistics. The Commitment of Confidence in Statistics, adopted by the Council of Ministers in 2018, also enhances further the framework for high-quality statistics.

Annexes:
European Statistics Code of Practice
ESS Quality Assurance Framework (QAF)
Quality Declaration of the European Statistical System
Statistics Law No. 15(I) of 2000
Regulation (EC) No 223/2009 on European statistics (consolidated text)
Commitment on Confidence in Statistics (in greek)

4.2. Quality management - assessment

The output quality in the ESS is assessed in terms of the following 5 quality criteria: relevance, accuracy & reliability, timeliness & punctuality, coherence & comparability and accessibility & clarity. The quality indicators are assessed taking into account EUROSTAT's defined methodology and recommendations. Taking into account the above criteria, the overall quality of the statistics produced is very high. For further details and information please refer to the relevant sections of this quality report.

5. Relevance

5.1. Relevance - User Needs

The main users of the Structure of Earnings data (besides EUROSTAT) include Government ministries/departments responsible for policy making (such as the Ministry of Finance and the Ministry of Labour, Welfare and Social Insurance), academics/researchers/students, media/press, international organisations (such as the ILO, UNECE) and trade unions. Data requested usually refer to the average monthly earnings levels (quite often by occupational category), to data regarding the gender pay gap and comparison of earnings between the public and the private sector.

5.2. Relevance - User Satisfaction

Since 2008 (with the exception of 2010 and 2013) CYSTAT carries out an annual online "Users Satisfaction Survey". The results of the surveys are available on CYSTAT's website at the link attached below.

The User Satisfaction Survey for 2019, show that 83,8% of users are satisfied with the overall quality of the statistics disseminated by CYSTAT and 71,4% are satisfied by the timeliness of the statistics (survey of 2019).

No data are available specifically for the Structure of Earnings Survey or its relevant subtheme.

Annexes:
RESULTS OF THE USER SATISFACTION SURVEY 2019
Results of CYSTAT's User Satisfaction Surveys

5.3. Completeness

Data for all the mandatory variables were collected for the SES 2018. Therefore, all statistics that are needed are available and comply fully with the relevant regulations and guidelines. They are published both at national and at EUROSTAT level.

5.3.1. Data completeness - rate

100%. All data requested by legislation were transmitted to EUROSTAT. No missing values.

6. Accuracy and reliability

6.1. Accuracy - overall

As the results of the SES are based on a sample of the population, they are subject to the usual types of errors associated with sampling techniques and interviews (CAPI). Information on errors is provided through the quality reports. The sample in the Cyprus SES is stratified based on the economic activity of enterprises (at the NACE Rev.2 2 digit level) and the size group of the enterprise (number of employees: 1-9, 10-49, 50-249, 250-499, 500-999, 1000+). The overall accuracy and reliability of the SES data is high. This is assured by the sampling design and methods of data collection.

6.2. Sampling error

Probability Sampling
Coefficients of variation (C.V.) were calculated for the grossed-up results of the SES 2018, for the variables:
Gross earnings in the reference month
C.V. = **0,9%** for **NACE Sections B-S** *including* O and enterprises with **1 or more employee** (all NACE sections in scope and all enterprise size groups).

Average gross hourly earnings in the reference month
C.V. = **0.9%** for **NACE Sections B-S** *including* O and enterprises with **1 or more employee** (all NACE sections in scope and all enterprise size groups).

For more detailed breakdowns on the coefficients of variation, please refer to the attached file ("Coefficients of Variation").

Non-probability sampling
The SES 2018 was based on probability sampling. Thus, no lack of precision due to non-probability sampling occurred in this survey.

