Figuring Figures: Exploring Europeans' Awareness of Official Economic Statistics

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Abstract
Economic issues have been a major concern for Europeans in the last few years. In this context, it is reasonable to think that people would be aware of the main economic figures. But, do they really know them? Do they know the national rate of unemployment? Or whether prices have increased or decreased compared to last year's?
Research in the United States shows that public awareness of official economic statistics tends to be low and varies among socio-economic groups. Within the European framework, Eurostat considers statistical information to be essential for decisions and evaluation at European level, and a down-to-earth way of measuring how people live. This paper focuses on this second perspective, with the aim of exploring to what extent Europeans are aware of some of the most important economic indicators.
Attention is focused on three key indicators: Gross Domestic Product, unemployment and inflation. Using data from a recent Eurobarometer, we are able to explore these issues across the 28 member states of the European Union. Several regression models are specified and estimated in order to identify the relationship between individuals' economic awareness and their socio-economic characteristics. We also explore whether individuals' beliefs about the importance of economic issues influence their awareness of official economic statistics.

Keywords: official statistics, economic indicators, statistical literacy.

1. Introduction

In June 2010, the United Nations General Assembly agreed to designate 20 October 2010 as the first World Statistics Day (United Nations General Assembly, 2010). Such designation aimed to acknowledge the importance of official statistics as an indispensable element for both individual and collective informed decision-making (OECD, 2005; United Nations General Assembly, 2010). As Eurostat (2016) indicates reliable and objective statistics are the basis for democratic societies to function properly: Not only are statistics a key input for policy-makers

at all levels (European, national, local) but also they serve the public by providing an accurate picture of the current economy and society they live in (Eurostat, 2016). Despite their fundamental importance, there is a major concern about public awareness of official statistics. Research in the U.S. has shown that public awareness of economic statistics is not high (Blendon et al.,1997; Blinder and Krueger, 2004; Curtin, 2007, 2009): Though 58% of U.S. adults report knowing the latest rate of unemployment, less than a quarter indicate that they know the latest figures of Gross Domestic Product (GDP) growth or inflation (Curtin, 2009). In Europe, the empirical evidence is not much and the term 'awareness' usually refers to the knowledge of the national statistical offices and their functions rather than public's actual knowledge of official figures (Natcen, 2015; Northern Ireland Statistics and Research Agency, 2015).

Within this context, this paper focuses on investigating European's awareness of official economic statistics. In particular, attention is paid to public's actual knowledge of the figures of Gross Domestic Product (GDP), unemployment and inflation. Moreover, we will investigate to what extent statistical awareness varies among socio-economic groups.

2. Background

The role of economic information in markets and in economic agents' decisions has been a major issue in the economic literature. Neoclassical economists considered that individuals were not only rational but also had perfect information. Later theories and models criticized severely these assumptions and led to the introduction of incomplete and asymmetric information in economic models (Giovannini and Uysal, 2006). In this context, the demand for economic information can be viewed as the result of a process in which an individual evaluates the expected benefits and costs involved in acquiring this information. The expected benefits are based on the likelihood that this information will help him to improve his decision-making and they are likely to be larger for those individuals who are more economically active (Curtin, 2009). Meanwhile, the expected costs prevent people from looking for information or from updating it. Though the dissemination of official statistics through the Internet has considerably decreased the costs of accessing this type of economic

information, there are still substantial costs for those individuals who either do not know how and where to obtain this information or do not have the skills to process and understand it. Moreover, the relevant information for individuals' decisions varies both across people and time depending on their personal circumstances (Curtin, 2007, 2009). An individual might find more meaningful the figures of unemployment in his region and sector of activity than the national unemployment rate. In addition, the general situation of the economy also matters in what regards individuals' demand for information: Individuals appear to be interested in quickly updating information when economic conditions are bad and even more, when the volume of bad news is large (Curtin, 2007).

