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Working Paper

The impact of political announcements on expectations concerning the starting date of the EMU - A microeconometric approach to the detection of event-dependent answering patterns in business surveys

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The impact of political announcements on expectations concerning the starting date of the EMU
A microeconometric approach to the detection of event-dependent answering patterns in business surveys

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Nontechnical summary

The starting date and Germany's membership in the European Monetary Union (EMU) has led to controversial debates among political parties, pressure groups and the German population in the first half of 1997. Many people felt that whether or not Germany meets all of the Maastricht criteria, its membership was certain. Surveys conducted by various institutions which focused on EMU issues showed that a broad majority believed that the EMU starts punctually on Jan. 1, 1999 and that Germany will become a memberstate of the EMU.

A successful implementation of the EMU appeared to be politically desired. Therefore, political rumors, events and news seemed not to play an important role in the formation of people's expectations about the EMU starting date. Controversial evidence is presented in this paper. It is shown that news like "Breakthrough at the Amsterdam EU summit" strongly influence expectations about the EMU starting date.

Data from the Service Sector Business Survey (SBSS) which is conducted by the Centre for European Economic Research in cooperation with the credit rating agency CREDITREFORM is used in the analysis. In this survey the participants were asked to indicate whether they expect Germany to join the EMU punctually, never or at a later date. Alternatively, a "don't know" category could also be ticked.

Bad news like the heated debate about the convergence criteria during the EU summit at Amsterdam considerably decrease the probability that people expect a punctual EMU start. While bad news do not influence the probability to cross the "don't know" category, so do good news. Good news have a negative impact on the probability to choose the don't know category. Expectations are conditioned on political announcements. The thesis that people take Germany's EMU membership — and thus the realization of the EMU — for granted is invalidated. Expectations are sensitive to political events.

A second aspect of this paper is that standard approaches to the interpretation of survey results may be quite misleading if news touching the focus of the survey occur. Usually, it is assumed that all questionnaires are filled out at the very same day of the survey period. Such an approach would have led to a severe misinterpretation of the survey results in the present case. Breaking news have changed the response pattern considerably. Therefore, survey results have to be interpreted very carefully with respect to news occuring during the response collection period.

The impact of political announcements on expectations concerning the starting date of the EMU

A microeconometric approach to the detection of event–dependent answering patterns in business surveys

by

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Abstract: This paper examines German business survey data to uncover the influence of political news on expectations concerning the starting date of the European Monetary Union (EMU). In this survey the participants were asked to indicate whether they expect a punctual or a delayed start of the EMU. Alternatively, they could also tick a "don't know" category. It is shown that political news actually influence answering patterns. While good news have a negative impact on the probability to cross "don't know", they do not influence the probability to expect a delayed EMU start. Bad news, such as the heated debate about the convergence criteria at the Amsterdam EU summit, have a positive impact on the probability to expect a delayed start.

The empirical results show that survey results generally have to be carefully interpreted if news about the topic which is investigated in the survey occur. If answering patterns are actually influenced by such news, the usual way to interprete survey responses — treating them as if they were sent back at the very same day — can lead to severe misunderstandings. In this paper a simple microeconometric technique is suggested which makes it possible to detect if survey responses are affected by news.

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1   Introduction

In the first half of 1997, various business surveys which focused on EMU–issues showed that a broad majority of German business people expected that their country joins the European Monetary Union (EMU) punctually on January 1, 1999. For example, a survey conducted among experts from banking, insurance and large industrial enterprises which was carried out by the Center for European Economic Research,[1] Mannheim in January 1997 showed that only 14 percent of the survey participants believed that the EMU start will be delayed and only seven percent believed that it will fail.[2] A large German commercial bank, the Commerzbank AG (1997), using survey data and financial market indicators, concluded in July 1997 that even the controversial and heated debate about the convergence criteria during the European Union (EU) summit at Amsterdam did not change market confidence of a punctual EMU start.

