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A Synthetic Cohorts Approach

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Abstract: This paper studies the two-way relationship between individuals' trust in institutions, as a proxy for social cohesion, and several indicators of their employment status using cohort fixed-effect regression methods. The very short time span of panels based on household level data is overcome by constructing synthetic cohorts of individuals that can be followed over a longer period. The aggregation process implicit in the construction of cohort level variables also helps mitigate measurement errors present in individual level data. The analysis identifies the bi-directional links between the cyclical components of trust and employment measures among cohorts of respondents in European and Latin American perception surveys during the 2000s. We find that the relationship between employment status and trust depends on context: Increases in cyclical unemployment precede decreases in trust among Europeans, but the opposite is true among Latin Americans. At the same time, increases in cyclical self-employment lead to higher trust in Europe while again the opposite is true in Latin America. These results hold in Latin America for both trust in government and in other people. In addition, the analysis finds evidence for a causal relationship from trust to jobs, with changes in trust preceding changes in cyclical open unemployment in both Europe and Latin America. Results suggest that in emerging economies contexts, the type of job, the opportunities the job provides, and the way jobs connect people to the state and with other people are relevant for how they influence social cohesion.

Keywords: Social cohesion, Trust, Employment, Synthetic Panel Data, Cohort Methods.

JEL classification: I32, C23, D1, D31

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1. Introduction

Jobs are at the center of policy discussions around the world. Policy makers, commentators and many segments of the population see the stubbornly high unemployment rates, which spiked in the aftermath of the financial crisis, as a major drag on economic recovery and social welfare, as well as a risk to political and social stability. The lack of (productive) jobs can affect not only the economy-wide productivity and the ability of the population to secure adequate living standards; it can also erode society's institutional and inter-personal trust which binds the social fabric needed for economic and social interactions. Moreover, the lack of (productive) jobs can be a source of frustration and social unrest, can undermine social cohesion", and ultimately shake the foundation of democratic societies and sustained economic growth.

The job crisis has been at the center of the Arab Spring to the various manifestations of the Occupy Movement across the world as well as the *"Indignados"* movement originated in Spain. The substantial inactivity rates affecting youth around the world are of particular concern and have elicited demands for swift action to avoid irreversible impacts on a so called "Jobless Generation". As a recent major news editorial put it: "…A spike in joblessness among the youth... is also a breakdown in the contract of how a society is supposed to function... Why have a stake in society when society have so little stake in you?..." (The Times, November 18, 2011).

Besides its prominence in mass media, this issue concerns a vast literature in sociology, economics and political science.[2] Studies recognize that the relationship between jobs and trust can go in both directions. For individuals, unemployment, under-employment or exclusion from labor markets –particularly in the context of open discrimination or lack of safety nets— can cause an erosion of trust in society and its governing institutions. At the same time, a loss in trust per se can

[2]The World Development Report 2013 "Good Jobs for Development" and the World Development Report 2011 "Conflict, Security, and Development" provide a grand review of the various strands of the literature in the social sciences that address the two-way relationship between jobs and social cohesion, both at the individual and societal level, and the main channels that could support this relationship.

lead to withdrawal from labor market participation or formal employment and turn into long term inactivity and poverty traps (World Development Report (WDR henceforth), 2013). Even in countries with adequate social protection systems, the inability to secure "emancipatory" employment could lead to a loss of trust in society and its ruling institutions, to the extent that jobs are a source of non-pecuniary satisfaction and thus well-being (WDR, 2013). For society at large, a lack of trust can constrain the state's capacity to collect taxes and provide key public goods, and can escalate into social tensions and conflict (as, arguably, recently in several countries)which in turn deter private investment and ultimately stall growth and job creation (WDR, 2013).

Empirical evidence on the connection between jobs and trust is limited owing to data limitations and the complexity of measuring social interactions. Datasets which contain both measures of trust and employment conditions are scarce and generally inadequate to account for confounding factors. While job loss may erode the person's trust in societal institutions or others, it may be that less trusting people are more likely to be unemployed, underemployed or not seek employment due to unmeasured attitudinal or behavioral factors. The panel data required to discern such spurious correlations are rare. Moreover, trust is likely to be heavily influenced by peer and social interaction effects. An individual's propensity to trust other people or the state depends on the perceived or actual propensities to trust of peers from similar socio-economic and demographic groups. This can lead to biases that obscure the interpretation of correlations between jobs and measures of trust drawn from individual cross-section data (Manski, 1990).

This paper examines the cyclical two-way relationship between employment outcomes and trust using a synthetic cohort econometric approach and a unique pseudo-panel dataset constructed from yearly cross-country perception surveys. The paper examines the co-movements between time series measures of social cohesion and employment conditions for birth cohorts of individuals from 47 countries in Europe and Latin America that participate every year in the well-known

Eurobarometer and *Latinobarometer* surveys. These are analyzed through cohort fixed effect methods.

The adopted empirical strategy has two main appealing features. First, the pseudo-panel approach allows to address biases arising from unobserved individual characteristics correlated with both trust and employment status. Second, it captures important features of social cohesion as the cohort-aggregated measures encapsulate peer and social interaction effects in the formation of perceptions of trust.

The paper is organized as follows. The next section presents a brief review of the relevant literature. Sections 3 and 4 describe the construction of the pseudo-panel data set and the data sources used for that purpose, and offer some descriptive characterization of the studied relationships. Section 4 discusses the econometric strategy. Section 5discusses the results. Section 6 concludes and highlights the main implications for public policy as well as suggests further extensions.

2. The empirical evidence on trust and jobs

A rich literature in the social sciences relates trust to shared norms and values of people with one another or society's institutions (Fukuyama, 1995; Friedkin 2004, 2010; Jenson, 1998; North 1990). It can refer to the confidence of individuals in those close to them, such as family and friends, or to the proclivity to believe other people in general (Delhey, Newton, and Welzel, 2011). Finally, it can be associated to the degree of confidence in societal institutions such as the state and various government bodies, political parties, unions, associations and more broadly the norms and rules governing society.

Jobs can influence trust through their bearing on identity, perceptions of fairness and strength of networks. The distribution of jobs in a society and perceptions about what drives access

to job opportunities can shape people's sense of having a stake in society and of fairness as well as their expectations and aspirations for the future (WDR 2013).Jobs can also have psychological effects among individuals, affecting, mood, self-esteem, locus of control and the likelihood of depression (Tiggemann and Winefield 1987; Backhans and Hemmingsson 2012). Jobs that offer few opportunities for social mobility or lack representation or voice can lead to alienation and frustration (WDR 2013). All of this can erode a person's trust in institutions and others in society. During the last decade, there have been several papers focused on trust using either Latinobarometer or Eurobarometer data. These datasets have been used to explore different issues related to social cohesion, such as the impact of institutions on individual trust (Hudson 2006) and the effect of the 2008 financial crisis on institutional trust (Roth 2009). Research on the determinants of institutional trust in Europe has also been advanced (Arnold et al. 2012). In Latin America, the data has been extensively used to analyze the importance of institutional trust in democratic consolidation as well as state-building (Turner & Martz 1997; Schneider 2012; Payne et al. 2002).

