KNOWLEDGE AND ATTITUDE
TOWARDS EUROPEAN MONETARY UNION

Bernd Hayo
ZEI
University of Bonn
Walter-Flex-Str. 3
53113 Bonn
Germany

e-mail: hayo@united.econ.uni-bonn.de
Tel. +49-228-73-1878
Fax +49-228-73-1809

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Abstract

In this paper, the relationship between objective knowledge of EU and people's attitudes towards the proposed European Monetary Union (EMU) is analysed. As a data base, survey data from Eurobarometer 39 (1993) has been employed. First it is displayed in a cross-country comparison, how the presented knowledge indicator varies between the original 12 EU-members. Then the bivariate relationship of the knowledge index with attitudes towards EMU is investigated. In a next step, the robustness of the positive correlation between objective knowledge and attitudes towards EMU is analysed in a multivariate regression model. As a conclusion, it is argued that a higher level of EU knowledge could influence people's opinion towards further monetary integration positively.

Keywords: European Monetary Union, Public Opinion, Information, Knowledge

1. Introduction

The main question tackled in this paper is the relationship between knowledge about the proposed European Monetary Union (EMU) - as set out in the Treaty of Maastricht - and the attitude towards it. We investigate whether people who have a relatively high level of factual or objective knowledge about EMU matters are rather in favour or against further monetary integration. Here we study the influence of a basic level of objective knowledge, which can be reasonably expected to be commanded by an ordinary citizen of the European Union. The data base is taken from the EC Eurobarometer 39 (1993). The employed survey questions were asked in all of the 12 original members of the European Union.

The structure of the paper is as follows: In the next section, the construction of an indicator of objective knowledge is presented and a cross-country comparison of objective knowledge levels is given. In section three, bivariate relationships between objective knowledge and attitudes towards EMU are studied with the help of correlation and correspondence analysis. We also show that the indicators of EMU-attitudes can be condensed into one factor employing principle-components analysis. Section four continues the analysis in a multivariate setting. There the question, whether objective knowledge affects mass opinion towards EMU, is further investigated using a regression model. Finally, in the conclusion the results are summarised and put into a broader perspective.

2. An Indicator for Objective Knowledge and a Cross-Country Comparison

The first step in the analysis is the construction of an appropriate knowledge indicator. What we are looking for is simply an indicator capturing the amount of information people have about the proposed EMU. This needs to be kept apart theoretically from the question whether the proband *thinks* he knows a lot about the EMU. Therefore, we distinguish between subjective and objective knowledge. Unfortunately, in the Eurobarometer surveys (EB) undertaken after the signing of the Maastricht Treaty, no direct knowledge questions with respect to EMU are included. The only 'hard' factual questions are four institutional questions about the EU in EB 39:[1]

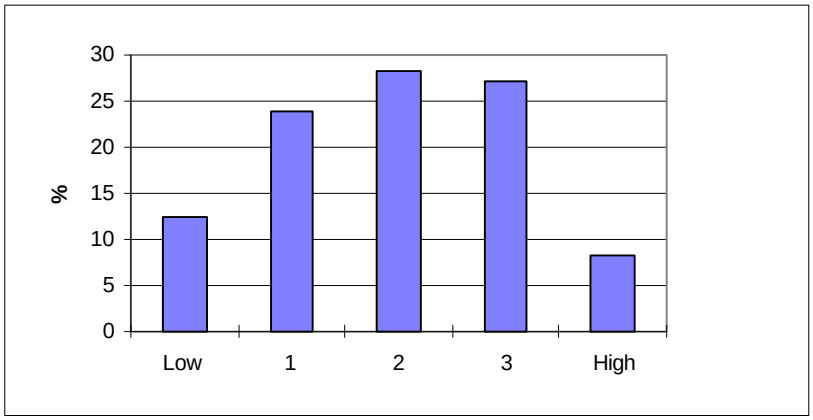
- Number of EC member countries

[1] Details and omitted information are available from the author upon request.

