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WHAT DETERMINES TRUST?

A MICROECONOMETRIC APPROACH ON
THE MEASUREMENT OF THE ITALIAN SOCIAL CAPITAL

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Abstract

Nella presente tesi abbiamo voluto analizzare il cosiddetto “capitale sociale”, con particolare riferimento all’ambito legato alla popolazione italiana. Data la notevole estensione del concetto di capitale sociale, abbiamo teso riferirci ad esso nella sua accezione di fiducia, ovvero alla propensione alla collaborazione che un individuo mostra quando entra in rapporti con agenti terzi parte dello stesso sistema. Secondo alcuni si intende come capitale sociale quell’insieme di relazioni che un individuo va a tessere nel corso della sua vita, le quali vanno a costituirne il network di riferimento. La fiducia, intesa come propensione alla collaborazione, è dunque inevitabilmente assimilabile a questa definizione di capitale.

L’interesse maggiore è stato rivolto a quella tipologia di propensione alla collaborazione con agenti dei quali, l’individuo in questione, possiede un set informativo fortemente parziale, o addirittura nullo. In termini, si parla di “fiducia verso gli estranei”, o anche detta “verso gli altri”. L’obiettivo del presente lavoro è stato dunque quello di andare ad individuare le determinanti di quest’ultima. Tali determinanti, che si distinguono come quegli elementi che innescano siffatto comportamento cooperativo, costituiscono, a nostra opinione, un argomento di assoluta preminenza e rilevanza anche in termini di policy action.

La letteratura economica in riferimento, si è andata solitamente a concepire questa tipologia di interazione come quell'interazione che, una volta avvenuta, rende una delle controparti del rapporto virtualmente più vulnerabile alle decisioni dell'altra. Ciò ha trovato ampio margine di studio nell'economia sperimentale, in cui una manifestazione di scambio volontario di risorse finanziarie tra agenti ricreava in maniera ideale siffatta concezione. Al fine di analizzare questo fenomeno, tuttavia, nel presente elaborato si è ricorso all'utilizzo di dati osservazionali piuttosto che sperimentali, abbracciando dunque una impostazione alternativa basata sull'autovalutazione degli agenti stessi in merito alla loro propensione. Queste osservazioni sono state estratte dalla banca dati dell'ISTAT denominata *Aspetti della vita quotidiana*.

In virtù dei risultati conseguiti attraverso l'adozione di una batteria di modelli probit, le determinanti generali della fiducia individuale, relativamente al campione di popolazione italiana estratto, risultano essere il livello di istruzione conseguito da un individuo, la sua "origine" espressa in termini di nazionalità posseduta, il suo stato di salute, il suo eventuale coinvolgimento in attività socialmente utili e la sue aspettative circa la sua futura condizione personale. Oltre a ciò, da quanto si è potuto constatare, la fiducia individuale trova anche un fondamento nella materia del mercato del lavoro. Infatti, costituiscono determinanti di forte impatto sia la situazione occupazionale in cui un individuo versa, sia l'adeguatezza delle finanze in termini di sostenibilità del fabbisogno base da quest'ultimo manifestato. Da ultimo, la fiducia individuale presenta una forte eterogeneità in termini di ripartizione tra le aree geografiche.

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her uncle and willing to provide her another big example of how will has no limits. She is a little giant piece of my heart. Dear “Ellie”, your uncle loves you to the infinity and beyond.

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Sincerely yours,

A handwritten signature in black ink, appearing to be 'MMA' with a flourish at the end.

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Chapter 1

An introductory overview on social capital

How would you define *economics*? Upon what would you say it is based? At a first sight, one would be tempted to argue that *economics* is nothing but the study of the production and consumption of goods and services and the redistribution of wealth across individuals. Someone else would say that it is the study of social ties, namely the study of how economic agents behave and how they interact with each other. Some others may argue that economics is the study of both how a system can evolve in a defined time span and what may drive this evolution. Even though these definitions are quite broad economics is basically that, namely the study of both how and why systems develop in time and how and why individuals behave in a way rather than another.

For very long time the main interest of the discipline it is been trying to understand how the evolution of a system was linked to the creation of both physical and human capital, and a very long tradition of remarkable researches and manuscripts contributed

at this, explaining how and in which scale these two elements were capable to affect – separately or jointly – the present and future levels of economic output and well-being, giving insights on potential trajectories and paths that a system would may follow if one of them – or both – was enhanced. Even though these studies performed well in the explanation of the economic system growth, each of them committed the fatal error of excluding a crucial feature which is deemed to be as important as human or physical capital in building long-run growth and well-being; this feature is the so-called **social capital**.

Although there is not a clear definition of what precisely social capital is, one of the most important contribution to the cause has been given by Robert D. Putnam (1993), in his work “*What makes democracy work?*”, in which gave a broad, yet quite useful, insight of it. According to Putnam, the social capital can be thought as “*that set of norms and networks of civic engagement that is able to ease individual and collective constraints, facilitate the achievement of common goals and improve the quality of government and common well-being*”. Following this, social capital is kind of “intangible capital” that grounds its existence on social ties, both within family and outside family, civic engagement such as volunteering, reciprocity and so on and so forth. Since the mid-1990s, a growing body of literature had focused its attention on these ties and how they may affect economic outcomes and growth. Since these ties are linked with interactions that are also intangible, it is rather difficult to identify and synthesize them in a variable and giving it an economic meaning. Social capital per se is a multidimensional construct that not only includes sociological elements, but also political and psychological ones. That said, a clever way that the economic literature found to circumnavigate this obstacle was look at social capital in terms of only one of its many dimensions, namely **trust**.

Trust is not only the most relevant social capital dimension but it is also one of the few that is actually measurable. According to Arrow (1972), “[...] *virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time [...]*”, and this is quite not so hard to believe. Making an

investment, for instance, requires a certain amount of trust from both the funded and the lender, since the latter decides to deprive himself of a certain amount of wealth for a period entrusting it to the former that will have to give it back plus the interest accrued on in the next period. Another example may be a forward derivatives transaction in the OTC market¹, where the counterparty risk (namely the risk that one party faces when the other fails to fulfill his obligation) plays a crucial role. In this type of transaction, the buyer relies on the seller, in the hope that he will fulfill his obligation once the time has expired; once again trust plays a crucial role. The economic literature is strictly based on the concept of expectation, and it's well-known that expectations can be a manna-of-heaven or a deadly burden: if financial markets believe that a certain country is unreliable and that in the next future will face troubles the agents expectations will worsen. They won't trust on the country and so they may sell all the treasury bonds that they hold, making the price falls and interest rates explode up. Then the authorities may, for instance, try to shut down this adverse situation by making a proclamation in which they ensure that they will do whatever it takes to keep the country stable from the next future on, but if this proclamation does not meet the agents' expectations in the right way, and doesn't make them change their mind on the reliability of the country, the situation will keep worsening. This, again, is a matter of trust.

Trust is something that encompasses almost everything in economics, both at the macro and micro levels. It is grounded in a vastity of fields that is almost impossible to consider comprehensively, since it may come from a past heritage and experiences or being conditionate by the present environment. It can be totally irrational, driven by fear or some other feelings, and it can be rational as well, coming from calculations and strategic considerations. That said it becomes relevant, and non-trivial, wonder what trust really is, where does it come from and how it is determined.

¹The acronym stands for *Over The Counter* market. An OTC market is a parallel circuit in which are allowed financial transactions that cannot take place into the *regular markets* (RM) or into the *Multilateral Trading Facilities* (MTF). This happens because OTC market is more flexible in terms of transparency regulation, both *pre* and *post* trade, compared to RMs and MTFs. After the application of the MiFID directive, which allowed at this market to exist in Europe, a large part of transactions moved on this channel in order to take advantage of this "*opacity*".

A relevant corpus of literature attempted to accomplish such complicated task. Some studied the linkage between trust and growth, trying to formalize a macroeconomic framework in which trust could be effective, some others studied how trust is determined – both from games and asking self-stated questions. Each work gave its fundamental contribution, highlighting the various aspects in which trust become useful for the economic system at both the micro and macro level and giving some hints about how should it be used by a policy maker.

In this thesis two questions are attempted to be answered: [1] “*what are the determinants of trust for the Italian population?*” and [2] “*is in Italy the individual level of generalized trust affected by the type of job position and labor stability that an individual has?*”. Using the data gathered from the Italian households social survey – “*Aspetti della vita quotidiana*” – and by setting an appropriate microeconomic model we will try to shed some light on this unusual yet so important matter.

So the present thesis is organized as follows. Chapter 2 is devoted to the review of the current state-of-art, in there all the most notable contributions that the literature has produced during the course of the years and the relative results will be briefly discussed. Chapter 3 is devoted to the explanation of the hypothesis that we are willing to test, the dataset used, the set up of the econometric model and the theoretical background behind the choices made. Lastly, in Chapter 4 we discuss the empirical results and some conclusions will be drawn.

Chapter 2

Literature review

In this chapter we provide a literature review aimed at encompassing the most notable contributions since the early 1990s on. We start from the first awareness given by Robert D. Putnam about the importance of social ties and civic engagement in spurring the quality of government, then we go for the first endogenous growth model set up by Paul J. Zak and Stephen Knack [24] and the first cross-country results associated with trust. Then after that, we'll give a look at the experimental contributions by Joyce Berg [4] and Edward Glaeser [7], first, and Charles Bellemare [3], after, to finally land on the microeconomic survey analysis initiated by Alberto Alesina and Eliana La Ferrara [1] and followed by many other notable researchers soon after.

In the attempt of doing so, we will try to be as exhaustive and clear as possible in each branch developed by the literature in last 30 years.

2.1. A new type of capital

As mentioned before, for a very long time, the discipline focused its efforts on the study of the dynamics of the economic system development, both in terms of increasing physical and human capital. At this particular, the increasing level of the output and the associated allocative efficiency were the central points of the research. This framework, starting from a micro-founded base, tried to give an explanation of the potential development trajectories that an economic system could follow if certain conditions, such as a certain market-type structure and/or the speed of restoring of the capital, were met. Of course, by changing the base assumptions – namely adding or relaxing some of them and/or making more boundary or less restrictive some others – the outcome changes as well. This type of models always tried to mold a system without ever considering a crucial aspect, namely the role played by interactions and social ties and how they may affect the final outcome.

In the attempt to fill this gap, Putnam (1993) gave a first important insight, highlighting the importance of horizontal ties for a system. In his work “*What makes democracy work?*” he found that the northern regions in Italy were more developed in terms of income and quality of government to respect to the southern ones. Furthermore, southern regions, compared to the northern ones, were not only more inefficient in terms of the quality of the services provided by the public sector, but were also those who displayed the lower levels of social ties and interactions between citizens. According to Putnam, low levels of civic engagement, social ties and reciprocity were the main causes of the low quality of government. Those turn negatively affected the quality of the services provided by the public sector which in turn poured on the level of economic growth and social ties of the area, lowering them more. Moreover, Putnam stated that these low levels of social ties and civic engagement were not only due this vicious circle, rather there are also historical reasons that can justify such phenomenon. Past social values and types of governments are deemed to be key factors that directly affect the current levels of social ties and interactions; those factors constitute what in literature is known

as “historical background”. About that, the differences in economic performances and quality of government between different areas were especially remarkable when two areas with different historical background were compared. Assuming to compare an area that had a horizontal type of social structure with another one that had a hierarchical one, following the idea of the author, the one who experienced the horizontal type structure is more likely to be the one which is the more developed between the two, both in terms of economic performances and quality of government. In the Italian case of study, the centre-north regions had an horizontal type of structure, initiated during the medieval era when the city-state were becoming an established reality, whereas southern regions, due the borbonic dominance, had a hierarchical one. The horizontal structure was able to better elicit and improve social ties compared to the hierarchical one, since in the former the majority of the interactions took place between *au pair* individuals, whereas in the latter interactions were grounded on a commander-subordinate type of relationship. This would be enough to explain the performance differences in the first place.

2.2. Macroeconomic implications of social capital

A few years later, Knack and Keefer (1997) decided to investigate the impact of social capital on the economic growth. Since social capital is a rather complex multi-dimensional phenomena, hard to capture in its entirety, the two researchers decided to go for two proxies aimed at representing it as better as possible. These proxies were different yet complementary to one another, catching two fundamental dimensions of the social capital: namely, **trust**¹ and **civic engagement**². Retrieving data from different World Value Survey³ waves (the 1981 and 1990) they performed a cross-country analysis finding that both social capital measures had a positive and statistically sig-

¹Trust proxy comes directly from the famous World Value Survey question that recite: “*Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?*”.

²Civic engagement proxy comes out from 5 different questions in which the respondent is asked to state whether determinate behaviors are justifiable or not.

³Hereafter WVS.

nificant relationship with economic growth.⁴ Furthermore, they found that trust is something that is pretty stable in time, with a correlation of 0.91 with its past values.⁵ This finding was, in a certain way, consistent with Putnam, although the authors did not rule out the possibility that trust could vary significantly over countries and long time frames. The authors also found that the variable **trust** was highly correlated with the number of wallets “accidentally” lost and returned with the content intact to their putative owners⁶, highlighting that the variable was more likely to represent the trust felt towards strangers rather than towards relatives and friends. These positive findings about economic growth were also supported by La Porta (1997). La Porta found that trust enhances economic performances in large organizations, referring to trust as a cooperative behavior that individuals show towards strangers. Furthermore, the presence of hierarchical institutions and structures – such as religious denominations – was found to be harmful for these economic performances; for instance, societies and areas in which there was a strong religious segmentation were less likely to achieve higher economic performances due to the fact that the clustering process of the population in many smaller groups hinders the social cohesion and horizontal ties. Lastly, La Porta proved that higher trust levels improves not only the economic performances but also the quality level of institutions, for instance by increasing the judicial efficiency or reducing the government corruption.

Zak and Knack (2001) set up an endogenous growth model aimed at capturing the relevance of trust in explaining capital accumulation, and the economic growth. They referred to trust as “*the time not spent in diligence*”, where for diligence they meant “*the time spent by an individual in monitoring another individual’s compliance rather than working*”. Their model was pretty simple: they assumed two populations of individuals, each one characterized by a set of common individual characteristics (*i.e.* age, education, and so on). Those two populations refers one for the brokers and one

⁴Here economic growth was proxied in two ways: one referring to the average annual growth of the GDP per capita and the other referring to the share of investments to respect to the total GDP.