Annexes:
Coefficients of Variation

6.2.1. Sampling error - indicators

Probability Sampling

The attached document **Coefficients of variation** presents the coefficients of variation (C.V.), for the grossed-up results of the SES 2018, for the variables:

- Gross earnings in the reference month
- Average gross hourly earnings in the reference month

The above are broken down by:

1. *Full-time (separately for men and women) and part-time employees,*
2. *NACE section,*
3. *Occupation (ISCO-08 at the 1-digit level),*
4. *Age band (under 20, 20 – 29, 30 – 39, 40 - 49, 50 – 59, 60 and over),*
5. *Size band of the enterprise (1 – 9, 10 – 49, 50 – 249, 250 – 499, 500 – 999, 1000+)*

Please note that no breakdown by *NUTS level 1* is provided, since at this level, the whole of Cyprus is considered to be a single region. The estimator used for the coefficients of variation is the *sum of gross earnings in the reference month and the average of gross hourly earnings in the reference month.*

Overall, the coefficients of variation produced for the above breakdowns lie within an acceptable range. Larger coefficients of variation are observed in groups with a smaller number of observations in the sample. For example NACE Section B is quite small and thus the C.V. is inevitably higher than other NACE sections which are larger. The same holds for NACE sections E, L which are also quite small in terms of employment, but also in section R where the enterprises included are not "homogeneous", since in this section football teams that may pay very well are in the same group as various artistic activities which do not pay so well in Cyprus.

The C.V.s for the total of the economy are quite low, at 0,9% for the whole sample.

Annexes:
Coefficients of Variation

6.3. Non-sampling error

Non-sampling errors encountered can be classified into:
-Coverage errors
-Measurement and processing errors
-Non-response errors
-Model assumption errors

6.3.1. Coverage error

Coverage errors
Coverage errors observed in the survey refer to misclassifications, under-coverage and over-coverage errors. The SES 2018 covered enterprises with at least 1 employee, in the areas of economic activity defined by sections B – S of the Nace Rev.2 classification system. The **initial sample of the survey was 1.584 units (including the government sector).**

Misclassifications
Misclassification refers to incorrect classification of units that belong to the target population. All misclassification errors identified in the SES 2018, were corrected in order to obtain a more realistic representation of the labour market in the sampling frame and the sample. Where appropriate, the weights of the affected enterprises were adjusted.

Misclassification with respect to the economic activity:
During the data collection process, misclassifications were identified in the economic activities of enterprises in the sample. In order to correct the misclassification errors with respect to the economic
activity, all the enterprises where the economic activity reported was not consistent with that of the sampling frame

were identified. Then, they were reclassified into the correct NACE groups, adjusting the weights of the enterprises accordingly. The table attached shows misclassifications in the economic activity of enterprises at the NACE 2 digit level.

Misclassifications in Economic Activities (2-digit level): 32 out of 1.584 = **2,02% of initial sample.**

Misclassification with respect to the size-groups:

In the SES 2018, certain misclassifications in the size groups of the enterprises were identified and corrected. In order to correct the misclassification errors, all of the enterprises where the total employment was not consistent with the size group in the sampling frame were identified. Then, they were reclassified into the correct size groups, adjusting the weights of the enterprises accordingly.

Misclassifications in Size-Groups: 5 out of 1.584 = **0,32% of initial sample.**

Under-coverage errors

Under-coverage errors refer to errors either due to units not included in the frame (real birth or demergers) or to wrongly classified units that were excluded from the frame, when they should have been included. No such errors were specifically identified when conducting the SES 2018 (mainly because of preliminary work performed when constructing the frame, using auxiliary sources (Social Insurance Register) in order to include any "new enterprises" in the frame before sample selection).

Over-coverage errors

Over-coverage errors observed in the SES 2018, derived from the following:

- Dead or inactive units (eg. temporarily closed)
- Misclassified units that are in fact out of scope

Dead or inactive units.

During data collection, 72 units were identified as dead or inactive units (4,55% of initial sample). These units had to be removed from the sample, and the weights of units that remained in the sample were adjusted accordingly.

Misclassified units in fact out of scope

7 units in the sample were identified as in fact out of scope (0,44% of initial sample). This referred mainly to very small enterprises, where no fixed hours were agreed upon for employees, or the NACE was in fact out of scope (e.g. Nace Section T), or no fixed remuneration was agreed upon. These units were removed from the sample and the weights of the remaining units were adjusted accordingly.