Germany's membership appeared to be politically desired. Although difficulties to meet the deficit criterium — which is one of the four convergence criteria any country applying for an EMU membership has to fulfill — became more and more visible in the first half of 1997, this seemed not to be reflected in the expectations concerning a punctual EMU membership.[3] While the inflation rate, interest rate and exchange rate criteria did not cause problems to Germany, so did (and probably still does) the deficit requirement. In May 1997, Germany's Minister of Finance treasurer Theodor Waigel detected that increased new borrowings of more than three percent of the GDP might be unavoidable.

Regardless of the apparent difficulties to meet the deficit criterium, not economical but political reasons seemed to determine the EMU starting date. Therefore, it was felt that German entrepreneurs make up their minds about Germany's EMU membership independent of EMU–related news.

In this paper it is shown that just the reverse is true: EMU–related news actually affect people's expectations concerning the EMU starting date.[4]

This paper also shows that survey results have to be carefully interpreted when news concerning the focus of a survey occur during the data collection period.

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[1]Zentrum für Europäische Wirtschaftsforschung, hereafter called ZEW.

[2]For details see Zentrum für Europäische Wirtschaftsforschung (1997).

[3]The four convergence criteria are (1.) a budget deficit of below three percent of the GDP and a relation of public debt to GDP of not more than 60 percentage points (deficit criterium), (2.) a halting price stability (inflation criterium), (3.) a long–term interest rate of below two percentage points below the average of the three countries with least inflation (interest rate criterium), and (4.) a membership in the European Monetary System within the normal bounds in the last two years before the EMU–start (exchange rate criterium).

[4]Since a EMU without Germany is not realistic, Germany's membership and a succesful implementation of the EMU are treated as equivalents here.

Even when the data collection period is very short as for the data set which is used in this paper, the usual procedure to interprete business surveys — treating the responses as if they were sent back at the very same day — may be quite misleading. If, for example, the federal reserve bank announces interest rate cuts during the data collection period of a survey on the expected performance of stock market indices such as the Dow Jones, the DAX or the CAC40, this event will have a strong impact on the answering patterns. The questionnaires which are sent back before the interest rate cut announcement are likely to be less optimistic than those which are sent back after the announcement. Treating the responses as if they were sent back at the same day would then not capture the announcement effect.

Beside such announcements, surveys on stock market indices also have to deal with the problem that the survey participants' expectations concerning the performance of stock markets are clearly influenced by the daily development of the corresponding index. In order to control for such effects, in such surveys the daily responses should at least be weighted by their share of the total number of responses.

In this paper a simple technique to the detection of such event–dependent answering patterns is suggested.

The database used in the empirical investigation is a German business survey which focused on the preparation of industry–related services for the EMU. This survey was conducted in June 1997. Three important news related to the EMU occured in that month. Germany's Minister of Finance, Waigel, made public his realignment plans of the Bundesbank gold reserves, the Socialist party won the parliamential election in France and the stability and employment pact were very controversely discussed among the European partners at the Amsterdam summit which started at June 16.

Simple microeconometric techniques will be applied here to test whether such EMU–news actually affect answering patterns in the business survey.

The paper is organized as follows. Section 1 gives a short description of the data set. Econometric devices and estimation results are presented in section 2. Section 3 gives concluding remarks.

