## Explaining the level of individual Euroscepticism in Hungary

By

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#### Abstract

Economic, identity, institutional, political partisanship and cognitive political mobility theories all explain to some extent the individual level attitudes towards the European Union in its member states. This paper investigates the applicability of these theories – and of an additional policy interest theory - in the Hungarian context. Not only the effects of the variables derived from these theories, but also the changes in these effects are identified and tested. Data from the last seven years' Eurobarometer surveys are used to build nine pooled cross-sectional linear regression models, in which the roots of the level of individual Euroscepticism in Hungary are identified. On the one hand, the results show that most of the general theories actually explain to some extent the level of individual Euroscepticism in Hungary. On the other hand, some deviations from the general patterns and theories are present in the models. Besides, the changes in the effects show the probable influence of domestic events, about which some not tested speculations are presented.

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### **1. Introduction**

Since Hungary became the current President of the Council of the European Union, the discussion on some issues of the European Union has been growing in the domestic media. Especially, the economic and political relationships between Hungary and the EU have been placed into the focus. In my MA thesis<sup>1</sup>, I focus on one aspect of these relationships, which is the Hungarian public opinion towards the EU. More precisely, I focus on Euroscepticism, which is the concept of different negative feelings towards the European Union.<sup>2</sup>

Euroscepticism in general – in all the recent EU member states - is a well researched topic in the literature, which may be divided based on two features.<sup>3</sup> Firstly, there is a difference whether it focuses on aggregated level, on party level or on individual level Euroscepticism. Secondly, the literature may be divided based on whether it focuses on the causes, on the trends or on the consequences of Euroscepticism. A number of selected papers are summarized in the appropriate cells in Table 1. In my MA thesis, I focus on the causes of individual level Euroscepticism.<sup>4</sup> I decided to do so, based on a theoretical consideration. A proper understanding of the underlying individual level connections is necessary in order to understand aggregated level trends and to analyze aggregated level connections between different country level phenomena (Lindenberg, 1985; Coleman, 1986). Thus, Euroscepticism is conceptualized on the individual level in the next chapter and only the theories which explain the level of individual level Euroscepticism are presented in the literature review.

<sup>&</sup>lt;sup>1</sup> My MA thesis is partially based on my Quantitative Methods: Analyzing People final paper.

<sup>&</sup>lt;sup>2</sup> Euroscepticism is on the negative end of the scale of the public opinion towards the EU. A more precise conceptualization of individual level Euroscepticism is done in the Conceptualization of Euroscepticism chapter. <sup>3</sup> Other dividing lines could have been identified: theoretical/empirical works, or based on the papers' space and time scopes. Besides, within the selected dimensions more categories could have been identified. For instance, multilevel models also exist (e.g. Hix, 2007). However, for the sake of simplicity, I use this classification. <sup>4</sup> As I show it later, I also focus on the changes in the causes of individual level Euroscepticism.

	Causes	Trends	Consequences
Aggregated level	Eichenberg, & Dalton (1993, 2007); Netjes (2004); Mikhaylov, Marsh (2009)	Eichenberg, & Dalton (1993, 2007); Netjes (2004)	Mair (2000)
Party level	Hooghe, Marks, & Wilson (2002); Taggart, & Szczerbiak (2003)	Taggart, & Szczerbiak (2001); Kopecky, & Mudde (2002); Markowski, & Tucker (2010)	Hobolt, Spoon, & Tilley (2009); Ford, Goodwin, & Cutts (2010)
Individual level	Discussed in the literature review	Not applicable	-

**Table 1 -** Classifying the literature on Euroscepticism

Although the causes of individual level Euroscepticism vary not only across time but also across space (Hooghe, & Marks, 2007), in this MA thesis both are limited in their scopes. In the empirical analysis, I focus on the causes of individual level Euroscepticism in Hungary between 2004 and 2010. Limiting the scope does not have a technical or practical reason, at least regarding the space, more countries' individuals could have been included. However, there is one theoretical reason to limit the space to Hungary and there is also a theoretical reason to focus only on the time period between 2004 and 2010. I decided to analyze the Hungarian case because, as I have briefly pointed out two paragraphs earlier, the relevant Hungarian literature is almost absent. The trends in aggregated level Euroscepticism (Bátory, & Husz, 2006) and the trends and causes in party level Euroscepticism may be an exception with some relevant papers (Bátory, 2008; Dúró, 2010). However, as far as I am concerned, the causes of individual level Euroscepticism is a field which is not well researched in Hungary.

I decided to analyze the time period between 2004 and 2010 because 2004 was the year when Hungary joined the EU and the latest data available are from 2010. Besides, as it can be seen in Figure 1, regarding the percentage of respondents who had a negative image of the European Union, the Hungarian trends were similar to the European ones till 2009 but were slightly the opposites afterwards. This needs further investigation since in the beginning similarity to the common trends, which showed a growth in the level of Euroscepticism,

would have rather not been expected in a new member state. I would have expected decreasing Euroscepticism in a new member state after the accession. Based on Figure 1, it was not the case. However, a couple of years later, it would have been expected to have similar trends to the general ones. After 2009 it was not the case though. Aggregated level Euroscepticism was decreasing in Hungary and was growing in the EU. The analysis of the underlying individual level connections between Euroscepticism and its possible causes seems to be a puzzling and important task.<sup>5</sup>



#### Negative image of the EU

**Figure 1** - Euroscepticism in Hungary and in the EU<sup>6</sup> Source:

http://ec.europa.eu/public\_opinion/cf/showtable.cfm?keyID=2202&nationID=16,22,&startdate=2004.10&enddat e=2010.06

Thus, as it follows from the previous two paragraphs, my research question is the following: what are the causes of individual level Euroscepticism in Hungary and how did their effects change between 2004 and 2010? The main hypotheses and the models built to

<sup>&</sup>lt;sup>5</sup> Obviously, based on the results, I can only state anything about the individual level relationships in order to avoid ecological fallacy. However, this analysis can help to examine aggregated relationships later, in a different paper.

<sup>&</sup>lt;sup>6</sup> The question used to measure Euroscepticism can be found in Table 3. Answers fairly negative and very negative were added in order to get these results.

answer these questions are presented later in the thesis. The answers to these questions seem to fill an existing gap in the literature for the reasons discussed before. The results show that although there were some changes in the effects probably due to domestic changes, the causes of individual level Euroscepticism have been similar to the ones which have been present in the whole European Union.

The thesis has the following structure. After the Introduction, in Chapter 2, my understanding of individual level Euroscepticism is conceptualized. In Chapter 3, the relevant literature on the causes of individual level Euroscepticism (3.1), the applicability of the identified theories in the Hungarian context (3.2) and the hypotheses based on them (3.3) are presented. In Chapter 4, the models for hypothesis testing are built (4.1), the data used are identified (4.2) and the operationalization of the variables is done (4.3). In Chapter 5, the underlying assumptions behind the empirical results are checked (5.1.), afterwards the results of the empirical analysis are summarized (5.2), then the hypotheses are accepted or rejected (5.3) and the results are discussed (5.4). Finally, in Chapter 6, the conclusions of the paper are presented.

#### 2. Conceptualization of Euroscepticism

Euroscepticism may be conceptualized in several different ways based on three features: on the actor or the subject who has this attitude, on the formulation of the scale used to measure the phenomenon and on the object related to the European Union towards which the attitude is shown.<sup>7</sup> In the following paragraphs these three features, the possible conceptualizations based on them and the selected concept of Euroscepticism, which is used in the thesis, are presented. A clear conceptualization is needed since when one tests different theories, which explain the level of Euroscepticism, much depends on how the response variable (Euroscepticism) is conceptualized (Boomgarden et al., 2011).

Firstly, as it has been pointed out in the Introduction, the literature focuses on aggregated, party and individual level Euroscepticism. Thus, the conceptualization of Euroscepticism depends on the level on which it is examined since the actor or the subject whose opinion is analyzed is different in the three cases. In case of party level Euroscepticism, the focus is on the parties' attitudes towards different issues related to the European Union.<sup>8</sup> In case of aggregated or individual level Euroscepticism the focus is rather on the public opinion – on its aggregated or its individual form - towards issues related to the European Union.<sup>9</sup>

Secondly, there is a difference in the formulation of the concept. Authors in the 80's or in 90's rather focus on either parties' attitudes or on public opinion towards the European Union (e.g. Eichenberg, & Dalton, 1993; Gabel, & Whitten, 1997; Gabel, 1998). While the

<sup>&</sup>lt;sup>7</sup> This grouping is partially based on the paper written by Hooghe and Marks (2007) who also identify the different conceptualizations based on the actors and on the objects – however they identify different categories within the latter. The difference in the formulation is also identified by Boomgarden and his co-authors (2011).

<sup>&</sup>lt;sup>8</sup> There is also a distinction in the literature that focuses on party level Euroscepticism based on what parties' attitudes mean, more precisely on how can it be measured. It may be the attitudes of the given parties' supporters, the party elites' opinions, the ideas presented in the party manifestos or the experts' perceptions of the parties' attitudes (Taggart, & Szczerbiak, 2003).

<sup>&</sup>lt;sup>9</sup> In this first grouping, I do not present the relevant literature since it is very similar to the one presented in Table 1. All the articles put in the party level row use the conceptualizations in which the actor is the party. While all the articles put in the aggregated and individual level rows use the conceptualizations in which the actor is the public.

papers written in the 00's rather focus explicitly on Euroscepticism – only on the negative opinions on the issues related to the European Union (e.g. Taggart, & Szczerbiak 2003; Lubbers, & Scheepers, 2007; McLaren, 2007; Markowski, & Tucker 2010).<sup>10</sup> As it can be seen, the difference is that previously the whole continuum of the attitudes towards issues related to the European Union was in the focus, while in more recent works authors tend to focus on the negative side of this continuum.<sup>11</sup> In my understanding, substantially, there is no real difference between the two ways of conceptualizing the attitudes towards the European Union based on this feature. There is more of a difference in the formulation of the concept of the phenomenon analyzed, and not in the concept of the phenomenon itself. Although authors who analyze the whole range of attitudes towards the European Union do not use the word Euroscepticism, implicitly they also deal with the same phenomenon.

Thirdly, there is a huge difference regarding the object included in the concept. The first possibility is when Euroscepticism is regarded as the negative attitude either towards the whole European community or towards the institutions working in the community (Hooghe, & Marks, 2007; Mikhaylov, Marsh, 2009). This logic is based on the general discussion on different levels of political support, which can be expressed towards the regime - diffuse support - or towards the institutions of the given regime - specific support (Easton, 1975; Dalton, 1999; Haerpfer, 2007). Following this logic, on the one hand the object of the attitudes towards the European Union may be the community itself. Even within this case there are various attempts to identify the object of Euroscepticism. Some authors identify Euroscepticism as a negative attitude towards the process of the European integration (e.g. Taggart, & Szcerbiak, 2001; De Vries, & Edwards, 2009), some others claim that it is a negative attitude towards the process of the integration of the European Union (e.g. Kopecky, & Mudde, 2002), while in some papers the negative personal feelings, the negative image

<sup>&</sup>lt;sup>10</sup>However, it has to be admitted that even in the 00's some authors focus on public opinion towards the EU and do not use the word Euroscepticism (e.g. Eichenberg, & Dalton, 2007; Mikhaylov, & Marsh, 2009).

<sup>&</sup>lt;sup>11</sup> The history of using the concept of Euroscepticism is described in more detail by Hooghe and Marks (2007).

towards the community are regarded as the best proxies for Euroscepticism (partly McLaren, 2007).<sup>12</sup> On the other hand, the object may be the support for the institutions of the European Union.<sup>13</sup> The second possibility is when the object is the perception of whether it is beneficial – based on the evaluation of the advantages and disadvantages - for the own country or not to be a member in the EU (Gabel, 1998; Carey, & Lebo, 2001; Mikhaylov, & Marsh, 2009).<sup>14</sup> This object is different from the first two since not only the perception of – or the support for - the European community or of its institutions is taken into account, but also the perception of the characteristics of the relationship between a given country and the whole European Union. The third possibility is the use of a complex mixture of these different possible objects (e.g. Netjes, 2004, McLaren, 2007).

In this chapter, the three main features used for the conceptualization of Euroscepticism have been presented. Obviously, the categories within the three different features can be selected in any pattern in order to create the concept of Euroscepticism. For me, in the thesis, the concept of Euroscepticism is the negative (as the formulation) individual opinion (as the actor) towards the community (as the object). Regarding the formulation and the actor, my decision is obvious since I focus on the causes of individual level Euroscepticism. Regarding the object, the whole community has been selected since the support for the whole regime is the widest concept (Haerpfer, 2007), and also the use of the other two objects would raise a lot of additional problems. Firstly, as I have pointed out before (in note 13), the support for EU institutions is rather used as an explanatory variable of Euroscepticism and not as a form of that. Secondly, on the individual level, the perception of whether EU membership is beneficial or not for a country does not seem to be the most

<sup>&</sup>lt;sup>12</sup> However, Lubbers and Scheepers (2007) argue that these three objects are not very different.

<sup>&</sup>lt;sup>13</sup> However, this is rather used as an explanatory variable of the support for the whole community (e.g. Sanchez-Cuenca, 2000; Rohrschneider, 2002; McLaren, 2007). The use of specific support as the explanation of diffuse support is usual in the general literature on political support as well (Nevitte, & Kanji, 2003).

<sup>&</sup>lt;sup>14</sup> Like trust in the EU institutions, it is also used as an explanatory variable of the support for the whole community (Gabel, & Palmer, 1995). However, this is not as usual as using trust in the EU institutions as an explanatory variable.

appropriate object to conceptualize Euroscepticism since it covers more than just the perception of the European Union. The possible conceptualizations based on the three features and the one selected in my thesis, are summarized in Figure 2. However, choosing the final concept of Euroscepticism is done in the Operationalization of the variables section, based on the characteristics of the data. In the next section, the theories of explaining individual level Euroscepticism - a concept created in this section - are presented.



Figure 2 - Conceptualization of Euroscepticism

#### **3.** Theoretical background

This chapter is divided into three sections. In the first section the general theories which identify the possible causes of individual level Euroscepticism are summarized. In the second section speculations on the applicability and the relevance of these theories in the Hungarian context are presented. Finally, the main hypotheses of my thesis are derived from the first and second sections.

