

UNEMPLOYMENT AND DRUG TREATMENT*

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Data description

Data on labor market conditions (AMECO)

The main data source of AMECO is Eurostat (the Statistical Office of the European Commission), complemented, where necessary, by other appropriate national and international sources (National Statistical Institutes or international organizations)¹. Variables in use are defined as follows.

Labor force (economically active population) is the number of people employed and unemployed. Persons in **employment** are those who during the reference week did any work for pay, or were not working but had jobs from which they were temporarily absent. Family workers are included. The dataset includes two types of employment, domestic and national. The one chosen for the analysis is domestic, i.e. covers all residents as well as non-residents who work for resident producer units.

Unemployed persons are those aged at least 15 years, who are without work during the reference week, available to start work within the next two weeks (i.e. were available for paid employment or self-employment) and are actively seeking work (i.e. have actively sought employment at some time during the previous four weeks) or have already found a job to start later, i.e. within a period of at most three months.

Unemployment rate is defined by the Eurostat as percentage of unemployed persons in civilian labour force for Member States. **NAWRU** is the unemployment rate consistent with constant wage inflation; it indicates structural imbalances in labor markets.

AMECO data on structural unemployment is absent for Croatia, hence this country is not included in models where country wide (structural and/or cyclical) unemployment is used as an independent variable.

Economically inactive persons are those who are out of work, are either not seeking work or are unavailable to start work. Inactive people can potentially move into the labor market, that's why the size and composition of this fraction of population are indicators of the potential labor

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¹from AMECO explanatory note

http://ec.europa.eu/economy_finance/indicators/annual_macro_economic_database/ameco_explanatory_note.pdf

supply.

Data on drug treatment demand (EMCDDA)

The nature of the drug treatment data was described in the text. Here we provide some descriptive statistics of these data.

Variable	Mean	Std. Dev.	Min.	Max.	N
employed	30.856	13.363	6.3	66.8	85
students	17.22	12.037	2.3	47.8	85
inactive	6.862	9.504	0	42.5	85
unemployed	36.727	11.993	2.3	73.400	85
other	8.335	6.992	0	26.185	85
total with known status	4093.148	8042.213	0	34851	88
status unknown	773.534	4815.591	0	44821	88

Table 1: SUMMARY STATISTICS, EMCDDA.

These data on the total number of new outpatient clients with known labor status per country, 2002-2007, requires a few additional observations:

- (1) In 6 countries data is missing about the labor status of new outpatient clients in treatment: Estonia, Lithuania, Norway, Poland, Turkey, UK;
- (2) In 2002, data on labor status is available only for all clients in treatment (i.e., the number of cases treated instead of the number of persons);
- (3) In 2007, Austria both unemployed and students have been classified as unemployed;
- (4) In 2007, Cyprus the category "Other" includes occasional employment;
- (5) In 2007, in Latvia there were cases where the distinction between inactive and unemployed was not fully made;
- (6) In 2007, in Hungary data refer both to outpatient and inpatient treatment centres;
- (7) In 2006, Malta data refer to outpatient, inpatient treatment centres, low-threshold agencies, units in prison and dual-diagnosis unit of psychiatric hospital;

Besides, AMECO data on unemployment is absent for Croatia, hence this country is not included in models where country wide (structural and/or cyclical) unemployment is used as an independent variable.

Data on drug treatment supply (EMCDDA)

Data on drug treatment units used to model the supply of drug treatment is obtained from the EMCDDA Statistical Bulletin 2009, more specifically, from the Table TDI-2 "Clients entering treatment and reporting treatment units, 1997 to 2007", Part (iii) "Reporting treatment units by country and year of treatment". There are some limitations related to the differences in data collection and reporting methods by each Member State. Although treatment supply information is available in almost all Member States, differences in coverage affect data comparability. Some countries lack information on treatment units and it is not always possible to know how extensive the treatment monitoring system is, to meet all treatment entries. Furthermore, the definitions used are not always 100% compatible with the EMCDDA TDI protocol. The number

of missing cases for each data item is another limitation. Most countries have different kinds of treatment facilities and, moreover, the differences in the availability and use of drug treatment services could bias the results. The network of drug treatment centers has changed in the last decade; for example, methadone programs have expanded. These changes in treatment services could have influenced treatment figures over time. Here are some country-specific details about the data on treatment units.

(1) Belgium: 1997 and 2000 data were available but they were not included due to a lack of comparability; 2005 data do not cover Brussels Capital Region.

(2) Czech Republic: the number of units covered only include outpatient, inpatient, and low-threshold units. The number of units in prison is not available, though the number of clients in prison is reported for the years 1994 to 2004

(3) Germany: the coverage may vary according to specific variables. The number of units covered refers to all units, regardless of the specific variable. The largest coverage is reached for data on age and gender (797 units for male clients and 754 units for female clients). Units in the country only refer to outpatient and inpatient treatment centers.