The relationship goes both ways: trust can also influence jobs. Trust is the "currency of markets": it reduces transaction costs in market interactions, facilitates compliance and enforcement of the rule of law, and facilitates innovation and cooperation among economic agents (North, 1990; Easterly 2006). When people, particularly youth, lack trust and a stake in society and its institutions they may drop out of school or the work force and even turn to violent or criminal activity to "get back at society" (WDR 2013).Thus, trust provides a foundation for stable economic and political environment that is conducive to economic growth and job creation.

Different aspects of social cohesion have been analyzed in the literature. Studies considering social cohesion as either a cause or a consequence of other aspects of social, economic and political life have flourished in the last decades (Beauvais 2002; Friedkin 2004). Some analysts focus on social cohesion as an outcome of certain processes such as civic participation, employment

or education among others (OECD 2011; ECLAC 2007; Tokman 2007). A different set of studies, instead, presents social cohesion as an input necessary for other valuable social aims, such as institutional and/or economic development (Foa 2011; Easterly 2006; Woolcock 2011). As Beauvais (2002) notes, however, the vast majority of these studies does not establish causality, but are able only to identify correlations.

It is important to note that these studies may not be strictly comparable since the very concept of social cohesion is a matter of discussion and varies from purely instrumental definitions (Easterly 2006) to more vague conceptions (Bernard 2009). Divergences in the conceptual realm give place to differences in the measurement of this type of phenomenon. Two major strands have been identified (Easterly 2006), divided in direct and indirect measures, the former including measures of trust and memberships rates of organizations and civic participation while the latter refer to income distribution and ethnic heterogeneity measures. In this paper, the focus is on direct measures of trust on both individuals and institutions.

In addition to pinning down the concept of social cohesion, the existing literature points to the importance of accounting for social interactions or strategic complementarities when making inferences from individual measures trust. Individuals' levels of trust in state institutions and others in society are largely determined by peer and social interaction effects, especially among individuals belonging to a similar socio-economic group (Durlauf and Ioannides 2010; Glaeser, et,al 2003). Based on this literature, empirical analyses that measure trust or social cohesion at the individual level, without accounting for social interactions, would produce biased estimates.

With this in mind, this paper provides new evidence on the causal links between social cohesion—measured by trust in institutions and individuals— and employment status, in a manner that at least partly incorporates social interaction effects. Even if interest in social cohesion goes back to Durkheim's studies at the end of the 19th century and, as pointed before, has recently

regained relevance particularly accentuated by the recent world economic crisis, analysis of the special relationship between trust and jobs has been scant. To our knowledge, this link has not been studied systematically in a cross-country setting, probably due to data limitations. Indeed, the vast majority of empirical studies of social cohesion are based on local studies (Foa 2011), while the few country comparative analysis do not focus on the special link between jobs and social cohesion which is at the center of this study. This paper, therefore, contributes to address this gap in the empirical literature by analyzing a unique panel data set of synthetic cohorts from yearly perception surveys conducted across countries in Europe and Latin America. These data is described next.

3. The data

The paper uses publicly available data from the nationally representative *Eurobarometer* and *Latinobarometer* perception surveys conducted every year since the late 1990s in most countries in Europe and Latin America. The standard *Eurobarometer* survey was started in 1973 and has gradually expanded to cover the population of European Union Member States (including Eastern and Central Europe), age 15+. Today, a total of 32 countries are sampled yearly and each survey consists of approximately 1000 face-to-face interviews per country. It collects information on individuals' perceptions and attitudes on a wide range of topics, including trust in several state and societal institutions, together with a host of individual and family demographic and socio-economic characteristics. Reports are published twice yearly.[3]

The *Latinobarometer* is a similar public opinion survey carried out every year with around 19,000 interviewees aged 20+ in 18 Latin American countries. The data is available annually since

[3] Data are available at: http://www.gesis.org/Eurobarometer/data-access/.

1995. In almost all years, the survey contains questions on trust on several institutions as well as on other people (interpersonal trust).[4]

We build two separate regional datasets for the analysis, only considering countries for which at least 3 (or four) data points (years) are available in each survey. We focus on the period 1999-2010 which has the greatest coverage of countries with consecutive annual surveys across the two regions. This also focuses the analysis on a relatively homogeneous period where countries experience both economic expansions and declines, which is of importance for the empirical identification strategy. This results in a sample covering 31 countries in Europe and 14 countries in Latin America, with a median number of yearly data points of 7, in each case, respectively, over the 10 year period (1999-2010). Table 1 presents the list of countries and years included.

While similar perception surveys exist for other regions of the world, the two considered here cover by far the longest time span and set of countries. For instance, the Barometer surveys for Africa and the Middle East have been done for only 2 to 3 recent years and an uneven sample of countries. The well-known World Values Survey has been carried out in five waves of nationally representative surveys, between 1981 and 2007, spanning more than 80 countries. However, only a subset of countries has been surveyed in several waves and not necessarily consecutively, and these not always collect the relevant data on trust.

The data under analysis also allows examining whether the relationship between trust and jobs varies across the development spectrum. Europe and Latin America have quite distinct labor markets and levels of institutional development. In particular, the so called "European model" of work and generous social protection attached to formal wage employment is said to be the core foundation of the continent's social model and social cohesion, to the extent that it is a reflection of widely accepted social norms and values for work and the role of the State in economic and social

[4] The data are available at: http://www.latinobarometro.org/latino/LATDatos.jsp.

life. Meanwhile, most of Latin American countries retain what have been dubbed "truncated welfare states", by which a majority of the population is not covered by formal social protection due to prevalence of informal work. Informal employment in the region is said to reflect a mix of workers' voluntary "Exit" and involuntary "Exclusion" from state-run institutions, including burdensome tax and business regulations and ineffective social services and insurance (Perry et al 2007).Thus, it is of interest to determine whether these differences mediate the relationship between jobs and trust between the two regions.