6.3.1.1. Over-coverage - rate

Over-coverage errors

Over-coverage errors observed in the SES 2018, derived from the following:

- Dead or inactive units (eg. temporarily closed)
- Misclassified units that are in fact out of scope

Dead or inactive units.

During data collection, 72 units were identified as dead or inactive units (4,55% of initial sample). These units had to be removed from the sample, and the weights of units that remained in the sample were adjusted accordingly.

Misclassified units in fact out of scope

7 units in the sample were identified as in fact out of scope (0,44% of initial sample). This referred mainly to very small enterprises, where no fixed hours were agreed upon for employees, or the NACE was in fact out of scope (e.g. Nace Section T), or no fixed remuneration was agreed upon. These units were removed from the sample and the weights of the remaining units were adjusted accordingly.

Over-coverage errors: 79 out of 1.584 = **4,99% of initial sample.**

6.3.1.2. Common units - proportion

All units covered by the survey were also covered by administrative sources (Social Insurance Archive for private sector, semi-government sector and local authorities and the Treasury of the Republic Archive for the Public Sector). However, not all variables requested in the survey were available from administrative sources. The most important variables for which no information was available from administrative sources were the education level, the

occupation, hours of work, full-time/part/time status, type of employment contract (except for public employees), supervisory position (except for public employees), annual days of holiday leave, etc.

6.3.2. Measurement error

Survey Instrument Errors

The SES 2018 was the fifth survey of the series conducted in Cyprus. Therefore, the questionnaire designed, was actually an improvement of the previous questionnaires, accommodating all suggestions for improvement in the layout received from the feedback of the previous surveys.

The questionnaire contained all the compulsory variables defined in the regulation for the SES 2018 and a number of optional variables. In order to prevent any misunderstandings concering the data requested, explanatory notes were prepared for the enumerators and the supervisors of the survey, providing detailed explanations on all the variables, as well as guidance on what to include and what to exclude from each variable.

Mode of Data Collection Errors

Data for the SES 2018 were collected by means of computer assisted personal interviews (CAPI). The enumerators/interviewers were trained specifically for the Structure of Earnings Survey (both the concepts/definitions of the survey and the use of the data entry programme for the data collection). As instructed, they got in touch with the enterprises in the sample, in order to arrange appointments and pay them a visit (or more if needed) to collect the data.

In most cases an employee of the enterprise would co-operate with the interviewer from the Statistical Service and provide the necessary information. In such cases, the errors were kept to a minimum, since the interviewers were familiar with both the questionnaire and the information needed for the survey.

In other cases the enterprise would provide the interviewer with administrative sources (accounts, payrolls, etc.) and ask them to locate and record the information needed without any further help. In these cases, since the questionnaires were completed by the interviewers the errors were minimised. However, some mistakes occurred in cases where the information provided by the enterprises was not fully understood by the interviewers. This was dealt with by the supervisors of the interviewers.

In even fewer cases, the interviewers made the necessary explanations to the contact person from the enterprise and then, the enterprise would take the responsibility of filling out the questionnaires. In such cases the control over the data was even smaller, and the probability of errors in the data was larger. Such cases were reviewed by supervisors and the managers of the survey.

In order to minimise the occurrence of errors, there were built-in controls in the data entry programme (which was designed using the BLAISE software) so that errors during data entry would be avoided (values out of range, uncompleted fields, etc). Additionally, the completed questionnaires were checked for any inconsistencies by supervisors and if needed, the enterprises were contacted again in order to clarify or correct the information given. At a later stage a full set of validation and consistency checks was ran on the data for more thorough checking.

Respondent Errors

Respondent errors are most common in surveys where questionnaires are filled out by the respondents. Since in the SES 2018 the method used was that of personal interviews, such errors were minimised. Nevertheless, in the few cases where the respondents filled out the questionnaires, the interviewers and the supervisors were extra careful in order to identify and correct any misleading data or mistakes.