- ‘Capital’ of the EC
- Name of President of EC Commission
- Most important EC-Institution with respect to legislation

The first three questions are pure knowledge questions, and the answers (12, Brussels, Delors) can only by right or wrong. Regarding the last question, the answer ‘Council of Ministers’ is considered to be the correct one. It is not necessarily the case that knowledge about the EU institutions will correspond with knowledge about the EMU. We would argue, however, that it is very unlikely that somebody is very informed in the area of EMU without being able to answer most of the institutional EU questions. This assumption can be backed up by studies of public opinion researchers, who found no great advantage of using issue-specific knowledge indicators instead of general ones (see Delli Carpini and Keeter (1993) for a recent analysis).
The indicator for objective knowledge is constructed as an index, named KNOWIND, consisting simply of the frequency of correct answers to the factual questions. If somebody cannot answer any of the questions, he gets a zero as a knowledge value, and if he knows all of them, he achieves a maximum of four in the KNOWIND-Variable. In Figure 1, the distribution of KNOWIND is given over all respondents in all countries. Based on this distribution of answers, we would argue that the knowledge questions discriminate satisfactory between the probands.

Fig. 1: Objective Knowledge Index (KNOWIND) for all Countries.



It is interesting to compare KNOWIND across the 12 members states (splitting up Germany and the UK). The mean values and standard deviations are given in Table 1. We can see that in the average the lowest indices are given for Portugal, East-Germany and Italy. A high value is found for Belgium, France and Northern-Ireland. It appears surprising that core EC countries

like Germany or the Netherlands do not exhibit a high average knowledge. A likely explanation why Belgium and France do comparatively better is that the Belgians are hosting central EC institutions, while the President of the EC Commission was French at that time. Looking at the standard deviations as an indicator of the dispersion of answers across one country, the data suggests that knowledge levels between people vary relatively little in France, Italy and East-Germany, while the dispersion is high in Spain, Great Britain and West-Germany.

Tab. 1: Objective Knowledge Index by Countries (Min: 0, Max: 4)

Country	Mean 1993	St.Dev. 1993	Country	Mean 1993	St.Dev. 1993
Belgium	2.54	1.10	W-Germany	1.93	1.24
N-Ireland	2.40	1.10	Greece	1.91	1.12
France	2.36	0.96	Netherlands	1.73	1.13
Ireland	2.16	1.12	Italy	1.68	0.97
Denmark	2.03	1.12	E-Germany	1.64	1.08
Luxembourg	1.96	1.13	Portugal	1.53	1.17
Great Britain	1.94	1.25			
Spain	1.94	1.27	All Respondents	1.95	1.16

3. Bivariate Relationships Between Objective Knowledge and EMU-Attitude

In a next step, we bring in the attitude questions towards EMU. The following questions are employed to measure the attitudes towards EMU (Coding: against (-1), in favour (1)): [2]

MAASTRI: In favour or against the Treaty of Maastricht,

SINGCUR: In favour or against the creation of a single European Currency,

CENBANK: In favour or against the creation of a European Central Bank.

In Table 2, three different correlation measures are presented:

Tab. 2: Correlation Between KNOWIND and Attitudes Towards the EMU

	MAASTRI	SINGCUR	CENBANK	KNOWIND
MAASTRI	1	.38 (.37) [.35]	.35 (.34) [.32]	.15 (.16) [.14]
SINGCUR	.	1	.59 (.58) [.58]	.12 (.13) [.11]
CENBANK	.	.	1	.13 (.15) [.13]

Notes: The coefficients are: Pearson, (Spearman), [Kendall]. All coefficients are significant at a 1%-level.

[2] Codings of variables are given in brackets. If coding is different to years and is no dummy, all the presented variables are coded around zero, e.g. if the coding is 'left (-5), right (5)', then this implies that eleven categories with integer values are given.