The *Eurobarometer* and *Latinobarometer* have very similar questions on trust and labor market status. Both ask respondents about the extent to which they trust several institutions, including the government, political parties, the justice system, congress, among others. This variable has the widest coverage in terms of countries and longest time series in the two surveys. For *Eurobarometer*, we consider series of trust in institutions (justice, political parties, government and parliament) ranging from 2001 to 2010 for thirty one countries. The *Latinobarometer* asks about additional institutions (television, church, the military and the police), covering a nine year period (2002-2009) and 19 countries. The *Eurobarometer* uses a binary scale of response, with 1 meaning trust, while *Latinobarometer* registers a 1 (trust a lot) to 4 (does not trust at all) scale. We convert the latter to a binary scale to facilitate comparisons. In particular, we recoded 1 (a lot of confidence) and 2 (some confidence) in the *Latinobarometer* scale to 1 (trust), and 3 (little confidence) and 4 (no confidence) to 0 (does not trust). Furthermore, *Latinobarometer* asks respondents whether they trust other people, covering the same time period and in 19 countries. This last measure is also used in the analysis of the Latin American sample. These variables are recorded in a binary scale and consequently do not require the recoding previously described.

With regards to employment, respondents self-report their labor market status, distinguishing whether they are employees, self-employed, unemployed, or in one of the inactive

categories (e.g, students, retirees). These as well as other demographic variables are coded similarly across datasets before deriving the cohort-level jobs measures.

We use the microdata from the series of cross section surveys of *Eurobarometer* and *Latinobarometer* to create of a pseudo-panel dataset of synthetic cohorts of individuals (Deaton, 1997). A cohort is simply a group of individuals who experienced a common particular event at a point in time, usually their year of birth. Since country characteristics (e.g, state of the economy, labor regulations) are likely correlated with both trust and employment conditions, our unit of analysis (pseudo-individual) is defined as 'individuals born at a specific time in each given country'. This implies that each observation was derived from the aggregation of individuals from the same national origin and year of birth.

With the aim of avoiding composition problems, we use only those observations for which both variables of interest (i.e., *trust in institutions* and *employment status*) were available with a minimum of 200 observations for each cohort-year pair. This implied setting the cohort's length to be 10 years. That is, now each pseudo-individual refers to a 10-year cohort of a particular country (for instance, all the individuals born between 1980 and 1989 in Spain). Following these criteria, the *Eurobarometer* pseudo-panel is constructed using individuals born as from 1926 onwards, surveyed between 2001 and 2010. For *Latinobarometer*, the pseudo-panel includes individuals born from 1942 onwards, surveyed between 2002 and 2009[5].

These pseudo-panels provide a unique dataset of 'archetypical' individuals that can be followed over time and used to assess how changes in the cohort-level employment conditions affect their rates of trust by exploiting both the temporal and cross-sectional variability.

[5] Table A.1 in the appendix presents an example of pseudo-individual construction, for France.

Table 1.Description of construction of pseudo-panel

	Eurobarometer		*Latinobarometer*	
	Original Dataset	**Pseudo-Dataset**	**Original Dataset**	**Pseudo-dataset**
Years Covered	2001-2010		2002-2009	
Number of Countries	31[6]		18[7]	
Year of Birth – First Cohort	1926		1942	
Sample size	446,080	2,480	156,243	1,216
Age (years)	44.89 *(16.53)*	44.62 *(19.07)*	38.5 *(15.20)*	46.10 *(18.20)*
Male (percent)	46.07 *(49.8)*	46.54 *(7.06)*	48.8 *(49.90)*	49.51 *(7.61)*
Trust in Government	40.19 *(49.03)*	42.83*(17.13)*	36.55 *(48.16)*	37.00 (*17.80)*
Interpersonal Trust	--	--	19.7 *(39.8)*	19.7 *(9.9)*
Unemployed (percent)	7.53 *(26.39)*	6.42 *(6.34)*	6.87 *(25.29)*	6.20 *(5.44)*
Employed (percent)	43.20 *(49.54)*	35.82 *(26.79)*	25.80 *(43.76)*	20.28 *(13.25)*
Non Active (percent)	41.28 *(49.23)*	51.14 *(33.61)*	35.50 *(47.85)*	41.47 *(19.49)*
Self-Employed (percent)	7.99 *(27.11)*	6.63 *(6.14)*	31.82 *(46.57)*	32.05 *(14.57)*

Notes: Standard errors in parenthesis. In the Eurobarometer, the question about trust in government is stated as "And what about institutions? Please tell me if you tend to trust it or tend not to trust it. (…) 4. The (nationality) government". In the Latinobarometer, the question about trust in government is "Please look at this card and tell me, how much you trust in each of the following groups/institutions. Would you say you have a lot, some, a little or no trust? (…) A. The government", and the question about interpersonal trust is "Generally speaking, would you say that you can trust most people, or that you can never be too careful when dealing with others?"

Focusing on simplifying the presentation of results, we will concentrate on trust in government and interpersonal trust, avoiding the inclusion of trust in the other institutions present in the surveys. The reason for this is twofold. On the one hand, even if levels of trust vary across

[6]*Eurobarometer*: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, FYR Macedonia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, The Netherlands, Turkey and the United Kingdom.

[7]Latinobarometer: Argentina, Bolivia, Brazil, Colombia, Costa Rica, Chile, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela.

institutions and trends differ across time, the correlation among these variables is certainly positive[8]. This seems to be pointing to the fact that individuals have very similar perceptions about political parties, the judiciary the parliament and the government itself. Secondly, and most importantly, all of these variables show very similar results in our analysis: although the magnitude of the coefficients may slightly differ in some cases, they systematically move in the same direction. It is reasonable then to conclude that trust in government stands as a reliable summary for trust in institutions, what renders the analysis simpler and more straightforward. Consequently, trust in government will be the variable used throughout the econometric analysis as a summary indicator of institutional trust. Additionally, we are going to use the interpersonal trust variable of *Latinobarometer* because it gives us information about perceptions of different aspect of the society.

The Data

A brief overview of basic features of the dataset reveals interesting differences and similarities between Europe and Latin America in terms of demographic and educational characteristics, as shown in Tables 2 and 3. In terms of gender, both regions show the largest percentage of men in the self-employment category, while women lead the non-active status. Even though the former category shows a similar male proportion for both areas, the non-active category shows differences: the percentage of non-active individuals that are male is only 23% in Latin America while almost 39% in Europe. Regarding age, the unemployed category concentrates the youngest population in both regions, while the non-active status retains the eldest population (in Latin America, the non-active and self-employed status show virtually the same mean age). There are, nevertheless, some differences: as expected, population is younger in Latin America: both the unemployed and the non-active are older in Europe, almost 4 and 11 years respectively.

[8] For further details regarding correlation among trust in institutions variables see table A.2 in the appendix.