In addition to the above, consistency checks were designed in order to identify any inconsistencies in the data, which might have resulted from the provision of wrong information by the enterprises.

Information System Errors

These errors occur when the information system of the enterprise is unable to provide the data required for a specific survey. The information system of most enterprises in the sample could not provide accurate information on the following variables:

1. Highest completed level of education
2. Number of weeks to which the gross annual earnings relate
3. Annual payments in kind (optional variable which must be included in the gross annual earnings in the reference year)

The main source of these problems was that some enterprises did not keep proper records of their employees, especially with regard to their education level and annual payments in kind. This problem was more common in economic activities such as the construction or industry sector, and mainly in small enterprises (under 10 employees).

It was also quite problematic to obtain the information in large enterprises such as hotels where the records for the employees were stored in the central offices and (not at the actual sampled enterprise/local unit). This required a significant amount of additional efforts and time by our employees.

Another problem that was quite common was that if the employees had left the enterprise by the time the data were collected, some enterprises usually did not keep their records.

Such problems were dealt with, in the following ways:

- In the cases where the data were not available at the local unit, but it was possible to locate the information needed from other administrative sources, then the interviewers would collect the data available from the local units, and then complete the missing data from the administrative sources.
- In cases where the employees selected in the sample had left the enterprise by the time the data were collected, they were replaced by other employees. It was therefore possible to obtain information from the records of the newly-selected employees.
- Concerning information not readily available from the information system of enterprises, such as the "Number of weeks to which the gross annual earnings relate" and the "Annual payments in kind", a secondary document was prepared requesting auxiliary information (maternity leave taken, sick leave not paid, etc.) in order to estimate the main variables.
- In the cases where it was impossible to obtain data on the above mentioned variables, the enterprises were asked to provide representative estimates.

Interviewer Errors

Interviewers were hired and trained to collect data specifically for the Structure of Earnings Survey. Any questions arising during data collection were answered by supervisors and the managers of the survey.

6.3.3. Non response error
Unit response rate - enterprises=91,16%
Unit response rate - employees=97,47%
Unit non-response rate - enterprises=8,84%
Unit non-response rate - employees=2,53%

6.3.3.1. Unit non-response - rate

Unit response rate

The number of enterprises/establishments initially selected in the sample covering NACE sections B-S and enterprises with 1 or more employees was 1.584 (with 30.390 employees in the sample). Out of the 1.584 units, 79 were out of scope (missclassified or dead or inactive). Thus, **the eligible number of units for SES 2018 was 1.505 units/30.129 employees** (in-scope respondents). **Data were fully collected for 1.372 units/29.367 employees**.

Thus, if *unit response* rate is defined as *the percentage of the number of responses to the total number of in-scope respondents*, then:

Unit Response Rate for the SES 2018:
1.372 units out of the 1.505 in the sample = 91,16% for enterprises
29.367 employees out of the 30.129 of the in-scope sample = 97,47%

Alternatively, the unit non-response rate is <u>8,84% for enterprises</u> and <u>2,53% for employees.</u>

6.3.3.2. Item non-response - rate
-

6.3.4. Processing error

Data entry

Processing errors due to data entry were limited, and were mainly identified through validation and consistency rules applied during and after the stage of data entry, using specialised software.

Coding

The coding of the questionnaires was performed by employees who were specifically trained for this purpose. Special dictionaries were embedded in the application used for coding, which helped to minimise any judgment errors. Additionally the final validation and consistency checks applied to the data file also helped to reduce even more any kind of coding errors.

Editing

Editing of the data was either done during the data entry (first checks of the questionnaire) or after the first run of the validation and consistency rules. In each case, the edited data were checked/ rechecked by the first/second run of the validation and consistency checks.