2 The data set

Throughout this paper the 13th wave of the Service Sector Business Survey (SSBS) is used. The SSBS is conducted by the ZEW in cooperation with the credit rating agency CREDITREFORM.[5] Ten industry–related service sectors are interviewed quarterly since June 1994. A one page questionnaire is mailed to the participating enterprises. The questionnaires are returned to the ZEW by fax. The ten service sectors are:

Sector	NACE–code
(1) Software and databases	72.10.0 – 72.20.2, 72.30.2 – 72.30.4, 72.60.1, 72.60.2
(2) Chartered accountancy and accountancy	74.12.1 – 74.12.4
(3) Consulting	74.14.1, 74.14.2, 74.13.1., 74.13.2
(4) Architecture	74.20.1 – 74.20.3
(5) Technical support and planning	74.20.4 – 74.20.9, 74.30.1 – 74.30.4
(6) Advertisement	74.84.1, 74.84.4, 74.40.1, 74.40.2
(7) Vehicle rental	71.10.0, 71,21.0, 71.23.0
(8) Machine rental	45.50.0, 71.30.0 – 71.34.0, 71.40.5
(9) Shipping and storing	63.12.1, 63.40.3, 63.40.10
(10) Waste and waste water removal	90.00.1 – 90.00.7

The SSBS is a stratified random sample, stratified with respect to sector, firm size and region (East/West Germany). Table 1 shows the distribution of participating enterprises among sector, firm size and region.

<div style="text-align:center">

insert table 1 at about here [distribution]

</div>

The SSBS questionnaire consists of two parts. In the first part, the enterprises are asked to indicate whether their prices, profits, turnover, employment and demand increased, remained unchanged or decreased during the last quarter. While the first part of the questionnaire does not change quarterly, so does the second. The second part is used to cover topics of current economic interest. In the 13th wave of the SSBS, this second part was devoted to the preparation of industry–related services for the EMU. Throughout this paper the very first question of the EMU part will be discussed: *"When do you think Germany will become a memberstate of the European Monetary Union".* Four answers were possible, (a) punctually on Jan. 1, 1999, (b) at a later date, (c) never, (d) don't know. It will be refered to these categories as "punctually", "later", "never" and "don't know".

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[5]CREDITREFORM runs the largest privately run enterprise database in Germany. The CREDITREFORM database also served as the sampling frame for the SSBS.

The data collection period started on Mo., June 2, shortly after Waigel proposed that the — politically independent — Deutsche Bundesbank should convey a realignment of its gold reserves. Such a realignment would have led to an increased Bundesbank–profit and, since most of these profits have to be paid over to the federal budget, to a decreased budget deficit. This plan led to much irritation across the population, Germany's European partners and — above all — the Deutsche Bundesbank itself. Waigel gave up his plan on June 4 eventually. The gold reserve news was just one among several other events that occured during the period when the survey was conducted. On the day when the survey started, the Socialist party won the French election. This led to fears that France weakens the "stability pact", an agreement among the countries of the European Union to further pursue stability–oriented economic policy also after the EMU has started.[6] These fears seemed to be justified when the new French Prime Minister Lionel Jospin called into question the EMU time schedule on June 6. He also proclaimed that the stability pact needs to be discussed further on.

The headlines of the news which occured during the data collection period are presented in table 2. They are taken from the Frankfurter Allgemeine Zeitung, a German newspaper with high reputation and which is read by many business people, the focus group of the ZEW survey.

Most of the questionnaires are sent back to the ZEW in the morning. Thus, the information horizon of the participants at least includes the news shown on television the evening before and the newspaper information of the corresponding day.

Table 2 also shows how many responses were collected day by day and how the different answering categories are distributed daily across the answering categories. In order to increase the response rate, a written reminder was sent out on We., June 18.[7]

It is difficult to tell from table 2 if the answers actually change when bad or when good news concerning the EMU occur. The remaining pages utilize simple microeconometric techniques to uncover if such changing answering patterns actually exist.

insert table 2 at about here [answers]

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[6] The stability pact allows the European Council of Ministers to sanction EMU memberstates which do not meet the budget deficit criterium also when the EMU is already established.

[7] The SSBS is constructed as a panel so that the survey participants know that such a reminder will be sent out eventually.