#### **3.1.** Theories of explaining individual level Euroscepticism in general

In the general literature review the most important theories of the causes of individual level Euroscepticism are summarized one by one.<sup>15</sup> All the relevant papers focus on several – however different sets of – EU member states. The grouping used here is partially based on the works written by Gabel (1998) and McLaren (2007) and is partially my construction. Five major empirically examined groups of individual level explanatory variables can be identified. I use the following structure for all the five theories. The name of the theory, its conceptualization – which variables belong to the theory – and the most important relevant empirical results are presented. After discussing the five theories, the most important control variables used in the literature are identified and their possible effects are concluded.

Firstly, the economic theory of explaining individual level Euroscepticism can be identified. This theory focuses on the effects of subjective economic perceptions on Euroscepticism. Gabel and Whitten (1997) show that subjective perceptions of both personal and national economic situations have a negative and statistically significant effect on the level of individual Euroscepticism. Their main finding is that these subjective evaluations

<sup>&</sup>lt;sup>15</sup> The conceptualization of Euroscepticism is not exactly the same in all the papers, as I have pointed out in the previous chapter. Although the empirical results may depend on the conceptualization of Euroscepticism (Boomgarden et al., 2011), all the papers based on public opinion – on its individual form - towards the EU are taken into account here. Besides, it has to be mentioned that for some authors, the response variable is the support for the European Union and not Euroscepticism. Thus, I present their results by taking this into account.

have statistically and substantially more robust effects than aggregated objective economic conditions. Due to data limitations, they show the effects of only retrospective economic perceptions. Gabel (1998) and Carey and Lebo (2001) support their findings. <sup>16</sup> Due to data limitations, my conceptualization of the economic theory is slightly different. I only discuss prospective perception in case of national economy and both prospective and current perceptions in case of personal economic situation.

Secondly, the identity theory of explaining individual level Euroscepticism can be identified. This theory claims that national identity has influence on the level of Euroscepticism. Carey and Lebo (2001) show that the higher the level of national identity is, the higher the level of Euroscepticism is. Based on the Thesis Writing Workshops (08/03/2011) the more detailed expectation is the following: if one considers three categories – no national identity, existence of inclusive national identity and existence of exclusive national identity –, inclusive national identity increases, while exclusive national identity increases even more the level of Euroscepticism. De Vries and Edwards (2009) use a similar concept of national identity with the same categories and they show similar relationships. They also show a slightly positive relationship in case of exclusive national identity and Euroscepticism and a more robust positive relationship in case of exclusive national identity and Euroscepticism.

Thirdly, the institutional theory of explaining individual level Euroscepticism can be identified. This theory focuses on the effects of the level of trust in different institutions on Euroscepticism. Two different approaches exist in this theory. On the one hand, some authors examine the effects of different types of trusts on the level of Euroscepticism. Gabel (1998) shows that trust in the national institutions has a negative and statistically significant effect on Euroscepticism. However, McLaren (2007) shows that this relationship is statistically not

<sup>&</sup>lt;sup>16</sup> In case of perception of national economic situation Gabel and Palmer (1995) come to the same conclusion.

significant and that rather trust in the European institutions may explain Euroscepticism in a way that higher trust in those institutions decreases the level of Euroscepticism. On the other hand, some authors take into account trust both in domestic and in EU institutions. Sanchez-Cuenca (2000) shows that individuals with higher level of trust in the EU institutions and with lower level of trust in the national institutions are less Eurosceptic.<sup>17</sup> Rohrschneider (2002) shows that in countries with high level of aggregated trust in the national institutions, the better feelings towards EU institutions have a negative and statistically significant effect on the level of Euroscepticism.<sup>18</sup>

Fourthly, the partisanship theory of explaining individual level Euroscepticism can be identified. In this case the political ideology positions of the individuals are the explanatory factors of the level of Euroscepticism. Partisanship may be an explanatory factor where individuals with left ideologies have lower level of Euroscepticism (Rohrschneider, 2002). However, McLaren (2007) shows that left-right ideological position has a statistically not significant effect on the level of Euroscepticism.

Fifthly, the cognitive political mobility theory of explaining individual level Euroscepticism can be identified. This theory shows both the effects of the frequency of political discussions and of the political knowledge on the level of Euroscepticism. Janssen (1991) examines Inglehart's (1970) assumptions and shows with empirical evidence that people who discuss political issues more and who have more knowledge of these particular issues are less Eurosceptic. Gabel and Whitten (1997), Gabel (1998), Carey and Lebo (2001) and McLaren (2007) all support these findings.

Most of the papers presented control for different socio-economic characteristics as well. Regarding age, the results are very different: the effects on the level of Euroscepticism may be statistically not significant (Janssen 1991; Carey, & Lebo, 2001; McLaren, 2007),

<sup>&</sup>lt;sup>17</sup> However, the replication of his theory is partially available since there are some important variables for replication which are not present in the dataset used.

<sup>&</sup>lt;sup>18</sup> However, this theory can only be analyzed in a multilevel model with incorporating more countries.

may be negative and statistically significant - the older someone is, the less Eurosceptic he/she is - (Gabel, & Whitten, 1997; Gabel, 1998; Lubbers, & Scheepers, 2007) or may be positive and statistically significant (Janssen, 1991). Regarding the relationship between sex and Euroscepticism, Gabel and Whitten (1997), Gabel (1998), Carey and Lebo (2001), Lubbers and Scheepers (2007) and McLaren (2007) all find it to be statistically significant and conclude that females are more Eurosceptic. Regarding occupation, both Gabel and Whitten (1997) and Gabel (1998) show that being a manager has a negative, while being a manual worker or being unemployed has a positive and statistically significant effect on the level of Euroscepticism. McLaren (2007) shows similar results, however she claims that being unemployed does not have a statistically significant effect. Regarding education, both Gabel (1998) and Lubbers and Scheepers (2007) show that the level of education has a negative and statistically significant effect on the level of Euroscepticism. However, McLaren (2007) shows that this relationship is statistically not significant. Regarding place of living, the authors (Gabel, & Whitten, 1997; Lubbers, Scheepers, 2007) show statistically not significant relationship. Regarding income, Gabel (1998), Lubbers and Scheepers (2007) and McLaren (2007) all show that people with higher incomes are less Eurosceptic. Regarding church attendance, Lubbers and Scheepers (2007) conclude that individuals who attend church at least once a week are more Eurosceptic.

It has to be emphasized that country level, contextual characteristics – such as the demographic and economic conditions (Lubbers, & Scheepers, 2007), the existence of extreme parties (De Vries, & Edwards, 2007), the constitutional form (Hix, 2007), the number of deaths in World War II (Gabel, & Palmer, 1995) in the individual's country or the length of the membership of the individual's country (Anderson, & Reicher, 1995) - may have an effect

on individual level Euroscepticism. Such an analysis is not done in my MA thesis since that would require to have several cases on the country level. However, I only focus on one case.<sup>19</sup>

In this section, the most important theories of explaining individual level Euroscepticism have been summarized. In the next section, my speculations on the applicability of these explanatory variables of individual level Euroscepticism in Hungary are presented. After that, based on these two sections, the hypotheses to be analyzed are presented.

# **3.2.** Speculations on the applicability of the general theories of explaining individual level Euroscepticism in the Hungarian context

In the previous section the five theories of explaining individual level Euroscepticism have been presented. In this section my aim is to speculate on whether the presented explanatory variables of the five theories really have an effect on the level of individual Euroscepticism in the Hungarian political reality. The structure of this section is the following. After briefly showing the disadvantages and the advantages of the assumptions presented here, I speculate on whether the five groups of explanatory variables – and the control variables - identified in the previous section have different effects on individual level Euroscepticism in Hungary than in general. Afterwards, I identify a new possible explanation of individual level Euroscepticism.<sup>20</sup>

It has to be emphasized that the speculations presented here are based on various types of data. More precisely, most of them are rather based on my intuitions which are based on empirical facts and on results slightly or not at all related to the literature on individual level

<sup>&</sup>lt;sup>19</sup> The solution could have been the inclusion of regional characteristics, for instance. However, such an analysis is not applicable because of the characteristics of the data used.

<sup>&</sup>lt;sup>20</sup> Although I could have speculated on the changes over time based on the frequencies of the different variables, I do not do so since my aim is to explain the level of individual level Euroscepticism and not to do a descriptive study.

Euroscepticism.<sup>21</sup> Thus, scientifically these speculations can be defeated. However, this section seems to be inevitable for three reasons. Firstly, in spite of the absence of prior Hungarian literature on the possible explanatory variables of individual level Euroscepticism, not only the generalities in the EU but also the Hungarian specificities should be taken into account when formulating the hypotheses. Secondly, putting the whole analysis of the possible explanatory variables of Euroscepticism in the Hungarian context would possibly raise the Political Science relevance of my thesis. Finally, assumptions on the changes in the effects of the explanatory variables over time may be identified in this section.

Regarding the economic theory, I have no special expectations in the case of Hungary.

Regarding the identity theory, I expect the same structure of effects as it is proposed in the general literature.<sup>22</sup>

Regarding the institutional theory, my expectation is not based on existing data. I have the intuition that people who have more trust in the EU institutions are less Eurosceptic in Hungary in all the years analyzed. There was no event that would have changed this relationship. However, regarding trust in the national government, I expect a different situation. After the elections in 2010, people who had trust in the government were probably different from the individuals who had trust in the government before – due to the new government. It has had a more anti-EU rhetoric than its predecessor. Thus, I expect that the effect of trust in the national government on the level of Euroscepticism is not necessarily negative in 2010 – or if negative, not as substantially significant as before. <sup>23</sup>

<sup>&</sup>lt;sup>21</sup> It has to be emphasized that although all the assumptions presented here focus on individual level relationships, some of them are based on individual level relationships while some are based on aggregated level relationships or trends. However, since I do not state anything about the individual level relationships, just formulate some speculations on them, which are tested later, I avoid the possible problem of ecological fallacy. Besides, to have an assumption on individual level relationship based on aggregated level ones is accepted (Rothstein, 2005).

<sup>&</sup>lt;sup>22</sup> Although a paper written by Gal (1991) is not about the possible causes of Euroscepticism, it identifies the same structure of national identity in Hungary as the one proposed in the general literature: the possible dualistic European vision of national identity (inclusive national identity), the national (exclusive national identity) and the Europeanist (no national identity) positions. This grouping is not usual in the Hungarian literature.

 $<sup>^{23}</sup>$  Although this relationship could have been better analyzed with data from 2011, it is not possible due to the absence of data from that year.

Regarding the partisanship theory, I expect very similar trends to the ones presented in the general literature – individuals with left ideologies have lower level of Euroscepticism. Besides, I expect this relationship to be strong due to the divided Hungarian political reality.

Regarding the cognitive political mobility theory, I do not have any specific expectations in the Hungarian context.

Regarding the control variables, although no analysis has been done on explaining the level of individual Euroscepticism in Hungary, several surveys have been done on xenophobia and anti-immigrant attitudes. Obviously, Euroscepticism and xenophobia are not the same. However, some speculations can be made based on the results about the latter.<sup>24</sup>Thus, based on previous Hungarian researches, higher age, being a woman, doing manual work, less education, more religiousness, coming from South Transdanubia and from the North Great Plain lead to higher level of xenophobia (the first two variables in Gödri, 2010, all the variables in Tóth, 2004). Based on these results, I expect that the same demographic characteristics lead to higher level of Euroscepticism. Age is the only control variable for which the general literature shows a different effect – most of the authors find the effect of age to be not significant or negative on Euroscepticism. My intuition is that the experience from the recent Hungarian history is the reason because of which older individuals are more xenophobic and are probably less supportive of international organizations.

Besides using the general explanatory variables and their applications in the Hungarian context, I include one more possible explanation which I borrow from Hungarian party level theories on Euroscepticism. It is related to the issue of agriculture. I expect higher Euroscepticism for those who think agricultural issues and policies should be decided on the national level and I also expect that this relationship becomes substantially stronger over

<sup>&</sup>lt;sup>24</sup> I base this assumption on the fact that Euroscepticism and xenophobia are usually correlated variables (Lubbers, & Scheepers, 2007; Ford, Goodwin, & Cutts, 2010).

time.<sup>25</sup> My expectations are partially based on the emergence of *Jobbik*, a party that opposes the European Union and wants more national independence in agricultural issues (Dúró, 2010; Jobbik Party Manifesto, p. 18.). Jobbik is Eurosceptic partially based on agricultural issues. Jobbik may have formed and influenced the attitudes of its supporters towards the European Union since the phenomenon according to which individuals take cues from their preferred parties in issues related to the European Union is general (Markowski, & Tucker 2010). Thus, the relationship between Euroscepticism and the aim to have national independence in agricultural issues - through which Euroscepticism is formulated - is probably stronger for *Jobbik* supporters at least.<sup>26</sup>My speculation based on this is that the emergence and the growing importance of Jobbik led to the emergence and the growing substantial significance of the following relationship. Individuals who want national decisionmaking in agricultural issues are more Eurosceptic over time – especially after 2009.<sup>27</sup> My expectations are not only based on Jobbik's role but also on the fact that the Hungarian agricultural export to the EU suffered after joining the EU (Jámbor, 2010). Thus, I would expect that individuals who were for nationally independent agriculture became even more Eurosceptic after the reinforcing experience they had gained on their positions and individuals who were for jointly led agriculture became more Eurosceptic after the negative experience.<sup>28</sup> Thus, the change in the substantial significance of the effects may have occurred before 2009 and also even individuals who want joint decision-making are more Eurosceptic than in 2004.

In the previous section the possible explanatory variables of Euroscepticism have been identified based on the general literature. In this section my speculations on the existence of

 $<sup>^{25}</sup>$  Some authors argue that if someone wants to deal with issues on national level rather than on EU level is rather a form of Euroscepticism (Lubbers, & Scheepers, 2007). However, I use it as an explanatory variable of Euroscepticism.

<sup>&</sup>lt;sup>26</sup> For a proper analysis to support this idea a multilevel analysis should be done. However, I do not want to analyze the party level hypotheses.

<sup>&</sup>lt;sup>27</sup> *Jobbik* gained more importance after 2009 based on public opinion polls about the number of supporters (TÁRKI Opinion Poll Results) and on the European Parliament election results (European Parliament Results in 2009).