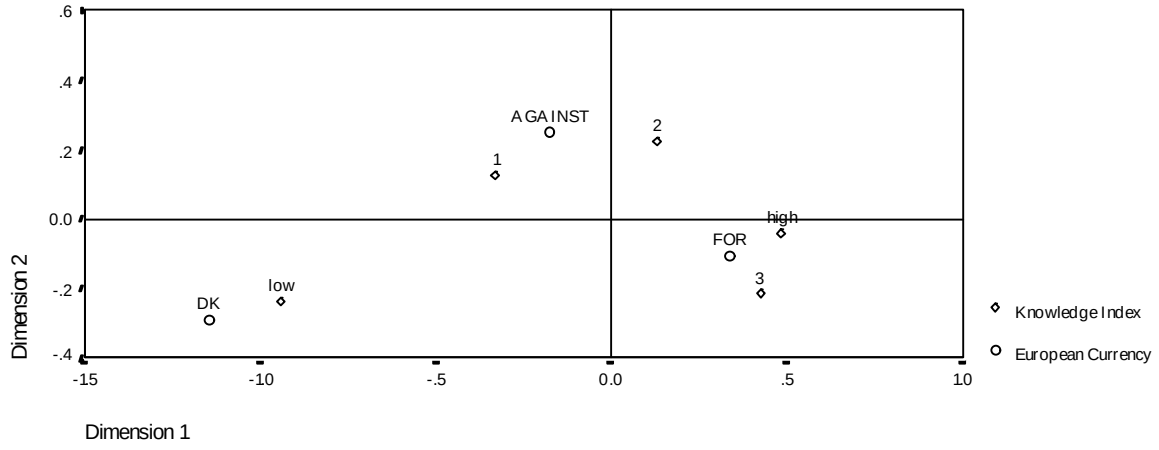
First we find that all of the correlations are positive. We have to note the relatively low but clearly significant positive correlation between KNOWIND and the attitude variables given in the last column of Table 2. It can be shown that this result is also true at the state level.

Judging from the size of the coefficients, we seem to be missing something in the explanation. A likely reason is that objective knowledge is just one influence on attitudes towards EMU and that there exist many others. We will take up this important point in section four. Another explanation could be that the relationship between knowledge and attitude towards EMU is not of a straightforwardly linear nature. To achieve a better understanding of this issue, we want to continue the analysis with another statistical method, called correspondence analysis (see Greenacre (1984) for a description).

In Figure 2, the correspondence diagram for SINGCUR and KNOWIND is given. The mapping of categories could be done in the following way (first dimension explains 0.97 of variance):

- For: High, 3
- Against: 2, 1
- Undecided (DK): Low

Fig. 2: Correspondence Analysis Between SINGCUR and KNOWIND



Knowledge category ‘2’ is not easily allocated, but referring to the weak second dimension, it has been grouped together with the ‘against’-category. It is clear from this finding that there appears to be no simple linear pattern between the two variables. A similar picture can also be drawn employing MAASTRI and CENBANK.

To summaries our results so far, the presented empirical evidence points towards a positive relationship between objective knowledge and attitudes towards EMU. People who know

almost nothing of the EU tend not to put forward any opinion on the desirability of EMU. Respondents commanding a little to average information are rather opposing monetary integration. Finally, people who have an above average knowledge of EU institutions are likely to be in favour of Maastricht and the EMU. Additionally, it can be shown that this results is not only true for aggregate European data, but also at the national level.

Judging from the presented results, the attitude variables are behaving rather similarly. Therefore we conjecture that there exists an underlying factor determining the responses to the respective questions. This factor can be termed 'Attitude towards EMU', and by estimating this factor, we can condense the relevant information given in the three variables into one. A factor analysis is performed and based on conventional criteria (Eigenvalue or Scree), one factor can be extracted. It explains 63% of the variance of the three variables, the factor loadings are much higher than the usual cut-off point of 0.5, and the communalities are also reasonably high. Hence in the remaining part of the paper, we use this factor 'Attitude towards EMU', coined EMUFAC, as the dependent variable in our analysis.

4. Multivariate Relationships Between Objective Knowledge and EMU-Attitude

The questions we have to face now is whether we measure *only* objective knowledge using KNOWIND, and the related problem of causality. In the preceding sections the relationship between objective knowledge and attitudes towards EMU was analysed in a bivariate fashion. Applying this type of analysis, we cannot answer the question whether knowledge leads to a positive attitude towards EMU or a positive attitude towards greater factual knowledge. The only available econometric tool for directly investigating causality is Granger-causality. Since it can only be employed if longer spans of time series data are available and since it cannot really capture a richer notion of causality (cf. Holland (1986)), no direct empirical procedures are available for the problem at hand.