6.3.4.1. Imputation - rate

Item imputation rate

For the respondents of the Structure of Earnings Survey 2018 (1.372 enterprises/29.367 employees), data for all the compulsory variables were collected as well as the optional variables that were included in the questionnaire. In some cases where it was difficult for the enterprises to locate the information requested (for optional or secondary variables), realistic estimates were provided, or the data were collected using administrative sources. The only difficulties were observed regarding the level of education variable, were some companies had trouble providing the education level for certain groups of employees (e.g. casual employees were no such record was kept). For all missing values of the education variable, the data were imputed, using Logistic Ordinal Regression. The analysis took into account the characteristics of employees deemed significant in relevance to this variable (occupation, hourly earnings, type of employment contract, supervisory position).

Overall, for the variable of education level, 232 values were imputed out of the total 29.367. That is, 0,79% of total values were imputed for this variable.

No other variables were imputed.

6.3.5. Model assumption error

Modelling was used for imputation of the education variable. This variable did not affect the main variable of "Gross Earnings in the reference month" or any other earning variable. For all missing values of the education variable, the data were imputed using Logistic Ordinal Regression. The analysis took into account the characteristics of employees which were statistically significant in relevance to this variable (occupation, hourly earnings, type of employment contract, supervisory position).

Grossing-up factors were adjusted in order to correct for unit non-response. The level of unit non-response was quite low, (enterprises=8,84%/employees=2,53%). Therefore, it could be safely assumed that the adjustment in the grossing-up factors did not significantly affect the estimates of the survey variables.

6.4. Seasonal adjustment

Not relevant.

6.5. Data revision - policy

A data revision policy is in place at CYSTAT. It is published on CYSTAT's website, at the following link:
http://www.mof.gov.cy/mof/cystat/statistics.nsf/dissemination_en/dissemination_en?OpenDocument

CYSTAT also publishes a list of scheduled revisions (regular or major revisions), also published on its website, at the following link:
http://www.mof.gov.cy/mof/cystat/statistics.nsf/releasecalendar_en/releasecalendar_en?OpenDocument

6.6. Data revision - practice

Data are revised if there are are siginificant methodological changes affecting the data, or errors that affect the output data are identified (e.g. error when calculating a specific variable by adding its separate components, etc). If such a revision takes place, then the data are appropriately flagged and the reasons for the provision are stated. The data provided to EUROSTAT are considered final.

6.6.1. Data revision - average size

Not applicable.

7. Timeliness and punctuality Top

7.1. Timeliness

Timeliness and punctuality refer mainly to pre-established and actual reference periods of data and publication dates.

Dissemination of results on Eurostat's website:

According to the relevant legislation, SES data are to be sent to Eurostat, at the latest, 18 months after the end of the reference period (end of June 2020).

The final results for Cyprus on Eurostat's website are available as from November 2020.

Dissemination of results at national level

The Structure of Earnings Survey 2018 in Cyprus covered sectors B – S of the NACE Rev. 2 classification system (including sector O), and enterprises/establishments with 1 or more employees.

Detailed results of the survey were published on CYSTAT's website on the 30th of December 2020.

7.1.1. Time lag - first result

SES data are transmitted as final data (even though ad-hoc revisions of the data may occur sometimes). There is no planned transmission/publication of preliminary data before the final transmission/publication.

Therefore,

According to the relevant regulation, the deadline for transmission for SES microdata is 18 months after the end of the reference period (end of year 2018).

The results of the survey were published on CYSTAT's website on the 30th of December 2020. And were available on CYSTAT's website as from November 2020.

7.1.2. Time lag - final result

SES data are transmitted as final data (even though ad-hoc revisions of the data may occur sometimes). There is no planned transmission/publication of preliminary data before the final transmission/publication.

Therefore,

According to the relevant regulation, the deadline for transmission for SES microdata is 18 months after the end of the reference period (end of year 2018).

The results of the survey were published on CYSTAT's website on the 30th of December 2020. And were available on CYSTAT's website as from November 2020.

7.2. Punctuality

The microdata for the SES2018 were sent to EUROSTAT with a delay of 1 month, on the 30th of July, 2020. The pandemic of COVID-19 and the lockdown occurring in Cyprus, was the main reason for this delay.