<sup>&</sup>lt;sup>28</sup> Or another possible outcome is that individuals who were for joint agriculture are rather against it recently.

these variables and the possible changes in their effects in Hungary have been presented. Based on these two sections, in the next section my hypotheses are formulated.

#### 3.3. Hypotheses

Based on the theories identified in the literature review and on the speculations about their Hungarian applicability, my hypotheses on the causes of individual level Euroscepticism and on their possible changes over time are presented. These two sources of hypotheses are mainly complementary or mutually reinforcing but oppose each other in two cases: in case of the institutional theory and in case of some control variables (especially in case of age). The structure of the hypotheses is the following. The first, second, third, fourth, fifth and sixth hypotheses are all about the possible theories and about the possible explanatory variables of individual level Euroscepticism, the seventh is about the possible effects of the control variables, while the eighth is about the possible changes in the effects over time.

H1 – Economic theory: individuals who are more satisfied with their current economic situation and/or have better expectations for their personal economic situation and/or have better expectations for Hungary' economic situation are less Eurosceptic.

H2 – Identity theory: individuals who have inclusive national identity are more Eurosceptic than individuals who have no national identity, while individuals who have exclusive national identity are more Eurosceptic than individuals who have no national identity and than individuals with inclusive national identity.

H3 – Institutional theory: individuals who have more trust in the national government and/or in the EU institutions are less Eurosceptic. However, as it was shown in the relevant paragraph, other results may occur as well. As it is pointed out in H8, a change is also expected over time for the effect of trust in the national government.

H4 – Partisanship theory: individuals who are rather on the left of the left-right selfpositioning scale are less Eurosceptic.

H5 – Cognitive political mobility theory <sup>29</sup>: individuals who discuss national political issues occasionally or frequently are less Eurosceptic than individuals who do not discuss those issues.

H6 – Policy interest theory: individuals who want more national independence in agricultural issues are more Eurosceptic. Changes over time are expected and discussed in H8.

 $H7 - Control variables^{30}$ : individuals with higher age<sup>31</sup>, females, individuals with lower position jobs, individuals with less education and individuals from South Transdanubia and from North Great Plain are more Eurosceptic. Place of living (the size of the place) has no effect on Euroscepticism.

H8 – Changes over time: Regarding the changes in the causes of individual level Euroscepticism – the changes over time in the first six hypotheses -, there are no expectations from the literature. The cited papers either focus on a static state of Euroscepticism or focus on the dynamics in an older time period. However, I have two expectations based on my speculations on the Hungarian situation. Firstly, I expect that individuals who have more trust in the national government are not necessarily less Eurosceptic in 2010 than who have no trust in 2010 – the relationship either may be positive or statistically not significant. My second expectation is that the positions in agricultural issues gain more importance over time. Besides, individuals for jointly led agriculture are more Eurosceptic after 2009 than in 2004.

As the result of the previous three sections, the hypotheses of explaining individual level Euroscepticism are set. In the next sections the models of hypothesis testing are built, the data used are identified and the operationalization of the variables presented here is done.

<sup>&</sup>lt;sup>29</sup> Political knowledge can not be examined with the current dataset.

<sup>&</sup>lt;sup>30</sup> Due to the limitations of the dataset, religion and income are not taken into account.

<sup>&</sup>lt;sup>31</sup> Regarding age, the results presented by Janssen (1991) and the speculations based on the Hungarian results on xenophobia were taken into account in the hypothesis.

#### 4. Research design

This chapter is divided into three sections. In the first section the models of testing the eight hypotheses are presented. In the second section the characteristics of the data used are briefly discussed. Finally, the operationalization of the variables is done.

#### 4.1. Model building

In this section, the way how the hypotheses can be tested is presented. Firstly, the statistical method used is shown. Afterwards, the main concerns regarding the method are presented. Then, the reasons why it seems to be the most appropriate method is pointed out. Finally, the models are built, based on the previous sections and also on the general model specifications discussed in this section.

The statistical method for hypothesis testing used is a pooled cross-sectional linear regression<sup>32</sup> analysis over time. There are two important features of this type of analysis. Firstly, it is a linear regression. Other regression type analyses – ANOVA or logistic regression<sup>33</sup> – were not selected because of the level of measurement of the variables.<sup>34</sup> Secondly, it is not simply cross-sectional but pooled cross-sectional over-time. The pooled cross-sectional linear regression. In this case both the predefined roles – existence of both response and explanatory variables – and the levels of measurements are the same. However, the analyzed dataset is the sum of datasets from different years. These datasets are similar since the same questions and

 $<sup>^{32}</sup>$  Term linear regression in a narrower sense is used in cases when both the response and the explanatory variables are measured on a continuous – ordinal with at least four categories, interval or ratio - scale. Here, I use it in a broader sense in which only the response variable has to be continuous and the explanatory variables may be either categorical – on a nominal or ordinal scale – or continuous.

<sup>&</sup>lt;sup>33</sup> More precisely, their pooled cross-sectional over time form: pooled cross-sectional ANOVA or pooled crosssectional logistic regression.

<sup>&</sup>lt;sup>34</sup> However, ordinal logistic regression could have been done even with the given codings. It is not used in the main text due to its complexity. However, in Appendix 3 the main model (Model 9) is done in logistic ordinal regression as well and the results (Table 21) are compared to the ones got from linear regression.

codings are used to create them. However, the random samples from which the questions are asked are completely different. Thus, the dataset is very similar to a dataset which is asked in one particular year. The only difference is that in case of any type of pooled time-series analysis there is a new variable which is a series of year dummies. For each case, the year when the questions were asked is shown. These year dummies can be included and also be interacted with other explanatory variables. Thus, the changes in the effects of explanatory variables on the response variable over time can be taken into account (Wooldridge, 2009).<sup>35</sup>

The main concerns with the models I build, come both from the method itself and from the variables used. Regarding the method, there may problems since it is a linear regression. The linear regression has several underlying assumptions which all have to be checked and corrected if necessary. Pooled cross-sectional linear regressions over time have basically the same underlying assumptions (Wooldridge, 2009). These assumptions are checked in the first section of the Empirical results chapter. Regarding the variables selected, the main problem is that an attitudinal variable is explained partially by other attitudinal variables. Tóka and Popescu (2007) implicitly claim that the use of attitudinal variables as explanatory variables may lead to endogeneity – although they do it in a different field of Political Science. The latter is a problem, since it means that the response and explanatory variables are codetermined and their causal relationship may exist the other way around. However, in this case it is not a real possibility to rule out the attitudinal variables as explanatory variables. The hypotheses are formulated in a way that omitting the attitudinal variables would not make sense. Examining only the effects of socio-economic variables on Euroscepticism would not be relevant. Besides, the papers presented in the literature review all follow the same logic of explaining attitudes by attitudes.

<sup>&</sup>lt;sup>35</sup> With the interactions, the changes in the separate effects are identified. The effect of a one-unit change in a continuous variable or the change compared to the reference category in a categorical variable is different in different years. This difference can be identified with the help of the interactions. The effects of the variables in different years can be compared to the effects in the reference year, which is 2004 in my analysis.

Although there are some reasons because of which the pooled cross-sectional linear regression over time may be problematic, I decided to use this method in my MA thesis. The main reason is that it is not more problematic than a linear regression. However, it has the advantage of showing the changes in the effects over time. The superior method, which is panel data analysis (Halaby, 2004; Brüderl, 2005; Sturgis, Patulny, & Allum, 2009), with which it should have been possible – besides the solution of omitting the attitudinal variables - to solve the problem of endogeneity is not applicable since relevant type of data with the relevant variables does not exist in Hungary. Thus, if one takes into account the current available data, their characteristics – the level of measurement of the variables – and the hypotheses to be tested, pooled cross-sectional linear regression analysis over time seems to be the most appropriate method.<sup>36</sup>

I build my models given the model specifications and the hypotheses discussed. The response variable is Euroscepticism. The explanatory variables are the ones identified in the previous section. These are perception of current situation, prospective perception of personal and national economic situations, the type of national identity, trust in the national government and in the EU institutions - the interaction of the two types of trust in these institutions -, ideological position on the left-right scale, frequency of political discussion, opinions on agricultural policy interests, age, gender current occupation, education, place of living and region. The year dummies and the interactions among all the explanatory – except the control – variables and year dummies are included.

The explanatory variables are included in two different types of models. Firstly, I build models in which the variables of the given theory, the socio-economic control variables,

<sup>&</sup>lt;sup>36</sup> More precisely, with taking into account the current circumstances two other methods could have been considered. Regarding the feature that linear regression is done for hypothesis testing, ordinal logistic regression may have been a superior method. As it has been discussed before, it is done and checked in Appendix 3. Regarding the feature that a pooled cross-sectional analysis is done, multilevel analysis could have been another possible solution. In a multilevel model the years are taken into account on the second level. However, I do not see great advantage in taking into account years on a second level compared to introducing year dummies.

the year dummies and their interactions with the variables derived from the particular theory are included. In Model 1, the variables of the economic theory – perception of current situation, prospective perception of personal economic status, prospective perception of own country's economic status -, the socio-economic variables, the year dummies and the interactions are included. In Model 2, the variable of the identity theory – type of national identity -, the socio-economic variables, the year dummies are included. In Model 3, the variables of the institutional theory – trust in the national government, trust in the European institutions and their interaction -, the socio-economic variables, the year dummies and the interactions are included. In Model 4, the variable of the partisanship theory – position on the left-right scale -, the socio-economic variables, the year dummies and the interactions are included. In Model 5, the variable of the cognitive political mobility theory – frequency of political discussion -, the socio-economic variables, the year dummies and the interactions are included. In Model 5, the variable of the policy interest theory – Hungarian agricultural policy interests -, the socio-economic variables, the year dummies and the interactions are included.

Secondly, I build three models (Model 7, Model 8, Model 9) in which all – or almost all - the possible variables and their interactions with the year dummies<sup>38</sup> are included in order to control for all the possible effects.<sup>39</sup>The latter is the statistically more acceptable method since the aim should be to include all the variables which possibly have an effect on the response variable. However, analyzing the effects of groups of the variables one by one – and not the effects of all the possible variables – is also usual in the literature.

 $<sup>^{37}</sup>$  The importance of using different models is questionable since most of the theories are conceptualized in a way that only one variable stands for them. However, since there are two theories with more than one variable, I use this way of comparing the models as well – the variables can be compared separately in the model with all the variables.

<sup>&</sup>lt;sup>38</sup> The interactions with the year dummies are only tested for the variables derived from the theories in all the cases.

<sup>&</sup>lt;sup>39</sup> Due to some problems with the data, which I discuss in the Data section in more detail, there is a model in which all the variables are included except national identity and frequency of political discussion (Model 7), a model in which only national identity is excluded (Model 8) and a model in which no variables are missing (Model 9).

In case of Models 1-6 the main focus is rather on the model-fit and not really on the effects of the explanatory variables. It means two things. Although I control for the socioeconomic variables and for the interactions in case of these models, I do not interpret them there. Besides, even in case of the variables derived from the theories, the effects are presented briefly. The main aim there is to compare how much of the variance of the response variable is explained by the explanatory variables derived from the given models.<sup>40</sup> In case of Models 7-9, I focus not only on the model-fit, but also on the effects of all the explanatory variables and on the interactions. This decision is based on the statistical superiority of the models in which all the possible explanatory variables of the response variable are included.

In this section, the models which are used to test my hypotheses have been built. The main problems with the method and the reasons why it was selected have been summarized. In the next section, the characteristics of the data used are presented.

#### 4.2. Data

In this section, firstly the characteristics of the data used are presented. Secondly, the relevance of the data is shown. Thirdly, the modifications made to the data are discussed. Fourthly, two major practical problems with the data and their consequences are taken into consideration.

The method of hypothesis testing – the pooled cross-sectional linear regression over time – is based on a desk research in my MA thesis. It means that I analyze existing data. The characteristics of the data used - the name, the dates of collection and publication, the name of the collector, the sampling method to gather them, the sample sizes, the data collection and capturing methods - are presented in Table 2.

**CEU eTD Collection** 

<sup>&</sup>lt;sup>40</sup> Although it is usually done in the literature, comparing the model-fits of different models is questionable methodologically. Besides, there is also a problem with proper operationalization which I discuss in more details in section 5.1.

	2004	2005	2006	2007	2008	2009	2010
Number	62.0	64.2	66.1	68.1	70.1	72.4	73.4
Date of	10/2004-	10/2005-	09/2006-	09/2007-	10/2008-	10/2009-	05/2010
publication	11/2004	11/2005	11/2006	11/2007	11/2008	11/2009	03/2010
Date of	10/10-	18/10-	06/09-	27/09-	10/10-	29/10-	07/05-
collection	28/10	06/11	25/09	24/10	02/11	15/11	23/05
Collector	TNS Hungary						
Sampling method	Multi-stage random sampling procedure						
Sample size	1014	1000	1005	1000	1002	1023	1021
Data	Personal interviews for gathering them						
collection	CAPI for capturing them						

Table 2 - Characteristics of the data used

Source: GESIS, Leibnitz Institute for the Social Sciences.

Each year two surveys of Standard Eurobarometers are asked in each country. As it can be seen in Table 2, I selected the second in all years – except in 2010 when it is not available. The issue numbers of Standard Eurobarometer surveys are collected in a file presented by GESIS (Overview of Standard Eurobarometer). The aggregated results are available on the Eurobarometer webpage (European Commission). The individual level results, the questionnaires and the information on sampling and on data collection are available on the GESIS webpage (GESIS).

Eurobarometer surveys as the source for desk research are accepted and widely used in the field of analyzing Euroscepticism. Mainly, all the relevant articles presented in the literature review do desk research based on these surveys. However, the recent Eurobarometers make it impossible to analyze some of the important relationships since occasionally they do not ask the very same set of questions (McLaren, 2007).

Before doing the empirical research, I made two main modifications to the data. One is that, since only the Hungarian individuals are analyzed in the thesis, the irrelevant parts were deleted – meaning all the other countries' respondents.<sup>41</sup>The other is that, since seven years are analyzed, the data files from these seven years were downloaded and merged together. Technically, it involved the search for the variables based on the same questions, the unification of their names and labels, the unification of their codings, the merge of the files, the unification of the missing values and then recodings - in order to have the categories in the wanted order presented in the next chapter - again.<sup>42</sup>

Finally, as it was mentioned in the previous section, instead of building a model with all the possible variables (Model 9), I also build an almost complete model excluding national identity and frequency of political discussion (Model 7), and one excluding national identity only (Model 8). The reason for that is based on the characteristics of the data. In 2006, 2007, 2008 and 2009 the question about national identity was not asked, while in 2009 the question about frequency of political discussion was omitted from the questionnaire. This has an effect on the number of cases. Thus, I have decided to do this part of the analysis in three different models.