Empirical research has shown that in general population lack knowledge of the key economic figures, i.e. the growth rate, the inflation rate or the unemployment rate (Blendon et al., 1997; Blinder and Krueger, 2004; Curtin, 2007, 2009). Among the reasons for such lack of knowledge, it has been argued that people do not have the appropriate skills to understand this information and the technical jargon that usually accompanies it, that they do not perceive them as important for their everyday lives and that many people do even distrust official statistics (Blendon et al., 1997; Curtin, 2009). Furthermore, public awareness of official economic statistics shows great variation among socio-economic groups. Blinder and Krueger (2004) find that individuals' economic knowledge is significantly correlated with their income and education levels. In the same sense, Curtin (2007, 2009) identifies that the largest errors when reporting the figures of GDP, unemployment and inflation are made by the lowest income groups, the youngest, the least educated and women. Moreover, he detects that public awareness of economic figures in the U.S. did not rise after 2008's economic crisis (Curtin, 2009). A similar result is observed by Giovannini and Malgarini (2012) in Italy, where the knowledge of economic statistics even worsened in 2009 compared to 2007.

3. Data description

Data come from the Eurobarometer 83.3 carried out on the behalf of the European Commission (2015a) in May 2015. It covers the population of individuals aged 15 years old and more living in one of the 28 Member States of the European Union. A multi-stage,

stratified random sample design was applied in each country in order to guarantee that the sample drawn was representative of its population. A total of 27,758 interviews were successfully conducted. Out of them, 27,745 individuals provided information on their knowledge of official statistics and in particular, of the rates of GDP growth, inflation and unemployment in their respective countries in the year 2014 (**Table 1**).

Table 1. Europeans' knowledge of economic indicators. Estimated and official rates and 'don't know' answers (in percentages)

	Growth rate			Inflation rate			Unemployment rate		
	Average estimated rate	Official rate	Don't know	Average estimated rate	Official rate	Don't know	Average estimated rate	Official rate	Don't know
European Union	3.7	1.4	31	4.9	0.6	31	15.9	10.2	20
Austria	2.3	0.3	12	4	1.5	9	12.7	5.6	6
Belgium	2.9	1	46	4.1	0.5	44	16.9	8.5	29
Bulgaria	3.2	1.7	55	7.9	-1.6	52	19.1	11.4	41
Cyprus	2.8	-2.3	50	8.5	-0.3	52	22	16.1	25
Czech Republic	4.7	2	24	7.4	0.4	22	14	6.1	11
Germany	3.8	1.6	30	3.6	0.8	27	10.3	5	18
Denmark	4	1.1	27	4.6	0.3	24	12.5	6.6	13
Estonia	3.7	2.1	15	7.7	0.5	19	14.5	7.4	14
Greece	1.6	0.8	37	7.1	-1.4	39	26.5	26.5	11
Spain	2.1	1.4	40	3.9	-0.2	42	21.9	24.5	24
Finland	1.3	-0.1	24	6.1	1.2	24	14.7	8.7	12
France	3.9	0.4	37	3.9	0.6	37	15.1	10.3	20
Croatia	2.3	-0.4	29	7.3	0.2	30	20.2	17.3	23
Hungary	5.2	3.6	28	7.3	0	22	18.2	7.7	15
Ireland	5.6	4.8	23	6.3	0.3	23	14.4	11.3	18
Italy	3.7	-0.4	30	6.3	0.2	30	20.5	12.7	20
Lithuania	4.8	2.9	40	6	0.2	43	16.7	10.7	27
Luxembourg	3.3	3.1	42	3.3	0.7	41	9.2	5.9	21
Latvia	5.1	2.4	52	6	0.7	48	16	10.8	36
Malta	4.3	3.5	37	4.9	0.8	39	7.6	5.9	35
Netherlands	1.8	0.9	10	2.9	0.3	13	13.9	7.4	9
Poland	5.2	3.4	13	6.5	0.1	11	16.3	9	8
Portugal	5	0.9	56	7	-0.2	56	17	14.1	37
Romania	6.6	2.8	67	6.7	1.4	67	17.2	6.8	58
Sweden	3.4	2.1	12	2.5	0.2	12	11.7	7.9	3
Slovenia	2.6	2.6	32	3.2	0.4	35	16	9.7	22
Slovakia	4.4	2.4	44	4.7	-0.1	40	15.5	13.2	18
United Kingdom	3.9	2.8	24	4.6	1.5	23	14.7	6.1	23

Source: European Commission (2015b).