(4) Ireland: the data for 2001–05 exclude clients treated at general practices as the data collection had not been completed at the time of data submission.

(5) Hungary: the source of the data has changed in 2007 : from Hungarian National Focal Point – National statistical program (1997-2006) to Hungarian National Focal Point – TDI data collection (2007). The change limits the comparability of the 2007 data to previous data.

(6) Austria: the number of treatment units refers only to units with at least one first treatment in the reporting year. GPs are included until 2005. From 2006 onwards, the number of outpatient and inpatient treatment units which delivered data to the national TDI-system DOKLI are listed and GPs are excluded.

(7) Poland: the system provided by Institute of Psychiatry and Neurology covers all psychiatric facilities including wards in hospitals, psychiatric hospitals and inpatient rehabilitation treatment facilities. In the majority of these facilities only few or no drug users were treated. Main data comes from the rehabilitation centers specialized in drug treatment, which are in Poland nearly 90.

(8) Slovenia: data for 2004 includes data for outpatient clients and clients treated in prison. Data for outpatient clients was validated, however data collection for prison clients was still in the process of development, thus figures are underestimated.

(9) Sweden: number of units covered for new clients. The number of units covered for all and new clients may differ: units reported for all clients were 43 in 2000, 156 in 2001, 139 in 2002, 164 in 2003, 191 in 2004. The system is under development and every year new units are added to the information system.

It can be argued, that exclusion of supply variable would produce an omitted variable bias for the effect of labor market conditions on the treatment demand. There are two cases, when omitted variable does not causes biased estimates: 1) omitted variable enters the estimation equation with a zero coefficient; 2) omitted variable is uncorrelated with other exogenous variables. If one of these conditions holds, then excluded variable (supply of treatment) does not impact estimated influence of other exogenous variable (unemployment). First condition does not hold since supply of treatment is expected to be positively correlated with the demand for treatment. Second condition holds for the European data: supply of treatment as proxied by the number of treatment units per 100 persons of working age has a low and statistically insignificant correlation with different types of unemployment. Thus, we can assume that exclusion of supply variable from

the equation does not lead to the biased estimate of unemployment coefficient due to the omitted variable bias when testing on the European data.

Indeed, if we compare estimation results from pairs of regressions with and without supply variable we can see that inclusion of supply of treatment does not change estimated coefficients at unemployment significantly. This can be explained by the fact that treatment of drug addicts is typically financed through a mix of public and private initiatives (state and local budgets, voluntary and privately owned organizations) and thus response of treatment supply to changing conditions of labor market is complex and ambiguous (see Postma, 2004 for detailed overview of public and private expenditure on drug addiction treatment in Europe).

When tested on the German data, the second condition does not hold and supply of treatment units is correlated with unemployment, which means that we need to include a supply of treatment into the equation in order to get an unbiased estimate of unemployment effect for Germany.

In order to take into account that the variable, which measures supply of drug treatment, might be endogenous we have used the instrumental variable (IV) approach. Following existing literature (Dranove and Wehner, 1994, Carlsen and Grytten, 1998) we chose the log of country-wide population as one of the instruments. This is based on the assumption that number of inhabitants in a country does not influence the share of drug addicts, who demand treatment, directly but only through the amount of treatment centers in a country. Another instrument included into regression equations is the total expenditure on health care as percentage of GDP (data obtained from the health statistics collected by the World Health Organization Regional Office for Europe). It would be preferred to use the expenditure on drug treatment as a share of total health expenditure in a country instead of the total health expenditure, but these data are not available.

The German data

The data on drug treatment for Germany were obtained from the Institut für Therapieforschung website (IFT) and provide detailed information on the labor status of persons in treatment, who are grouped by the type of drug addiction.

According to their labor status, persons in treatment were cluster into 3 aggregate groups: employed, unemployed and inactive. Due to the changes in the set of labor status categories (in 2000 and in 2007) it was difficult to achieve the consistent grouping for the whole period. Trying to combine the AMECO and the EMCDDA approaches and following the International Labor Organization (ILO) classification, we defined persons in **employment** as those who did any work for pay or for profit (employed and self-employed) and family workers (like in AMECO data), and those occupied in the subsidized job for rehabilitation (like in the EMCDDA data).

Unemployed persons are those who were explicitly defined as such and those under the category “other unemployed”. The latter case comprises two types of unemployed persons, “arbeitslose” (those, who work up to 15 hours per week and receive unemployment benefits) and “erwerbslose” (persons who work 1 hour or less per week, are willing to work more and are not necessarily listed in the governmental database for unemployed persons and the job agencies)². The group “**inactive**” consists of housekeepers and persons in retirement. Total demand for

²Data on “arbeitslose” comes from the government database for unemployed, while the number of “erwerbslose” is obtained from regularly happening telephone questionnaires.

treatment was calculated in two alternative ways: summing up all employed, unemployed and inactive patients (as defined above) and taking the totals from the IFT dataset. In the latter case we additionally take into account students, persons in professional education, and persons with unknown labor status.