⁵The authors compared the trust values from both the 1981 and 1990 WVS waves.

⁶Data from experiments conducted by the Reader’s Digest, as reported in *The Economist*, June 22, 1996.

for the agents: the latter are willing to maximize their consumption by smoothing it over their lifetime, whereas the former represent the only possible way for the agents to access the market and then invest their savings. In each period agents and brokers are randomly paired and the agents entrust a certain amount of their wealth to the brokers. Then, the brokers will have to invest this wealth in profitable activities and will be the only ones that know how much these investments will pay off. What is not saved and invested is rather consumed by the agents. Agents and brokers are unknown to each other, at least until the brokers make their investments. After that moment, their identities are revealed. Brokers are more likely to cheat on those agents with which the social distance (*i.e.* the difference in characteristics) is high. As result, agents may receive lower returns from the investments because brokers have withheld a portion of the total revenues for themselves. The law of the motion of the capital is dependent on the level of wealth chosen by the agents as a function of their current salary, their expectations net-of-cheating returns from the investment action and the returns received from the previous period. Agents are allowed to do nothing but control on the brokers' compliance. However, as much time they put in diligence, as less they will earn in that period and, as consequence, as less they will be able to invest next. From a period to another the wealth can decrease throughout two not mutually exclusive ways: [1] in the level of salary, which is lowered by the more time spent in diligence, and [2] in the level of the revenues received by the agents. As consequence, the more heterogeneous a society is the less is the amount of wealth invested, that in turn leads to lower level of capital accumulation and thus lower economic growth.

Thus, higher trust impacts positively the economic growth. Trust increases its effectiveness on economic growth when there are strong formal institutions and in less heterogeneous communities. Moreover, in those cases where formal institutions are weak (*i.e.* law enforcement is feeble and property rights are not properly defined) trust plays a crucial role to growth.

Guiso, Sapienza and Zingales (2004) studied the role played by the social capital on financial development. Since financial development is a key element of the economic

growth, by using Italy as reference country, they investigated which effects social capital may exert on the use of financial instruments, intended as the use of checks, portfolio allocation, availability of loans and reliance on informal lending. In their work the authors didn't account only for generalized trust as social capital proxy, rather they also went for other possible measures, such as volunteering actions – like blood donations – and the voting turnout, aimed to encompass other social capital dimensions. The base theory was the following: the higher the social capital the greater the financial development, and thus the economic growth. Higher social capital communities should use checks more, invest more in stocks, access more the formal credit channels for mortgages and loans, whereas low social capital communities should dump those practices. Indeed, those communities should use more informal and unconventional credit channels, such as rely on lending from relatives and friends.⁷ Results were robust with the theoretical predictions.

Higher level of social capital increase the likelihood of using checks, invest in stocks and access the formal credit market. Moreover, investigating for geographical differences, the authors found that moving from low social capital communities to higher ones increase the likelihood of the phenomena described above, even though the decision of whether appealing or not to financial instruments and formal credit channels is always influenced in part by the level of social capital of the community in which the individual in question was born. Further, the authors showed that social capital plays a relevant role on the financial development wherever formal institutions are weak and the schooling level is low.

Guiso, Sapienza and Zingales (2008) worked again on financial development, this time looking at stock market participation. The decision of whether or not to participate in a stock market is not only driven by the expected returns on the investments but it is also based on subjective priors and on the perceived probability of being cheated. Their findings show the important role played by trust in explaining both the limited stock

⁷This scenario is the result of a more complex phenomenon called “*amoral familism*”, first described by Banfield (1958) in which the members of a community show a very high level of trust towards their relatives and friends and a very low level towards strangers or acquaintances.

market participation and the share of stocks hold by an investor, even in presence of no frictionalities at the entrance. Less trusting people are less likely to participate in the stock market, and conditional on it they buy less. On the other hand, more trusting people are more likely to play gamble games and thus participate at the market and hold a greater share of stocks in their portfolio. Variations in the level of generalized trust are also able to explain the existing cross-country differences relative to the levels of stock market participation and financial development: less trusting countries show lower degrees of participation to stock markets and thus have lower levels of financial development.

Guiso, Sapienza and Zingales (2009) investigated further the importance of trust on economic growth addressing their interest at the possible existing relationship between trust and economic exchanges intended as Foreign Directive Investment⁸, international trade and portfolio equity investments. Using as reference the countries belonging to the EEA⁹ and as measure of trust the “bilateral trust”¹⁰, the authors proved that countries that trust more each other gain in an increase of their international trade volume, FDI and investment in their portfolio equity; this is especially truthful for trust-intensive activities, such as FDI, where trust displayed its highest effect.

Lastly, the literature further extended its knowledge by investigating the relationship between generalized trust and human development. Human development became increasingly important in the recent years, since it is the expression of a broader idea of development. For many and many years, in the economic literature, the label “development” was strictly though as a synonymous of economic growth. This analogy was questioned in the late 1980s and early 1990s: development is something that goes beyond a mere economic dimension, especially when it is put next to the label “human”. As consequence, “human development” is something that not only accounts for the economic richness, but it encompasses also freedom of choice, health, education, freedom

⁸Hereafter FDI.

⁹Acronym who stands for *European Economic Area*.

¹⁰Intended as how much trust a citizen belonging to the country i has toward a random citizen belonging to the country j , which is more or less close to the concept of *generalized trust*.

of thoughts and so on and so forth. Therefore, recently, a growing body of literature started to investigate this newest definition of development, by even building indicators aimed to capture this complex phenomenon. The most famous one is the HDI, or “Human Development Index”, developed by the UNDP¹¹, which embeds three different dimensions of the human development: life expectancy at birth, schooling level and economic wealth. This makes this indicator far more complete than the simple GDP. For this reason, Özcan and Bjørnskov (2011) used it in order to investigate the capacity of social capital, meant as trust, in fostering and speed up development in a sample of 86 countries for the period 1980–2005. Results proved that trust has a generally robust and positive effect on human development. More trusting countries experience higher HDI growth rates.

2.3. Beyond the standard assumptions on agents' behavior

Generalized trust displays a relevant and non negligible effect on both the economic growth and development of a system. It is able to reduce asymmetric information, ease transaction costs, foster higher levels of economic outcome and impact positively the human development. Therefore, in the light of this, it would be interesting to study what trust is and what determines it. It is non-trivial wondering why do individuals trust each other even when they lack information about their counterparts.

2.3.1 Evidence on trust: experimental approach

Up till the 1990s, the standard strand of the literature described the individuals' behaviors solely driven by the self-interest. A representative agent was willing to maximize his utility function according to three pillars: [1] the basket of goods of interest was devoted for the personal consumption *only*, [2] the more consumed the better, [3] the agent was perfectly rational, able to rank in any situation different baskets of goods according to his preference and [4] able to plan how much to perfectly smooth his consumption levels through time. Whatever diverting behavior from this standard setting was considered

¹¹Acronym who stands for *United Nations Development Program*.

irrational and thus wouldn't be accepted in any economic model. However, the majority of the actual human behaviors divert from this view, thus the standard framework wasn't a good fit for the studying of the economics and it required to be updated.

Berg, Dickhaut and McCabe (1995) decided to prove that weakness. In particular, it is hard to believe that agents are driven by their solely self-interest. Moreover, it is even more hard to believe that they are always able to rank baskets of goods or make a perfect forecast about their consumption levels. The main question that Berg *et al.* (1995) attempted to clear was: “*is trust a primitive in economic models of behavior?*”. Specifically, they tried to understand whether trust was a kind of default characteristic of the human behavior. In order to do so, they designed a sort of 2-stages dictator game, from then on called “investment game”¹², and conducted it over a representative population of undergraduate students coming from the University of Minnesota. The following rules applied: [1] the population was randomly splitted in two equal size sub-populations – the *senders* and the *recipients* – and those were placed in two different rooms separated by an hallway, [2] senders and recipients were randomly paired but none knew who was his/her counterpart during the game, [3] each participant was given an endowment of 10\$ and senders were asked to choose an amount from 0 to 10 to send to their counterparts – the recipients – knowing that the amount would be tripled by the experimenters, then [4] the recipients had to choose how much of their wealth payback to the senders. In this setting anonymity was guaranteed, so that whatever behavior might have taken place it could not have been referred to a multiple interactions and strategic framework. The authors ran the experiment twice: the first time as described above whereas the second time with an addition in the settings. Using a second sample from the same original population, they gave to the “cavies” information about the previous wave results, letting them knew about how much on average senders sent to recipients, recipients returned to senders and the net return of the game. According to the authors, the amount sent was a valid proxy for the level of trust of the senders,

¹²Another well famous label to refer at it is “*trust game*”, since this type of games is able to broadly measure the impact of trust on the decision-making process.

whereas the payback was valid to represent the level of trustworthiness of the recipients. On the base of the standard assumptions, if the self-interest is the unique driver of the human behavior senders should send 0\$, as well as recipients should return nothing in case of the senders would have sent something: therefore, the Nash equilibrium relies on 0\$–0\$ payoffs. Results totally denied such prediction: a total of 55 out of 60 participants from the two waves decided to sent an amount greater than 0\$ to their counterparts, indicating that self-interest is not the only driver of the human behavior. In addition, Ortman, Fitzgerald and Boeing (2000) found that this finding was robust to eventual changes in the original settings: they tested the robustness of the results via varying some BDMc default settings, for instance adding a questionnaire in order to investigate a potential misunderstanding/confusion of the participants on the instructions given, and controlling if final results were changed. The authors did not found any statistical evidence that changing settings leads to different conclusions, so the results from Berg *et al.* stood. As consequence, trust is confirmed to be a *primitive* of the human behavior.

H. S. James Jr. (2002) gave in his work the following definition about trust: “[...] the statement *A trusts B* means that *A expects B* will not exploit a vulnerability *A* has created for himself by taking the action [...]”. As can be seen, the proxy variable from Berg *et al.* (1995) seems to be quite in line with the definition provided.

Glaeser, Laibson, Scheinkman and Soutter (2000) decided to test whether surveys self-stated trust questions were able to predict such primitive or the only way to get it was via field experiments. In order to do so, GLSS decided to compare results coming from both the General Social Survey¹³ trust question and a 2-games experiment conducted on a sample population of undergraduates students from Harvard University. The survey question that they used was the following:

¹³The *General Social Survey* is the general household survey provided in the United States, inside it contains several sociological and attitudinal questions aimed to monitor the US society. Hereafter it will referred as GSS.

“Generally speaking, would you say that most people can be trusted or that you can’t be too careful in dealing with people?”

- 1. Most people can be trusted;**
- 2. Can’t be too careful.**

This question is very similar to the one used into the World Value Survey, which was used in Knack and Keefer (1997) to prove the impact of trust on economic growth. The economic literature did an extensive use of this type of questions for investigating trust, as will see further. According to Glaeser *et al.* (2000), a question such like that is not good at predicting actual trusting behaviors, because its formulation is that broad that it would not be unlikely that someone may misinterpret it or, worse, lying about it. The field experiments instead are grounded on the actual behavior of the subjects, thus are more reliable. The experimental part consisted in two different games: the first game was similar to the one proposed by Berg *et al.* (1995), with some little variations (*e.g.* such as let the paired individuals meet each other once the drawn was done but right before the beginning of the experiment and doubling the amount sent instead of tripling it, whereas the second was the so-called “envelope drop” game. Briefly, subjects were put in front of different scenario in which they had to rank if, in their opinion, a lost envelope containing money addressed to them would have been returned or not by a random pedestrian. The primary innovation of the work of Glaeser *et al.* (2000) was that they tested for the subject characteristics and controlled whether those were able to predict the individual actual trusting behavior.

The main result achieved was that the self-stated trust questions present in the majority of the surveys are inadequate to detect and predict the level of generalized trust; rather, that type of questions are more inclined in predicting the level of trustworthiness. Questions about past trusting behaviors and previous habits are, instead, good predictors for the level of generalized trust. Nevertheless, Glaeser *et al.* (2000) did not ruled out the use of surveys: trustworthiness represents the other side-of-the-coin of trust, thus in order to say something meaningful it must be kept in count. Indeed,

Glaeser *et al.* (2000) highlighted the fact that in order to shed better light on this topic, a valid research should be composed by both the experimental and the survey parts.

From the analysis of the experimental trust measure some result related to the individual characteristics emerged. Being male or having a different race did not affect the trusting behavior that subjects had during the experiment. Rather, racial heterogeneity displayed a negative and statistically significant effect only on the levels of trustworthiness, meaning that individuals from different races are not less likely to trust each other less but they are more likely to cheat on the benevolence of their counterpart. More precisely, the variable who had to represent the trustworthiness, that is the **return ratio**¹⁴, decreased whenever two students of two different nationalities were paired together, everything else being equal. Furthermore, any presence of social connections between the parties foster cooperation and reduce moral hazard, resulting to affect positively both the level of trust and trustworthiness.

Afterwards, the main finding from Glaeser *et al.* (2000) it has been dismissed by Bellemare (2004), who proved that the effective capacity of a survey question in predicting experimental results primarily relies on how the checking experiment is designed and not on the formulation of the survey question itself. Bellemare (2004) argued that both the experiments conducted by Berg *et al.* (1995) and Glaeser *et al.* (2000) were inadequate. These experiments were conducted over relatively homogeneous populations, not allowing the sample to vary as much as it was needed. Bellemare (2004) tried to answer at two different questions, other than studying what determines trust: [1] “*does WVS trust question predicts well the experimental results on trust?*” and [2] “*do the experimental and survey trust measures report the same informational content on trust?*”. A representative sample of the Dutch population of more than 500 households¹⁵ was gathered. Whether a survey trust question predicts well or not the experimental results depends crucially on how the experiment is designed, but not just. About the second

¹⁴The variable was computed as the ratio between the amount returned over the amount available to return.

¹⁵This dataset is a minor of the total one that contains 2000 observations and who belongs to the CentERdata, the research institute at Tilburg University.

question, evidences suggest that survey questions and experimental results report different informational contents on trust and that this differences are not due misreporting or whatever.