Table 2. Descriptive Statistics - *Eurobarometer*

Demographic and educational characteristics by labor status (2001 – 2010)

	Labor force status			
	Non active	**Unemployed**	**Self-employed**	**Employed**
Male (percent)	38.4%	45.6%	65.2%	49.9%
Age (years)	50.7	38.9	44.4	40.7
Education				
Age up to which individual studied				
No formal education	1.0%	0.7%	0.4%	0.2%
Up to 14	21.5%	12.5%	12.9%	6.2%
15 to 21	45.9%	73.1%	59.9%	67.0%
22 o rolder	10.2%	13.6%	26.7%	26.4%
Still studiying	21.4%	0.2%	0.1%	0.1%
Total	*100%*	*100%*	*100%*	*100%*

Table 3. Descriptive Statistics –*Latinobarometer*

Demographic and educational characteristics by labor status (2002 – 2009)

	Labor force status			
	Non active	**Unemployed**	**Self-employed**	**Employed**
Male (percent)	23.1%	58.4%	64.8%	61.8%
Age (years)	39.6	35.1	40.4	35.4
Education				
No Formal Education	9.5%	7.1%	11.5%	4.3%
Up to 7 years of education	37.7%	34.9%	41.6%	26.1%
8 to 12 years of education	36.0%	41.3%	32.8%	40.5%
Incomplete University or Non-University studies	11.4%	8.1%	6.4%	11.9%
Complete University or Non-University studies	5.3%	8.5%	7.6%	17.2%
Total	*100%*	*100%*	*100%*	*100%*

In terms of gender, both regions show the largest percentage of men in the self-employment category, while women lead the non-active status. Even though the former category shows a similar male proportion for both areas, the non-active category shows differences: the percentage of non-active individuals that are male is only 23% in Latin America while almost 39% in Europe. Regarding age, the unemployed category concentrates the youngest population in both regions, while the non-active status retains the eldest population (in Latin America, the non-active and self-employed status show virtually the same mean age). There are, nevertheless, some differences: as expected, population is younger in Latin America: both the unemployed and the non-active are older in Europe, almost 4 and 11 years respectively.

Education patterns across labor status show substantial differences between Europe and Latin America. In the former, the inactive category seems to gather together students (it holds the highest percentage to the "still studying" category) with those less educated (it leads the "no formal education" category).Those unemployed seem to occupy the lower stand in the education ladder, leading the "15 to 21" years of formal education category. Finally, the self-employed and employed are the highest educated group, with a similar education pattern: the mass is concentrated in the "15 to 21" and "22 or older" categories.

Latin America shows quite a different picture: the self-employed are the least educated group, leading both the "no formal education" as well as the "up to 7"categories. The non-active category follows in terms of education showing slightly lower percentages of "no formal" and "up to 7 years" categories, while higher percentages in the "8 to 12 years" as well as "university" and "non-university" studies. The third position in the education ladder is held by the unemployed. This group shows lowest percentages of individuals in the "no formal education" and "up to 7 years" categories than both the self-employed and the inactive, as well a higher concentration of the "8 to 12 years" category. The more educated group is clearly employed, with individuals concentrated either in the "8 to 12 years" and the "university" and "non-university studies" categories.

Therefore, this simple analysis is indicative of the fact that labor status categories may represent strikingly different things in these regions: in Europe, the least educated are the unemployed, in Latin America, the self-employed. While in Europe the self-employed seem to represent a group of individuals similar to those employed –at least in terms of their formal education- in Latin America these categories are positioned in two extremes. In particular, in this region the self-employed category seems to gather together those least advantaged in the societies. Even those unemployed seem to be somehow in a better position in Latin America, at least according to the education indicator. A possible explanation of this is that poor labor market outcomes translate differently into labor market status: in Europe, it means unemployment, while in Latin America-especially when focusing on cyclical variations[9]—it means self-employment. In particular, in a region without a social safety net like Latin America, self-employment hides situations of exclusion from labor markets. In Europe, the situation is different, with self-employment possibly revealing entrepreneurship and preference for flexibility by workers. We return to this critical issue when interpreting results from the empirical estimations.

Table 4 below shows that unemployed people tend to trust less in government in Europe compared to Latin America. Employed are in second place and non-active and self-employed people are the groups with the highest level of confidence. In Latin America, as in Europe, unemployed trust less than other groups. However, we observe differences in the relative ordering of the other labor status: Self-employed is the second group in lack of trust and employed and non-active people are the groups with the highest confidence. This seems to be consistent with the education pattern across labor status shown previously: self-employment reflects very different realities in these regions[10].

[9] Arias and Sosa (2009).
[10] Tables A.3 and A.4 in the Appendix show labor status rates by country.

Table 4 – Trust, by Labor Force Status, in *Eurobarometer* and *Latinobarometer*

	***Eurobarometer* (2001-2010)**	***Latinobarometer (2002-2009)***	
Labor status	**Trust in government**	**Trust in government**	**Interpersonal trust**
Unemployed	28.88 %	33.77 %	18.53 %
Employed	39.53 %	38.47 %	20.63 %
Self-employed	41.06 %	35.72 %	19.87 %
Non Active	42.77 %	36.45 %	19.06 %

Notes: In the Eurobarometer, the question about trust in government is stated as "And what about institutions? Please tell me if you tend to trust it or tend not to trust it. (…) 4. The (nationality) government". In the Latinobarometer, the question about trust in government is "Please look at this card and tell me, how much you trust in each of the following groups/institutions. Would you say you have a lot, some, a little or no trust? (…) A. The government", and the question about interpersonal trust is "Generally speaking, would you say that you can trust most people, or that you can never be too careful when dealing with others?"

Regarding interpersonal trust in Latin America, we find again that unemployment is related with lower trust. Regarding the other labor status categories, we find the same results as in Europe. It is useful to verify if this relationship between trust and labor status is maintained in a regression analysis controlling for individual characteristics and year and country fixed effects. Tables 5 and 6 summarize these results for both regions.

TABLE 5- *Eurobarometer:* Probit model for Trust in Government (Marginal Effects)

Labor: unemployed	-0.204***
	(0.00911)
Labor: employed	-0.00407
	(0.00603)
Labor: self-employed	0.0111
	(0.00857)
Gender	0.0341***
	(0.00403)
Age	-0.0167***
	(0.000877)
Age square	0.000211***
	(9.51E-06)
Educ: 15-21	0.0081
	(0.00668)

Educ: 22 or older	0.171***
	(0.00785)
Educ: still studying	0.132***
	(0.0118)
Educ: no formal educ.	0.0397
	(0.0265)
Constant	0.793***
	(0.0258)
Country Fixed Effects	Yes
Year Fixed Effects	Yes
Number of Observations	440,154

Notes: Labor and education are represented by a set of dummy variables. Education dummies indicate the last age in which individuals received formal education. Omitted categories are "Labor: non-active" and "Educ: Up to 14".Standard errors in parenthesis. In the Eurobarometer, the question about trust in government is stated as "And what about institutions? Please tell me if you tend to trust it or tend not to trust it. (…) 4. The (nationality) government".