4

3   Microeconometric evidence

In the following, binomial probit models are used to detect to what extention informational events, like "Crisis in the EU: Paris wants time for reflection of stability pact", cause answering patterns to change. It is analyzed if the effect of a news event is reflected in the survey responses. While the definition of "event" is straightforward, it is less clear how the event window — the time period over which the response patterns are assumed to change — should be defined.[8] Two extreme cases are possible: First, people mainly react to news heard the evening before and the morning when they answer the questionnaire. Second, people have in mind all the information that occured weeks ago before they send back the questionnaire. In the first case, people's answering patterns are functions of the most recent event, in the second case they are functions of the entire event history. Since the truth probably lies in between — and it is largely arbitrary to define where in between is —, both cases are taken into account in this paper. The "short memory case" will be introduced first .

The short–memory case
The short–memory case is implemented in the econometric model by a dummy variable — denoted by *bad* — which is coded "1" if bad news ocurred and "0" otherwise. June 2, 3, 9 and 10 are defined as bad news days. That is, the value "1" is attached to all questionnaires which are sent back on these "bad news days". Additionally, a dummy variable *good* is created. It takes on the value 1 if the questionnaire is sent back on "good news days" and zero otherwise. June 4, 17 and 18 are defined as good news days. Nine percent of questionnaires are sent back on good news days and 36 percent are sent back on bad news days. The alternative approach for the "long memory case" is to create a dummy variable which takes on the value one (and zero otherwise) on the day when news occured *and* on any subsequent day after the news has occured.

How should the decision to cross one of the four answering possibilities be modeled? The first three categories "punctually", "later" and "never" are ordered while the "don't know" possibility is not. At first sight, a multinomial logit model seems to be quite adequate here. However, applying a multinomial logit model implies to ignore the ordered structure of the first three categories. Therefore, the decision to cross "don't know" or *any* of the other three catego-

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[8]For an overview on event analysis see Campbell et al. (1997, ch. 4).

ries is investigated seperately from the decision to cross "punctually", "later" or "never". It seems to be more appropiate to model the decision to cross "punctually", "later" or "never" by an ordered probit model. The decision to cross "don't know" or any of the other categories should then be modeled by a binomial probit model.

Actually, since there are only 28 enterprises which expected the EMU to fail, the category "never" is combined with the category "later".[9] Therefore, the decision to cross either "later" or "punctually" is modeled seperately from the decision to cross "don't know" or any of the two other categories.

To summarize, the following four different cases will be distinguished.[10]

(1) short memory

    (a) "later" versus "punctually"

    (b) "don't know" versus "punctually" or "later"

(2) long memory

    (a) "later" versus "punctually"

    (b) "don't know" versus "punctually" or "later"

Several χ^2 tests for independence show that no selection bias is present for firms which had sent back the questionnaire on bad news days.

In order to utilize as much information as possible, the SSBS was merged with a data set provided by CREDITREFORM.

In order to control for sector–specific effects, dummy variables for each sector were included in the estimation equation. Table 3 summarizes the variables further used in the estimation equation. Descriptive statistics are presented in the appendix.

Beside the sectoral dummy variables, the basic specification tries to capture regional differences (East/West Germany), differences between exporting and non–exporting firms and differences between firms which have already participated in a preparation course for the European Monetary Union.[11]

Differences between exporting and non–exporting firms may be present because exporting firms are very likely to gain much from a succesfull implementation of the EMU. Therefore, EMU–news may have a more severe impact on their expectations. Similarly, firms which took part in an EMU preparation course may be more sensible to EMU news than firms which did not take part in such

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[9]Note that the "never" category is the infinite case of "later".

[10]All estimations were run using the software package STATA (release 5.0).

[11]Such courses are for example offered by the Chambers of Commerce.

courses. Clearly, an endogeneity problem could be present here. If firms do not expect that the EMU starts punctually, there would be no reason for them to attend such a preparation course. However, all estimation results which included the participation variable were compared to results where *part* was removed. The qualitative results did not change at all.