In view of this situation, it is clear that causality needs to be approached theoretically. Here this means looking at the process of attitude formation (see Chisman (1976) for a summary of classic findings). A well-known concept involves the division into influences originating in affect and cognition. This approach is problematic, due to serious difficulties in entangling the two influences and constructing operational measures from opinion surveys. Therefore, a different path will be taken. To describe the factors influencing attitudes, we look at aspects of

interest in the subject, personal involvement, socialisation and demographic influences, coherency of belief systems, and objective knowledge.

Interest is important, since it ensures that the respondent acknowledges the importance of the topic and is not indifferent in the answer he gives to the interviewer. There is also evidence that it reflects the motivation of the respondent in the interview situation (Nadeau and Niemi (1995)). As an indicator we use subjective knowledge of the proband with respect to the Treaty of Maastricht (SUBKNOW, Coding: never heard (-2), great (2)). This interpretation is based on recent contributions to the understanding of mass attitudes (cf. Zaller (1992)). It is argued that subjective knowledge variables capture the attempt of respondents to communicate to the interviewer their perceived interest in politics or in the specific subject matter, rather than displaying a thorough foundation of factual information.

Personal involvement is difficult to measure in a question on EMU. Given our data set, no question can directly account for this aspect. It is likely to be the case, though, that we can pick up parts of its variation by some of the other explanatory variables, like the interest-oriented one, or some of the demographic variables.

There exists a great number of *demographic and socialisation influences* that can affect attitudes towards EMU. An important one are the years spent on education (EDUCAGE, Coding: Years). One would expect more educated people to present a more comprehensive view on an issue than others (cf. Mutz (1993)). However, education should not be set equal to objective knowledge, although there exists a positive correlation. Age (AGE, Coding: Years) is another employed variable for socialisation, but it may capture other influences as well. The square of AGE (AGESQUAR) is included to capture potential non-linearities in the effect of age on the dependent variable. LEFRIG (Coding: right (5) to left (-5)) measures the political orientation on a left-right scale. It is a very undifferentiated measure, and therefore it may not be able to discriminate between influences, especially in a cross-country study. Gender (SEX, Coding: women (1), men (0)) is still a powerful explanatory variable in many cases. Even today, the involvement of women in political and economical matters is lower than that of men (see Gabriel (1992, 571f)). HHINCOME (Coding: Income groups/Size of household) tries to capture the income situation of the household, while UNION (Coding: member (1), no member (0)) measures whether a member of the household belongs to a trade union. Moreover, a large number of job categories were included as dummy variables, with ‘looking after household’ as a reference category. Since they do not appear to be of importance in explaining EMUFAC, we are not discussing them any further.

Coherency of belief systems is another theoretical influence on attitude formation. Its importance can be derived via two routes. The first one is the more traditional, based on the premise that people's attitude on specific questions derive from more abstract considerations. In the case of EMU, an overarching consideration could be the general view on European integration. An argument along the second route would stress the construction of attitudes at the time of the interview (cf. Strube (1987), Zaller (1992)). According to this view, people do not just put forward a well-founded attitude in an interview, but construct an opinion at the time when they have to answer a question. Assuming this view to be correct, coherency of belief systems would imply the attempt of the respondent to bring his presented opinions into a consistent shape during the interview. For our purposes, the implications are similar to the ones outlined in the other view, namely that a variable representing a more basic attitude may be helpful in explaining the expressed opinion on EMU. The variable chosen in this context is the proband's attitude towards European integration in general (EUINT, Coding: very much against (-2), very much in favour (2)).

The last theoretical influence is the one at the centre of our attention, it is the *effect of factual knowledge*. Knowledge should enable people to form a well-founded attitude on an issue, whereby cognitive aspects play the dominant role. A priori, it is unclear whether a well-founded knowledge of EMU implies a positive or negative attitude towards it. Moreover, what we are talking about here is not 'expert' knowledge, but more basic information. Balanced economic experts seem to agree that it is not obvious whether EMU in its proposed form will be beneficial or not; recent overviews of the main arguments are given in Artis (1994), Bean (1992), Eichengreen and Frieden (1995), or Goodhart (1995). This division in expert opinion will have important consequences for the elite influence on mass opinion (Zaller (1992, 16f)). Cleavages may not only appear within one elite group (e.g. economic experts) but also between groups. Therefore elite guidance to the formation of public opinion on this issue is likely to be rather confusing to the general public.