In this section, the main characteristics of the data used have been summarized. In the following section, the way how the variables are created and measured, based on the selected data, is presented.

#### 4.3. Operationalization of the variables

In this section, the operationalization of the variables is presented. Firstly, in Table 3 the operationalization of the variables is summarized and the parts of Table 3 are discussed. Secondly, for the operationalization of each variable, some preliminary changes are shown.

<sup>&</sup>lt;sup>41</sup> It may cause problems regarding the weighting. But this problem would be rather relevant for descriptive analyses and not for the explanatory ones.

 $<sup>^{42}</sup>$  The preliminary steps were done in SPSS in order to have the merged data file, while the final recodings and the data analysis were done in R. The reason for using both programmes is the following. The data file was given in SPSS format, thus the preliminary steps were rather done in that programme. While the analysis was done in R since I have a better understanding of that statistical programme.

In Table 3 the operationalization of both the response and explanatory variables is shown. In the first column the different variables are shown. In the second column the questions from the Eurobarometers are presented. These questions were formulated mainly in the same way in all the seven questionnaires. In the third column the coding of the variables is shown. These are not the original codings but the ones done by me - in some cases (Hungarian agricultural policy interest and most of the socio-economic variables) the originals were not changed. Some recodings were done. This either meant the change of the direction - for instance if 1 was the highest value then it became the lowest - because of practical reasons or the aggregation of the possible categories when more questions were used to create one variable. The "do not know answers" and no responses were regarded as missing values.<sup>43</sup> In the coding column the meaning of lower or higher values is also presented. Finally, in the fourth column the level of measurement is shown. It can either be categorical – on a nominal or ordinal scale - or continuous - on an ordinal scale with at least four possible categories, on an interval or ratio scale. Although in the table the range of the categories of the continuous variables is presented, in the final analysis those explanatory variables were all standardized.

It also has to be mentioned that the variables are divided with different lines based on that to which theory they belong to. Perception of (satisfaction with) current situation, prospective perceptions of personal and of national economic status are for the economic theory; national identity is for the identity theory; trust in the European Parliament and trust in the national government are for the institutional theory; left-right ideology is for the partisanship theory; frequency of political discussion is for the cognitive political mobility theory and Hungarian agricultural policy interest is for the policy interest theory. Finally, the socio-economic control variables and year are divided from the other variables as well.

<sup>&</sup>lt;sup>43</sup> I am aware of the fact that the do no know answers sometimes hold substantial importance (King et al., 2001)
– when the respondents want to hide something - and should not be taken into account as missing values. However, in these cases I do not see that do not know answers should have been kept in their original forms.

Variable	Ouestion	Coding	Level
Euroscepticism	In general, does the European Union conjure up for you a very positive, fairly positive, neutral, fairly negative or very negative image?	1-5 (higher value, higher Euroscepticism)	Cont.
Satisfaction with current situation	On the whole, are you very satisfied, fairly satisfied, not very satisfied or not at all satisfied with the life you lead?	1-4 (higher value, higher satisfaction)	Cont.
Prospective perception of personal economic status	<ul> <li>What are your expectations for the next twelve months: will the next twelve months be better, worse or the same, when it comes to <ul> <li>your life in general?</li> <li>the financial situation of your household?</li> </ul> </li> </ul>	1-5 (higher value, better expectations)	Cont.
Prospective perception of national economic status	<ul> <li>What are your expectations for the next twelve months: will the next twelve months be better, worse or the same, when it comes to</li> <li>the economic situation in Hungary<sup>45</sup>?</li> <li>the employment situation in Hungary?</li> </ul>	1-5 (higher value, better expectations)	Cont.
National identity	In the near future, do you see yourself as	1 (No), 2 (Inclusive), 3 (Exclusive)	Cat.
Trust in national government	For each of the following institutions, please tell me if you tend to trust it or tend not to trust it: national government.	1 (Tend not to trust) 2 (Tend to trust)	Cat.
Trust in EU institutions	For each of the following European bodies, please tell me if you tend to trust it or tend not to trust it: <sup>46</sup> The European Parliament	1 (Tend not to trust) 2 (Tend to trust)	Cat.
Left-right values	In political matters people talk of "the left" and "the right". How would you place your views on this scale?	1-10 (higher value, more on the right)	Cont.
Political discussion	When you get together with friends, would you say you discuss political matters? <sup>47</sup>	1 (Never), 2 (Occasionally) 3 (Frequently)	Cat.
Hungarian agricultural policy interests	For each of the following areas, do you think that decisions should be made by the (NATIONALITY) Government, or made jointly within the European Union?	1 (Hungarian government) 2 (Jointly within the EU)	Cat.
Age	How old are you?	15-	Cont.
Gender	Gender	1(Male), 2(Female)	Cat.
Occupation	What is your current occupation?	1-1848	Cat.
Education	Years of education	8-	Cont.
Place of living	Would you say you live in a?	1 (Rural area or village) 2 (Small or middle town) 3 (Large town)	Cat.
Region	Region of living	$1-7^{49}$	Cat.
Year	Year of the Eurobarometer	2004, 2005, 2006, 2007, 2008, 2009, 2010	Cat.

Table 3 - Operationalization of the variables

Sources: Eurobarometer 62.0., 64.2., 66.1., 68.1., 70.1., 72.4., 73.4.

<sup>&</sup>lt;sup>44</sup> Cat is categorical (nominal, ordinal), Cont is continuous (ordinal with at least four categories, interval or ratio). <sup>45</sup> In the questionnaires there is OWN COUNTRY instead of Hungary.

<sup>&</sup>lt;sup>46</sup> Although the question is formulated slightly differently in some questionnaires, the difference is irrelevant.

<sup>&</sup>lt;sup>47</sup> Although the question is formulated slightly differently in some questionnaires, the difference is irrelevant.

<sup>&</sup>lt;sup>48</sup> 1 – Ordinary shopping, 2 – Student, 3 – Unemployed, 4 – Retired, 5 – Farmer, 6 – Fisherman, 7 – Professional, 8 - Owner, 9 - Business proprietor, 10 - Employed professional, 11 - General management, 12 - Middle management, 13 - Employed, desk, 14 - Employed, travelling, 15 - Employed, service, 16 - Supervisor, 17 -Skilled manual worker, 18- Unskilled manual worker

<sup>&</sup>lt;sup>49</sup> 1 – Central Hungary, 2 – North Hungary, 3 – North Great Plain, 4 – South Great Plain, 5 – South Transdanubia, 6 - Central Transdanubia, 7 - West Transdanubia

Regarding the response variable – individual level Euroscepticism -, as I have pointed out in Chapter 2, there are several possible ways to conceptualize and to operationalize it. Even if one accepts the concept of individual negative attitudes towards the whole community of the European Union, the latter – the object can mean three different things. As I have already discussed, these objects can be the European union, the integration of the European Union and the image of the European Union. There is a question in the questionnaires for both the second and the third objects.<sup>50</sup> Due to the characteristics of the data – the number of missing cases is 967 in the former and 68 in the latter case out of 7065 -, I decided to select respondent's image of the EU as the object and the relevant question. The coding was kept in its original form. In the main text it is regarded to be continuous – while in Appendix 3, the results when it is regarded to be a categorical variable is shown.<sup>51</sup>

Regarding perception of (satisfaction with) current situation, the question selected asks about current life satisfaction – which probably captures more than just economic satisfaction. Regarding its coding, I changed the order of the possible answers in order to have higher values for individuals who are more satisfied with their lives. This was done since it seemed to be more practical for the interpretation of the results. This variable is regarded to be a continuous one in the analysis since originally it was measured on a four point ordinal scale.

Regarding prospective perception of personal economic status, two separate questions about the respondents' expectations about his/her life in general and about the financial situation of his/her household were taken into account. The answers to them were added.<sup>52</sup>

<sup>&</sup>lt;sup>50</sup> For the second object, the question is the following: "What is your opinion on each of the following statements? Please tell me for each statement, whether you are for it or against it. Further enlargement of the EU to include other countries in future years." For the third object, the question is in Table 3. The first is measured on a two, while the third is measured on a five-point scale.

<sup>&</sup>lt;sup>51</sup> An ordinal scale with five (probably even with four) possible categories and with an almost normal distribution can be regarded either as categorical or as continuous.

<sup>&</sup>lt;sup>52</sup> For the variables prospective perception of personal economic status and prospective perception of national economic status, the answers for two questions which were measured originally on a three-point scale were added. It is not an elegant solution, however is often done. Another solution would have been the use of principal component analysis. However, with two variables it was not applicable.

Recoding was done in a way to have a scale on which the higher the value, the higher the expectations are. The variable is regarded to be a continuous one in the analysis.

Regarding prospective perception of own country's economic status, two separate questions concerning the respondents' expectations about the economic situation in Hungary and about the employment situation in Hungary were taken into account. The answers to them were added. Recoding was done in a way to have a scale on which the higher the value, the higher the expectations are. The variable is regarded to be a continuous one in the analysis.

Regarding national identity, the question selected seemed to be the most appropriate and is used by Carey and Lebo (2001) as well. The possible answers were recoded. The ones who see themselves as Europeans have value 1 - and are regarded as having no national identity. The ones who see themselves either as Europeans and Hungarians or Hungarians and Europeans have value 2 - and are regarded as having inclusive national identity. The ones who see themselves as Hungarians have value 3 - and are regarded as having exclusive national identity.

Regarding trust in the national government, the question selected was an obvious choice. I changed the order of the possible answers in order to have "tend to trust" as the higher value. This was done since it seemed to be more practical for interpreting the results.

Regarding trust in the institutions of the European Union, several questions were intended to be used. However, due to two reasons finally only one was used. Firstly, since in different years the number of the EU institutions included in the questionnaires was different, I decided to include only trust in the institutions about which there were questions in all the seven years, in all the seven questionnaires. The questions about these four institutions were intended to be taken into account. These four institutions were the following ones: European Parliament, European Commission, Council of the European Union and the European Central Bank. However, finally the one selected was the European Parliament only. The reason for that is that for trust in the other three institutions there were too many missing cases - 1240, 1593 and 1921 out of 7065 – while in case of the European Parliament the number of missing cases remained under 1000 - 893. I changed the order of the possible answers in order to have "tend to trust" as the higher value. This was done since it seemed to be more practical for the interpretation of the results.

Regarding left-right self-positioning, the question selected was a straightforward choice. No recodings were done in this case. This variable is regarded to be a continuous one in the analysis.

Regarding frequency of political discussion, an often used question about the respondents' curiosity towards or interest in politics was selected. It asks about how often the respondent discusses political issues. I changed the order of the possible answers in order to have more discussion as the highest value. This was done since it seemed to be more practical for the interpretation of the results. Besides, it has to be mentioned that in case of the 2010 dataset, three different areas of political discussions were asked. I chose the question which asks about the discussions on national politics.

Regarding Hungarian agricultural policy interests, the question chosen asks about where the decisions on agricultural policies should be made. Respondents with value 1 seek for Hungarian decision-making, while those with value 2 seek for European decision-making.

Regarding socio-economic variables – age, gender, occupation, place of living and region –, the selection of the questions was obvious. In their codings no changes were made. Regarding education, the number of years spent in school was selected. Probably, it was not the best way to operationalize the level of education since perhaps there are individuals who spent more years in school to get a given degree than others. With this operationalization they are regarded to be more educated, although it is obviously not the case. However, the usually

used nominal scale of education was not asked in the questionnaires. Thus, the years of education had to be selected in the thesis.

Regarding the year, the year of the dataset, in which the particular case could be found, was selected.

After building the models for hypothesis testing, based on the general theories and Hungarian speculations, which both identify the possible causes of individual level Euroscepticism in Hungary, and after operationalizing the variables included, the empirical analysis is done and the major results are presented and interpreted in the following sections.
### **5.** Empirical results

For testing the eight hypotheses presented in the third chapter, nine models – built in the fourth chapter - are used. In the first section of this chapter the underlying assumptions of linear regressions are checked and the main constraints of my models are presented. In the second section, the results are shown and the models are compared. In the third section, the hypotheses are accepted or rejected. In the fourth section the empirical results are discussed, their possible explanations are given.

### 5.1. Checking the underlying assumptions of the models used

In this section, firstly, the underlying assumptions of linear regressions are checked for all the nine models.<sup>53</sup> The results of these tests are presented in Appendix 1 and are briefly discussed and interpreted here.<sup>54</sup>The main assumptions checked are the following ones: the variables should be continuous – or may be dichotomous in case of explanatory variables -, the variance of residuals should be constant, residuals should be normally distributed and should have a mean of 0, there should be no multicollinearity, and there should be no influential outliers. Secondly, some additional constraints of the models used are presented.<sup>55</sup> These are not directly related to the method – linear regression – used. In this part, I discuss the number of missing cases, the low number of cases for some categories and the possible difficulties of capturing the theories.

<sup>&</sup>lt;sup>53</sup> The selection and the diagnostics of the assumptions checked and the identification of the potential effects of their violations are mainly based both on my notes from the Quantitative Methods: Analyzing People course, partially provided by Levente Littvay and on my homeworks written for the Quantitative Data Analysis course. <sup>54</sup> The tests were all done in R. For producing the graphs and the Variation Inflation Factors, Deducer was used.

For computing the means of residuals, the mean command in Descriptives, for producing the Breusch-Pagan test, the Imtest package and the bptest command were used.

<sup>&</sup>lt;sup>55</sup> Here, the practical constraints are presented and not the theoretical ones, which have been discussed in Chapter 4.

Regarding the level of measurement of the variables, as I have pointed out in the Model building section, not all the variables are measured on a continuous scale.<sup>56</sup>Some of the explanatory variables are dummy variables. Using them in linear regressions is usual. The interpretation of the results is slightly different in case of these variables – the results are compared to a reference category. The response variable can be treated as a continuous one, since it is measured on a five point ordinal scale and is normally distributed, as it is shown in Figure 3. However, in Appendix 3 a different analysis, ordinal logistic regression – more precisely, its pooled form -, is also done in which the response variable is regarded to be a categorical one.<sup>57</sup>Although the interpretation of the results is different – in logistic regression log odds are given -, they show that both the relative substantial and the statistical significance and the direction of the effects are similar to the ones in the pooled cross-sectional linear regression.