Regional effects may be present because of the entirely different economic structure in East Germany. The East German economy strongly depends on the construction sector which currently witnesses a sharp economic downturn.

To account for firm size effects, the logarithm of the number of workers is included. It could be easier for large firms to form EMU–preparation task forces than for small firms so that large firms may find it less problematic to file news concerning the EMU.

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insert table 3 at about here [variables]

In order to detect whether bad news concerning the EMU affect answering patterns, binomial probit models are estimated. First, the decision to cross "later" rather than "punctually" is discussed for the short memory case. The dependent variable *later* takes on the value "1" if "later" is chosen and "0" if "punctually" is crossed.

In the present case, the binomial probit model estimates the conditional probability — conditional on the vector of exogenous variables x_t consisting of the sectoral dummies and the variables listed in table 3 — that an enterprise expects the EMU start to be delayed. Thus, the coefficient of *bad* should be significantly positive while *good* should carry a negative sign. The variables *export* and *east* turned out to be insignificant and were thus removed from the specification.[12]

Estimation results are shown in table 4. In table 4 and in all tables presenting estimation results hereafter the sectoral dummy variables as well as the constant term are supressed for the sake of brevity.

bad carries the expected sign and is highly significant. The occurence of bad news has a positive effect on the probability to expect that Germany joins the EMU at a later date. Good news do not influence the probability to cross "later" relative to the probability to cross "punctually".

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insert table 4 at about here [sm_la.tex]

[12]A Likelihood Ratio test shows that the two variables are also jointly insignificant.

A negative impact on the probability to tick "later" is present for enterprises which participated in courses preparing enterprises for the EMU. The same is true for the number of employees. The larger the company is, the higher is its probability to expect a punctual start of the EMU.

Like in all models of qualitative choice, diagnostic tests are quite difficult to conduct. Calculation and interpretation of generalized residuals is beyond the scope of this paper. However, the binomial probit model was also estimated using the heteroscedaticity robust White variance–covariance matrix. The application of the robust variance–covariance did not alter the results qualitatively. Estimation of a logit model did also not lead to different results.

While bad news have a strong and positive impact on the probability to cross "later" compared to "punctually", they do not influence the probability to cross "don't know". As can be seen from table 5, *bad* turns out to be insignificant at any conventional significance level. That is, bad news let the probability to cross "don't know" unchanged. This result was obtained by a binomial probit estimation which modeled the decision to cross "don't know" rather than to cross "punctually" or "later". Thus, the dependent variable *dont* was coded one if the survey participant crossed "don't know" and zero otherwise.

While bad news do not have a significant impact on the probability to cross "don't know", so do good news. Good news have a weakly significant negative impact on the probability to cross "don't know". If a questionnaire is sent back on a good news day, the probability that "punctually", "later" or "never" is crossed increases compared to the probability to cross "don't know". Good news thus increase the likelihood that the survey participants find any judgement about the EMU starting date.

The logarithm of the number of employees turned out to be insignificant. This implies that insecurity about the EMU starting date is independent of firm size. The variable *work* was removed from the specification because of its insingnificancy.

| insert table 5 at about here [sm_do.tex] |

The long–memory case

It could be argued that the bad news dummy variable does not take into account that people may condition their expectations not only on the latest but on the entire history of informational events. If this is true, an event should influence answering patterns not only on the corresponding day but also for the rest of the

survey period. It is then straightforward to construct news dummy variables which are coded "1" on the day when an event occured *and* also on any other of the remaining days. Hence, two dummy variables $p1$ and $p2$ are created. $p1$ is coded "1" (and "0" otherwise) if the questionnaire is sent back on June 4 or later ("Waigel withdraws his gold plans") and $p2$ is coded "1" if it is sent back on June 17 or later ("Breakthrough at Amsterdam EU summit"). 43 percent of all responses are sent back in period $p2$, 71 percent are sent back in period $p1$.