Finally, we have to be prepared to find *inter-country differences* due to many reasons, not least because of possible omitted variable effects and variations in political culture. Therefore, we employ dummy variables for the twelve EC members, with the Dutch as a reference category.

These theoretical considerations determine the direction of causality with respect to the question at hand. Since we do control for the effect that it is, for example, greater interest that is reflected in a higher knowledge level, any remaining influence of KNOWIND should represent variations in objective knowledge only. What we additionally require for the regression

analysis, though, is the assumption that the explanatory variables are weakly exogenous with respect to the parameter of KNOWIND (cf. Engle et al. (1983)). To find out whether we can avoid modelling the marginal distribution of the potentially endogenous variables, we will employ the Hausman-Test (1978) to test for contemporaneous correlation between the regressors and the errors.

In Table 3, the results of the sequential testing down process using ordinary least squares at a nominal significance level of 5% are presented. Only the variables with numerical information on coefficients and test results remain in the final equation. All of the other variables were removed in the modelling process. For them, the initial sign of the coefficient is presented, to give an indication of the possible directional influence.

Tab. 3: Explaining Attitudes towards EMU (dependent variable: EMUFAC)

Variable	Coefficient	Beta	Std.Error	t-value	t-prob	HCSE
Constant	-0.072		0.0569	-1.3	0.2037	0.0576
KNOWIND	0.039	0.045	0.0088	4.4	0.0000	0.0089
SUBKNOW	0.087	0.071	0.0124	7.0	0.0000	0.0124
EUINT	0.375	0.432	0.0080	46.6	0.0000	0.0085
EDUCAGE	0.005	0.023	0.0024	2.3	0.0244	0.0024
SEX	-0.073	-0.036	0.0185	-3.9	0.0001	0.0186
AGE	-0.001	-0.021	0.0006	-2.3	0.0248	0.0006
AGESQUAR	+					
LEFRIG	+					
HHINCOME	+					
UNION	+					
ITALY	0.136	0.034	0.0376	3.6	0.0003	0.0322
BELGIUM	+					
IRELAND	+					
GREECE	+					
SPAIN	-					
LUXEMBOURG	-0.120	-0.023	0.0486	-2.5	0.0135	0.0452
PORTUGAL	-0.220	-0.062	0.0347	-6.3	0.0000	0.0348
FRANCE	-0.288	-0.079	0.0344	-8.4	0.0000	0.0368
N-IRELAND	-0.523	-0.065	0.0721	-7.3	0.0000	0.0776
E-GERMANY	-0.540	-0.160	0.0330	-16.3	0.0000	0.0360
W-GERMANY	-0.635	-0.184	0.0330	-19.3	0.0000	0.0345
BRITAIN	-0.663	-0.183	0.0347	-19.1	0.0000	0.0367
DENMARK	-0.697	-0.202	0.0349	-20.0	0.0000	0.0363

Cases	R^2	F-test (15,8360)	σ	Normality Test: Chi^2 (2)	RESET F(1.8359)	Hausman-Test F(3,8357)
8376	0.34	289.41**	0.8112	441.2**	2.304	1.074

Notes: A '**' indicates significance at the 1% level. Beta is a standardised regression coefficient and HCSE gives heteroscedasticity-consistent standard errors.

At the bottom of Table 3, some diagnostic statistics are given. We clearly have to reject normality of the residuals and thus the inference may be invalid. However, a graphical inspection of the estimated density function reveals that the violation does not appear to be extremely severe. Addressing the issue of exogeneity of the variables KNOWIND, SUBKNOW and EUINT, the Hausman-Test, employing all other variables (except LEFRIG, which could be endogenous) as instruments, has been computed. From the results we can conclude that it is admissible to model EMUFAC using a single equation, and that the chosen direction of causality in this model appears to be acceptable by the data.