Relatively to the determinants of trust, the amount sent by the participants was used as dependent variable. Age was found to have a robust concave relationship, with the peak of maximum trusts around the 30 years. Thus, the very young or old cohorts showed a lower trusting behavior. Neither gender nor personal income were found significant, whereas education displayed a concave relationship to the experimental measure. Finally, Bellemare (2004) studied whether trust might be driven by a sort of “calculative” element present within the subjects. The author identified this element on the expectations that senders have towards the recipients on the amount that will return them back (*i.e.* expected amount returned). Implementing in the model these *senders' beliefs*, Bellemare found a statistically significant and positive relationship, meaning that trust is grounded expectations and “strategic behavior” on the counterpart’s trustworthiness.

Karlan (2005) checked whether trust would be good predictors of the real-financial decisions (*e.g.* such as default on loans or drop out due lack of discipline or voluntary saving). Performing an investment game on a subset of the Peruvian population, which would have been further selected for a micro-finance group lending program, the author found that the actual trusting behavior emerging from field experiments game did not actually measure pure trust, rather it measures a behavior which is a mix of both social norms and individual propensity to risk. As consequence, the more a subject acts trustful during the experiment the more likely he or she will default or drop out from the group lending program within the next year (and/or the more likely he will save less during the lending period). On the other hand, subjects who revealed to be trustworthy during the experiment were the same that were less likely default or drop out the micro-finance program (and also those who save more during the period). Therefore, Karlan (2005) found evidences that field experiments are quite useful to predict real-financial decisions. Those do not capture the pure concept of trust, but rather a combination of preferences, propensities and beliefs.

Ashraf, Bohnet and Piankov (2006) proved that both the “altruism” and “unconditional kindness” that move individuals' actions and can explain what drives the trusting behavior. Conducting their study on a wide heterogeneous population of college students from three different countries¹⁶, the authors found that individuals basically enjoy and get relief in acting trustful to strangers. The authors also found that racial fragmentation may harm significantly the actual trusting behavior, especially in places such South Africa, where the context is deeply affected by a well established heritage of discriminations towards minorities. Johansson-Stenman, Mahmud and Martinson (2009) found that religious segmentation displays no effect on the individuals' actual trusting behavior even in strongly divided societies such as the Bangladeshi population. Moreover, the subjects' income levels resulted be a strong predictor of the actual trust behavior emerged during the experiment: the adduced argumentation was that the endowment provided in the game was non-trivial neither for the senders nor the recipients since most of the sample was extremely poor.

Insofar, experimental trust can be summarized in two distinct parts: **beliefs**, based on the “expectations” that an individual feels towards another, and **preferences**, which incorporates those elements such as “altruism”, “kindness” and “propensity at risk” (Karlan, 2005; Ashraf *et al.*, 2006). Therefore, Sapienza, Toldra-Simats and Zingales (2013) investigated whether it was appropriate measuring trust with that proxy. The authors compared the *amount sent* measure with the standard WVS trust question and tested which of the two was better in predicting trust, according with the definition provided by James (2002). The authors demonstrated that neither the experimental measure nor the WVS trust question are sufficiently good proxies for measuring trust properly. However, in their opinion, what would be an accurate measure is the *expectations on the amount returned* (*i.e.* the sender's beliefs). Nonetheless, Sapienza *et al.* (2013) showed that even though WVS trust question and the amount sent by the senders weakly correlates with one another, the former displays a strong and statistical significant correlation with the sender's beliefs. In the light of this, and accepting the

¹⁶More precisely Russia, South Africa and United States.

definition trust provided above, Sapienza *et al.* (2013) stated that both survey questions and field experiments are valid measures for trust.

2.3.2 Evidence on trust: survey analysis

The majority of the literature cited above did not just worked on the experimental approach, although it was the main focus. As already discussed experiments and surveys are complementary to one another, thus most of the works went for both the approaches. Bellemare (2004) proved that each approach reports a different informational content about **trust**, so it is clear that in order to have a better understanding of the phenomenon both should be implemented into the same research. Nevertheless, setting and running an experiment is quite costly, and in many cases if the design is not specified properly results could come out strongly biased. Those reasons pushed part of the existing literature on relying exclusively on the survey analysis, which instead is relatively cheap compared to field experiments. Even if is still a bit fuzzy which kind of relationship those survey questions have to respect to the concept of trust, the widespread use of social surveys by the institutions, that are willing to monitor as much frequently as they can their populations, gives at this research method a sort of validation.

Alesina and La Ferrara (2002) were among the first that conducted a research on trust relying exclusively on a survey analysis. American population was their target, and to pursue it the authors used the GSS trust question as proxy variable. According to the authors, the individual trust “towards others”, meant as “towards strangers”, has two primarily sources: first, since it a primitive in the human behavior, surely “individual characteristics”, both demographic and socioeconomic, do play a role in determining its final level. Second, they believed that part of the individual level of trust could be determined by the surrounding context in which an individual lives, thus the society’s ethnic and racial composition and possible income inequalities have to be considered as well. From their results, age turned out to have a concave and statistically significant relationship with trust, meaning that the older an individual gets the less trustful he becomes, with a peak in his middle life stage. Gender has a

negative impact on trust, with female respondents that are less prone to trust in general to respect to male respondents. The level of education displayed a mixed effect: less educated respondents (*i.e.* those who have less than 12 years of schooling) are less trustful compared to the more educated ones, which instead result more trustful. Black Americans trust others less, but once white Americans are excluded from the sample this effect no longer stands. Both income inequality and racial fragmentation displayed a strongly significant and negative effect towards trust but, once those were included jointly into the analysis, the former lost all its significance whereas the latter kept holding, meaning that the US citizen are more likely to trust in more uneven society rather than in a more heterogeneous one. Being part of a minority, which has been discriminated in the past, reduce the level of trust towards strangers of the individuals which belong to that group. This finding is consistent with both Zak and Knack (2001), which highlighted the importance of social distance and homogeneous communities, and Glaeser *et al.* (2000), who showed that when heterogeneous individuals interact they are more likely to cheat on one another.

Alesina and La Ferrara (2002) also proved that personal experience matters, namely having had a recent trauma significantly lowers the level of trust felt towards strangers, but this effect is unlikely to last for long. More precisely, the authors defined as “trauma” those traumatic experiences both related with the emotional and physical parts of the life, such as having divorced recently or have been diagnosed cancer. Interestingly, the GSS trust question is negatively correlated with the level of trust felt towards some institutions such as the army: this finding has been later explained by Uslaner (2003) who argued that the enforcement of some institutions, such as army, do not foster trust, since those institutions primarily base their credibility on the “fear of punishment” rather than in building a well functioning and cooperative environment. About religion segmentation nothing emerged, meaning that belonging to a religious denomination do not impact negatively the level of trust of the individuals, at least not in the USA. However this evidence has been challenged several times. Other contributions found that the effects of religion on trust are quite mixed: some researchers found a negative

effect (Bellemare, 2004; Johansson-Stenman *et al.*, 2009) whereas others found a positive effect on the individual level but a negative one at group-level (Wang and Gordon, 2011).

Later, Wang and Gordon (2011) confirmed that context matter. Analyzing the levels of trust recorded from individuals of more than 60 countries, using a multilevel analysis, they found that inequalities and institutions do play an important role in shaping the individual level of trust. Furthermore, religion has a “*bipolar*” effect on the individual level of trust. At the subjective level religion impacts positively the individuals, whereas if the effect is studied at the aggregate level it turns to be negative and harmful. A possible explanation of this is that more or less all religious denominations shares a message of higher ethical values, thus individuals are urged to behave better towards others and this foster individual trust. Nevertheless, if one of these denominations would take a dominant position within the society, what that would more likely to happen is that a clusterization process might start. This leads to social separation, that in turn will lead to lower individual levels of trust.¹⁷ Moreover, the individual level of trust is also affected by the country in which someone lives in.

The results from previous papers found a confirmation: education exhibits a positive relationship¹⁸, males trust more compared to women and those who earn more are more likely to trust others.¹⁹ Differently age displayed a convex relationship with trust, but this finding is not been confirmed in any other paper present in the bibliography.

Camussi and Mancini (2016) based their research on the attempt to clarify the causal link between social capital, expressed as individual generalized trust, and another contextual variable, which was the quality of government. Although the direction of the relationship is not fully clear, a better quality of government, meant as better local services provided to the public, enhances the level of cooperation between individuals and thus spur both the generalized level of trust and the one towards institutions. Using Italy as reference country and creating a sub-national indicator for the local services'

¹⁷Banfield (1958) called “*amoral familism*”.

¹⁸Although in some countries such as Mexico, South Africa or India this relationship is inverted.

¹⁹Also this findings present mixed results, since countries as Brazil, Nigeria or Romania shows an inverted relationship.

quality they demonstrated that a better public services increase the individual level of generalized trust.

2.4. Conclusions

In conclusion, social capital is an essential feature for the economic and human development. Due its own intrinsic complexity, social capital is often approximated with trust, which is fundamentally an element who starts at the individual level. This element has been largely studied in the literature controlling both for field experiments and survey analysis. Trust sinks its roots in various fields: it is a subjective prior that combines both beliefs and personal preferences and it is also driven by other external community's factors, such as surrounding racial fragmentation, quality of government and inequality present within the society. Trust molds and varies for countless reasons: due to aging, depending on the schooling level that a subject has achieved, according to familiar heritage, the religious culture and so on and so forth. In this wide and really extended literature none before focused on the possibility that also the *job position and labor stability* may exercise an effect on the level of trust felt, and this thesis attempts to fill this gap. Maybe, living a precarious job condition, due to a precarious labor market structure, can lower down the individual level of generalized trust and this, in turn, might trigger "Northian-traps" that inevitably lead to worse economic performances. Moreover, play a management role rather than be an employee may exercise an influence either, due different level of incoming salary received or the level satisfaction felt relative to the labor success or not.

Chapter 3

Theoretical background: data, hypothesis and the model

In this chapter we present the dataset, how the sample was built, explain the theoretical background and describe the empirical model.

Since the purpose of this work is trying to measure social capital, defined as trust, understanding its determinants is crucial, since social capital, and trust to a large extent, lowers transactions cost and fosters economic growth. In Chapter 2, we saw that trust is an individual characteristic, highly sensitive to both background and actual individual's conditions.

Other than trying to answer to the general question on *what determines trust*, we focus on two more specific topics that may be interesting to look at, since can be part of the sources that contribute to shape it. More precisely, this thesis focuses on the two following questions: [1] *can having a different position in the labor market be detrimental for generalized trust?* [2] *Do people that live a precarious job condition be less prone to*

trust strangers?

Therefore, the rest of the chapter is organized as follows: section 3.1 is devoted to the presentation of the sample, how it was built and presents a brief description of the dataset used. Section 3.2 exposes the issues related to the research questions, explaining what should determine trust and why do people might be less trustful when certain conditions on their job stability and labor market are met. Lastly, in section 3.3 will be presented the econometric model with which the analysis in Chapter 4 is conducted.

3.1. Data presentation and sample issues

3.1.1 General info on the sample

Data have been gathered from the Italian household survey “*Aspetti della vita quotidiana*”, which is on charge of the ISTAT, the Italian national institute of statistics. “*Aspetti della vita quotidiana*” is a survey that belongs to a wider set of social surveys called “*Indagini Multiscopo sulle famiglie*” and it is performed every year: their purpose is to collect information about the Italian households situation, in terms of consumption habits, economic situation, health conditions and any other relevant sociodemographic and/or socioeconomic aspect.

The interviews are conducted in March and the subsequent data are made available in two different formats: [1] a restricted version of the dataset called “*file ad uso pubblico*”, which is freely downloadable from the ISTAT website, and [2] the full version dataset called “MFR”¹, which is available upon request and for research purposes only. The main difference between the two formats is that some categories present into the full version are merged, or totally removed, in the free access version, in order to protect the respondents’ privacy and fulfill at the confidentially obligations.

Due to the strong demographic heterogeneity among the Italian population, the sampling method is adjusted so that sampling biases are minimized. The sample follows a mixed layered sampling method. First, the total population is categorized at

¹*i.e.* file per la ricerca.

different geographical levels, which are: the national level, the macro-region level² and the regional level³. Then, ISTAT distinguishes municipalities based on the following socio-economic and demographic criteria: separates *metropolitan* and *non metropolitan* areas and ranks municipalities based on their resident population⁴. Once the separation is made, ISTAT proceeds to define further those municipalities, making a distinction on which are self-representative⁵ (AR) and which are not (NAR).

For the ARs, a one-stage procedure applies since each AR is considered as a layer by itself. Households are randomly drawn from the municipality's population register and constitute the "primary statistic units" for which the characteristics are recorded. Every member of the selected household is asked to participate at the interview. For the NARs, instead, the procedure requires two steps. Since the NARs set is wider, those municipalities requires to be clustered in homogeneous subsets, from which just one municipality will be randomly drawn. Once that the municipality is chosen, it will represent the entire cluster from which it has been selected and constitutes the "primary statistic unit". After that, households are selected similarly as for ARs and constitute the "secondary statistic units", for which characteristics will be recorded.

In both ARs and NARs, households are selected, without repetition, with an equal probability of $\frac{1}{n}$. Municipalities, instead, follow a different way: from the "ARs set" all the municipalities are used, whereas those from the "NARs set" only a few are selected, with a probability proportional to their demographic size. At the end of this more than 20000 households are selected, for a maximum of 900 municipalities, that leads to a sample of almost 50000 individuals.

The data are collected through interviews that are generally conducted in remote,

²Intended as *North-Est, North-West, Center, South* and *Islands*.

³With the exception of the autonomous provinces of Bolzano and Trento which replace the Trentino-Alto Adige region in the full version of the dataset. In the full version, also, is present the provincial level which is not available in the free-access version.

⁴At this point, once the areas have been distinguished, ISTAT defines which are the metropolitan areas' center (A1) and which are the surrounding towns (A2). For *non metropolitan* areas, the internal distinction is based on a size criterion of the resident population (*e.g.* B1 are the municipalities with 2000 or fewer inhabitants, whereas B5 are those with more than 50000 inhabitants).

⁵ISTAT defines as self-representative those municipalities who have the higher demographic size.

using C.A.I.⁶ or C.A.P.I.⁷ procedures. In case of unavailability of the selected household the P.A.P.I.⁸ procedure takes place. The P.A.P.I. consists in a person-to-person interview in which the examiner goes directly to the household's domicile; in there, the examiner will give to the household members the survey and/or will ask them to answer to some oral questions. The minimum age requested to join personally the interview is 14 years old, while for those who are younger than that at the moment of the interview ISTAT recurs to "proxy interviews"⁹. Households are not obliged to answer to all the questions that the examiner asks, since some of them may be particularly sensible in terms of privacy. Moreover, households can also refuse to participate to the entire interview. In general, the survey questions refers to a time interval which is about "12 months backwards from now", but it also contains some current state questions.