According to the available information, the percentage of don't know' answers for the European Union is 31% for GDP and inflation rates and lowers to 20% for unemployment. Despite significant differences between countries, unemployment figures seem to be better known that those referred to GDP and inflation, confirming the social impact of unemployment during the last years. In fact, in most of the countries (with the only exceptions of Spain and Greece) people tend to overestimate the magnitude of the unemployment rate.

4. Empirical approach and results

In order to get unveil the relationship between individuals' economic awareness and their socio-economic characteristics, several regression models have been specified and estimated. In the first place, we run a trivariate probit regression on the likelihood of an individual answering the questions on the growth, inflation and employment rates. We have chosen this approach rather than estimating three independent equations since there might be some relationship between those who attempt to figure out the official rates of three indicators.

In the second place, for those who have attempted to provide a figure, we have considered the magnitude of the errors made in absolute value. Such magnitude is calculated as the difference between the estimated rate by each individual and the official rate as reported in columns (3), (6) and (9) of Table 1. We have also chosen to run a joint regression on the magnitudes (in absolute value) of the three errors in order to detect any potential relationship. As explanatory variables, we have considered individuals socio-economic features, whether he consider his country's economic situation as an important issue and whether he uses the Internet.

Tables 2 and 3 show the results from the estimations. Women are found to be significantly less likely than men to answer when they are demanded to report the latest figures of GDP, inflation or unemployment. Those individuals who are unemployed or inactive are also less likely to answer compared to those working. In contrast, the likelihood of reporting a figure increases with the level of education and social class. Meanwhile, age and the area where an individual lives show no statistically significant association with the probability of answering.

Table 2. Estimates from a trivariate probit regression on the likelihood of answering the questions on the growth, inflation and employment rates. Estimated coefficients and standard errors

Variables	Growth	Inflation	Unemployment
Important issue= Country's economic situation	0.023	0.017	0.048*
	(0.029)	(0.030)	(0.025)
Woman	-0.302***	-0.297***	-0.263***
	(0.024)	(0.025)	(0.027)
Age	0.000	-0.000	-0.001
	(0.001)	(0.001)	(0.001)
Education=16-19	0.129***	0.130***	0.181***
	(0.028)	(0.027)	(0.032)
Education=20+	0.326***	0.304***	0.347***
	(0.040)	(0.041)	(0.045)
Education=Still studying	0.155*	0.121*	0.191***
	(0.081)	(0.072)	(0.072)
Education=Don't know/don't answer	-0.097	-0.150*	-0.211***
	(0.078)	(0.085)	(0.066)
Area=Small/middle town	0.014	-0.014	0.024
	(0.051)	(0.051)	(0.044)
Area=Large town	0.051	-0.017	-0.007
	(0.051)	(0.056)	(0.044)
Work=Unemployed	-0.121***	-0.157***	-0.086**
	(0.038)	(0.042)	(0.041)
Work=Inactive	-0.122***	-0.098***	-0.131***
	(0.027)	(0.024)	(0.026)
Class= Lower middle class	0.185***	0.159***	0.154***
	(0.042)	(0.043)	(0.039)
Class=Middle class	0.199***	0.174***	0.165***
	(0.038)	(0.036)	(0.030)
Class=Upper middle class	0.399***	0.363***	0.298***
	(0.055)	(0.058)	(0.058)
Class=Higher class	0.405***	0.519***	0.333**
	(0.137)	(0.144)	(0.155)
Class=Other	-0.223***	-0.250***	-0.334***
	(0.065)	(0.066)	(0.077)
Constant	0.247***	0.317***	0.789***
	(0.067)	(0.076)	(0.063)

Note: The three dependent variables in this trivariate probit regression are dummies which take vale 1 when the individual provides a figure for the rates of growth, inflation and unemployment, respectively. Reference categories are the following: men, with education up to 15 years old, living in rural areas or villages, employed and who consider they belong to the working class of society. The variable 'important issue' is a dummy variable where 1 indicates that the individual has noted his country's economic situation as an important issue. Country dummies are included in the estimate but we do not report results here due to space constraints. Standard errors are in brackets. As usual ***, ** and * indicate statistically significant at the 1, 5 and 10 percent levels, respectively.