TABLE 6 – *Latinobarometer*: Probit model for Trust in Government and Interpersonal Trust (Marginal Effects)

	Trust in Government	**Interpersonal Trust**
Labor: unemployed	-0.0893***	-0.0444***
	(-0.0143)	(0.0153)
Labor: employed	0.0154	0.0122
	(-0.00957)	(0.0102)
Labor: self-employed	-0.00483	0.0129
	(-0.00913)	(0.00975)
Gender	0.0523***	0.0820***
	(-0.00725)	(0.00771)
Age	0.00506***	-0.00357**
	(0.00133)	(0.00142)
Age square	-3.10e-05**	5.11e-05***
	(1.54E-05)	(1.64E-05)
Educ: without education	0.103***	0.106***
	(0.0162)	(0.0169)
Educ: 1 year	0.0986***	-0.0127
	(0.0315)	(0.0347)
Educ: 2 years	0.0943***	-0.0344
	(0.0235)	(0.0257)
Educ: 3 years	0.0559***	-0.0134
	(0.02)	(0.0215)
Educ: 4 years	0.0646***	-0.013
	(0.0197)	(0.0217)
Educ: 5 years	0.0146	-0.0223

	(0.0186)	(0.0202)
Educ: 6 years	-0.00977	-0.0446***
	(0.0139)	(0.0145)
Educ: 7 years	0.0591***	-0.0649***
	(0.0193)	(0.021)
Educ: 8 years	-0.0146	-0.0728***
	(0.0183)	(0.02)
Educ: 9 years	-0.0133	-0.0648***
	(0.0166)	(0.0175)
Educ: 10 years	-0.0368**	-0.0186
	(0.0183)	(0.0195)
Educ: 11 years	0.0116	-0.0697***
	(0.0158)	(0.017)
Educ: incompl. university	0.0227	0.0424**
	(0.016)	(0.0166)
Educ: compl. university	0.0671***	0.155***
	(0.0172)	(0.0177)
Educ: incompl. technical	-0.0315	-0.0344
	(0.0242)	(0.025)
Educ: compl. technical	-0.0129	0.031
	(0.0209)	(0.0215)
Constant	-0.292***	-1.090***
	(0.031)	(0.0328)
Country Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Number of Observations	156,216	170,806

Notes: Labor and education are represented by a set of dummy variables. Education dummies indicate years of approved school education or level of posterior studies. Omitted categories are "Labor: non-active" and "Educ: 12 years".Standard errors in parenthesis. In the Latinobarometer, the question about trust in government is "Please look at this card and tell me, how much you trust in each of the following groups/institutions. Would you say you have a lot, some, a little or no trust? (…) A. The government", and the question about interpersonal trust is "Generally speaking, would you say that you can trust most people, or that you can never be too careful when dealing with others?".

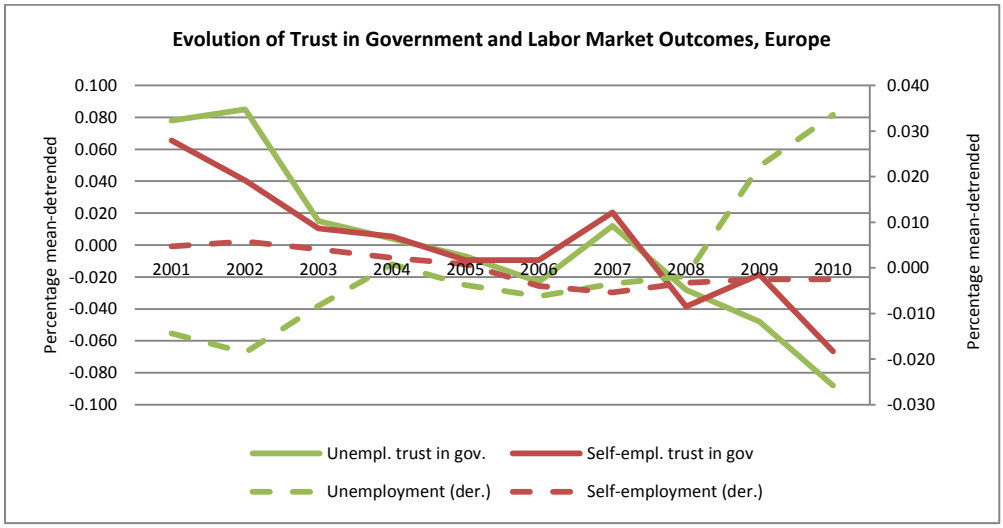
The negative relationship between unemployment and trust (interpersonal and in government) remains after controlling for other variables, both in Europe and in Latin America. After controlling for education, age and country and year fixed effects, the unemployed still exhibit the lowest tendencies to trust institutions as well as other people.

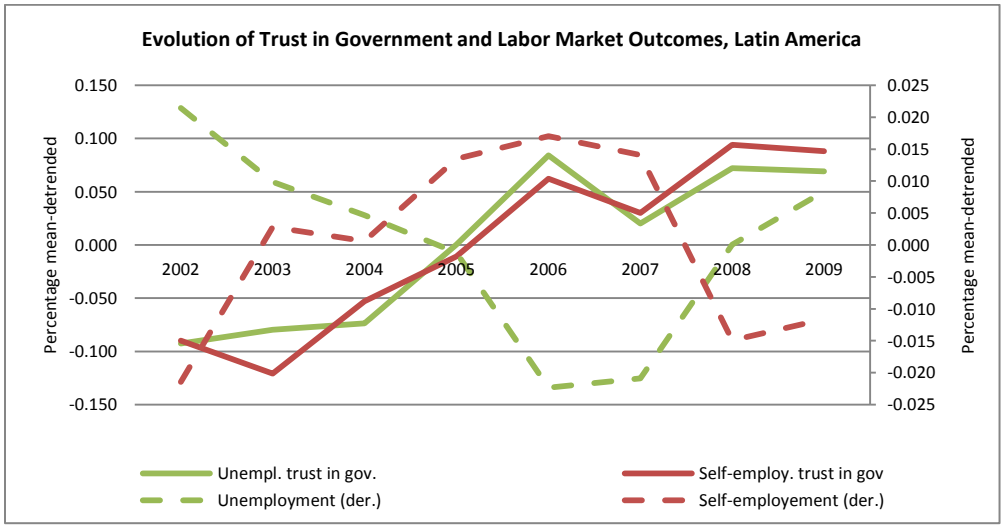
Additional features emerge from this regression analysis. In particular, trust among men is higher than among women. There are also important changes in the relationship between institutional trust and education levels in the regression analysis. While higher levels of education are clearly related with higher levels of trust in Europe, the story in Latin America is significantly more mixed.