As before, the impact of political news on the probability to cross "later" compared to "punctually" is discussed first. Table 6 shows the estimation results of a model including the dummy variables $p1$ and $p2$. Like in the short memory case, *export* and *east* turned out to be insignificant and were removed from the specification.[13]

While the interpretation of the $p1$—variable is a bit difficult since in this period both good and bad news occured, $p2$ can be regarded as a "good news" period. After June 17, in period $p2$, all events were positive with respect to a punctual membership. The impact of this "positive" period $p2$ is reflected in the estimation results: $p2$ is significantly negative.

As expected, period $p1$ does not significantly influence the probability to cross "later".

insert table 6 at about here [lm_la.tex]

Since variable *good* turned out to be weakly significant in the short memory case, the same impact should be expected for the long memory case. However, none of the p–variables are significant at any conventional significance level. This could be due to the fact that the two variables do not capture identical information. *bad* and $p2$ both include June 17 and June 19, but the presumably very important impact of Waigel's withdrawal of the gold reserve plans is not reflected in $p2$. The withdrawal of the gold reserve plans took place in $p1$, the period where both good and bad news occured.

Estimation results for the long memory case and the "don't know" category are displayed in table 7.

insert table 7 at about here [lm_do.tex]

In both the long and short memory case, *export* and *part* have a significantly

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[13]Likelihood Ratio tests showed that the two variables are also jointly insignificant.

negative impact on the probability to cross "don't know". Being from East Germany has a significantly positive impact to choose "don't know". Preparation courses and being in export make it easier to make up any mind about the EMU starting date. East German enterprises cross "don't know" with a higher probability than their West German counterparts. Further, the probability to tick "don't know" is independent of firm size.

Different results are obtained for the probability to cross "later". The variables *export* and *east* are insignificant while firm size has a significantly negative impact on the probability to tick "later". Taking part in a preparation course decreases the probability that people are insecure about the starting date and has a significantly negative impact on the probability to expect a delayed EMU start.

4   Conclusion

The estimation results presented here suggest that EMU–news actually have an impact on bussinesmens' expectations about the EMU starting date. Headlines such as "Waigel withdraws his gold reserve plans" and "Breakthrough at Amsterdam summit" increase the probability to expect a punctual start of the EMU. Some evidence is given that people who are insecure about the starting date are not influenced by political events.

Both extreme assumptions about the way people form their expectations indicate a significant impact of political news on answering patterns.

In the short–memory case, the binomial probit model showed that bad news increase the probability to expect a delayed EMU membership while good news decrease the probability to cross "don't know".

The long–memory case qualitatively supports the earlier findings. The period after the breakthrough at the EU summit at Amsterdam has a positive impact on the probability to expect a punctual EMU membership. The "don't know" category is not influenced by political news.

Political announcement have a considerable impact on people's expectations about the starting date of the EMU. The often heard opinion that Germany's membership is taken for granted by German business people is clearly invalidated.

The estimation results also make clear that the usual procedure to interpret survey results – treating the responses as if they were received at the very same

day – can lead to severe misunderstandings. It has to be taken into account that response patterns may vary through time, dependent on news events that occur during the data collection period. Even when the data collection period is very short as for the data set used here, events can have impacts on answering patterns. Careful interpretation and correction for event–dependent response patterns have to be applied in such cases.

TABLE 1

THE DISTRIBUTION OF THE PARTICIPATING ENTERPRISES ACROSS REGION,
SECTOR AND EMPLOYMENT CLASSES

| | West | | | East | | | |
| | #of employees | | | #of employees | | | |
	< 50	50–99	> 99	< 50	50–99	> 99	Sum
Software	53	14	29	22	2	7	127
Accountancy	47	13	11	19	1	4	95
Consulting	40	12	23	15	1	2	93
Architects	65	6	4	16	4	3	98
Planning	35	11	30	25	13	12	126
Sales–promotion	41	32	12	8	5	0	98
Vehicle rental	64	3	2	14	0	0	83
Machine rental	56	13	12	16	5	0	102
Shipping	26	13	16	17	7	3	82
Waste removal	47	10	23	30	4	8	122
Sum	474	127	162	182	42	39	1026

Table 1 shows the distribution of the participating enterprises across sectors, employment classes and regions. There are 47 accountants from West Germany with less than 50 employees in the sample. There are 95 accountants from West Germany. 474 enterprises with less than 50 employees from West Germany participated in the survey.