Coming to the interpretation of the results, we note first of all that KNOWIND remains a significant, positive influence on the attitudes towards EMU, even if its quantitative effect is small. Hence people who know more about EMU are rather in favour of pursuing European monetary integration. Our estimate of its influence can be considered a conservative measure, since we argued above that there exists no simple linear relationship between attitudes towards EMU and KNOWIND.

Both SUBKNOW and EUINT show positive coefficients. Especially the latter has a strong effect on the results. This implies that the coherency of beliefs should be considered a very important influence on public opinion formation on EMU. The significant effect of SUBKNOW shows that specific interest in EMU matters also seems to have a positive effect. If somebody has a greater interest in EMU, his attitudes towards European monetary integration will be influenced positively. SEX is strongly influential in this regression too. Its negative effect can be explained by noting the relative reluctance of women to engage themselves in economical and political issues. Due to that, their expectations of EMU appear to be biased downwardly.

AGE and EDUCAGE are not significant at a 1% level and may therefore be no stable influences, as utilising this rather large sample size makes the tests very sensitive to slight violations of the null hypothesis. Since they show signs in accordance with a priori reasoning, they have been left in the equation. We know from the literature on modernisation that older people tend to be more sceptical of economical and political changes, and the displayed negative coefficient is in accordance with this hypothesis. An explanation why more educated people tend to support EMU - after controlling for other variables - could be the higher exposure of this group to international issues, either during their time at educational institutions or later in their jobs. This may increase their willingness to support an integration process in monetary matters. The only other significant variables are country dummies. We find

that, after accounting for the other influences, people in Denmark, UK, Germany, France, Portugal and Luxembourg are more negative with respect to EMU than the Dutch. The only nation being significantly more positive is Italy.

Since we have introduced the regional dummies for the UK and Germany, it is interesting to compare the coefficients of the subpopulations. Assessing absolute coefficient values, we find that the difference between the German regions is smaller than between the parts of the UK. However, testing for equality of the coefficients (5% significance level) leads to a rejection in the case of East- and West-Germany ($F(1,8360)=5.3$) and no rejection in the case of Britain and N-Ireland ($F(1,8360)=3.3$). This puzzling finding is due to the fact that the sample size for Northern-Ireland is much smaller than that of other countries. Testing for the equality of coefficients for Denmark, West-Germany and Britain, we cannot reject the hypothesis ($F(2,8360)=1.04$). Hence these countries seem to be quite similar in their attitude towards EMU after taking account of other variables.

5. Conclusion

First of all, we showed that there are clear cross-country differences in objective knowledge about the EU. It appears to be the case that the often claimed North-South divide with respect to knowledge of the EU is too simplistic. Respondents in core countries like the Netherlands or Germany do not at all display a superior knowledge of EU matters.

Second, there exists a positive correlation between the knowledge about EU institutions and the attitude towards the Maastricht Treaty and EMU. This correlation does not only hold at the aggregate ‘European’ level but also at a state level. Thus people who know more of the EU will in general support EMU and vice versa. It is tempting to draw a simplistic policy advice from this finding by arguing that the European Commission could increase support for the EMU by raising knowledge of EU. An important assumption of this statement is that we are able to establish that causality is indeed running in this direction.

Third, it was demonstrated that the correlation is not a linear one. Rather, people who know nothing about the EU tend to have no explicit opinion on EMU. Respondents disapproving of EMU achieve higher levels on the knowledge index than the undecided ones. However, on average, the highest level is attained by supporters of EMU. Using this finding, one would need to modify the policy advice given in the preceding paragraph by emphasising that it is not sufficient to raise knowledge of EU just a little bit if it was very low.

Fourth, condensing different variables reflecting attitudes towards EMU into one indicator of opinion on EMU using factor analysis, and employing it in a regression analysis shows that the influence of objective knowledge is robust with respect to conceivable related effects.

To conclude, the EU Commission could raise support for EMU strongly by increasing overall sympathy for integration, which is probably rather difficult. However, coming back to the main theme of the paper, a positive effect may also obtainable by increasing people's knowledge about the plans on EMU. In other words, the EC Commission should endeavour to spread objective knowledge on EMU if it wants to raise support for further monetary integration.

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