3.1.2 Data analysis: a descriptive introduction

We selected the following question as our dependent variable: "**Do you generally think that most of the people can be trusted or you cannot be too careful?**". It takes value 1 if the respondent thinks that most of the people can be trusted and 0 otherwise. Although we are already aware about the ongoing debate on appropriateness of this type of question in capturing pure trust, we chose it following Alesina and La Ferrara [1].

Indeed, as exposed in the paper, we agree with the opinion that the *literal interpretation of the question* is the most concrete and appropriate scenario. This means that, rather than capturing some other aspects related to *trustworthiness*, the question refers directly to trust, in particular towards strangers. Our beliefs are supported from the fact that our dependent variable, among three possible similar questions available in the survey, matches up the most with the one that asks: "*Guess you have lost your wallet, with money and documents inside, with which probability do you think that*

⁶*i.e* Computer Assisted Interviewing.

⁷*i.e* Computer Assisted Personal Interviewing.

⁸*i.e* Pen And Pencil Interviewing.

⁹Namely interviews that are conducted by parents or siblings who are representing the minor.

a complete stranger who has found it will return it back to you with the content untouched?”. We labeled this question with FIDU13. Relatively to the other two queries, those were about to ask the same question but changing in the subject of the sentence. That is to say that, rather than rate the probability associated to a complete stranger, those focused on the probability that a neighbor (FIDU11) or a police member (FIDU12) returns the wallet with content untouched.

All the versions share the same coding: the responses take values from 1 to 4, where 1 means “*not likely at all*” whereas 4 means “*most likely*”. Table 3.1 reports the correlation coefficients between the variants with the dependent variable, and the related t – tests for the hypothesis of *no correlation*:

Single correlations and H_0			
Variable	ρ	t – test ($d.f.$)	p-value
FIDU11	0.23104239	46.5048 (38352)	0.0000
FIDU12	0.15663250	31.0650 (38370)	0.0000
FIDU13	0.30353578	62.3445 (38300)	0.0000

Table 3.1: Single correlations and test for H_0 of *no correlation*

The last row, which corresponds to the *complete stranger* variant, shows the highest correlation value to trust. We said that our dependent variable is a binary and, in our sample, the proportion of the respondents that think that most of the people can be trusted is only the 22.0%. Figure A.1 displays the frequency distribution.

Figure 3.1 shows how the proportions of trusters varies along the Italian peninsula, giving us a visual information of how is its geographical distribution. The centered and northern regions outperform systematically the southern ones. The 5 regions with the highest proportion of trusters are: Veneto, Toscana, Friuli-Venezia Giulia, Valle d’Aosta and Trentino-Alto Adige. Trentino-Alto Adige and Valle d’Aosta, respectively, reach the peaks with a proportion of trusters of 38.0% and 31.4%. On the other hand, the 5 regions with the lowest scores are: Sardegna, Calabria, Molise, Basilicata and Sicilia. The last two record the lowest scores overall, with proportions of trusters of 14.6% and

14.0% respectively. About that, only three non-southern regions are under the sample average, and those regions are Lazio, Piemonte and Umbria.

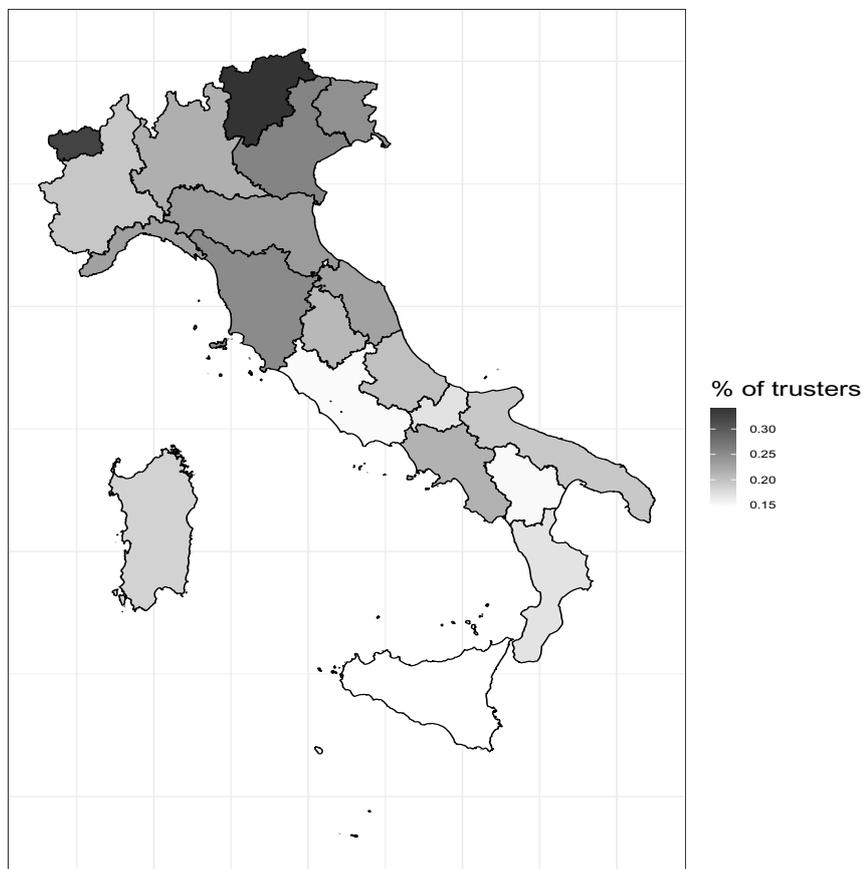


Figure 3.1: Italian choropleth map

Table A.2, in the Appendix A, contains the complete proportions for each region. In the survey the respondents, other than answer to our reference question, were also asked to rate their trust level towards political and non political institutions present in the country, such as the national parliament, the regional government, the police department, the judicial system and so on and so forth. Each question takes values from 0 to 10, where 0 means “*does not trust at all*” and 10 means “*totally trusts that organization/institution*”. Table 3.2 shows the relative mean and standard deviation values for each institution/organization for which the question has been asked, and their correlation coefficient to the dependent variable.

Variable	Mean	Median	S.D.	Min.	Max.	ρ
National Parliament	3.81	4.00	2.58	0.00	10.00	0.149
European Parliament	3.98	5.00	2.61	0.00	10.00	0.163
Regional Government	3.90	4.00	2.58	0.00	10.00	0.158
Provincial Government	3.77	4.00	2.59	0.00	10.00	0.152
Local Government	4.66	5.00	2.72	0.00	10.00	0.150
Political Parties	2.74	3.00	2.44	0.00	10.00	0.135
Judicial System	4.41	5.00	2.64	0.00	10.00	0.150
Police Department	6.55	7.00	2.35	0.00	10.00	0.082
Fire Fighters	8.00	8.00	2.02	0.00	10.00	0.066

Table 3.2: Summary – “Rate from 0 to 10 how much do you trust in: [...]”

Political parties enjoy the lowest mean and median values, resulting as the least trusted organization among the nine. The fire fighters and police department, on the other hand, enjoy the highest ones. Looking at trust felt towards governments, the local government and the European parliament, although both representing the opposite of the other in terms of *proximity to the territory*, record higher values compared to the rest (*i.e.* national parliament, provincial and regional governments). Last column refers to each single correlation to our dependent variable: those levels are in general very low, with none of them exceeding the 0.18 threshold. In particular, police department and fire fighters set even below the 0.1 level. A possible explanation of this can be that the kind of trust that a person feels towards an institution is hardly the same to respect to the one that he feels for another human being. Nevertheless, there is an unanimous consensus that institutions and organizations shape and determine trust between persons, even if this happens indirectly (*e.g.* setting the rules and building the context in which relationships between individuals take place).

Table 3.3 resumes the percentages of trusters relative to: [1] their age class, [2] their education level and [3] their citizenship. The proportion of trusters does not seem to follow a defined pattern, as can be seen in Figure A.2. The highest value is located in correspondence to the age class [14;15], with a proportion of 26.1%. Then, as the

age goes, the proportion of trusters decreases; this happens until the age class [45; 54], where, after that, the proportion starts to raise again. The last two classes represent the eldest ones in the sample. In those, the proportion of trusters is lower compared to the rest, and this is especially true for the last age class [≥ 75], where the trusters reach their least value 15.6%. The full age class table is available in Appendix A, at page 60.

Variable	% of respondents who think that most of the people can be trusted
14 - 15 years old	26.1%
16 - 17 years old	23.1%
18 - 19 years old	22.9%
20 - 24 years old	22.1%
25 - 34 years old	22.8%
35 - 44 years old	22.8%
45 - 54 years old	23.9%
55 - 59 years old	24.2%
60 - 64 years old	24.0%
65 - 74 years old	20.5%
≥ 75 years old	15.6%
Elementary license	13.0%
Mid-school license	17.0%
High-school degree	24.3%
University degree	36.0%
Non-Italian citizens	17.9%
Italian citizens	22.1%

Table 3.3: Cross-tabulation age/trust, education/trust and citizenship/trust

In proportion, less educated people trust strangers less whereas, as further the education level goes, as higher the percentage becomes. A preliminary interpretation of such raw data can be that less educated people might have lower analytical skills compared to higher educated ones, this, in turn, leads to an increase in the odds for them to be fooled by a generic stranger. The awareness of this makes them more reticent to interact with someone that they do not know anything about, pushing them to require at least a minimum level of interactions before that they are available to deal bigger things

(*e.g.* invest money). Non-Italian citizens, instead, appears to be slightly less trustful, in percentage, than Italian ones. There is not a simple way to interpret this properly, from raw data, without getting trapped into potential misleading thoughts. However, for the sake of simplicity, we may say that non-Italian citizens may have scored such low percentage due environmental reasons. For instance, have dealt (or still dealing) with an unfamiliar context may have made (or still making) them feel uncomfortable, that in turn leads them to be more prevented whenever it comes to interact with someone from that environment. The full summary tables regarding the dataset used are available in the appendix A, at pages 60 and 61.

3.2. What determines trust

The attitude of *trusting others* is undoubtedly an individual characteristic but, according to the literature mentioned before, it gets influenced by the surrounding context too. Individuals interact with each other, so the current level of trust that a person shows is nothing but the product of both the current and past relationships that he had, the current place in which he lives and works in, from which he comes from and of the experiences that he lived before.

The acute reader may have noticed that there is not a formal definition of trust. In fact, trust is a phenomenon that still have to be well defined by the economic doctrine. The lacuna makes not possible to state *a priori* what determines trust. Intuitively, we observe trust when individuals make themselves vulnerable to others' actions, as stated by James Jr. (2002). In particular, the vulnerability arise when it becomes possible for a person to exploit a "weak point" of another one. For "weak point" is meant an action that the first subject undertook based on the expectation of a certain level of reciprocity of the second and that exposes him.

3.2.1 The potential issues related to the job insecurity

In the endogenous growth model proposed by Zak and Knack (2001) we saw that when this vulnerability is exploited the economic system grows at low pace, or even involves.

Recalling the paper, the vulnerability was defined into the level of wealth that a working agent entrusts to a broker. The exploitation is more likely to happen when the two are “*socially distant*” to one another. In this framework, those who entrust their money have to choose between monitoring the others’ compliance and their work. Pursuing the first option means that they cannot be exploited, but their labor income would be reduced proportionally to time that they did not have worked. The second option, instead, implies that they might be fully exploited, since they are not monitoring, although their labor income should keep from a period to another. Therefore, it would make no sense for them to invest any level of wealth if the future returns can be null. Whatever the scenario, the result is, more or less, always the same: the pauperization of the population and, into a large extent, the economy as whole.

The agent’s trade-off is quite clear: work and make an act of faith, or not work and supervise. Working is linked to the potential *moral hazard* that a broker can put in place, whereas supervising is simply linked to the classical individual opportunity cost problem that arise between working time and leisure – that, with the due precautions, applies also here.

At this point, trust can be envisioned as a something that can be related to the labor market. The problem of whether investing or not, and thus trusting or not, regards the labor market in two ways: [1] the level of income that an individual earns and [2] his job stability or precariousness in the long run. In principle, we may think that only those who are well-off or have a relatively stable job situation can afford the luxury of trust. The reasons behind are the following: a well-off individual might not be worried about the success or unsuccess of his investment. Living in the wealth may make a person more trustful towards stranger just because he can “afford” the risks of his negligence or misjudgements. He invests, and thus trusts, simply because his financial situation allows him to do it. On the other hand, a long term job stability can help spurring trust in the same way. Having the security that in the future the financial situation is pretty stable can incentivize a person to take more risks, making him more predisposed towards others. Even if the investment goes wrong, he can still rely on the security of

future inflows. Therefore, we can look at two conditions that can harm trust and that are related to the labor market: *being poor* and *being a precarious worker*. The two are not mutually exclusively to one another, thus they may even coincide in some cases. Relevant questions now arise: [1] *can we say that poor individuals trust less?* [2] *Being a precarious worker can undermine individual trust?*

According to the theoretical framework **poorer people** should trust less. Low levels of income implies low levels of savings, thus less resources are available to be invested. Moreover, since the resources are few, individuals will rationalize and discount the opportunity cost in a more binding way than in a normal situation: this would lead those people to be less trustful. They are not allowed to waste their hard-saved money. Thus, low levels of income make people less prone to trust others; the risk to be fooled and lose everything is simply too big for them to be faced, preventing any kind of investment that in turn harms the aggregate level. Similar considerations apply for the **precarious workers**. In the same way of the poors, compared to the normal stable workers, precarious workers discount their savings very heavily. The uncertainty of turning overnight from a situation in which they earn X (with $X \gg 0$) to another in which their earnings are nothing put them into a situation in which is forbidden for them to get their money wasted. They know that assuming “big risks” is not possible at all and worse, sometimes, “normal risks” result excessive either. This, again, represents a loss for the investment process and the economic growth.

So, a system with too many poors and/or precarious workers is a system with low, or even null, social capital. The consequence to have a low social capital is recession, as discussed in Chapter 2.