Table 3. Estimates from a joint regression on the errors made when reporting the figures on the rates of growth, inflation and unemployment. Estimated coefficients and standard errors

Variables	Growth	Inflation	Unemployment
Important issue= Country's economic situation	-0.221***	-0.164	-0.021
	(0.069)	(0.109)	(0.136)
Internet	-0.460***	-0.912***	-0.837***
	(0.062)	(0.098)	(0.122)
Woman	0.584***	0.872***	1.321***
	(0.046)	(0.073)	(0.090)
Age	-0.021***	-0.046***	-0.058***
	(0.002)	(0.003)	(0.004)
Education=16-19	-0.262***	-0.383***	-0.797***
	(0.080)	(0.126)	(0.157)
Education=20+	-0.748***	-1.057***	-1.400***
	(0.086)	(0.137)	(0.170)
Education=Still studying	-0.171	-0.720***	-1.669***
	(0.150)	(0.238)	(0.296)
Education=Don't know/don't answer	-0.406**	-0.422	-0.825**
	(0.176)	(0.279)	(0.347)
Area=Small/middle town	-0.066	-0.184**	-0.270**
	(0.056)	(0.089)	(0.111)
Area=Large town	-0.220***	-0.381***	-0.395***
	(0.062)	(0.098)	(0.122)
Work=Unemployed	0.173*	0.336**	0.618***
	(0.089)	(0.142)	(0.176)
Work=Inactive	0.006	0.262**	0.375***
	(0.068)	(0.108)	(0.134)
Class= Lower middle class	-0.376***	-0.662***	-1.307***
	(0.073)	(0.116)	(0.144)
Class=Middle class	-0.193***	-0.662***	-1.022***
	(0.062)	(0.098)	(0.122)
Class=Upper middle class	-0.422***	-1.006***	-1.603***
	(0.100)	(0.158)	(0.197)
Class=Higher class	-0.101	-0.477	-0.816*
	(0.245)	(0.387)	(0.482)
Class=Other	-0.252*	-0.894***	-1.044***
	(0.149)	(0.235)	(0.293)
Constant	5.864***	7.798***	10.483***
	(0.192)	(0.303)	(0.378)

Note: See notes under Table 2. In this case, the dependent variables are the magnitude (in absolute value) of the errors made when reporting a figure for the rates of GDP growth, inflation and unemployment, respectively. Such magnitude is calculated as the difference between the estimated rate by each individual and the official rate as reported in columns (3), (6) and (9) of Table 1. The variable 'Internet' issue is a dummy variable where 1 indicates that the individual uses the Internet.

A very similar pattern of variation across socio-economic groups is observed in what regards the errors made when reporting the figures of GDP, inflation and unemployment. Hence, the largest errors are associated with women, the lowest educated, the lowest social classes, and those who do not work or are out of the labor market. Age and area also make a difference regarding errors. In fact, the largest errors occurred among the youngest and those living in rural areas and villages. We also detect that people who use the Internet tend to make smaller errors when reporting the figures (note the negative coefficient of the variable Internet in the three estimations). Furthermore, individuals who consider that their country's economic situation is an important issue tend to make smaller errors compared to those who do not regard it as important.

5. Concluding remarks

This paper has focused on analyzing to what extent Europeans know some of the key figures of the economy, in particular, the rates of GDP growth, inflation and unemployment. Our results show that, although there is great variation across countries, the rate of unemployment is the best known by the population compared to GDP growth. Moreover, our results confirm that public awareness greatly varies across socio-economic groups as previously observed in the U.S. In particular, awareness is larger among the best educated, the highest classes, the oldest and those working and living in large towns.

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