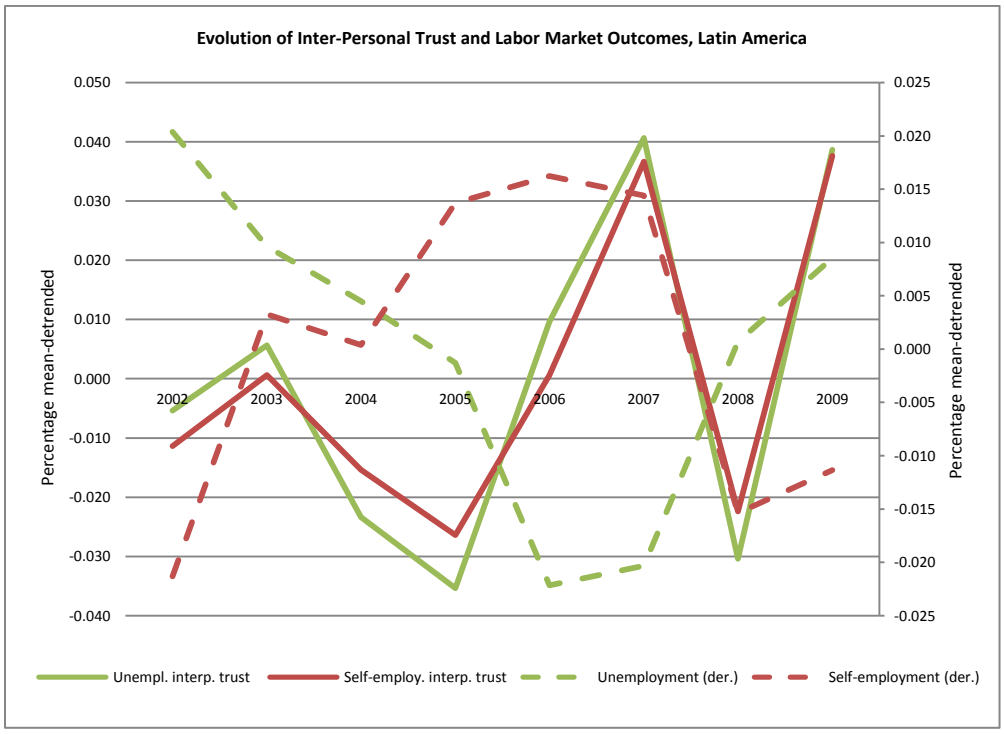
Some of these issues are also evident when analyzing the relationship, over time, between labor market status and trust. Over time there appears to be a relationship between cyclical measures of labor market status and institutional and interpersonal trust in Europe and Latin America, although the relationship is clearly complex (Figure 1). In Europe, the evolution of labor market outcomes and institutional trust over time shows a relationship between unemployment and trust, with seemingly increases (decreases) in the former preceding decreases (increases) in the latter. However, these graphs make it already evident that the relationship between employment status and trust is likely to be more complex in Latin America: while changes in unemployment seem to precede changes in trust, with self-employment, the situation is less clear (presumably given the large heterogeneity among self-employed as discussed above).

The methodology and empirical strategy described in the next session tries to address some of these shortcomings and help identify more clearly the nature of the relationship between trust and labor market status.

Figure 1. Percentage of unemployed and self-employed and percentage of trust in each group expressed as deviations with respect to the mean in the whole period (2001-2010)







Notes: In the Eurobarometer, the question about trust in government is stated as "And what about institutions? Please tell me if you tend to trust it or tend not to trust it. (…) 4. The (nationality) government". In the Latinobarometer, the question about trust in government is "Please look at this card and tell me, how much you trust in each of the following groups/institutions. Would you say you have a lot, some, a little or no trust? (…) A. The government", and the question about interpersonal trust is "Generally speaking, would you say that you can trust most people, or that you can never be too careful when dealing with others?"

Cross-country pseudo-panel analysis can provide significant insights on the causal relationship between employment status, unemployment, self-employment or inactivity and people's trust in institutions and others. As described above, the econometric analysis focuses on the evolution of trust and employment status over time among age cohorts of respondents in Europe and Latin America during the past decade, allowing us to capture the cyclical relationship between employment status and trust. In particular, the proposed framework allows us to address the following question: do preceding group-level employment conditions predict the degree (rate) of trust in people and society's institutions, and/or vice-versa? We now turn to describe the econometric methodology that will be used to address these twin issues.

4. Methodology

A Simple Conceptual Framework

The goal of this paper is to estimate the effects of labor market status on trust. A simple model to illustrate the relationship between trust and employment outcomes, and motivate the chosen empirical strategy, can be expressed as follows:

$$y_{i,j,t} = \propto + \beta_1 X_{i,j,t-1} + \beta_2 Z_{i,j,t} + \beta_3 \overline{y}_{j,t} + \beta_4 \overline{y}_{j,t-1} + \varepsilon_{i,j,t} + \theta_{i,j} \qquad (1)$$

This model describes an individual's i (pertaining to social group *j*) trust in institutions or others at time *t* as a linear function of individuals' employment status ($X_{i,j,t}$); individuals' characteristics ($Z_{i,j,t}$); the average trust, at time *t*, among individuals pertaining to group *j* ($\overline{y}_{j,t}$); the one-period lagged value of average trust among individuals pertaining to group *j* ($\overline{y}_{j,t-1}$), capturing the persistence over time of trust perceptions; and $\varepsilon_{i,j,t}$ and $\theta_{i,j}$ as unobserved time-varying and time-invariant, respectively, individual heterogeneity.

While, in principle, the parameter of interest is β_1 -corresponding to the average impact of a change in employment status on trust- this parameter would be very difficult to identify empirically. Even with individual panel data, there would still be unobserved time-varying individual heterogeneity. In this paper, we propose to a model where the relationship between trust and employment status is instead explored across social groups *j*. The aggregation process helps mitigate some of the measurement error present at the individual level and incorporates spillovers from social interactions, as follows:

$$y_{j,t} = \propto + \delta_1 \overline{X}_{j,t-1} + \delta_2 \overline{Z}_{j,t} + \delta_3 \overline{y}_{j,t} + \delta_4 \overline{y}_{j,t-1} + \overline{\varepsilon_{jt}} + \overline{\theta_j} \qquad (2)$$

where $(y_{j,t})$ corresponds to the trust in institutions or others for group *j* at time *t* and it is a linear function of average employment status in the group $(\overline{X}_{j,t-1})$ in the previous period, other average group's characteristics $(\overline{Z}_{j,t})$, the average trust, at time *t*, among individuals pertaining to group *j* $(\overline{y}_{j,t})$; and the one-period lagged value of average trust among individuals pertaining to group *j* $(\overline{y}_{j,t-1})$. $\overline{\varepsilon_{j,t}}$ and $\overline{\theta_j}$ as unobserved time-varying and time-invariant, respectively, group-level heterogeneity.