TABLE 2

NEWS THAT OCCURED DURING THE PERIOD THE SURVEY WAS CONVEYED, DISTRIBUTION OF ANSWERS ACROSS THE PERIOD

Date	Event	# of responses	share of enterprises answering that Germany will join the EMU...			
			punctually	later	never	don't know
Mo., 02	France's Socialist party wins election	176	0.54	0.32	0.05	0.10
Tue., 03	Jospin new Prime Minister in France Opposition demands Waigel's dismission	122	0.56	0.33	0.05	0.07
Wed., 04	German government withdraws gold plans	72	0.65	0.33	0.00	0.01
Thu., 05	Opposition's proposal of Waigel's dismission fails	54	0.67	0.26	0.02	0.06
Fri., 06	no news concerning EMU	41	0.54	0.37	0.02	0.07
Sat., 07	no news concerning EMU					
Mo., 09	Increasing doubts concerning the future of the governing coalition in Germany	52	0.63	0.21	0.04	0.12
Tue., 10	Crisis in the EU: Paris demands time for reflection of stability pact	18	0.56	0.22	0.06	0.17
Wed., 11	Jospin stops blockade: France wants to sign stability pact	17	0.41	0.41	0.00	0.18
Thu., 12	EU–crisis seems to be warded off, compromise in employment policy seems reachable	11	0.64	0.18	0.00	0.18
Fri., 13	no news concerning EMU	7	0.57	0.14	0.29	0.00
Sat., 14	No agreement on employment pact					
Mo., 16	Employment pact seems reachable	11	0.55	0.36	0.00	0.09
Tue., 17	Breakthrough at Amsterdam summit: Stability pact will not be altered	11	0.73	0.18	0.00	0.09
Wed., 18	Kohl successful in sieving his positions: agreement about treaty at EU–summit	11	0.55	0.27	0.00	0.18
Thu., 19	Kohl praises Amsterdam treaty	93	0.60	0.26	0.05	0.09
Fri., 20	Waigel and Tiedmeyer agree upon new valuation of gold reserves[14]	78	0.65	0.19	0.03	0.13
Sat., 21	Bonn has to use higher new borrowings					
Mo., 23	no news concerning EMU	99	0.68	0.23	0.00	0.09
Tue., 24	no news concerning EMU	45	0.71	0.22	0.00	0.07
Wed., 25	Stoiber demands exact observance of Maastricht–criteria [15]	30	0.70	0.20	0.03	0.07
Thu., 26	no news concerning EMU	31	0.81	0.06	0.03	0.10
Fri., 27	no news concerning EMU	13	0.54	0.31	0.00	0.15
Sat., 28	no news concerning EMU					
Mo., 30	Euro–struggle poisons coalition	34	0.65	0.26	0.00	0.09

Table 2 presents the news that occured during the period the survey was conducted. All information are taken from the Frankfurter Allgemeine Zeitung. The survey started on June 2. A written reminder was sent out on June 19. Column 4 shows the total number of responses on the corresponding survey day, and columns 4 to 7 show how the four possible answers are distributed on that day. For example, on June 9, 52 responses came in, 63 percent of the respondents on that day crossed "punctually".

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[14]Tiedmeyer is the president of the Deutsche Bundesbank.
[15]Stoiber is the prime minister of Bavaria.