Regarding the assumptions about residuals, the following can be stated. Based on Figure 4, residuals are normally distributed in almost all models – Models 4, 5, 6 seem to deviate from normal distribution - and they have a mean of almost zero, shown in Table 7, in all the models. Not normal distribution of residuals may be caused by that they are correlated with the explanatory variables.<sup>58</sup> Not normal distribution of residuals in those three models may lead to biased coefficients. The variance of residuals is not a constant in most of the models (except Models 2 and 9). This assumption violation is called heteroskedasticity. The Breusch-Pagan test is rejected in almost all the models, the p values of the tests are presented in Table 8, which shows heteroskedasticity in them. Heteroskedasticity may lead to biased standard errors.

<sup>&</sup>lt;sup>56</sup> As I have discussed before, a continuous scale in this thesis is regarded to be an ordinal scale with at least four categories, an interval scale or a ratio scale.

<sup>&</sup>lt;sup>57</sup> This analysis is only done for Model 9. For the analysis the lrm command from package Design is used. The results should be taken into account with caution since missing data is problematic in this case as well. There are many categories for which there are no data.

<sup>&</sup>lt;sup>58</sup> Figure 5 also shows that residuals are on the line on which they should be if they are independent from the explanatory variables. There is a little deviation though for Models 5 and 6.

Regarding no multicollinearity, the Variance Inflation Factors are checked in Table 9. In this case the values above 5 should be regarded as problematic. It occurs two times, in Model 2 and in Model 9 for the year variable. My assumption is that these high values are explained by the fact that in these two models most of the years were omitted due to missing data for the identity variable.

Regarding the absence of potential influential outliers, the results are based on the Cook's distances, presented in Figure 6. In the literature several values of Cook's distance are set, above which a case can be a possible outlier and further analysis is required. In R manuals 8/(number of respondents-2\*number of parameters) is a general value used (Package boot). This value is computed for all the models and the results are presented in Table 10. There are cases in all the nine models those have higher Cook's distances than the minimum computed for their models. To decide whether these cases are influential or not, robust regression is a solution (Choi, 2009). However, the results of pooled robust regression were very similar to the original ones as it can be seen in Appendix 4, at least in case of Model 9 for which this remedial analysis was done.<sup>59</sup> Thus, probably the cases with high Cook's distance values are not influential outliers and the results are not biased.

There are also some additional problems with the models built for hypothesis testing which are not directly related to the method used. Firstly, although I omitted the variables with high number of missing values, the number of missing values, summarized in Table 11, is still high in all the models. In Models 2, 4, 7, 8, as I have pointed out before, the high number of missing cases is also related to the fact that some of the variables were not asked in all the seven years. For the missing data problem listwise deletion was used in my analysis –

<sup>&</sup>lt;sup>59</sup> More precisely, due to technical difficulties, instead of robust linear regression, an alternative method, linear regression fitted via Weighted Likelihood, which can deal with outliers, was used in my analysis (Package wle).

the cases in which there was at least one missing value were omitted from the analysis. It might lead to biased coefficients and standard errors.<sup>60</sup>

Secondly, related to the problem of missing cases, the low number of cases for some categories for some of the categorical variables may also lead to biased standard errors.

Thirdly, the comparison of how much of the variance of the response variable is explained by the models which capture the separate theories (Model 1-6) should be done carefully. First of all, as I have pointed out in the Model building section, not controlling for all the possible variables, which is the case in Models 1-6, is statistically problematic and leads to biased results. Besides, the theories were not conceptualized and operationalized in the best way. It means that the theories were probably not captured as well as they should have been. Variables, such as political knowledge from cognitive political mobility theory, are missing due to lack of data. Finally, in the different theories different numbers of variables are included (one in Models 2, 4, 5, 6, two in Model 3 and three in Model 1) and the number of missing cases, presented in Table 11, is completely different as well.

In this section the underlying assumptions of linear regression have been checked for all the nine models. The results show that most of the assumptions are met and the occurrence of heteroskedasticity is the only violence of assumptions in almost all the models. Besides, some additional problems with the data and with the models have been presented once again in order to identify the possible biases and problems caused by them. In spite of presenting many problems with my analysis, my aim with this section was not to reject the empirical results. These problems have been presented to show the shortcomings of my analysis and to remind the readers of their possible effects. Although the results should be interpreted with caution because of these constraints, I do not see any reasons to not analyze or discuss them.

<sup>&</sup>lt;sup>60</sup> Another solution could have been multiple imputation, which almost always leads to more valid results (King et al., 2001). However, in case of Models 2, 4, 7 and 8, in which the missing cases are not missing on a random basis, the difference would have been expected to be ignorable.

### 5.2. Presentation of the results

After checking the assumptions behind the models used, in this section the presentation of the results is done. Firstly, the results of Models 1 to 6 are presented. This part is done in the following structure. Three models are shown in one table (Tables 4 and 5).<sup>61</sup>After each table the results included in them are interpreted in text form. Here, I mainly focus on the model-fits and not on the effects of the explanatory variables (the effects of socio-economic variables and the interactions are not discussed for these models at all) due to the considerations – not controlling for all the possible effects is problematic - presented in the Model building section. Secondly, the model-fits of these six separate models of the different theories are compared – although it raises some problems due to the problems discussed in the previous chapter. Thirdly, the three models, in which almost all the possible variables (Model 7, 8) or all the possible variables (Model 9) are included, are presented in one table (Table 6). After the table, the results are interpreted in text form. In this case the effects of the explanatory variables (the ones derived from theories, the socio-economic ones and the interactions as well) are shown in more detail as well.

Before interpreting the results, I have to emphasize that in case of the continuous variables, standardized coefficients are used. The use of both standardized (in case of continuous variables) and not standardized (in case of categorical variables) variables is usual in the literature as well (Ford, Goodwin, & Cutts, 2010). Besides, it makes more sense because in case of the former, the effects of a one-unit change within one variable and the comparability of the variables, while in case of the latter, the change compared to the value of the reference category within an explanatory variable, are the more important and more interesting.

<sup>&</sup>lt;sup>61</sup> Due to space limitations, I do not present the models in separate tables. Because of the huge number of control variables, it would have required almost nine pages to present the results.

Table 4 - Results	of finear reg		M-1-12			
	Mo	del 1	Mo	del 2	Mo	del 3
Variable <sup>63</sup>	Coefficient	Stand. Error	Coefficient	Stand. Error	Coefficient	Stand. Error
Intercept	2.739****	0.072	1.767****	0.472	3.494****	0.094
Life sat.	-0.118****	0.032				
Pers. eco.	-0.137****	0.040				
Nat. eco.	-0.166****	0.040				
Identity						
Inclusive			0.624	0.464		
Exclusive			1.047**	0.462		
Trust in gov.						
Yes					-0.407****	0.082
Trust in EP						
Yes					-0.999****	0.076
TrustXTrust						
TrustXTrust					0.095	0.066
Age	0.012	0.018	0.050*	0.029	0.050***	0.018
Gender						
Female	0.023	0.022	0.037	0.035	0.047**	0.021
Occupation <sup>64</sup>						
5 Farmer	0.265*	0.136				
7 Professional	0.288**	0.147				
9 Business prop.			0.419**	0.183		
12 Middle man.	-0.171**	0.084			-0.158*	0.082
18 Unskilled			0.222*	0.119	0.127**	0.072
worker			0.222	0.118	0.127**	0.072
Education	-0.039***	0.013	-0.032	0.020	-0.023*	0.012
Place						
Middle town	-0.079***	0.025	-0.131***	0.041	-0.042*	0.025
Large town	-0.154****	0.028	-0.158****	0.045	-0.138****	0.027
Region						
North Hungary	0.031	0.037	-0.014	0.059	-0.015	0.036
North GP	0.102***	0.035	0.059	0.058	0.175****	0.034
South GP	0.089**	0.035	0.114**	0.057	0.136****	0.035
South TD	0.071*	0.040	0.059	0.065	0.086**	0.039
Central TD	-0.041	0.039	-0.050	0.061	-0.007	0.039
West TD	0.178****	0.038	0.081	0.062	0.098***	0.037
Year						
2005	0.148****	0.041	1.600**	0.649	-0.058	0.084
2006	-0.008	0.042			-0.065	0.083
2007	0.033	0.040			-0.077	0.081
2008	0.095**	0.043			-0.062	0.080
2009	0.075*	0.040			-0.019	0.078
2010	0.115***	0.043	0.085	0.550	-0.061	0.083
$\mathbb{R}^2$	0.	175	0.1	104	0.3	329
Adjusted R <sup>2</sup>	0.	168	0.0	)90	0.3	322
****	0.01 ** 0	05 * 0 1				

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p<0.001, \*\*\* p<0.01, \*\*p <0.05, \*p<0.1

<sup>&</sup>lt;sup>62</sup> Interactions are shown in Appendix 2 due to space limitations.
<sup>63</sup> For the categorical variables, the categories with value 1, presented in Table 3, are the reference categories. For the interaction between trusts, the absence of trust both in government and in EP is the reference category.
<sup>64</sup> Due to space limitations, for occupation I show the categories which have a p value lower than 0.1 in any

model.

Model 1 includes the variables of economic theory. Based on the F-statistics, which shows that the F-test is significant and the null hypothesis can be rejected, the whole model has explanatory power, the whole model is significant.<sup>65</sup>The explanatory variables explain 17.5 % of the variance of the response variable – of the Hungarian individuals' Euroscepticism. Based on this model, one can state with 99.9% level of confidence that prospective perceptions of personal and of national economic status and satisfaction with current life have a negative effect on the level of Euroscepticism in the population. Individuals with better perceptions are less Eurosceptic. Since all the three variables are standardized, one can compare<sup>66</sup> the three effects, and one can state that the prospective perceptions of national economic status has the biggest effect on the level of Euroscepticism.

Model 2 includes the variable of identity theory. The explanatory variables explain 10.4 % of the variance of the response variable – of the Hungarian individuals' Euroscepticism. Based on this model, one can state with 95% level of confidence that exclusive national identity has a positive effect on the level of Euroscepticism in the population. However, the effect of inclusive national identity has a statistically not significant effect. Individuals with exclusive national identity are more Eurosceptic than individuals with no national identity. The same can not be said considering inclusive national identity and no national identity.

Model 3 includes the variables of institutional theory. The explanatory variables explain 32.9 % of the variance of the response variable – of the Hungarian individuals' Euroscepticism. It should be emphasized though, that the inclusion of trust in the EU institutions (in EP) is although usual in the literature, as it has been discussed before, may

<sup>&</sup>lt;sup>65</sup> The same stands for all the nine models presented in my thesis. The F-test is significant in all the other cases as well.

<sup>&</sup>lt;sup>66</sup> If one is very strict methodologically, even with standardized coefficients the comparison is not possible, since the coefficients show the effects after all the other explanatory variables explained the variance of the response variable. This prior explained variance of the response variable is obviously different in each case, for each coefficient. This footnote is partially based on my class note for Quantitative Methods: Analyzing People course.

extremely raise the level of explained variance and may lead to the problem of tautology. Based on this model, one can state with 99.9% level of confidence that trust in the national government and trust in the European Parliament have a negative effect on the level of Euroscepticism in the population. Individuals with more trust in the government or in the EP are less Eurosceptic than individuals with less trust in those institutions.

Table 5 - Results of filear regressions for Models 4-0						
	Mo	del 4	Мо	del 5	Mo	del 6
Variable <sup>68</sup>	Coefficient	Stand. Error	Coefficient	Stand. Error	Coefficient	Stand. Error
Intercept	2.623****	0.081	2.851****	0.084	2.885****	0.081
Left-right	0.103***	0.031				
Pol. disc.					•	
Occasionally			-0.238****	0.062		
Frequently			-0.151*	0.080		
Agr. policy						
Jointly					-0.314****	0.058
Age	0.044**	0.020	0.043**	0.019	0.039**	0.018
Gender						
Female	0.055**	0.025	0.014	0.024	0.044*	0.022
Occupation <sup>69</sup>						
5 Farmer					0.249*	0.139
12 Middle man.	-0.192**	0.095	-0.189**	0.091	-0.204**	0.086
18 Unskilled worker	0.160*	0.082	0.151**	0.076	0.154**	0.073
Education	-0.075****	0.014	-0.067****	0.013	-0.065****	0.012
Place						
Middle town	-0.083***	0.029	-0.050*	0.028	-0.107****	0.026
Large town	-0.160****	0.031	-0.170****	0.030	-0.215****	0.028
Region						
North Hungary	-0.009	0.041	0.010	0.040	-0.010	0.038
North GP	0.115***	0.038	0.107***	0.038	0.095***	0.035
South GP	0.092**	0.041	0.072*	0.039	0.095***	0.036
South TD	0.111**	0.045	0.090**	0.043	0.096**	0.040
Central TD	-0.045	0.045	-0.073*	0.042	-0.079**	0.040
West TD	0.126***	0.043	0.082**	0.041	0.109***	0.039
Year						
2005	0.139***	0.045	0.075	0.069	0.097	0.063
2006	0.130***	0.044	0.214***	0.072	0.208****	0.062
2007	0.117***	0.043	0.029	0.071	-0.007	0.059
2008	0.232****	0.044	0.167**	0.071	0.185***	0.059
2009	0.140***	0.043			0.126**	0.058
2010	0.071	0.044	-0.053	0.082	-0.079	0.056
$R^2$	0.	100	0.0	060	0.0	)75
Adjusted R <sup>2</sup>	0.0	093	0.0	053	0.0	)69
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Table 5 - Results of linear regressions for Models 4 667

\*\*\*\* p< 0.001, \*\*\* p<0.01, \*\*p <0.05, \*p<0.1

<sup>&</sup>lt;sup>67</sup> Interactions are shown in Appendix 2 due to space limitations.
<sup>68</sup> For the categorical variables the categories with value 1, presented in Table 3, are the reference categories.
<sup>69</sup> Due to space limitations, for occupation I show the categories which have a p value lower than 0.1 in any model.