Since $y_{j,t}$ and $\overline{y}_{j,t}$ are equivalent, (2) becomes:

$$y_{j,t} = \tilde{\alpha} + \tilde{\delta}_1 \overline{X}_{j,t} + \tilde{\delta}_2 \overline{Z}_{j,t} + \tilde{\delta}_4 \overline{y}_{j,t-1} + \tilde{\varepsilon}_{jt} + \tilde{\theta}_j \qquad (3)$$

where $\tilde{\alpha}=\frac{\alpha}{1-\delta_3}$; $\tilde{\delta}_1=\frac{\delta_1}{1-\delta_3}$; $\tilde{\delta}_2=\frac{\delta_2}{1-\delta_3}$; $\tilde{\delta}_4=\frac{\delta_4}{1-\delta_3}$; $\tilde{\varepsilon}_{jt}=\frac{\overline{\varepsilon_{jt}}}{1-\delta_3}$; and $\tilde{\theta}_j=\frac{\overline{\theta_j}}{1-\delta_3}$. The parameter of interest is $\tilde{\delta}_1$.

As it is widely known in the literature, the usual problem with this kind of models is that when trying to deal with fixed effects, an endogeneity problem is introduced. However, in our case this problem does not arise. If $\varepsilon_{i,j,t}$ comes from the same distribution for each cohort in each period, $\overline{\varepsilon_{jt}}$ converges to the mean of that distribution as cohort size increases. If cohorts are large enough, the variance of this mean becomes negligible and can be treated as a cohort fixed effect. This way, the usual problem of dynamic panel does not occur and we can treat this model as the usual panel fixed effect model. This conceptual model is the base for the empirical strategy followed in this paper and described next.

Empirical Strategy

The simplest way to try to estimate the causal relationship between labor market status and trust this is estimating a regression model using OLS. However, this method is not appropriate in our case for two reasons. On the one hand, we suspect that there are unobservable variables that affect trust and

employment status. Observing unemployed people to be less likely to trust others or social institutions or less trusting people to be more likely to be unemployed may simply result from spurious correlations driven by confounding unobserved factors. Examples of such variables are family environments or individual preferences for work and personality factors. These can be considered as fixed across short time spans for an individual, but this cannot be exploited in order to get a good estimation of the effect of labor market status on trust because we do not have panel data. On the other hand, we face the problem of bidirectional causality. As previously mentioned, there are ways in which social cohesion can affect jobs. Trust and social capital (an element of civic engagement) may create an economic and political environment that is conducive to economic growth. Trust can reduce transaction costs and overcome market failures that arise because of uncertainty; it can reduce costs related to search and information, policing and enforcement, and bargaining and decision making; and can be the basis for the transmission and exchange of knowledge and allow for innovation, coordination and cooperation among firms. At the same time, factors such as mistrust, discrimination, fragmentation along ethnic lines, or inequality can cause certain groups to be excluded from labor markets.

Moreover, and as discussed earlier, the formation of perceptions of trust is highly influenced by peer and social interaction effects. This leads to models of behavior with a group structure that can create biases in panel data or other conventional models estimated with individual data. Such biases cannot be easily resolved even with suitable instrumental variables, without further assumptions on the correlation between the outcomes and the effects of the instruments on the endogenous regressor (Kolesar et al 2011).

In this section, we introduce the cohort fixed effects method and argue why it is the best way to deal with these problems taking into account the limitations of our data, which consists of a series of cross-section samples. The strategy employed is based on a fixed effects model with data from a pseudo-panel built based on the original data. In order to deal with the presence of individual

fixed effects, we need to estimate the model using panel data techniques. A way of dealing with bidirectional causality problem is to model simultaneously the relationship between the dependent and independent variables, and estimate that model using time series (like vector auto-regression) and dynamic panel (like panel vector auto-regression) techniques. Unfortunately, these methods are severely affected by the absence of long time series, which results in reducing the estimators' efficiency (precision).

A pseudo-panel is a panel in which each observation corresponds to a cohort in a specific point of time. In our case, we have defined cohort as the set of individuals born in the same year and in the same country. Cohort methods have proved a valuable source of information in dynamic contexts since they provide a good balance between the abundant individual information but short spanned temporal dimension, and the longer span of time-series of highly aggregated country level studies. The first obvious advantage of using pseudo-panels is that it provides a way to obtain a panel structure when just cross-section samples are at disposal. Second, exploiting the pseudo-panel structure can mitigate composition biases that can arise in studies using aggregate variables due, for example, to changes in the demographic and skills composition of the labor force. That is, the pseudo-panel involves the averaging of the unobserved fixed effects, diminishing the potential bias arising from cross-section analyses and thus the possibility to also resort to the estimation of single equation fixed effects models. This also helps mitigate measurement errors in outcome variables (e.g, measures of cohesion) which can obscure relations between the permanent and true transitory components of interest (Antman and Mackenzie 2005). With enough observations per cohort, the aggregation process reduces the variance of the unobservable, making possible to estimate a dynamic (synthetic) panel model with fixed effects without having to use the instrument-based dynamic panel estimators[11]. Finally, the pseudo-panel dataset captures important features of the

[11] Antman and Mckenzie (2005)

formation of perceptions of trust which as noted before are highly influenced by peer and social interactions.

In short, we estimate a panel regression model of contemporaneous trust in government on previous labor status, with controls and cohort fixed effects. The concept of Granger-causality applies, that is, the empirics quantify how preceding changes in group-level employment conditions predict their degree (rate) of trust in social institutions. Exogeneity in this context is defined in terms of changes in the endogenous variables of interest that are orthogonal to each other and other exogenous controls in the model. The coefficients measure how a percentage change in, say, the unemployment rate for a cohort in a given year predicts changes in the percentage of individuals of that same cohort reporting to trust in the subsequent year.

5. Empirical results

As exposed above, in this study we aim at answering two-fold policy-relevant questions regarding whether preceding group-level employment conditions predict the degree (rate) of trust in people and society's institutions, and vice-versa. Poor labor market outcomes are associated with subsequent decreases in trust, but trust can also influence labor market outcomes through a tighter social network and better functioning of formal and informal institutions, leading to lower unemployment and under-employment.

We present results from the cohort fixed effects models, separately for Europe and Latin America (Tables 8-10). For both models, the first panel of the tables focuses on specifications where trust in government is the dependent variable and is regressed on a lagged value of trust and the labor market status (either unemployed or self-employed). The second panel focuses on specifications where the labor market status is the dependent variable, regressed on its lagged value and trust in government.