3.2.2 Other sources of trust

The tight relationship with the labor market does not exhaust the discussion. Of course, a stable job market and adequate levels of salaries and financial supports, according to our hypothesis, should spur the formation of trust among individuals, but the sources from which trust comes are several.

A whole set of socio-demographic and individual characteristics mold trust. In Figure A.2 and Table A.3 we saw how trust follows a non regular pattern when it is looked for age classes. In Chapter 2, the question of how trust and age are related did not found a definitive answer: some studies found a concave relationship and some others found a convex one. Nevertheless, according to the findings, it is impossible to deny that **age** is a determinant of trust. As long as a person lives, we should expect that he engages new ties and relationships, at any stage in life. As it is normal, some of those ties will result to be “successful” and some others do not, but all of them will impact trust. Thus, on the base of the theoretical framework, age must be kept in consideration. Furthermore, during the course of their life, people do not just age, but they learn as well.

The “sources of learning” are many and differ depending on the context considered. Roughly speaking, we can safely assert that the **learning process** takes place whenever and wherever. It begins within the **family**, with the parents and siblings that represent, especially in the early stages of life, the first context in which an individual starts to acquire knowledge. Then it is followed by the education received in **school** and **college**, to land immediately after to the workplace. But not just. The other contexts in which an individual enriches his “personal baggage” are countless. Briefly, some examples of those contexts are: the sport life, the **civic engagement**, **volunteering**, the **religion life** and so on. Regardless on the type of and on the moment in which these ties are built, an underlying feature keeps his relevance: the **geographical context**. The cultural heritage handed down in a location influences - indirectly - the way in which relationships start and develop. Sometimes, this heritage pours and reveals itself in the way in which the local public authorities provide the services to population in their area of competence. Putnam was among the first to point out this circumstance back in the ‘1990s and Camussi and Mancini confirmed it just a few years ago.

Going back to a more individual level, the literature stated that trust can get influenced also by **traumatic experiences**. An example was provided by Alesina and La Ferrara: the authors considered in their work the **divorce** as a prototype of traumatic

experience. In that occasion, it showed up effective. However, “traumatic experiences” is a locution that encompasses a much wider set of eventualities: for instance, health disease such as depression or an heart attack are also traumatic experiences that can conditionate an individual also in his way of trust. Up to now, only Camussi and Mancini worked on this type of differentiation, making a further distinction between “social” and “strictly health” traumatic experiences. However, the distinction can be pushed even beyond that. Among the “strict health” traumatic experiences there must be distinguished those who have a *psychological* connotation from those who have a *physical* one. In our opinion, there exist theoretical reasons that can justify such further distinction, although no one have ever attempted to go that far until now. Health traumatic experiences are not all equal: suffering for a psychological disease is a total different kind of thing to respect to suffer for a physical one. Things like depression and similar are undoubtedly more effective on conditioning the level of trust compared to have suffered for an heart attack or having diabetes. It is not quite hard to believe: disturbs of that kind (like schizophrenia, burnout syndrome, PTSD, bipolar disturb, *etc.*) affect strongly the way in which an individual interacts with others. It is hardly to argue the same for the other type of diseases (such as the heart attack or diabetes) mentioned before.

Lastly, trust may get influenced from whatever other aspect or condition: **gender**, **racial diversity**, belonging to a different nationality or a minority are examples. There is an unanimous consensus that consider those as determinants of trust. Given this wide and very heterogeneous plethora, it should not be a surprise the reason of why trust does not possess a formal definition yet. It is very very hard to give borders and boundaries to something that comes from such a wide set of aspects. This set is potentially endless and, more, it is in continue updating, since the ways in which social ties happen change with the course of the time. For example, considering the way in which brokers approach people in financial transactions now and the way they used to back in ‘1980: those are totally different.

Thus, the sources of trust varies according to place in which the problem is consid-

ered (Ashrof *et al.*, 2006), to the time in which the problem is studied and to the type of subjects among which the analysis is conducted (Berg *et al.*, 1995; Glaeser *et al.*, 2000; Bellemare, 2004).

3.3. The empirical model

So far, we have exposed our theoretical framework behind the work that we are going to present in Chapter 4. Now it is time for us to dedicate a little of our efforts in presenting which kind of tools and methods we are going to rely on, in order to obtain our results. We are not going to use any strange, or too complex, technique, rather we are going to rely for the most of the part onto the old and always good **probit model**. The probit is a super notorious handy alternative to the as well famous OLS model when it comes to deal with binary data. In this framework, usually, the OLS model, that changes name and is called the **linear probability model (LPM)**, is put aside. The reasons why are several.

Let us however, start with some praises for the LPM, postponing after the hard task of criticizing it. Although the LPM does not fit very well with binary data, its use is widespread. The reason of such a thing is because its output is extremely easy to interpret. Indeed, for the LPM, the output coefficients represent the *total marginal effects* that the j -th covariates has on the dichotomous dependent variable, when it changes by a unit. Formally, we have that:

$$\begin{aligned} y_i &= x_i' \beta + \varepsilon_i \\ &= x_{i1} \beta_1 + x_{i2} \beta_2 + \dots + x_{ik} \beta_k + \varepsilon_i, \quad \text{with } i = 1, \dots, n \end{aligned} \quad (3.1)$$

Other than this, the coefficients from equation (3.1) tell us already the “true” direction in which the j -th covariates is going to impact our y . But this is it.

If those are the LPM PROs, we must be fair and then present also its CONs. We said that its simplicity is its greatest power. Nevertheless, simplicity leads nowhere sometimes. Infact the LPM output, more precisely its coefficients, does not have a

meaningful interpretation and further, the LPM residuals are both heteroskedastic and non-normal by construction. Moreover, and this is surely the most important cons that LPM has, we cannot that for granted that the unit interval assumption is respected. We must always remember that our left-hand side, in the equation (3.1), is a variable that takes only values 1 and 0. This leads us to interpret it and its fitted values as probabilities. Under this light, we must discard the LPM since its right-hand, varying in the real number set, can easily exceed the $[0;1]$ extremes, resulting in a violation of one of the fundamental axioms of the probability theory. Given a set of covariates, we want to see how our probability that y takes values 1 changes whenever only one of these covariates changes by a unit.

The LPM simply does not perform this task properly as we would like, so we must change our mind and go for something else in order to achieve results. Probit represents only one of the many existing models that allow us to treat these problems as they require. Truth be told, we must say that the LPM widespread use is not just because the reasons mentioned above. Indeed, the linear probability model has the wonderful property according which its coefficients are very close approximations for the probit *average marginal effects*. See Cameron and Trivedi (2005) [5], for the complete explanation about that.

Now, according to the nature of our variable, we have that y_i is equal to 1 with a probability of π_i and 0 with a probability of $(1 - \pi_i)$. This is clearly the PDF of a Bernoulli random variable. The particularity of this distribution is well taken in count by the probit. Indeed, when we build this new model, what we have is:

$$\begin{aligned}
 \pi_i &= Pr(y_i = 1|x_i) \\
 &= E(y_i|x_i) \\
 &= G(x_i'\beta)
 \end{aligned}
 \tag{3.2}$$

where $G(\cdot)$ is the function that takes care of our problems. In the probit framework it is equal to CDF of normal random variable with null mean and unit variance. Thus, we

have that:

$$\pi_i = \Phi(x_i'\beta), \quad \text{where } \Phi(\cdot) \text{ is } G(\cdot). \quad (3.3)$$

A very interesting thing about this model is that it can be studied as a *latent variable model*. Setting the appropriate distributional hypothesis on the error term, it can be proven that the probit is nothing but a particular case of this class of models. In this case, we recommend Greene (2007) [8], as reference reading.

The main drawback linked to the probit however, is the difficulty relative to the interpretation of its coefficients. Contrariwise from the LPM, the probit coefficients do not represent the whole marginal effects that the dependent suffers when one of the covariates changes by a unit. In this case, it is more appropriate to speak about *partial* marginal effects, since the $\hat{\beta}$ represent only little a portion of the overall marginal change. From the following equations the difference can be noticed pretty clearly:

$$\frac{\partial E(y_i|x_i'\beta)}{\partial x_j} = \beta_j, \quad \mathbf{LPM} \quad (3.4)$$

$$\begin{aligned} \frac{\partial E(y_i|x_i'\beta)}{\partial x_j} &= \frac{\partial Pr(y_i = 1|x_i'\beta)}{\partial x_j} \\ &= \frac{\partial \Phi(x_i'\beta)}{\partial x_j} \\ &= \phi(x_i'\beta)\beta_j, \quad \mathbf{Probit} \end{aligned} \quad (3.5)$$

Equation 3.4 shows how, taking the partial derivative to respect to the j -th explanatory variable, the β_j coefficient in the LPM model coincides precisely with the overall marginal effect. Differently, in the probit framework, we can see from equation (3.5) that the partial derivative is somehow soiled from an additional component, which is the PDF of the standard Normal distribution. Thus, whenever in a probit we want to know the precise marginal effect for the j -th variable, we always must compute that PDF that is function of the all covariates, and then multiplying with the estimated coefficient that

we got. This is clearly very annoying and not devoid from practical problems. Indeed, this marginal effect is different just for each covariates, as it is normal, rather it changes for each observation even for the same covariate. This is surely the most troublesome aspect related with the probit model.

In order to solve this problem, researchers usually adopt two different general methods, that are all equally correct but differ significantly in terms of performances. The first method is called the *marginal effects at the mean* (MEM), whereas the second is the *average marginal effects* (AME). The choice of either of the two is motivated solely by degree of accuracy that someone is looking for. The *marginal effects at the mean* use a shortcut in which the overall marginal effects are calculated as a function of the sample averages of the covariates, whereas the *average marginal effects* calculate the marginal effects for each covariates as the average of all the n the individual marginal effects. In other words, in this latter case, the procedure is the following: [1] perform the probit regression and take the coefficients, [2] take a generic j -th covariates and then compute the individual marginal effect for each observation. Then, [3] once that all the n individual marginal effects have been computed, perform the average of those: this will be your *average marginal effect* on y for that j -th covariates. In formulae, we have that:

$$\begin{aligned} \text{MEM :} \quad \frac{\partial Pr(y_i = 1 | \bar{x}'_i \beta)}{\partial x_j} &= \frac{\partial \Phi(\bar{x}'_i \beta)}{\partial x_j} \\ &= \phi(\bar{x}'_i \beta) \beta_j \end{aligned} \quad (3.6)$$

$$\begin{aligned} \text{AME :} \quad \frac{\partial Pr(y_i = 1 | x'_i \beta)}{\partial x_j} &= \frac{\partial \Phi(x'_i \beta)}{\partial x_j} \\ &= \phi(x'_i \beta) \beta_j \implies \beta_j \frac{1}{N} \sum_{i=1}^n \phi(x'_i \beta) \end{aligned} \quad (3.7)$$

The biggest disadvantage of the MEM is that, despite the computational simplicity, sometimes it has no meaning. For example, take the variable gender. Now, in principle an individual is or a man or female. So we can encode it as usual, that is as a

dummy variable in which if the observation is a man the variable takes value 1, otherwise it is 0. If we have assuming that we are working with a perfect balanced sample, we would have that the gender sample average is 0.5. Once we go for the MEM, we would have to put that 0.5 in the equation (3.6), but that value has no meaning at all. Think about it: to which kind of gender 0.5 might referring to?

For reasons similar as the one just explained, the use of MEM is far more limited to respect to the AME, that on the other hand take in count for each observation if it is a man or a female, when it computes the individual marginal effect. Indeed, in the next chapter we are going to present and comment exclusively the AME coefficients.

3.4. Conclusions

The probit is the reference model from which we are going to initiate the analysis in the next chapter. In this chapter, we saw in theory why this probit model is preferable to the LPM, explaining what are the LPM limits as well as for the probit. Nevertheless, the use of the OLS for binary data is still widespread among researchers and analysts, regardless the many concerns, and we saw the reasons why. Conscious of that, we are going to use LPM also, but only to introduce the topic.

Built a model for trust is our primary focus, however. We will see what determines it in general and which are its links to the labor market, trying to see if any of the hypothesis set in section 3.2 finds a confirmation. Of course, we are limited to our dataset, that is not as specific as we would have liked, but that still allowed us to derive some interesting findings.

Chapter 4

Empirical results on trust

In this chapter we present our results on trust as measure of social capital. We relied on the public version of the dataset, that is the broader and the less accurate one. We were forced at this, due the unavailability of the MFR version.

Section 4.1 treats a basic model for trust, giving it a minimal set of covariates and controlling for eventual regional fixed effects. Section 4.2 focuses more on the role played by expectations, social participation and health conditions. Finally, section 4.3 examines the existing connections among trust, labor market and financial stability.

4.1. The fundamental evidences

We begin our analysis in Table 4.1 with a comparison between the probit and the linear probability model. Differences between columns (1-2) and columns (4-5) are due to the control for eventual regional fixed effects.