7.2.1. Punctuality - delivery and publication

According to Council Regulation No. 530/1999 and Commission Regulation No. 1738/2005, the deadline for delivery of the microdata is 18 months after the end of the reference year, i.e. by the end of June, 2020 in this case. The data were actually sent to EUROSTAT on the 30th of July, 2020. Thus, there was a 1-month delay between the target date for transmission and the actual transimssion of the data. The pandemic of COVID-19 and the lockdown occurring in Cyprus, was the main reason for this delay.

Concerning the target date for the publication of the results of the survey on CYSTAT's website, the target date was set (through the announcements calendar of the website) for the 30th of December, 2020 and it was met. Therefore no time lag occurred on the publication of the data with relation to the advertised date on CYSTAT's release calendar.

8. Coherence and comparability

8.1. Comparability - geographical

The statistical units, economic activities to be covered and the definitions of the variables for the Structure of Earnings Survey 2018 (SES 2018) were based on Council Regulation No. 530/1999 and Commission Regulation No. 1738/2005. There were no significant differences between national and European concepts. More specificaly, the main concepts covered in the survey were as follows:

 Economic Activities covered: NACE Rev. 2 B - S (Even though the regulation states that NACE O is not compulsory, CYSTAT also collected data for this economic sector as well.)

Statistical Units: Data were mostly collected for *enterprises* since the NUTS 1 level refers to the whole of Cyprus (government departments were classified under their corresponding activities). The population of employees targeted for SES 2018, were those who actually received remuneration during the reference month (October 2018) as defined in the Regulation. The fact that data are collected mostly at enterprise level and not at local unit level (as defined in the relevant Regulation), does not have any effect on the estimates of the survey, since Cyprus is 1 whole region at

NUTS 1 level and this would make no difference in the results. Additionally, in Cyprus, the majority of enterprises (>90%) are actually single local units, with employment of less than 10 employees and with no further establishments in other geographical areas.

Categories of workers included in the survey:

- Employees having a direct employment contract with the enterprise and which received remuneration, irrespective of the type of work performed, the number of hours worked (*full-time or part-time*) and the duration of the contract (*fixed or indefinite*).
- Apprentices and trainees with an employment contract with the reporting unit.
- Seasonal and occasional workers who were working pre-defined hours on a contractual basis.
- Interim or temporary workers employed by/through agencies – providing that the reporting unit <u>was</u> the agency actually employing them.
- Outworkers, but only if they were remunerated on the basis of the amount of hours worked.
- Employees on maternity leave as long as they received remuneration from the employer.

Size Groups of the enterprises: Size groups were defined according to the regulation, including the size of 1–9 employees. The relevant Regulation states that size 1-9 employees is not compulsory, but CYSTAT decided to collect data on this size group as well since the vast majority of enterprises in Cyprus falls into this category (more than 90%).

8.1.1. Asymmetry for mirror flow statistics - coefficient

Not Applicable

8.2. Comparability - over time

The definitions of variables for SES 2018 were according to the requirements of the Regulation. The coverage of the survey for 2018 was the same as that of year 2014. There was no change in the classification systems used between 2018 and 2014 data.

A change in the classification system for highest completed level of education (from ISCED-97 to ISCED 2011) occurred between the 2010 and 2014 surveys, creating some problems in the comparability between the 2 surveys. However, if the appropriate education groupings are used, comparability over time is still achieved.

As from the reference year of 2010, the classification systems for occupations and economic activities changed for all EU member states (from NACE Rev.1.1 to NACE Rev.2 and from ISCO-88 Com to ISCO-08). This means that comparability with the previous surveys of 2002 and 2006 is not ensured when comparing data using any of these two variables.

In comparison with the survey of 2002, the coverage was *extended*. More specifically, the 2006, 2010, 2014 and 2018 surveys cover all NACE sections requested by the Regulation (compulsory and non-compulsory), including Public Administration and enterprises of all sizes, including 1 or more employees. The survey of 2002, covered enterprises with 2 or more employees and did not cover the non-compulsory sections of NACE.