TABLE 3
LIST OF VARIABLES

Variable	Meaning	Source
dependent variables		
dont	dummy variable which is coded one if the survey participant has no opinon about Germany's EMU membership and zero otherwise	SSBS
later	dummy variable which is coded one if the survey participant expects a delayed EMU start and zero if a punctual start was expected	SBSS
explanatory variables		
work	natural logarithm of the number of workers	CREDITREFORM
export	dummy variable which is coded one if an enterprise exports its services	SSBS
bad	bad news dummy variable which is coded one on June 2, 3, 9 and 10	SSBS
east	dummy variable which is coded one if an enterprise is from East Germany	CREDITREFORM
part	dummy variable which is coded one if an enterprise took part in a preparation course for the EMU	SSBS

Table 3 shows the list of variables which — besides the sectoral dummies — were used in the empirical investigation. Descriptive statistics of the variables are given in the appendix.

TABLE 4
BINOMIAL LOGIT ESTIMATION RESULTS:
SHORT MEMORY ("LATER")

Variable	Coefficient	Standard Error	$t - stat.$	$P - val.$
work	-0.1062	0.0346	-3.066	0.002
part	-0.3278	0.1004	-3.266	0.001
bad	0.2414	0.0936	2.577	0.010
good	0.0393	0.1542	0.254	0.799

Table 4 shows the binomial logit estimation results. The short memory case is presented here. The dependent variable is *later*. "P-val." denotes the significance level at which the null hypothesis (coefficient is not different from zero) would just be significant.

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TABLE 5
BINOMIAL LOGIT ESTIMATION RESULTS:
SHORT MEMORY ("DON'T KNOW")

Variable	Coefficient	Standard Error	$t - stat.$	$P - val.$
$part$	-0.3433	0.1434	-2.394	0.017
$east$	0.2716	0.1278	2.125	0.034
exp	-0.3307	0.1378	2.400	0.016
bad	-0.0478	0.1243	-0.385	0.700
$good$	-0.4327	0.2547	-1.699	0.089

Table 5 shows the binomial logit estimation results. The short memory case is presented here. The dependent variable is *dont*

TABLE 6
BINOMIAL LOGIT ESTIMATION RESULTS:
LONG MEMORY ("LATER")

Variable	Coefficient	Standard Error	$t - stat.$	$P - val.$
$work$	-0.3280	0.0348	-3.141	0.002
$part$	-0.3280	0.1007	-3.256	0.001
$p1$	-0.1718	0.1136	-1.512	0.130
$p2$	-0.2042	0.1081	-1.890	0.059

Table 6 shows the binomial logit estimation results. The long memory case is presented here. The dependent variable is *later*.

TABLE 7
BINOMIAL LOGIT ESTIMATION RESULTS:
LONG MEMORY ("DON'T KNOW")

Variable	Coefficient	Standard Error	$t - stat.$	$P - val.$
$part$	-0.3262	0.1434	-2.275	0.023
$east$	0.2940	0.1286	2.287	0.022
exp	-0.3171	0.1381	-2.296	0.022
$p1$	-0.2084	0.1802	-1.157	0.247
$p2$	-0.3656	0.1652	2.213	0.027

Table 7 shows the multinomial logit estimation results. The long memory case is presented. The dependent variable is *dont*.

Appendix

Descriptive statistics

Variable	type	# of Obs	Mean	Median	Std. Dev.	Min	Max
later	dummy	934	0.3255	—	—	0	1
dont	dummy	1026	0.0900	—	—	0	1
work	continuous	1026	3.4147	3.2189	1.3837	0	9.2591
part	dummy	1026	0.3080	—	—	0	1
east	dummy	1026	0.2563	—	—	0	1
exp	dummy	1026	0.3889	—	—	0	1
bad	dummy	1026	0.3587	—	—	0	1
good	dummy	1026	0.0916	—	—	0	1
p1	dummy	1026	0.7096	—	—	0	1
p2	dummy	1026	0.4337	—	—	0	1

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