<i>Dependent variable:</i>						
Trust						
	<i>LPM</i>	<i>Probit</i>	AME	<i>LPM</i>	<i>Probit</i>	AME
	(1)	(2)	(3)	(4)	(5)	(6)
Gender	-0.02395*** (0.0044)	-0.08175*** (0.0152)	-0.0235*** (0.0044)	-0.0252*** (0.00435)	-0.0870*** (0.0153)	-0.0246*** (0.0043)
Age	-0.04155*** (0.0074)	-0.1543*** (0.0259)	0.0018 (0.0014)	-0.0363*** (0.0074)	-0.1391*** (0.0261)	0.0011 (0.0014)
Age ²	0.0019*** (0.0003)	0.0071*** (0.0012)		0.0017*** (0.0003)	0.00635*** (0.0012)	
Family members	-0.00205 (0.0021)	-0.0072 (0.0072)	-0.0021 (0.0021)	-0.00015 (0.0021)	-0.0011 (0.0073)	-0.0003 (0.0021)
Married	0.00755 (0.0064)	0.0237 (0.02215)	0.0068 (0.00635)	0.0077 (0.0064)	0.02505 (0.0223)	0.0071 (0.0063)
Divorced/Separated	0.0113 (0.0090)	0.0360 (0.0309)	0.00955 (0.0083)	0.01265 (0.0089)	0.0422 (0.0311)	0.0111 (0.00825)
Widow/er	-0.0184* (0.0102)	-0.0828** (0.0370)	-0.0213** (0.0092)	-0.01405 (0.0101)	-0.0665* (0.0372)	-0.0170* (0.0093)
Mid-school	0.0459*** (0.0076)	0.1900*** (0.02825)	0.0422*** (0.0065)	0.0379*** (0.0075)	0.16505*** (0.0285)	0.0358*** (0.0064)
High-school	0.1258*** (0.0077)	0.4744*** (0.0284)	0.0933*** (0.0060)	0.1119*** (0.0077)	0.43175*** (0.0288)	0.08275*** (0.0059)
University	0.2448*** (0.0089)	0.8207*** (0.0315)	0.2414*** (0.0101)	0.2316*** (0.0089)	0.7854*** (0.0319)	0.2261*** (0.0101)
Non-Italian citiz.	-0.0321*** (0.0116)	-0.1122*** (0.0418)	-0.0298*** (0.01065)	-0.0503*** (0.0116)	-0.1781*** (0.0423)	-0.0455*** (0.0101)
Church	0.00155 (0.0050)	0.0080 (0.0174)	0.0006 (0.00125)	0.0081 (0.0050)	0.0304* (0.0177)	0.0022* (0.0013)
Regional FE	<i>No</i>		<i>Yes</i>			
	<i>LR test</i>		523.987***	(df = 19; 36,942)		
Observations	36,962	36,962		36,962	36,962	
R ²	0.0329			0.0475		
Adjusted R ²	0.0326	0.0301		0.0467	0.0426	
McFadden R ²		0.0308			0.0442	
Log Likelihood	-19,261.04	-18,881.64		-18,980.22	-18,619.65	

Table 4.1: Estimation results – Baseline specification

Before start the discussion relative to table 4.1, we would like to spend some words that are going to be useful also for the following sections. During the course of the present chapter we ignore purposely a particular issue, that is that the so-called **endogeneity problem**. Very briefly, if our model suffers from an endogeneity problem the causal effects of our regressors to the dependent variable cannot be interpreted properly. It is rather difficult to detect, but since its presence is very likely, without performing any test for it, we just accept it and move on.

We discussed already the differences that stand between the LPM and the probit model. We highlighted that the LPM finds a justification for its use since its coefficients are good approximations of the probit *average marginal effects*. In particular, we said that although the LPM output is not really meaningful, the signs of the coefficients represent the only robust and reliable part of it, since those “directions” will be the same in the probit estimation.

First 3 columns in table 4.1 represent our baseline model. In this specification we included some of the most used socio-demographic variables, that are: **gender**, **age**, **family extension**, **marital status**, **schooling level**, **racial diversity** and **attendance at religious services**. In the second 3 columns we used the same model specification plus controls for the territorial heterogeneity. We wondered if, in the light of what emerged in section 3.1, and as depicted in figure 3.1, trust may have some statistically significant variations among the Italian regions. Performing an LR test involving the model specifications at columns (2) and (5), evidences suggest that the level of trust varies significantly across regions. This result confirms what the literature stated: that is that, besides the strictly individual characteristics that a person possesses, the level of trust depends also from the surrounding context. Thus, the specification in the last 3 columns is chosen.

The **gender** variable displays a strong, statistically significant, effect. It takes value 1 if the respondent was a woman and 0 otherwise. As suggested by the literature, we expect that the coefficient will have a negative sign. Indeed, this is what we got from our analysis. Apparently, women trust less than men, up to over 2 percentage points

less. Results on **age** are quite interesting. We reported several times, in Chapter 2 and Chapter 3, that the trust did not show a clear pattern when paired with the aging phenomenon. In some cases, studies reveals that the relationship is concave, meaning that younger and older cohorts trust their fellows very little (Alesina and La Ferrara, 2002; Bellemare, 2004; Camussi and Mancini, 2016). Contrariwise, others studies showed that this relationship is convex, meaning that the least trusters are those in the middle age classes (Wang and Gordon, 2011). According to our results, the second interpretation is preferable: age and trust have a convex relationship in our sample. Starting from the teen age, trust starts to decline at a rate of less than 1 percentage point, passing from an age class to another, until it reaches its least value and then starts to rise again. **Family extension** and **marital status** do not have statistically significant effects on trust. About the latter however, some evidences must be commented. First of all, for a divorced individual, being such, does not affect his level of trust, or at least it happens only timidly. The statistical significance about this condition tends to be a bit in vague in our analysis. However, this “divorced” condition apparently seems to have even a positive effect, which is unusual compared to the results from the literature. The “**widow/er**” condition, instead, has a negative and initially slightly significant effect on trust. Nevertheless, this effect does not last in the other extended specifications. According to our results, the decreasing variation in the individual levels of trust is around 1-2 percentage points for those who unfortunately lost his/her partner. Results for **schooling level** confirm our prior thoughts exposed in Chapter 3, that are that education matters. Our reference category is the elementary level. People who accessed and completed higher levels of education result to be more trustful to respect to those who stopped earlier in their training process. The increasing variation, in percentage points, is about 3.5 for those who completed the middle school, 8.3 for the high school graduates and beyond the 20 for those who attended and completed the college. The speculations made in section 3.1 now find support. The knowledge acquired in school is not exclusively an academic one, as it might be thought. Engage higher education levels, and getting challenged in there, demands from an individual an always wider set of

longitudinal skills, that have to be acquired by derivation from the standard academic activities. For example, being involved in “team projects” does not just increase the level of competences related to a specific topic, but spurs other longitudinal skills such as organization, reasoning by induction, critical thinking and so on. These skills come in rescue when a person interact with someone else, about which the informational set is pretty limited. Who stopped earlier in the training process did not have the opportunity to increase these skills properly, resulting in lower propensity to interact. The public version of the dataset did not allow us to treat **racial diversity** directly. Due confidentially obligations that charge on ISTAT, we had to go for a proxy. Our only meaningful proxy is represented by the **citizenship** that an individual has. It is a dummy variable that take value 1 if the respondent is a non-Italian citizen and 0 otherwise. The variable refers only the “main” citizenship that an individual has. As consequence individuals that are for example native-Albanian, and that have acquired only later the Italian citizenship, result as non-Italian. We are aware about the borderline assumption that we made when we decided to go for such a proxy, but it seemed to work in the end. Indeed, non-Italian citizens trust less compared to Italian ones. This variation is significant and almost about 5 percentage points less. The result is pretty important: their lower trust levels could be due to several reasons, like daily discrimination, higher difficult to engage labor market or public services and so on. Whatever those reasons are, this lower level drags down the aggregate level of social capital, harming the system as whole. Lastly, the **attendance at religious services** resulted to be a positive determinant of trust. Unfortunately, this variable is not statistically significant in our model, but the effect is positive so it is worthy to be briefly discussed. We have been witnesses about the particular debate that inflamed the literature relative to the relationship between religion and trust. Since the early findings, religion was deemed to be harmful for the level of trust (La Porta, 1997; Alesina and La Ferrara, 2002; Bellemare, 2004; Johansson *et al.*, 2009), but only “recently” has been proposed an alternative theory on religion. This theory looks at it as something that can benefit trust (Wang and Gordon, 2011). More or less, all the major religions share, more or less, the same message of higher ethical

values and benevolence towards others. These higher values then pour inside the way in which a person approaches others, spurring him to be more cooperative and thus more trustful. In the light of what we have found, we feel comfortable to embrace this view, although our result lacks to find a statistical validation.

4.2. Expectations, social participation and health

We have seen in the previous pages that trust may find some major determinants in three phenomena: **expectations, social participation and health conditions**. From here on, tables 4.2 and 4.3 will present results only for the new added variables. The previous coefficients do not change significantly from a specification to another, so they are not reported. Nevertheless, Appendix B contains each specification in its full version.

	<i>Dependent variable:</i>				
	Trust				
	AME (1a)	AME (2a)	AME (3a)	AME (4a)	AME (5a)
Worsening	-0.08125*** (0.0054)	-0.0814*** (0.0055)	-0.0680*** (0.0058)	-0.0789*** (0.0056)	-0.0682*** (0.0058)
Improvement	0.0247*** (0.0038)	0.0236*** (0.0038)	0.0232*** (0.0038)	0.0238*** (0.0038)	0.0232*** (0.0038)
Social participation		0.02675*** (0.0017)	0.0271*** (0.0017)	0.0267*** (0.0017)	0.0271*** (0.0017)
Mental illness			-0.0220*** (0.0016)		-0.0221*** (0.0016)
Sickness				-0.0331*** (0.0107)	0.0036 (0.0120)
Observations	27,139	26,477	26,477	26,477	26,477
Adjusted R ²	0.0522	0.0601	0.0668	0.0604	0.0667
McFadden R ²	0.0544	0.0625	0.0692	0.0628	0.0692
Log Likelihood	-14,322.81	-13,845.67	-13,746.84	-13,841.16	-13,746.80

¹ Note: Complete version is available at page 65.

Table 4.2: Estimation results – Expectations, social participation and health

The role played by the **expectations** has been discussed extensively in Chapter 2. We showed how field experiments base the major part of their attentions, in the understanding of the actual trusting behavior displayed during an experiment, using the senders' "expectation on the returned amount" as explanatory variable. The underlying concept of this type of expectations is that the senders, prior sending the money, evaluate how their future conditions will change, to respect to their current state, once that the action is undertaken. Of course, if they believe that their conditions will improve considerably the amount sent will be high, otherwise they will send a few or eventually nothing. Unfortunately, we do not have the possibility to access this phenomenon in these precise terms since we are relying on observational data. Nevertheless, ISTAT provides us a quite useful proxy that is unhooked from the mere financial dimension and results to be broader but better fitting for our purpose.

We derived our **expectations** variable from the following questions: "*How do you think your personal situation will change in the next future?*". It takes values from 1 to 3, where 1 means "*it will get worse*", whereas 2 and 3 mean "*it will be stable*" and "*it will get better*", respectively. In order to use this variable properly, we decided to unpack it in 3 dummy variables, using as reference control the one related to "stability".

For what concerns the **social participation**, in section 3.2 we talked about "sources of learning". These are all that places and activities that, besides the familiar context and the school/workplace environment, let an individual develops his social skills. They are several and very differentiated: from joining political parties to participate in volunteering, from being active in trade unions to join civil rights associations. In order to capture the whole phenomenon, we applied a Principal Component Analysis to a bunch of questions related to the eventual individuals' involvement to one, or more, of these activities. The variable that we call SOCIAL PARTICIPATION is the first principal component from that analysis. Then, at the end of Chapter 3, we discussed extensively the importance of the **health conditions** on the individual level of trust. From the literature, we were witnesses that bad health conditions undermine trust. However, this sickness was not precisely determined. In Chapter 3, we proposed that not all the

diseases challenge equally trust. Infact, we focused on how this may be especially true when we go to discriminate between mental diseases and physical ones. Because of his bad mental equilibrium conditions, a mental frail person, in our opinion, should interact way less with other individuals. ISTAT provided us a variable for the overall sickness, but did not for the mental dimension. However, the survey contained several questions that asked the respondents to state if they recently felt panicked, or depressed, or joyful and so on. With the same approach used for social participation, we derived our variable as the first principal component from these questions, calling it MENTAL ILLNESS.

In column (1a), we added to our basic specification both the **expectations** variables. The magnitude for the “worsening” variable is well larger than the one for the “improvement”. Both the expectations result to be very significant for trust. The variation in the level of trust is about 8 percentage points for a pessimistic individual, whereas it increases of more than 2 points for an optimistic one. Those who have a negative feeling about their future probably act “negatively” today, meaning that is very likely that they might want to avoid interactions with others. This aversion to the interactions can come from an endless list of reasons.

Column (2a) adds **social participation** to our specification. Its inclusion improves significantly our model since, other than the fact that both the expectations variables keep their significance and magnitude, social participation results to be very meaningful for trust. The positive variation is equal to almost 3 percentage points for those who are involved in such activities compared to those who are not. A possible interpretation can be the following: the civic engagement - and in particular the social involvement in some extra socially meaningful activities - make the individual more favourable towards others, in terms of how he behaves. The common trait of these activities is that those who are involved in do not just act motivated by their own selfishness, rather they devote their time for the community. This sense of civilization benefits the single individuals and the community at the same time. The single individual learns the meaning of sharing and common sacrifice, enlarging at the same time his social network, whereas the community keeps developing through the reciprocity that these activities force to

put in place. Finally, in the last three columns we controlled for the **health condition** variables. In column (3a) we added the **mental illness** variable to our model. Its results being very significant and with a negative effect. According to our results, the occurrence of a mental pathology determines a loss variation of more than 2 the percentage points. We had available also the variable related to the “general sickness”, by the way, so we controlled for it in column (4a). The result is very similar to the one just obtained and discussed for the mental illness. Thus, in the light of this, we wondered what would have happened to these coefficients if both the variables would have been included into the model at the same time. Column (5a) tells us the answer. The results is that MENTAL ILLNESS literally wipes out any effect from SICKNESS, keeping more or less the same magnitude that it used to have in the model specification at column (3a). On the other hand, SICKNESS does not just lose all its significance but even changes sign. Thus, mental diseases are apparently those who really undermine trust, confirming our hypothesis set in section 3.2. Given the results from column (5a), we choose to drop SICKNESS from our model and get back to our prior specification developed in column (3a).

4.3. Trust, labor and finances

So far we analyzed the generic determinants of trust. The most important determinants are the education, health conditions, civic engagement and beliefs about the future, according to our findings. Along the entire course of the thesis we questioned whether there is a relationship between trust and the labor dimension. Based on an intuition introduced by Zak and Knack [24], in Chapter 3 we developed our hypothesis on how and why precarious and poor workers should trust less. The complete discussion is available in section 3.2, at page 31.

ISTAT provided us some useful questions about labor market. Primarily, we had available data relative to the **occupational condition** and the eventual **job position** that individuals had at the moment of the interview. Again, due confidential obligations these data are not the original ones. They have been manipulated in order to recreate

some very broad classes, in which observations could have been put with the minimum loss of information. For example, the variables **CEO/Owner**, **Trainee** and **COCOCO et sim.** constitute only very broad job positions' references, especially the last one which functioned more as residual class. Nevertheless, we were able to derive some interesting results anyway.