8.2.1. Length of comparable time series

Data exist for the SES 2002, 2006, 2010, 2014 and 2018 surveys.
Comparability is ensured between 2010, 2014 and 2018 surveys on all variables (with specific groupings regarding the education variable).
Comparibility over time with the previous surveys of 2002 and 2006 is ensured when not using the economic activity (NACE) and occupational group (ISCO) breakdowns (again using specific groupings for the education variable).

8.3. Coherence - cross domain

Not Applicable.

8.4. Coherence - sub annual and annual statistics

Not Applicable.

8.5. Coherence - National Accounts

Coherence refers to comparability of data from different domains and sources. The aim is to inform the users of data about the conceptual differences that exist between several sources of variables that are very similar and to provide

information on how to move from one concept to the other. Another objective is to check that statistics, which are in principle coherent conceptually, give comparable results for the same year and reference population.

Coherence with the "Wages and Salaries", per employee, of the NA:
In the case of the Structure of Earnings Survey 2018, statistics sent to Eurostat should be compared with the variable "Wages and Salaries", per employee, of the National Accounts (NA).

1. Differences between the SES and the NA:
Before comparing the earnings variables between the two sources and drawing any conclusions, one should take into account the following:

- The source for the Gross Annual Earnings from the SES2018, is the survey, which is enterprise based. The Wages and Salaries variable from the NA, is obtained using a number of different sources, i.e. a number of surveys and administrative sources.
- In some of the groupings constructed, there is only a small number of persons, especially for part-timers. Thus, the distribution of employees among the various groups might also involve wide margins of statistical errors.
- The classification of economic activities in the SES 2018, was decided at the enterprise level (except for the government where it was based on the activities of the different ministries and departments), while the NA classify economic activities based on the kind of activity unit (KAU) method.
- The "Wages and Salaries" variable from the NA refers to the total wages and salaries of employees for the year. In order to convert it to wages and salaries per employee to compare with the variable from the SES 2018, the figures provided by the NA were divided by the corresponding employment, which was obtained from a different source. This, of course, may create wider margins for errors when comparing the two sources.
- Constricts are not included in SES data, while they are included in NA data.
- The army of Cyprus (military personnel - salary earners) is not included in the SES data.

The table attached presents the Gross Annual Earnings per employee from the SES 2018 and the Wages and Salaries per employee from the NA, for the year 2018. Please note that annual earnings from the SES have been converted to full-year equivalent earnings.

2. Conclusions on coherence:
Overall, for NACE sections B – S of the economy, the difference in the annual earnings per employee between the two sources is about 5%. Therefore, taking into account all factors stated in section 1 above concerning the differences between the two sources, one might safely conclude that the data from the two sources are coherent.
Looking at the NACE breakdowns, there are some cases where considerable differences are observed. These differences can be explained by the different method of classifying the economic activities. As mentioned in section 1 above, the NA use the economic activity of each unit, while the SES 2018 uses the economic activity of the whole enterprise (except for government departments where the NACE is attributed according to the activity). Additionally, large discrepancies are more likely to occur to smaller sectors of the economy, such as Nace Sections B, E and L.

Annexes:
Coherence of SES 2018 with NA

8.6. Coherence - internal
Not Applicable.

9. Accessibility and clarity　　　　　　　　　　　　　　　　　　　　　　Top

9.1. Dissemination format - News release
The SES2018 results were released on CYSTAT's website on the 30th of December 2020. The relevant press release/announcement, can be found at the attached URL.

Annexes:
SES results on CYSTAT's website

9.2. Dissemination format - Publications

CYSTAT released the main results of the survey online, on its website, in the form of tables (excel files) and a press release. The results were released on the 30th of December, 2020. The tables and press release are available in Greek and English.

The relevant link is attached below.

Eurostat also released some relevant online publications regarding the SES at a european level.