Model 4 includes the variable of partisanship theory. The explanatory variables explain 10 % of the variance of the response variable – of the Hungarian individuals' Euroscepticism. Based on this model, one can state with 99% level of confidence that to have rather right wing ideology has a positive effect on the level of Euroscepticism in the population. Individuals with ideologies close to the right end of the scale are more Eurosceptic.

Model 5 includes the variable of cognitive political mobility theory. The explanatory variables explain 6 % of the variance of the response variable – of the Hungarian individuals' Euroscepticism. Based on this model, one can state with 99.9% level of confidence that discussing political issues occasionally has a negative effect on the level of Euroscepticism in the population. One can also state with 90% level of confidence that discussing political issues frequently has a negative effect on the level of Euroscepticism in the population. Individuals who discuss national political issues either occasionally or frequently are less Eurosceptic than individuals who discuss national political issues occasionally are less Eurosceptic than individuals who discuss these issues. Besides, based on the values of the coefficients, individuals who discuss these issues frequently.

Model 6 includes the variable of policy interest theory. The explanatory variables explain 7.5 % of the variance of the response variable – of the Hungarian individuals' Euroscepticism. Based on this model, one can state with 99.9% level of confidence that the will to treat agricultural issues jointly with the EU has a negative effect on the level of Euroscepticism in the population. Individuals who want agricultural policies done jointly with the EU are less Eurosceptic than individuals who want these issues to be done independently.

Comparing the explained variance of the response variable shows that the institutional theory explains the most and the cognitive political mobility theory explains the less.<sup>70</sup>

<sup>&</sup>lt;sup>70</sup> Once again, it should be emphasized that the difference in the number of variables, in the number of cases and the possible tautology in case of the institutional theory may partially lead to these results.

Table 6 - Resul	ts of linear r	egressions for	Models 7-9			
	Mo	odel 7	Mo	odel 8	Mo	odel 9
Variable <sup>72</sup>	Coefficient	Stand. Error	Coefficient	Stand. Error	Coefficient	Stand. Error
Intercept	3.360****	0.111	3.374****	0.125	2.924****	0.447
Life sat.	-0.061*	0.035	-0.063*	0.036	-0.043	0.048
Pers. Eco.	-0.092**	0.043	-0.095**	0.044	-0.091	0.060
Nat. eco.	-0.103**	0.044	-0.104**	0.044	-0.157***	0.058
Identity		I.	•	•	I.	•
Inclusive					0.238	0.413
Exclusive					0.342	0.412
Trust in gov.						
Yes	-0.144	0.098	-0.109	0.101	-0.196	0.132
Trust in EP						
Yes	-0.845****	0.088	-0.829****	0.089	-0.578****	0.126
TrustXTrust						
TrustXTrust	-0.014	0.076	-0.055	0.082	-0.125	0.106
Left-right	0.056*	0.034	0.052	0.034	0.014	0.047
Pol disc	0.000	01001	01002	01001	01011	01017
Occasionally			-0.059	0.076	-0.030	0 101
Frequently			0.043	0.092	0.145	0.126
Agr policy			0.015	0.072	0.115	0.120
Iointly	-0.069	0.064	-0.063	0.065	-0.083	0.088
Age	0.038*	0.020	0.005	0.002	0.005	0.033
Gender	0.050	0.020	0.012	0.022	0.070	0.055
Female	0.043*	0.024	0.027	0.027	0.066*	0.040
Occupation <sup>73</sup>	0.015	0.021	0.027	0.027	0.000	0.010
5 Farmer	0.247*	0.148				
9 Business prop.	01217	01110			0.519**	0.204
Education	-0.024*	0.014	-0.024	0.015	-0.017	0.022
Place						
Middle town	-0.040	0.028	-0.012	0.031	-0.041	0.048
Large town	-0.098***	0.031	-0.063*	0.034	-0.074	0.052
Region						
North Hungary	0.034	0.041	0.074*	0.045	0.097	0.067
North GP	0.181****	0.038	0.204****	0.042	0.127*	0.070
South GP	0.130***	0.040	0.112**	0.044	0.088	0.065
South TD	0.100**	0.045	0.126**	0.050	0.148**	0.075
Central TD	0.003	0.045	-0.002	0.050	0.008	0.078
West TD	0.156****	0.042	0.185****	0.046	0.173**	0.069
Year		L	•	•	L	•
2005	0.037	0.112	0.080	0.133	0.755	0.650
2006	-0.058	0.115	0.063	0.138		
2007	-0.066	0.104	-0.028	0.128		
2008	0.048	0.105	0.008	0.127		
2009	-0.087	0.100				
2010	0.064	0.103	-0.096	0.131	-0.377	0.599
$\mathbb{R}^2$	0	375	0 1	370 <sup>74</sup>	0	401
Adjusted R <sup>2</sup>	0	.362	0	.353	0	.372
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\*\*\*\* p<0.001, \*\*\* p<0.01, \*\*p<0.05, \*p<0.1

<sup>&</sup>lt;sup>71</sup> Interactions are shown in Appendix 2 due to space limitations.
<sup>72</sup> For the categorical variables the categories with value 1, presented in Table 3, are the reference categories.
<sup>73</sup> Due to space limitations, for occupation I show the categories which have a p value lower than 0.1 in any model.

<sup>&</sup>lt;sup>74</sup> It is not usual to have a smaller  $R^2$  in a model which has the same variables as another model and also some additional ones. However, the reason behind this phenomenon in this case is probably related to the fact that in the model with more variables there are more missing cases since the cases from 2009 are all missing.

The results of Models 7, 8 and 9 are discussed together. The explained variances are 37.5%, 37% and 40.1% in these models. The coefficients of the variables are interpreted one by one. Life satisfaction has a negative and statistically significant (the level of confidence is 90%) effect on the level of Euroscepticism according to Models 7 and 8. Prospective perceptions of both personal and national economic status have a negative and statistically significant (the level of confidence is 95%) effect on the level of Euroscepticism according to Models 7 and 8 - the latter has a significant effect based on Model 9 as well. Neither inclusive, nor exclusive national identity has a statistically significant effect based on Model 9. Trust in the government and the interaction of the two types of trust have statistically not significant effects - both would be negative -, while trust in the European Parliament has a negative and statistically significant (the level of confidence is 99.9%) effect on the level of Euroscepticism. Left-right self-positioning has a positive and statistically significant (the level of confidence is 90%) effect on the level of Euroscepticism based on Model 7. Neither discussing political issues occasionally, nor discussing them frequently has a statistically significant effect on the level of Euroscepticism. However, an interesting result is that although it is not significant, the latter has a positive effect both in Models 8 and 9. It is discussed later in section 5.4. The aim to decide on agricultural issues jointly with the European Union has a negative but statistically not significant effect on the level of Euroscepticism.

The effects of socio-economic variables in Models 7, 8 and 9 are the following. The age has a positive and statistically significant (the levels of confidence are 90% and 95%) effect on the level of Euroscepticism based on all the three models. Based on Models 7 and 9, gender has a statistically significant (the level of confidence is 90%) effect on the level of Euroscepticism. Females are more Eurosceptic than males. Occupation has a statistically significant (the levels of confidence are 90% and 95%) effect in two cases. Based on Model 7, farmers are more Eurosceptic, while based on Model 9, business proprietors are more

Eurosceptic than individuals doing ordinary shopping. The years of education variable has a negative and statistically significant effect on the level of Euroscepticism based on Model 7. Place of living has a statistically significant effect on Euroscepticism for those who live in large towns based on Models 7 and 8. Individuals from large towns are less Eurosceptic than individuals from rural areas. The region in which the respondent lives, has also a statistically significant effects based on the models. Individuals from the North Great Plain, from South and West Transdanubia are more Eurosceptic than individuals from Central Hungary based on Models 7, 8 and 9; individuals from the South Great Plain are also more Eurosceptic than individuals from Central Hungary based on Models 7 and 8; while individuals from North Hungary are also more Eurosceptic based on Model 8. Regarding the year dummies, there are statistically not significant effects on the level of Euroscepticism.

The interactions in Models 7, 8 and 9, presented in Appendix 2, show the following results. Here, due to the huge number of possibilities, I only focus on the statistically significant relationships. Based on Model 7, individuals who had a given prospective perception of the national economy were more Eurosceptic in 2009 than individuals with the same perception in 2004.<sup>75</sup> Based on Model 9, the same relationship holds if one compares 2005 and 2004 and 2010 and 2004. Based on Models 7 and 8, individuals with trust in the government were less Eurosceptic in 2005 and in 2008 – and based on Model 7 in 2009 as well - than individuals with trust in 2004. Interestingly, the direction of the effect changed in 2010. Based on all the three models, individuals with trust in the government in 2010 were more Eurosceptic than individuals with trust in the government in 2004. However, the latter relationships are statistically not significant. Based on Models 7 and 8, individuals with trust in the European Parliament were more Eurosceptic in 2006 than individuals with trust in the European Parliament in 2004. Interestingly, just like in the case of trust in the national

<sup>&</sup>lt;sup>75</sup> More precisely, this means that individuals would have been more Eurosceptic with a given prospective perception of the national economy in 2009 than with the same perception in 2004, if for all the other variables they had had the same values (if one controls for them). The same holds for all the other interactions as well.

government, based on all the three models there was a change in 2010 - but in this case the change in the direction was from positive to negative and not the other way around. Individuals with trust in the EP in 2010 were less Eurosceptic than individuals with trust in the EP in 2004. In this case, Model 9 shows the latter relationship to be statistically significant. Based on Model 7, individuals with a certain value on the left-right scale were more Eurosceptic in 2009 than individuals with the same value in 2004. Based on Models 7 and 8, individuals who want agricultural issues to be dealt jointly with the EU were less Eurosceptic in 2006 than individuals with the same opinion in 2004. Finally, based on Model 8 individuals who discuss national political issues occasionally were more Eurosceptic in 2010 than in 2004.

In this section the results of empirical analysis have been presented. Based on these results, the hypotheses, shown in the third chapter, are accepted or rejected in the next section.

### 5.3 Hypothesis testing

Finally, based on the results presented in the previous section, the hypotheses are accepted or rejected. For hypothesis testing all the relevant models are taken into account. When the models show different results – about statistical significance, substantive significance or the direction of the relationship – they are discussed in more detail. The most relevant models -7, 8 and 9 – in which one controls for most of the possible variables, show similar results for the theoretical and socio-economic variables but are more different regarding the interactions with the year dummies. In the next paragraphs the hypotheses are discussed one by one. In each paragraph the decision about the hypothesis and the results on which the decision is based are presented. Models 7, 8 and 9 are most important for all the hypotheses than Models 1 to 6 – however these models are not omitted from the analysis.

Firstly, the hypothesis about the economic theory (H1) can be accepted. Individuals who are more satisfied with their current situation or have better expectations for their personal economic situation or have better expectations for Hungary's economic situation are less Eurosceptic. In almost all the models in which these variables were included (except for Model 9) they were statistically significant. Regarding their substantive significance, one can state that in all the models prospective perception of national economic situation was the most important, prospective perception of personal economic situation was the second and the current life satisfaction was the third most important explanatory variable out of the three.

Secondly, the hypothesis about the identity theory (H2) can be partially accepted and partially rejected. Individuals who have exclusive national identity are more Eurosceptic than individuals who have no national identity based on Model 2. However, in Model 9, in which all the variables were included, it had statistically not significant effect on the level of Euroscepticism. Besides, regarding individuals who have inclusive national identity, although they seem to be more Eurosceptic, since the effect is statistically not significant, one can not state anything about the effect in the population.

Thirdly, the hypothesis about the institutional theory (H3) can be partially accepted and partially rejected – if one considers the theory proposed by most of the authors and not the one by Sanchez-Cuenca (2000). Individuals who have more trust in the national government are less Eurosceptic only based on Model 3. Based on the results of the other models (Models 7, 8 and 9) in which this variable is included, nothing can be stated about the relationship in the population since the effects are statistically not significant. Individuals who have more trust in the EU institutions are less Eurosceptic based on all the models in which this variable is included. The effect of trust in the EP is substantially more significant than the effect of trust in the national government as well.

Fourthly, the hypothesis about partisanship theory (H4) is more to be accepted. Individuals who are rather on the right of the left-right self-positioning scale are more Eurosceptic. Models 4 and 7 support the hypothesis, while although Models 8 and 9 both

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show the same effects, they are not statistically significant in those. Besides, since this variable is standardized, it can be seen in Model 7 that it has actually less effect on the level of Euroscepticism than the three variables of the economic theory.

Fifthly, the hypothesis about the cognitive political mobility theory (H5) can be partially accepted and partially rejected. Individuals who discuss national political issues occasionally or frequently are less Eurosceptic than individuals who do not discuss these issues based on Model 5. However, if one controls for all the other variables in Models 8 and 9, these two relationships are statistically not significant anymore. Besides, according to these two models, individuals who discuss national political issues frequently are more Eurosceptic. However, it can not be stated for the underlying Hungarian population since the effects are statistically not significant.

Sixthly, the hypothesis about policy interest theory (H6) can be partially accepted and partially rejected. Individuals who want jointly led agriculture are less Eurosceptic based on Model 6. However, the results of Models 7, 8 and 9 show statistically not significant relationships - however it would be negative in those cases as well.

Seventhly, most of the hypotheses about the control variables (H7) can be accepted. Based on almost all the models, individuals with higher age (in eight models) and with less education (in six models) are more Eurosceptic. Even in the models in which they are statistically not significant, the same direction of the effect exists for these two variables. Gender is also a statistically significant explanatory variable based on five models. Females are more Eurosceptic than males in all models. Regarding the occupation, the results show that the situation is the same for managers and manual workers in Hungary to what was expected based on the general theory. Five models show that (middle level) managers are less Eurosceptic, while (unskilled) manual workers are more Eurosceptic than the ones in the reference category (ordinary shopping). Farmers are more Eurosceptic as well in three models, which was unexpected. Regarding the regions, individuals from South Transdanubia, the North Great Plain, the South Great Plain and from West Transdanubia are more Eurosceptic than individuals from Central Hungary based on eight models for each. Thus, the hypothesis can be accepted and supplemented. The only hypothesis for control variables which can not be accepted is the one for place of living. According to the literature, it was claimed that it has no effect on the level of Euroscepticism. Based on most of the models (six for middle and eight for large towns), individuals from middle sized towns and individuals from large towns are less Eurosceptic than individuals from rural areas. In case of the latter the coefficient has a higher absolute value. Thus, individuals from large towns are even less Eurosceptic than individuals from large towns are even less Eurosceptic than individuals from large towns are even less Eurosceptic than individuals from large towns are even less Eurosceptic than individuals from large towns are even less Eurosceptic than individuals from large towns are even less Eurosceptic than individuals from large towns are even less Eurosceptic than individuals from large towns are even less Eurosceptic than individuals from large towns are even less Eurosceptic than individuals from middle sized towns are even less Eurosceptic than individuals from large towns are even less Eurosceptic than individuals from middle sized towns are even less Eurosceptic than individuals from middle sized towns – which can be supported with a post-hoc test as well.