Relative to the **occupational condition**, we had a categorical variable that took values from 1 to 3. Each number was assigned with one of the following conditions: “*employed*”, “*unemployed*” and “*NEAT/Inactive/Retired*”, using the first as reference category. For what concerns the **job position** that a respondent had at the moment of the interview, we had available another categorical variable from which we derived 4 dummies. Those variables are the previously mentioned **CEO/Owner**, **Trainee** and **COCOCO et sim.**, plus a fourth one which we used as reference category, that is the **employee**. Only in this particular case the analysis has been conducted on a subsample of “only-workers”. Full summary statistics are available at pages 60 and 61.

Relative to the **financial dimension**, we used a question in which was reported a self-evaluation about the adequacy of the financial resources that an individual had disposable in the 12 months prior the interview. This question generated a categorical variable that took values from 1 to 4, where 1 was for “*severe shortage*”, 2 for “*partially insufficient*”, 3 for “*adequate*” and 4 for “*more than enough*”. Following the same procedure as above, we dummified it and took as reference category the one associated to the “*adequate*” statement. We want to remark once again that lack of data forced us to resort onto such proxy. We are perfectly aware that our hypothesis were grounded on the level of hourly income that individuals have. Nevertheless, the dataset did not let us access even to the monthly income per working class, so we had to chose either left our hypothesis behind or find something that could let us say something, even if a little. We report our results in table 4.3.

	<i>Dependent variable:</i>		
	Trust		
	AME (1b)	AME (2b)	AME (3b)
Unemployed	-0.0413*** (0.0084)		-0.0321*** (0.0087)
NEAT/Inactive/Retired	-0.0079* (0.0043)		-0.0073* (0.0043)
CEO/Owner		-0.0132 (0.0106)	
Trainee		-0.0400*** (0.0078)	
COCOCO <i>et sim.</i>		-0.0263** (0.0108)	
Severe shortage			-0.0617*** (0.01225)
Partially insufficient			-0.0319*** (0.0041)
More than enough			0.0883*** (0.0221)
Observations	26,199	11,565	26,067
Adjusted R ²	0.06775	0.0666	0.0707
McFadden R ²	0.07035	0.0722	0.0735
Log Likelihood	-13,578.75	-6,472.07	-13,473.68

² Note: Complete version is available at page 65.

Table 4.3: Estimation results – Trust, labor and finances

Column (1b) reports results for the occupational condition. What emerges pretty clearly is that those who do not work trust less. Comparing the magnitude for the **unemployed** and the **NEAT/Inactive/Retired** variables, we can see that unemployed individuals trust way less compared to the others. The second variable is a mixed class in which were merged both those who have retired already from the labor market and those who neither work, nor study or are looking for a job. Probably, that tiny, uncertain effect that it presents, both in terms of magnitude and significance, is due to a strong

inner heterogeneity. The retired persons might have a positive effect whereas those who are NEAT or inactive might have a negative one. It is very likely that these mixed effects tend to cancel each other out, giving back to us that feeble coefficient. Nevertheless, our results tell us that a NEAT/Inactive/Retired person trust less for a decreasing variation of less than 1 percentage point, whereas the situation for unemployed individuals is even worse. They record a loss of more than 3 percentage points to respect to those who are currently working.

Column (2b) represents the AMEs of a probit regression performed on a subsample of only workers. In particular, we controlled if different job positions impact trust differently to respect to one each other. According to our results, taking **employee** as reference category, those who are employed in low ranked job positions, as **trainees** or **COCOCO workers**, trust others significantly less. The decreasing variation is about 2.6 percentage points for COCOCO workers and beyond the 4 points for the trainees. Interestingly, also being employed in high ranked job positions turns out to have a negative relationship with trust. This effect however is not statistically significant, so we will not worry about it too much.

Finally, column (3b) reports the specification for the **financial dimension**. As we have anticipated, financial resources are very significant for trust. The level of trust is strongly compromised for those who had not enough resources in the last 12 months, both if we consider it as a severe or partial shortage. A possible interpretation can be that those who lack sufficient financial resources should be unable to afford the cost of the interaction with someone they know nothing about, so discouraging them to undertake any type of activity. On the other hand, those who had more than enough resources to afford their expenditures in the last year trust others more. Living in the wealth makes individuals less sensitive to problems related to potential losses due misdjudgements, as we argued in Chapter 3. In our framework, this simply translates out as in a rising of the propensity to trust for those wealthy individuals.

A severe shortage of resources induces a decreasing variation of more than 6 percentage points compared to those who were able to break-even in the last 12 months.

This variation becomes less strong when we consider those who have a partial insufficiency of resources. The impact for them is about 3 percentage points less on trust. On the other hand, for those who abounded in terms of financial resources, the positive variation is almost about 9 percentage points.

Stepping back for a second to our starting questions, can we now say that work is important for trust? Is the job position that a person hold important for spurring or dragging down his level of trust? Does the financial situation matter?

Well, according to our results, it seems that all the three answer are positive. Working, as well as the type of job position that an individual holds, matter for the individual level of trust. Apparently low ranked workers trust others less. Assuming that this “low ranked” condition is a valid proxy for precariousness, we found confirmations about that living in the uncertainty harms trust, and more in general the social capital. Moreover, we found that also financial resources matter. The state of dependence due to insufficient resources makes people less willing to trust others. Accepting that as a valid proxy for the problem exposed in section 3.2, we found a tiny empirical confirmation that the individuals who pour in bad financial conditions decide to not interact with others they know nothing about, since they cannot afford the eventual cost of bad interaction, neither totally nor partially. These leads to lower level of social capital that as we know now, affects the economic growth. These results support our conjectures about the importance of an adequate level of salary in spurring the individual level of trust.

Nonetheless, we cannot be too rigid about these answers. The assumptions that we made and the results that we got barely match with the data that we had available. This analysis deserves another shot in the future, with a better quality of the data. However, what we obtained is still a first shy awareness of the kind of impact that both the labor market and financial dimension have in shaping the individual level of trust.

Chapter 5

Final considerations

At this point the problem related to trust should have no more secrets for us. The reasons why we care about trust is because it is a “measurable” proxy for the social capital. As we learnt in Chapter 2, social capital is not less important than both human or physical capital, in terms of impact over the economic growth and general wellness.

We saw that trust is affected from both individual characteristics and the surrounding context. Relative to the latter, we found that trust varies significantly among the Italian regions. That heterogeneity is perfectly in line with the results available from the literature (Guiso *et al.*, 2004). About to the individual characteristics, the evidences from age and religion were very interesting. Surprisingly, age reports a convex relationship relative trust, that is unusual if compared to the majority of the literature cited. Religion instead has a positive effect, but it does not find any statistically support.

School, social participation, health conditions and expectations about the future are the most important determinants of trust among the individual characteristics. Given our results, a good idea in terms of policy action would be enhance the access to the

right to education, targeting, as bare minimum for each individual, the “reaching and completing” of the high school level. Relative to social participation, a good policy action would be invest more efforts on the advertising the importance of higher ethical values, aiming to raise the collective sensitivity about the need for mutual help, especially for those who has nothing or only a few.

Health turned out to be very significant for trust. According to our findings, those who are sick trust less, especially if this sickness comes from suffering for a mental disease. The urgency to increase social protection for these people must be a primary goal for a policy maker. Ignoring what sick individuals represent for the whole system is nothing but counterproductive. These people need help: need safe places where interact without being cheated, need the right level of social assistance and, most importantly, they need that the social stigma that arises must be wipe out, especially for those who suffer for mental problems. Here make precise suggestions is a very hard task to accomplish. An example might be trying to make easier for them access the financial market, put in place more aids. In practical terms, those can take the form of more favorable contractual conditions, such as giving them particular rights of withdrawal. Nevertheless, what we want to remark here is the urgency of not letting these people behind.

Lastly, relative to the labor market, we showed how precariousness and poverty harm trust. In the light of this, the need of a more stable and fair job market is clear. A system cannot reach higher levels of social capital if its individuals are disincentived to trust. Living in the total uncertainty of the future, as for example fearing that tomorrow they might be “on the sidewalk”, push them to avoid interactions. This in turn makes social relevant actions, such as apply for loans or invest their savings in bonds or business, more unlikely. In the long run, this reticence drags down the system into a vicious circle where the more is the time spent in there the harder it becomes to get out of it, and stronger the degrowth gets. This mechanism is the so-called “Northian-trap”.

So, why do we care? We do because trust is essential for the system as whole. It is born at the individual level, but then it gets shaped by the surrounding context.

Whenever people interact with each other, trust gets modified. The sum of all those interactions creates the phenomena that we observe at macro level. The higher is the level of these interactions, the better is for the system, since it starts to grow at a faster pace.

We advocate the importance of counting this phenomenon into the classic macroeconomic models that policy makers use to determine whether their policy action has been successful or not. We strongly believe that without trust nothing happens, and once that it cracks it becomes very difficult for a policy maker to make the system bounce back in the short run. A recent example of how strong is the negative effect of a deep crack in trust is given by what happened after the world financial crisis in 2009. It required more than 10 years for the most of the nations of the world to bounce back from it. The reason why it took so long is because the policy makers were not able to recatch and improve the level of trust of their own citizens, neither at the aggregate nor at individual level. When we think to the economy we must think also to trust and what it means for it. Trust is the substance of the interactions between agents and those interactions creates what we study. Thus, trust is undoubtedly one of the primary essences of our science.

Appendix A

This appendix contains the complete list of figures and tables that refer to Chapter 3.

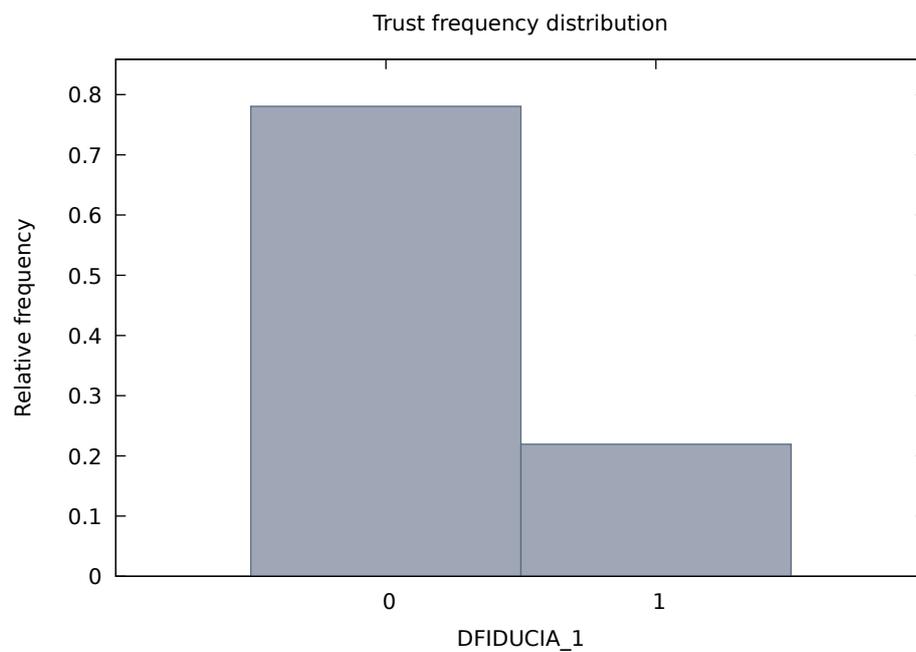


Figure A.1: *Trust* frequency distribution

Regions	Do you generally think that most of the people:	
	Cannot be too careful (0)	Can be trusted (1)
(1) Piemonte	78.3%	21.7%
(2) Valle d'Aosta	68.6%	31.4%
(3) Lombardia	75.7%	24.3%
(4) Trentino-Alto Adige	62.0%	38.0%
(5) Veneto	75.2%	24.8%
(6) Friuli-Venezia Giulia	74.9%	25.1%
(7) Liguria	77.4%	22.6%
(8) Emilia-Romagna	76.3%	23.7%
(9) Toscana	75.1%	24.9%
(10) Umbria	79.7%	20.3%
(11) Marche	77.4%	22.6%
(12) Lazio	79.1%	20.9%
(13) Abruzzo	81.5%	18.5%
(14) Molise	84.0%	16.0%
(15) Campania	79.7%	20.3%
(16) Puglia	81.8%	18.2%
(17) Basilicata	85.4%	14.6%
(18) Calabria	82.8%	17.2%
(19) Sicilia	86.0%	14.0%
(20) Sardegna	81.9%	18.1%
(-) Italy	78.0%	22.0%

Table A.1: Cross-tabulation regions/trust

Age	Do you generally think that most of the people:	
	Cannot be too careful (0)	Can be trusted (1)
(5) 14 - 15 years old	73.9%	26.1%
(6) 16 - 17 years old	76.9%	23.1%
(7) 18 - 19 years old	77.1%	22.9%
(8) 20 - 24 years old	77.9%	22.1%
(9) 25 - 34 years old	77.2%	22.8%
(10) 35 - 44 years old	77.2%	22.8%
(11) 45 - 54 years old	76.1%	23.9%
(12) 55 - 59 years old	75.8%	24.2%
(13) 60 - 64 years old	76.0%	24.0%
(14) 65 - 74 years old	79.5%	20.5%
(15) 75 years old and older	84.4%	15.6%