You can reach the publications on the following links:

- News Item on low-wage earners
- News Item on median hourly earnings
- Statistics Explained article 'Earnings statistics'
- Statistics Explained article 'Wages and labour costs'

Annexes:
Link to the tables and press release published on CYSTAT's website
News Item on low-wage earners
News Item on median hourly earnings
Statistics Explained article 'Earnings statistics'
Statistics Explained article 'Wages and labour costs'

9.3. Dissemination format - online database

The current website of CYSTAT does not feature an online database.

However, SES data are published on Eurostat's online database for all members of the European Statistical System, available at the link attached below.

The data can be accessed in subsection 'Structure of Earnings Survey 2018 (earn_ses2018)'under Section 'Labour market (labour)'.

Annexes:
Eurostat's online database

9.3.1. Data tables - consultations

Not Applicable.

9.4. Dissemination format - microdata access

Statistical micro-data from CYSTAT's surveys (including SES) are accessible for research purposes only and under strict provisions as described below:

Under the provisions of the Statistics Law, CYSTAT may release microdata for the sole use of scientific research. Applicants have to submit the request form "APPLICATION FOR DATA FOR RESEARCH PURPOSES" giving thorough information on the project for which micro-data are needed.

The application is evaluated by CYSTAT's Confidentiality Committee and if the application is approved, a charge is fixed according to the volume and time consumed for preparation of the data. Micro-data may then be released after an anonymisation process which ensures no direct identification of the statistical units but, at the same time, ensures usability of the data. The link for the application is attached below.

Annexes:
Link to the application for access to microdata on CYSTAT's website

9.5. Dissemination format - other

No other dissemination format.

9.6. Documentation on methodology

The attached document provides information on the methodology relating to the Structure of Earnings Survey 2018 (SES 2018).

Additional information (on concepts and definitions of the survey) is provided at the second attached document, published with the excel tables on CYSTAT's website.

The implementing arrangements for SES provide a very good overview of the overall methodology followed when conducting SES (also attached).

Annexes:
APPENDIX FOR METHODOLOGICAL INFORMATION
SES 2018 - Methodology - Definitions
SES 2018 - Implementing Arrangements

9.7. Quality management - documentation

9.7.1. Metadata completeness - rate

Not available.

9.7.2. Metadata - consultations

Not Applicable.

10. Cost and Burden   Top

Cost for conducting SES:

It is estimated that the resources required for conducting the whole cycle of SES 2018 (design through completion) amounted to:

- 95 months or around 7,9 man-years for enumerators and supervisors (data collection, editing and coding of data)

- 28,5 months or around 2,4 man-years for tasks performed by scientific personnel (design, sampling, CAPI software programme, managing of the survey, validation, processing and analysis of data etc.).

11. Confidentiality   Top

11.1. Confidentiality - policy

Official statistics are released in accordance to all confidentiality provisions of the following:

- National Statistics Law No. 15(I) of 2000 (especially Article 13 on statistical confidentiality).
- Regulation (EC) No 223/2009 of the European Parliament and of the Council of 11 March 2009 on European statistics and its later amendments (especially Chapter 5 on statistical confidentiality).
- European Statistics Code of Practice (especially Principle 5 on statistical confidentiality).
- CYSTAT's Code of Practice for the Collection, Publication and Storage of Statistical Data.

Annexes:
Statistics Law No. 15(I) of 2000
Regulation (EC) No 223/2009 on European statistics (consolidated text)
European Statistics Code of Practice
Code of Practice for the Collection, Publication and Storage of Statistical Data (CYSTAT)

11.2. Confidentiality - data treatment

The treatment of confidential data is regulated by CYSTAT's Code of Practice for the Collection, Publication and Storage of Statistical Data.

Annexes:
[Code of Practice for the Collection, Publication and Storage of Statistical Data (CYSTAT)](#)

12. Comment

[Top](#)

Not Applicable.

Related metadata

[Top](#)

Annexes

[Top](#)

[Implementing arrangements for SES 2018](#)