Eighthly, regarding the changes over time (H8), two parts of the analysis should be taken into account. On the one hand, the year dummies were statistically not significant in the three main models (Models 7, 8 and 9). This means that whether the individual was asked in 2005, 2006, 2007, 2008, 2009 or in 2010 has no effect on his/her level of Euroscepticism. In my understanding it means that it is rather the interaction of time and explanatory variables – in other words the changes in the effects of explanatory variables over time – which had an effect on the level of Euroscepticism. Thus, on the other hand, the changing effects of some explanatory variables over time were checked as well.

In my preliminary assumptions, I claimed that individuals who have more trust in the national government are not necessarily less Eurosceptic after 2010. The interaction terms show in all the relevant Models (3, 7, 8 and 9) that actually individuals who had trust in the national government in 2005, 2006, 2007, 2008, 2009 were less Eurosceptic but individuals who had trust in the national government in 2010 were more Eurosceptic than individuals who had trust in the national government in 2004.<sup>76</sup> However, the results do not hold for the

<sup>&</sup>lt;sup>76</sup> However, it does not mean that they became more Eurosceptic than individuals who had no trust in 2010.

underlying population, the effects are not statistically significant. Thus, this hypothesis has to be rejected.<sup>77</sup>

In my preliminary assumptions, I also claimed that agricultural issues gain more importance over time and they have stronger positive effects on the level of Euroscepticism. The results partially support my preliminary assumption. Based on the relevant statistically significant effects in the relevant models, in 2006 individuals who wanted jointly decided agricultural issues were less Eurosceptic than individuals who wanted jointly decided agricultural issues in 2004 (Models 7, 8). However, in 2007 and in 2010 individuals who wanted the same policy decision in 2004 (Model 6). Thus, this hypothesis can be accepted. Although, there were no more preliminary assumptions regarding the other possible changes in the effects, as I have pointed out before, there was a change in the effects of other explanatory variables as well (prospective perception of national economy, trust in the EP, left-right ideological positions, frequency of political discussion).

As it can be seen, for the hypothesis testing only one hypothesis (H1) can be fully accepted. All the others can be partially accepted because the relevant models include different results (H4, H5, H6), because the hypothesis includes more sub-statements out of which only some can be accepted (H3, H7, H8), or because of both (H2). In the next section the discussion of the results of hypothesis testing is presented.

### **5.4.** Discussion of the results

In the previous section the hypotheses have been accepted or rejected. Based on these results, in this section a possible explanation of the Hungarian individual level Euroscepticism is

<sup>&</sup>lt;sup>77</sup> One might say that the statistically not significant relationship in 2010 for the effects of trust in the national government on the level of Euroscepticism was my hypothesis. However, that was an assumption for a slightly different comparison: trust in the government in 2010 compared to no trust in the government in 2010. Here, the result is for the comparison of trust in the government in 2010 to trust in the government in 2004.

discussed. Firstly, the effects for the seven years, referred as static results, then their dynamics, the changes in them are discussed in the Hungarian context.

The results of hypothesis testing show that the general theories of the causes of individual level Euroscepticism can be used in Hungary as well. Economic, identity, institutional, partisanship, cognitive political mobility and policy interest theories all explain – at least partially and at least based on some of the models – the level of individual Euroscepticism in the Hungarian population. However, it has to be emphasized that in the three models in which one controls for most of the variables (Models 7, 8 and 9), only the variables of the economic, the institutional and the partisanship theories seem to be statistically significant.

Regarding the static results, two unexpected findings were identified. Firstly, economic and institutional theories are the ones which explain the most of the level of Hungarian individual Euroscepticism, while the importance of the self-positioning on the left-right scale is moderate. The latter may be an unexpected result. I had had the intuition that political partisanship was a more important explanatory factor. Based on the Hungarian political reality, which is very much divided along a special understanding of the left-right dimensions, I had thought that the position on this self-positioning scale had a huge influence on an attitudinal question. My hypothesis, not tested in this thesis, for explaining this unexpected result is that probably in case of European issues, unlike in case of domestic issues, the Hungarian public formulates its opinion based even more on rational calculations and even less on ideological considerations. Secondly, in case of cognitive political mobility – although the results are statistically not significant –, if one controls for all the possible theories, the results show that individuals who do not discuss these issues at all. In other words, people who are interested in politics are more Eurosceptic. My hypothesis, not tested in this

thesis, for explaining this not expected result is that probably the general Hungarian tone of political discussion is more Eurosceptic than it is in the European Union.<sup>78</sup>However, this hypothesis opposes the results according to which individuals who discuss national political issues occasionally are less Eurosceptic than individuals who do not discuss those issues.

The interactions in the models show that the main changes were in 2009 and in 2010 in the structure of the explanatory variables. Regarding the former, six interactions<sup>79</sup> - some of them are the same but they occur in different models - with the year dummy of 2009 are statistically significant and most of them are positive (four out of six). In this year prospective perception of national economic situation and the position on the left-right scale are the variables for which one can state that individuals with a given position on these scales were more Eurosceptic in 2009 than in 2004. My hypothesis, not tested in this thesis, for explaining the economic theory result is that five years after joining the EU, individuals detached the national economic performance from the EU (the absence of statistical significance for the relevant interactions till 2009 supports this idea) and then blamed the EU for economic issues. My hypothesis, not tested in this thesis, for explaining the change in the effect of ideological position is that the emergence of *Jobbik* may have caused this phenomenon because the party formulated, raised and strengthened the Eurosceptic arguments for individuals on the right wing of the political arena.

Regarding the latter, seven interactions - some of them are the same but in different models - with the year dummy of 2010 are statistically significant. Most of these interactions have a positive effect (six out of eight). Firstly, in that year prospective perception of national economic situation is the variable for which one can state that individuals with a given position on this scale were more Eurosceptic in 2010 than in 2004. My hypothesis for this has

<sup>&</sup>lt;sup>78</sup> Or these results may be explained by that the political knowledge, which is also a part of cognitive mobility theory, was not included in the analysis due to the absence of data.

<sup>&</sup>lt;sup>79</sup> Besides, 2009 is the year which was omitted from most of the models since it was neither present in models with the variable for cognitive political mobility, nor in models with the variable for national identity.

been presented in the previous paragraph. Secondly, individuals who trusted the EP were less Eurosceptic in 2010 than in 2004. Thirdly, in case of the position on the left-right scale, individuals with a given position on this ideological scale were less Eurosceptic in 2010 than in 2004. This result shows a complete change in the direction of the interaction effect compared to 2009. My hypothesis, not tested in the thesis, is that probably the anti-EU sentiment of *Jobbik* was not as articulated in 2010 as it was in 2009. They introduced new issues on which they could mobilize their supporters.<sup>80</sup> Fourthly, individuals who discussed national political issues occasionally or frequently were more Eurosceptic in 2010 than individuals who discussed national political issues occasionally or frequently in 2004. My hypothesis, not tested in the thesis, is that political discussion may have been more against the European Union than before. Fifthly, individuals for jointly led agricultural issues were more Eurosceptic in 2010 than in 2004. As I have discussed in the speculation on the applicability of the theories in the Hungarian context section, this phenomenon may be related to the growing agricultural disadvantages, due to the membership in the EU.

In this section the empirical results of my thesis have been discussed. My conclusion is that most of the theories of the causes of individual level Euroscepticism are relevant in the Hungarian context as well. The changes in the effects of the explanatory variables probably reflect the domestic and European events.

<sup>&</sup>lt;sup>80</sup> These issues are discussed by Karácsony and Róna (2010).

## 6. Conclusion

In my thesis my aim was to answer the research question about the causes of individual level Euroscepticism in Hungary. On the one hand, the results show that although there were some deviations, in the time period between 2004 and 2010 the explanatory factors of this phenomenon in Hungary were very similar to the explanatory factors proposed by the general literature on the individual Euroscepticism in all the EU member states. On the other hand, the results also show that the attitudes towards the EU were based on slightly different considerations than the attitudes towards domestic institutions. However, the analysis of the changes in the effects over time shows the probable influence of special domestic events and of Hungarian circumstances. For these, several not tested hypotheses have been presented.

Although the current analysis gives important results about the causes of individual level Euroscepticism in Hungary, there are several ways to improve and to complement it. Firstly, the method used – pooled cross-sectional linear regression - may be changed to a multilevel linear regression.<sup>81</sup> Secondly, the data used should be changed. The huge number of missing cases is not only a problem regarding the biased coefficients and standard errors it produces, but also weakens the comparability of the models. Perhaps, the data provided by the IntUne project, which include very similar variables to the ones used in my thesis, would be a solution to these problems. Thirdly, the level of analysis should be complemented as proposed by the authors, presented in the Introduction (Lindenberg, 1985; Coleman, 1986). This means the focus on not only the individual level relationships but the inclusion of the effects of contextual, aggregated level variables on the individual level. This would help to test at least some of the hypotheses on the influence of country specific events on the changes in the effects. Besides, aggregated level relationships among the relevant variables should be

<sup>&</sup>lt;sup>81</sup> The linear regression itself may be changed to logistic regression. However, it was done in Appendix 3 and the results were similar to the original ones.

examined as well. Obviously these steps would require the inclusion of not only Hungary but of other countries in the analysis as well.

This thesis was written with the aim of explaining the individual level Euroscepticism in Hungary. Based on Eurobarometer surveys (Eurobarometer), the EU is one of the institutions which are the most trusted by the Hungarians. Thus, to understand the major causes behind this support was a puzzling but important and relevant task. Hopefully, the results, even with the presented constraints, give a better understanding of the Hungarian individual level attitudes towards the European Union.





Figure 3 - Distribution of the response variable



Figure 4 - Distribution of residuals for Models 1-9 (from the left to the right)

	Residuals	Standardized residuals
Model 1	$-2.512*10^{-17}$	3.578*10 <sup>-5</sup>
Model 2	-8.763*10 <sup>-18</sup>	1.131*10 <sup>-5</sup>
Model 3	$-1.154*10^{-17}$	-3.031*10 <sup>-6</sup>
Model 4	$1.745*10^{-17}$	$-8.754*10^{-6}$
Model 5	1.960*10 <sup>-17</sup>	$2.072*10^{-6}$
Model 6	7.790*10 <sup>-19</sup>	$1.547*10^{-6}$
Model 7	$-1.872*10^{-17}$	-3.827*10 <sup>-6</sup>
Model 8	$-2.491*10^{-18}$	-6.292*10 <sup>-7</sup>
Model 9	3.028*10 <sup>-18</sup>	$1.717*10^{-6}$

 Table 7- Means of residuals and standardized residuals for Models 1-9



Figure 5 - Q-Q plots for Models 1-9 (from the left to the right)

 Table 8 - Breusch – Pagan tests for heteroskedasticity for Models 1-9

		0			2				
	M1	M2	M3	M4	M5	M6	M7	M8	M9
p value	8.53*10 <sup>-7</sup>	0.154	$7.65*10^{-12}$	1.63*10 <sup>-8</sup>	0.0003	0.0002	$2.09*10^{-5}$	0.001	0.701

	Intion I								
	M1	M2	M3	M4	M5	M6	M 7	M 8	M9
Life sat.	3.08						3.12	2.87	2.59
Pers. eco.	3.94						3.90	3.60	3.19
Nat. eco.	3.94						3.94	3.64	3.28
Identity		2.25							2.08
Trust in gov.			3.81				4.07	3.93	3.56
Trust in EP			3.41				3.48	3.14	2.90
TrustXTrust			2.97				3.10	3.09	2.84
Left-right				2.75			3.04	2.82	2.57
Pol. disc.					2.43			2.48	2.23
Agr. policy						2.77	2.86	2.63	2.36
Age	1.63	1.64	1.62	1.63	1.63	1.63	1.63	1.64	1.65
Gender	1.06	1.06	1.06	1.06	1.07	1.06	1.07	1.08	1.08
Occupation	1.04	1.04	1.04	1.04	1.04	1.04	1.05	1.05	1.06
Education	1.21	1.21	1.19	1.18	1.21	1.19	1.20	1.22	1.22
Place	1.07	1.07	1.07	1.07	1.06	1.06	1.09	1.09	1.10
Region	1.02	1.03	1.03	1.02	1.02	1.02	1.04	1.04	1.06
Year	1.08	13.8	1.93	1.02	1.96	1.45	2.35	3.03	13.38
Life sat.XYear	1.27						1.30	1.33	1.69
Pers. eco.XYear	1.74						1.74	1.76	2.28
Nat. eco.XYear	1.74						1.79	1.82	2.35
IdentityXYear		4.64							4.65
Trust in gov.XYear			1.41				1.60	1.67	2.11
Trust in EPXYear			2.14				2.29	2.36	2.83
Left-rightXYear				1.20			1.30	1.33	1.69
Pol. disc.XYear					1.61			1.74	2.05
Agr. policyXYear						1.60	1.66	1.69	1.95

 Table 9 - Variance Inflation Factors for Models 1-9



Figure 6 - Cook's distances for Models 1-9 (from the left to the right)

Table 10 - The minimum	Cook's dis	tances for j	potential	outliers in	n Models	1-9

	M1	M2	M3	M4	M5	M6	M7	<b>M8</b>	M9
Cook's	8/(6031-	8/(2324-	8/(5298-	8/(5171-	8/(5598-	8/(6395-	8/(4024-	8/(3367-	8/(2369-
distance	2*41)=	2*22)=	2*34)=	2*26)=	2*30)=	2*27)=	2*68)=	2*71)=	2*48)=
distance	0.0013	0.0035	0.0015	0.0016	0.0014	0.0013	0.0021	0.0025	0.0035

	M1	M2	M3	M4	M5	M6	M7	<b>M8</b>	M9
Missing cases	1034	4741	1767	1894	1467	670	3041	3698	5696