Table A.2: Cross-tabulation age/trust

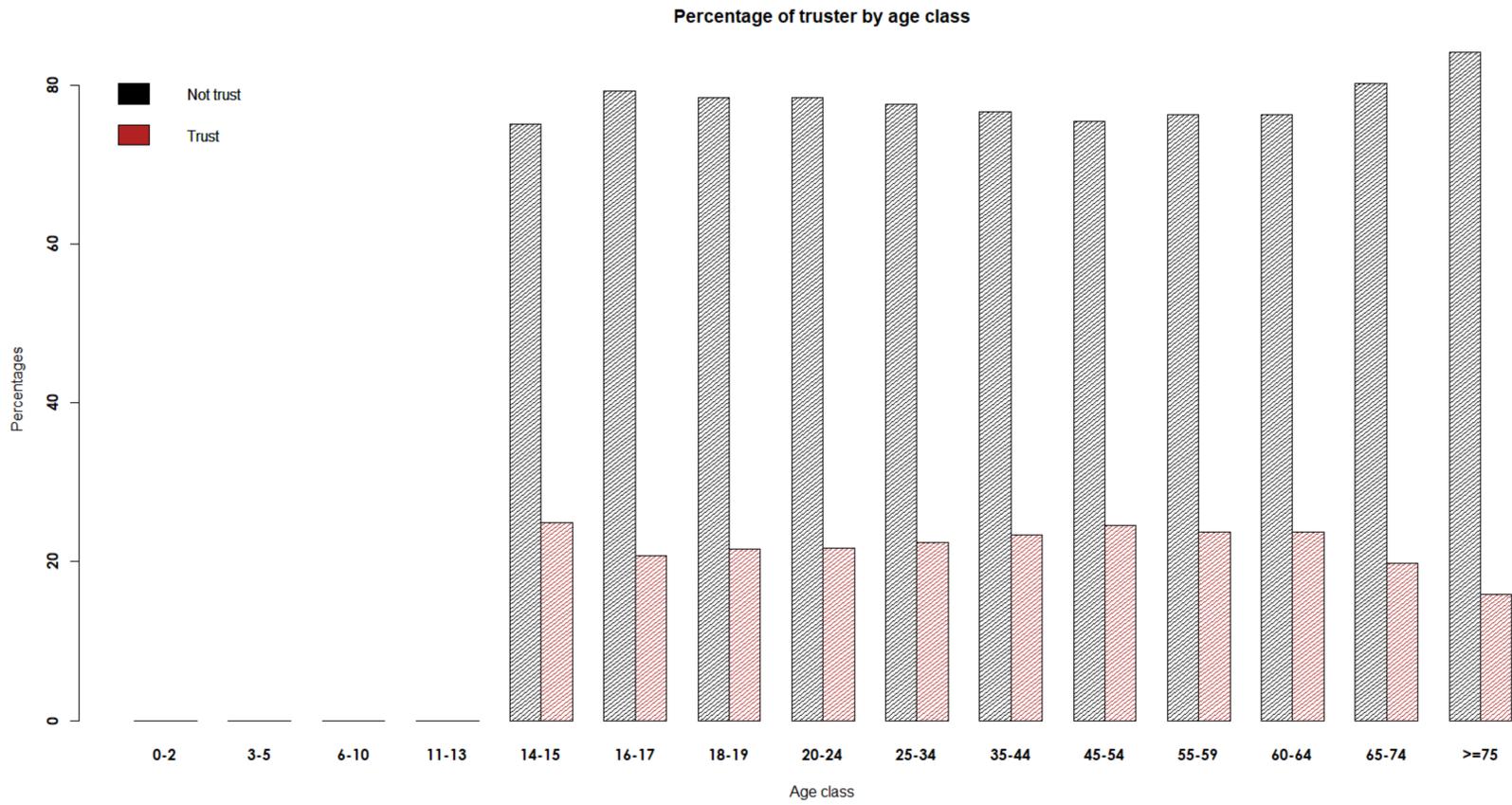


Figure A.2: Cross-tabulation plot age/trust

Variable	Mean	Median	S.D.	Min.	Max.	Description
TRUST	0.2194	0.0000	0.4139	0.0000	1.0000	Dummy variable, 1 if trust
FAMILY MEMBERS	3.0080	3.0000	1.3210	1.0000	9.0000	Number of family members
AGE	10.2400	11.0000	3.7440	1.0000	15.0000	Age – categorical
GENDER	0.5170	1.0000	0.4997	0.0000	1.0000	Dummy variable, 1 if female
MAIDEN	0.3731	0.0000	0.4836	0.0000	1.0000	Dummy variable, 1 if unmarried/maiden
MARRIED	0.4651	0.0000	0.4988	0.0000	1.0000	Dummy variable, 1 if married
DIVORCED	0.0770	0.0000	0.2666	0.0000	1.0000	Dummy variable, 1 if separated/divorced
WIDOW/ER	0.0848	0.0000	0.2786	0.0000	1.0000	Dummy variable, 1 if widow/er
ELEMENTARY SCHOOL	0.2292	0.0000	0.4203	0.0000	1.0000	Dummy variable, 1 for elementary license
MID-SCHOOL	0.2854	0.0000	0.4516	0.0000	1.0000	Dummy variable, 1 for mid-school license
HIGH SCHOOL	0.3482	0.0000	0.4764	0.0000	1.0000	Dummy variable, 1 for high-school degree
UNIVERSITY	0.1373	0.0000	0.3441	0.0000	1.0000	Dummy variable, 1 if university degree
NON-ITALIAN CITIZ.	0.0390	0.0000	0.1936	0.0000	1.0000	Dummy variable, 1 if respondent is a non-Italian citizen
CHURCH	0.7711	1.0000	0.42015	0.0000	1.0000	Dummy variable, 1 if attendance at religious services
SICKNESS	0.0602	0.0000	0.2379	0.000	1.0000	Dummy variable, 1 if current health condition is bad
MENTAL ILLNESS	-4.2298e-16	-0.1799	1.7905	-3.0942	6.6968	Recent psychological malaise – 1 st Principal Component
SOCIAL PARTICIPATION	1.0371e-16	-0.5762	1.3607	-0.57619	11.285	Civic Engagement – 1 st Principal Component
WORSENING	0.1078	0.0000	0.3101	0.0000	1.0000	Dummy variable, 1 if future condition will worsening
STABLE	0.4325	0.0000	0.4954	0.0000	1.0000	Dummy variable, 1 if future condition will be stable
IMPROVEMENT	0.4598	0.0000	0.4984	0.0000	1.0000	Dummy variable, 1 if future condition will improving

Table A.3: Full dataset – summary statistics table [pt.1]

Variable	Mean	Median	S.D.	Min.	Max.	Description
EMPLOYED	0.4321	0.0000	0.4954	0.0000	1.0000	Dummy variable, 1 if employed
UNEMPLOYED	0.0960	0.0000	0.2946	0.0000	1.0000	Dummy variable, 1 if unemployed
NEAT	0.4719	0.0000	0.4992	0.0000	1.0000	Dummy variable, 1 if NEAT/inactive/retired
CEO/OWNER	0.0962	0.0000	0.2949	0.0000	1.0000	Dummy variable, 1 if CEO/owner
EMPLOYEE	0.3429	0.0000	0.4747	0.0000	1.0000	Dummy variable, 1 if employee
TRAINEE	0.3860	0.0000	0.4868	0.0000	1.0000	Dummy variable, 1 if trainee
COCOCO ET SIM.	0.1749	0.0000	0.3799	0.0000	1.0000	Dummy variable, 1 if COCOCO/self-employee
SEVERE SHORTAGE	0.0492	0.0000	0.2163	0.0000	1.0000	Dummy variable, 1 if resources were severely shortages
PARTIALLY INSUFFICIENT	0.3273	0.0000	0.4692	0.0000	1.0000	Dummy variable, 1 if resources were partially insufficient
ADEQUATE	0.6097	0.1000	0.4878	0.0000	1.0000	Dummy variable, 1 if resources were adequate
MORE THAN ENOUGH	0.0138	0.0000	0.1166	0.0000	1.0000	Dummy variable, 1 if resources were more than enough
FIDU1	3.0510	3.0000	0.9477	1.0000	4.0000	How much do you think a <i>neighbor</i> will return it
FIDU2	3.2830	3.0000	0.8186	1.0000	4.0000	How much do you think a <i>police man</i> will return it
FIDU3	1.7360	2.0000	0.7520	1.0000	4.0000	How much do you think a <i>complete stranger</i> will return it
NATIONAL PARLIAMENT	3.8109	4.0000	2.5823	0.0000	10.0000	How much do you trust in: <i>National Parliament</i>
EUROPEAN PARLIAMENT	3.9771	5.0000	2.6079	0.0000	10.0000	How much do you trust in: <i>European Parliament</i>
REGIONAL GOVERNMENT	3.8973	4.0000	2.5839	0.0000	10.0000	How much do you trust in: <i>Regional Government</i>
PROVINCIAL GOVERNMENT	3.7670	4.0000	2.5850	0.0000	10.0000	How much do you trust in: <i>Provincial Government</i>
LOCAL GOVERNMENT	4.6591	5.0000	2.7161	0.0000	10.0000	How much do you trust in: <i>Local Government</i>
POLITICAL PARTIES	2.7350	3.0000	2.4380	0.0000	10.0000	How much do you trust in: <i>Political Parties</i>
JUDICIAL SYSTEM	4.4117	5.0000	2.6420	0.0000	10.0000	How much do you trust in: <i>Judicial System</i>
POLICE DEPARTMENT	6.5456	7.0000	2.3488	0.0000	10.0000	How much do you trust in: <i>Police Department</i>
FIRE FIGHTERS	8.0026	8.0000	2.0176	0.0000	10.0000	How much do you trust in: <i>Fire Fighters</i>

Table A.4: Full dataset – summary statistics table [pt.2]

Appendix B

This appendix is referring to the analysis performed in Chapter 4. In the chapter, we presented just the most relevant portion of the tables 4.2 and 4.3, aiming to highlight the most important facts and trying to keep the reading user-friendly in terms of fluency. Here instead we present both of them in their full version.

As already anticipated, the results do not change that much from a specification to another, except for the one performed on the “only-workers” subsample. The first five columns are relative to the analysis conducted in section 4.2, and these are marked with an (*a) sign, whereas the last three ones, that are marked with a (*b) sign, are relative to the section 4.3.

We choose to adopt a unique large table, in order to make it easier for the user to see how the coefficients behave during all the course of the analysis.

<i>Dependent variable:</i>								
	Trust							
	AME	AME	AME	AME	AME	AME	AME	AME
	(1a)	(2a)	(3a)	(4a)	(5a)	(6b)	(7b)	(8b)
Gender	-0.0273*** (0.0052)	-0.0212*** (0.00525)	-0.0122** (0.0053)	-0.0206*** (0.00525)	-0.0123** (0.0053)	-0.0094* (0.0054)	-0.0183** (0.0086)	-0.0090* (0.0054)
Age	0.0087*** (0.0018)	0.0082*** (0.0018)	0.0087*** (0.0018)	0.0086*** (0.0018)	0.0086*** (0.0018)	0.0097*** (0.0019)	0.0248*** (0.0040)	0.0086*** (0.0019)
Family members	0.0003 (0.0025)	0.0001 (0.0025)	0.00035 (0.0025)	0.00004 (0.0025)	0.0004 (0.0025)	0.00085 (0.0025)	0.0004 (0.0038)	0.0014 (0.0025)
Married	0.0133* (0.0076)	0.0118 (0.0076)	0.0093 (0.0076)	0.0116 (0.0076)	0.0093 (0.0076)	0.0045 (0.0077)	-0.01005 (0.0110)	0.0021 (0.0077)
Divorced/Separated	0.0240** (0.0102)	0.0194* (0.0102)	0.0185* (0.0102)	0.0189* (0.0102)	0.0186* (0.0102)	0.0160 (0.0102)	-0.00305 (0.0134)	0.0184* (0.0103)
Widow/er	-0.0066 (0.0119)	-0.0063 (0.0120)	-0.0072 (0.0119)	-0.0055 (0.0120)	-0.00725 (0.0119)	-0.0110 (0.0119)	-0.0542 (0.0334)	-0.0103 (0.0119)
Mid-school	0.0357*** (0.0079)	0.0284*** (0.0079)	0.0255*** (0.0078)	0.0269*** (0.0079)	0.0256*** (0.0078)	0.0248*** (0.0079)	-0.0011 (0.0290)	0.0217*** (0.0078)
High-school	0.0801*** (0.0070)	0.0676*** (0.0070)	0.0628*** (0.0069)	0.0659*** (0.0070)	0.0629*** (0.0069)	0.0630*** (0.0069)	0.0465** (0.0196)	0.0581*** (0.0069)
University	0.2151*** (0.0115)	0.1813*** (0.0117)	0.1711*** (0.0116)	0.1784*** (0.01175)	0.1714*** (0.0117)	0.1683*** (0.0117)	0.1317*** (0.0310)	0.1544*** (0.0117)
Non-Italian citiz.	-0.0504*** (0.0122)	-0.0407*** (0.01255)	-0.0428*** (0.0124)	-0.0406*** (0.01255)	-0.0428*** (0.0124)	-0.0443*** (0.0125)	-0.0353* (0.0188)	-0.03915*** (0.0127)

Church	0.0020 (0.0015)	0.0011 (0.0016)	-0.0005 (0.00155)	0.0007 (0.0016)	-0.0005 (0.00155)	-0.00085 (0.00155)	-0.0009 (0.0026)	-0.0011 (0.00155)
Worsening	-0.08125*** (0.0054)	-0.0814*** (0.0055)	-0.0680*** (0.0058)	-0.0789*** (0.0056)	-0.0682*** (0.0058)	-0.0673*** (0.0058)	-0.0792*** (0.0121)	-0.0599*** (0.0061)
Improvement	0.0248*** (0.0038)	0.0236*** (0.0038)	0.0232*** (0.0038)	0.0238*** (0.0038)	0.0232*** (0.0038)	0.0234*** (0.0039)	0.0303*** (0.0048)	0.0236*** (0.0039)
Social participation		0.02675*** (0.0017)	0.0271*** (0.0017)	0.0267*** (0.0017)	0.0271*** (0.0017)	0.0266*** (0.0017)	0.0279*** (0.0024)	0.0262*** (0.0017)
Mental illness			-0.0220*** (0.0016)		-0.0221*** (0.0016)	-0.0219*** (0.0016)	-0.0212*** (0.0026)	-0.0207*** (0.0016)
Sickness				-0.0331*** (0.0107)	0.0036 (0.0120)			
Unemployed						-0.0413*** (0.0084)		-0.0321*** (0.0087)
NEAT/Inactive/Retired						-0.0079* (0.0043)		-0.0073* (0.0043)
CEO/Owner							-0.0132 (0.0106)	
Trainee							-0.0400*** (0.0078)	
COCOCO <i>et sim.</i>							-0.0263** (0.0108)	
Severe shortage								-0.0617*** (0.01225)
Partially insufficient								-0.0319*** (0.0041)

More than enough

0.0883***
(0.0221)

Observations	27,139	26,477	26,477	26,477	26,477	26,199	11,565	26,067
Adjusted R ²	0.0522	0.0601	0.0668	0.0604	0.0667	0.06775	0.0666	0.0707
McFadden R ²	0.0544	0.0625	0.0692	0.0628	0.0692	0.07035	0.0722	0.0735
Log Likelihood	-14,322.81	-13,845.67	-13,746.84	-13,841.16	-13,746.80	-13,578.75	-6,472.07	-13,473.68

Table B.1: Estimation results – Full table

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