 Table 11 - Number of missing cases for Models 1-9

# Appendix 2 – Interactions with year dummies

Interaction	Coefficient	Standard Error
A, Life sat. interactions		
Life sat.X2005	0.028	0.043
Life sat.X2006	-0.068	0.043
Life sat.X2007	-0.020	0.043
Life sat.X2008	0.012	0.043
Life sat.X2009	-0.074*	0.042
Life sat.X2010	-0.041	0.042
B, Pers. eco. interactions		
Pers. eco.X2005	-0.024	0.056
Pers. eco.X2006	0.017	0.056
Pers. eco.X2007	0.030	0.057
Pers. eco.X2008	0.004	0.058
Pers. eco.X2009	-0.032	0.058
Pers. eco.X2010	0.057	0.059
C, Nat. eco. interactions		
Nat. eco.X2005	0.013	0.055
Nat. eco.X2006	0.007	0.060
Nat. eco.X2007	-0.030	0.057
Nat. eco.X2008	0.073	0.062
Nat. eco.X2009	0.132**	0.057
Nat. eco.X20010	0.054	0.056

### Table 12 - Interaction terms for Model 1

\*\*\*\* p< 0.001, \*\*\* p<0.01, \*\*p <0.05, \*p<0.1

## Table 13 - Interaction terms for Model 2

Interaction	Coefficient	Standard Error
A, National identity		
1, Inclusive national identity interactions		
InclusiveX2005	-1.387**	0.653
InclusiveX2010	0.057	0.555
2, Exclusive national identity interactions		
ExclusiveX2005	-1.478**	0.651
ExclusiveX2010	0.056	0.552

\*\*\*\* p<0.001, \*\*\* p<0.01, \*\*p<0.05, \*p<0.1

 Table 14 - Interaction terms for Model 3

Interaction	Coefficient	Standard Error
A, Trust in government interactions		
Trust in gov.X2005	-0.217**	0.082
Trust in gov.X2006	-0.133**	0,083
Trust in gov.X2007	-0.135*	0.084
Trust in gov.X2008	-0.225**	0.091
Trust in gov.X2009	-0.093	0.092
Trust in gov.X2010	0.171	0.081
B, Trust in EP interactions		
Trust in EPX2005	0.245***	0.098
Trust in EPX2006	0.210	0.098
Trust in EPX2007	0.173	0.095
Trust in EPX2008	0.235**	0.095
Trust in EPX2009	0.043	0.093
Trust in EPX2010	0.008**	0.098

\*\*\*\* p<0.001, \*\*\* p<0.01, \*\*p<0.05, \*p<0.1

Interaction		Coefficient	Standard Error
A, Left-right interactions			
	LRX2005	0.089**	0.045
	LRX2006	0.081*	0.043
	LRX2007	0.049	0.044
	LRX2008	0.094**	0.044
	LRX2009	0.207****	0.045
	LRX2010	-0.124***	0.043

### Table 15 - Interaction terms for Model 4

\*\*\*\* p< 0.001, \*\*\* p<0.01, \*\*p <0.05, \*p<0.1

## Table 16 - Interaction terms for Model 5

Interaction	Coefficient	Standard Error
A, Pol. disc. interactions		
1, Occasionally interactions		
OccasionallyX2005	0.133	0.088
OccasionallyX2006	-0.022	0.090
OccasionallyX2007	0.180**	0.089
OccasionallyX2008	0.149*	0.089
OccasionallyX2010	0.207**	0.097
2, Frequently interactions		
FrequentlyX2005	-0.059	0.114
FrequentlyX2006	-0.097	0.112
FrequentlyX2007	0.163	0.113
FrequentlyX2008	0.170	0.117
FrequentlyX2010	0.270**	0.121

\*\*\*\* p<0.001, \*\*\* p<0.01, \*\*p<0.05, \*p<0.1

## Table 17 - Interaction terms for Model 6

Interaction	Coefficient	Standard Error
A, Agr. policy interactions		
Agr. policy X2005	0.075	0.081
Agr. policy X2006	-0.094	0.080
Agr. policy X2007	0.230***	0.080
Agr. policy X2008	0.108	0.080
Agr. policy X2009	0.113	0.079
Agr. policy X2010	0.280****	0.081

\*\*\*\* p< 0.001, \*\*\* p<0.01, \*\*p <0.05, \*p<0.1

Interaction	Coefficient	Standard Error
A Life sat interactions	overheitent	Stundard Error
Life sat X2005	-0.010	0.050
Life sat.X2006	-0.068	0.049
Life sat.X2007	0.005	0.048
Life sat.X2008	0.024	0.048
Life sat.X2009	-0.074	0.047
Life sat.X2010	0.028	0.048
B, Pers. eco. interactions		
Pers. eco.X2005	-0.087	0.063
Pers. eco.X2006	0.027	0.061
Pers. eco.X2007	-0.002	0.060
Pers. eco.X2008	0.015	0.063
Pers. eco.X2009	0.000	0.062
Pers. eco.X2010	0.019	0.063
C, Nat. eco. interactions		
Nat. eco.X2005	0.070	0.064
Nat. eco.X2006	0.041	0.066
Nat. eco.X2007	0.055	0.061
Nat. eco.X2008	0.102	0.068
Nat. eco.X2009	0.154**	0.062
Nat. eco.X20010	0.070	0.061
D, Trust in government interactions		
Trust in gov.X2005	-0.207*	0.107
Trust in gov.X2006	-0.040	0.108
Trust in gov.X2007	-0.071	0.104
Trust in gov.X2008	-0.215*	0.110
Trust in gov.X2009	-0.181*	0.105
Trust in gov.X2010	0.050	0.096
E, Trust in EP interactions		
Trust in EPX2005	0.158	0.118
Trust in EPX2006	0.205*	0.117
Trust in EPX2007	0.041	0.111
Trust in EPX2008	0.028	0.111
Trust in EPX2009	0.027	0.108
Trust in EPX2010	-0.109	0.115
F, Left-right interactions	0.050	0.040
LRX2005	-0.050	0.049
LRX2000	0.024	0.046
LRX2007	0.016	0.046
LRA2008	0.039	0.046
LRA2009	0.104***	0.040
C Agr. policy interactions	-0.003	0.043
0, Agr. policy interactions	0.036	0.004
Agr. policy X2005	_0.030	0.024
Agr. policy X2000	0.200**	0.091
Agr. policy X2007	_0.017	0.080
Agr. policy X2000	0.013	0.005
Agr. policy X2009	-0.076	0.088
11gr. poincy A2010	0.020	0.000

Table 18 - Interaction terms for Model 7

\*\*\*\* p<0.001, \*\*\* p<0.01, \*\*p<0.05, \*p<0.1

Interaction		Standard Freeze
	Coefficient	Standard Error
A, Life sat. interactions		0.070
Life sat.X2005	-0.009	0.050
Life sat.X2006	-0.058	0.050
Life sat.X2007	0.004	0.048
Life sat.X2008	0.025	0.048
Life sat.X2010	0.028	0.048
B, Pers. eco. interactions		
Pers. eco.X2005	-0.085	0.063
Pers. eco.X2006	0.033	0.061
Pers. eco.X2007	-0.001	0.060
Pers eco X2008	0.022	0.064
Pars aco X2010	0.020	0.064
C Nat and interactions	0:020	0:004
C, Nat. eco. Interactions	0.072	0.064
Nat. eco.X2003	0.073	0.064
Nat. eco.X2006	0.033	0.066
Nat. eco.X200/	0.059	0.062
Nat. eco.X2008	0.108	0.068
Nat. eco.X20010	0.067	0.062
D, Trust in government interactions		
Trust in gov.X2005	-0.200*	0.108
Trust in gov.X2006	-0.038	0.108
Trust in gov.X2007	-0.075	0.105
Trust in gov.X2008	-0.240**	0.111
Trust in gov.X2010	0.036	0.096
E, Trust in EP interactions		
Trust in EPX2005	0.156	0.119
Trust in EPX2006	0.203*	0.118
Trust in EPX2007	0.026	0.111
Trust in EPX2008	0.009	0.112
Trust in EPX2010	-0.122	0.112
E Left-right interactions	0.122	0.110
I RY2005	-0.050	0.049
LRX2005	-0.050	0.047
	0.024	0.047
	0.017	0.046
	0.000	0.040
	0.001	0.045
G, Political discussion		
1, Occasionally interactions	0.000	0.111
Occasionally X2005	-0.008	0.114
Occasionally X2006	-0.131	0.115
OccasionallyX2007	-0.034	0.106
OccasionallyX2008	0.062	0.108
OccasionallyX2010	0.219*	0.116
2, Frequently interactions		
Frequently <i>X2005</i>	-0.166	0.134
FrequentlyX2006	-0.189	0.133
FrequentlyX2007	-0.042	0.126
FrequentlyX2008	0.164	0.133
FrequentlyX2010	0.213	0.137
H, Agr. policy interactions		
Agr. policy X2005	0.023	0.095
Agr. policy X2006	-0.211**	0.092
Agr. policy X2007	0.016	0.087
Agr. nolicy X2008	-0.026	0.089
A or nolicy X2010	-0.041	0.089
1151. policy 112010	0.011	0.007

 Table 19 - Interaction terms for Model 8

\*\*\*\* p< 0.001, \*\*\* p<0.01, \*\*p<0.05, \*p<0.1

Interaction	Coefficient	Standard Error
A, Life sat. interactions		
Life sat.X2005	-0.015	0.059
Life sat.X2010	0.029	0.058
B, Pers. eco. interactions		
Pers. eco.X2005	-0.086	0.074
Pers. eco.X2010	0.014	0.074
C, Nat. eco. interactions		
Nat. eco.X2005	0.140*	0.073
Nat. eco.X20010	0.132*	0.071
D, National identity		
1, Inclusive national identity interactions		
InclusiveX2005	-0.578	0.645
InclusiveX2010	0.285	0.580
2, Exclusive national identity interactions		
ExclusiveX2005	-0.558	0.643
ExclusiveX2010	-0.475	0.580
E, Trust in government interactions		
Trust in gov.X2005	-0.079	0.122
Trust in gov.X2010	0.155	0.113
F, Trust in EP interactions		
Trust in EPX2005	-0.055	0.147
Trust in EPX2010	-0.292**	0.145
G, Left-right interactions		
LRX2005	-0.014	0.058
LRX2010	0.032	0.055
H, Political discussion		
1, Occasionally interactions		
OccasionallyX2005	-0.012	0.130
OccasionallyX2010	0.202	0.131
2, Frequently interactions		
FrequentlyX2005	-0.233	0.159
FrequentlyX2010	0.123	0.161
I, Agr. policy interactions		
Agr. policy X2005	0.050	0.111
Agr. policy X2010	0.015	0.105

 Table 20 - Interaction terms for Model 9

\*\*\*\* p< 0.001, \*\*\* p<0.01, \*\*p <0.05, \*p<0.1
## Appendix 3 – Results of ordinal logistic regression

Variable	Coefficients	Standard Errors
Life sat.	-0.109	0.139
Pers. eco.	-0.357**	0.175
Nat. eco.	-0.401**	0.171
Identity		
Inclusive	1.452	1.427
Exclusive	1.753	1.420
Trust in gov.		
Yes	-0.523	0.382
Trust in EP		
Yes	-1.448****	0.370
TrustXTrust		
TrustXTrust	-0.461	0.305
Left-right	0.062	0.141
Pol. disc.		
Occasionally	-0.156	0.286
Frequently	0.385	0.374
Agr. policy		
Jointly	-0.308	0.250
Age	0.245**	0.096
Gender		
Female	0.190	0.116
Occupation <sup>82</sup>		
9 Business prop.	1.259**	0.610
Education	-0.036	0.063
Place		
Middle town	-0.112	0.136
Large town	-0.246	0.152
Region		
North Hungary	0.312	0.198
North GP	0.443**	0.198
South GP	0.341*	0.187
South TD	0.441**	0.215
Central TD	0.054	0.226
West TD	0.579***	0.199
Year		
2005	3.104	2.017
2006		
2007		
2008		
2009		
2010	-1.329	2.117
Interactions		
Trust in EPX2010	-0.961**	0.421
OccasionallyX2010	0.648*	0.378
$\mathbb{R}^2$	0.42	28

 Table 21 - Results of ordinal logistic regression (Model9B)

\*\*\*\* p< 0.001, \*\*\* p<0.01, \*\*p <0.05, \*p<0.1

 $<sup>^{82}</sup>$  Due to space limitations, for occupation and also for the interactions I show the categories which have a p value lower than 0.1 in the model.

## Appendix 4 – Results of linear regression fitted via Weighted Likelihood

Variable	Coefficients	Standard Errors
Intercept	2.927****	0.447
Life sat.	-0.041	0.048
Pers. eco.	-0.096	0.060
Nat. eco.	-0.153***	0.058
Identity		
Inclusive	0.240	0.413
Exclusive	0.341	0.412
Trust in gov.		
Yes	-0.202	0.132
Trust in EP		
Yes	-0.572****	0.126
TrustXTrust		
TrustXTrust	-0.121	0.106
Left-right	0.015	0.047
Pol. disc.		
Occasionally	-0.034	0.101
Frequently	0.140	0.127
Agr. policy		
Jointly	-0.088	0.088
Age	0.076**	0.033
Gender		
Female	0.064	0.040
Occupation		
9 Business prop.	0.505**	0.204
Education	-0.017	0.022
Place		
Middle town	-0.040	0.048
Large town	-0.074	0.052
Region		0.0.17
North Hungary	0.096	0.067
North GP	0.129*	0.070
South GP	0.090	0.065
South TD	0.150**	0.075
Central TD	0.009	0.078
West TD	0.1/5**	0.069
Year	0.757	0.640
2005	0.757	0.649
2006		
2007		
2008		
2009	0.272	0.509
2010	-0.373	0.398
Interactions	0.125*	0.072
Nat. eco.X2005	0.129*	0.071
INAL. eco.A20010	0.128"	0.0/1
$\frac{1}{1}$	-0.299***	0.143
$\mathbf{K}^{-}$	0.	402
Adjusted R <sup>2</sup>	0.3/3	

**Table 22 -** Results of linear regression fitted via Weighted Likelihood (Model 9C)

\*\*\*\* p<0.001, \*\*\* p<0.01, \*\*p<0.05, \*p<0.1

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