Table 8. ***Eurobarometer***

Cohort fixed effects regressions for "trust in government" and labor status

Education, age and gender controls as well as year and country FE are included

	Coefficient	St. error		Coefficient	St. error
Trust in government (t)			**Trust in government (t)**		
Trust in government (t-1)	0.432***	(0.0248)	Trust in government (t-1)	0.438***	(0.0246)
Unemployment (t-1)	-0.163***	(0.0590)	Self-employment (t-1)	0.158**	(0.0651)
Unemployement (t)			**Self-employement (t)**		
Trust in government (t-1)	-0.0172**	(0.00777)	Trust in government (t-1)	0.00223	(0.00737)
Unemployement (t-1)	0.723***	(0.0185)	Self-employment (t-1)	0.641***	(0.0195)

Notes: Standard errors in parenthesis. In the Eurobarometer, the question about trust in government is stated as "And what about institutions? Please tell me if you tend to trust it or tend not to trust it. (…) 4. The (nationality) government".

Table 9. ***Latinobarometer***

Cohort fixed effect regressions for "trust in government" and labor status

Education, age and gender controls as well as year and country FE are included

	Coefficient	St. error		Coefficient	St. error
Trust in government (t)			**Trust in government (t)**		
Trust in government (t-1)	0.125***	(0.0356)	Trust in government (t-1)	0.122***	(0.0356)
Unemployment (t-1)	0.183*	(0.0943)	Self-employment (t-1)	-0.131*	(0.0704)
Unemployement (t)			**Self-employement (t)**		
Trust in government (t-1)	-0.0425***	(0.0110)	Trust in government (t-1)	0.0131	(0.0188)
Unemployement (t-1)	0.0714**	(0.0291)	Self-employment (t-1)	0.0371	(0.0371)

Notes: Standard errors in parenthesis. In the Latinobarometer, the question about trust in government is "Please look at this card and tell me, how much you trust in each of the following groups/institutions. Would you say you have a lot, some, a little or no trust? (…) A. The government".

Table 10.*Latinobarometer*

Cohort fixed effect regressions for "interpersonal trust" and labor status

Education, age and gender controls as well as year and country FE are included

	Coefficient	St. error		Coefficient	St. error
Interpersonal trust (t)			**Interpersonal trust (t)**		
Interpersonal trust (t-1)	-0.00590	(0.0337)	Interpersonal trust (t-1)	-0.0232	(0.0355)
Unemployment (t-1)	0.494***	(0.0504)	Self-employment (t-1)	-0.0138	(0.0341)
Unemployement (t)			**Self-employement (t)**		
Interpersonal trust (t-1)	0.00627	(0.0194)	Interpersonal trust (t-1)	-0.00859	(0.0319)
Unemployement (t-1)	0.0764***	(0.0290)	Self-employment (t-1)	0.129***	(0.0307)

Notes: Standard errors in parenthesis. In the Latinobarometer, the question about interpersonal trust is "Generally speaking, would you say that you can trust most people, or that you can never be too careful when dealing with others?".

First, we focus on the determinants of government trust. As expected, there is significant persistence in government trust. For both Latin America and Europe, across specifications, the lagged value of institutional trust is always positive and statistically significant.

The relationship between employment status and trust, however, depends on the context. In Europe, we find that increases in unemployment indeed precede decreases in trust in Europe. Unemployment has a negative coefficient and it is statistically significant at the one percent level. In the Granger causality framework, this would mean that unemployment does cause a reduction in trust. The converse relationship is observed for self-employment: periods of high rates of self-employment precede increases in the level of trust in government. The coefficient is positive and significant to the one percent level. In Latin America, however, the exact opposite process seems to be in place. There, increases in the incidence of unemployment actually precede increases in trust, while increases in self-employment are indicative of lower levels of institutional trust in the following period. Both coefficients are statistically significant to the 10% level.

Therefore, while results in Europe seem to be in line with the existent literature as well as with our own hypothesis –i.e., that higher unemployment rates predict lower levels of trust-, the estimations obtained for Latin America are indeed puzzling. But if we recall at this point what the descriptive statistics indicated, results may not be surprising at all. In fact, in section 3 we had shown that unemployment and self-employment status reflect very different situations in each region, at least in terms of education. In Europe the unemployed represented the least educated group, while the self-employed showed an education pattern quite similar to those employed. Conversely, in Latin America the self-employed group contained the least educated individuals, while the unemployed showed systematically better performance in terms of education. Since in both regions education is highly correlated with broader measures of socio-economic status, these patterns are also likely to reflect region-specific gradients for the relationship between employment status, quality of employment and social cohesion. In Europe, those least advantaged can afford to

remain unemployed, thanks to the extensive safety net system. In Latin America, where formal safety nets are significantly more limited, unemployment is limited only to some and not necessarily the least advantaged. In fact, the cyclical variation in self-employment in this region reflects an exclusion from salaried employment for those unable to find (formal) salaried jobs.[12] As a consequence, poor labor outcomes vary across regions: while in Europe we should be looking at unemployment as the wo0rst scenario, for Latin America self-employment reflects the poorest labor outcome.

In light of this analysis, the results found seem certainly far less puzzling. In Europe, higher unemployment rates in one period have a negative impact in government trust in the following one, while in Latin America this is true for the self-employed. The converse is true for the self-employed. In Europe high levels of self-employment precede high levels of trust in government. In Latin America, instead, high levels of unemployment precede higher levels of government trust.

Secondly, we analyze the inverse direction of the unemployment-trust in government relationship. As has already been stated, trust can also influence labor market outcomes through a tighter social network and better functioning of formal and informal institutions, leading to lower unemployment and under-employment. These results are also broadly consistent with those found when the dependent variable is the level of trust. The relationship between trust and unemployment are similar across regions, and consistent with the existent literature as well as with our hypothesis. Both in Latin America and in Europe higher levels of government trust precede decreases in unemployment. In fact both for Europe and Latin America coefficients are negative and significant to the 5 and 1 percent level.

[12] See Arias and Sosa (2009) showing that self-employment that reflects exclusion from more desirable salaried jobs responds to the economic cycle; in contrast, the self-employment that is voluntary ("exit") is rather persistent over time.

Finally, we concentrate in the results in terms of unemployment and interpersonal trust, available only for the Latin American case. Once again, results seem puzzling at first sight: higher rates of unemployment predict higher interpersonal trust in the following period. The coefficient is positive and significant to the 1% level. In light of our previous analysis, however, we know that in order to analyze poor labor market outcomes in Latin America we should be focusing in self-employment rather than in unemployment. In fact, the relationship between self-employment and interpersonal trust is negative, indicating that periods marked with high rates of self-employment are followed by lower levels of interpersonal trust. This is consistent with the evidence found in terms of government trust, although the coefficient for self-employment is not significant.

In short, results indicate that the relationship between trust and employment status does exist, but it is very context-specific. In contexts where unemployment does in fact reflect "exclusion" from labor markets, like in Europe, increases in unemployment do seem to precede decreases in trust. In contrast, in contexts like those in Latin America, where unemployment is low and not necessarily concentrated among the worse-off, it is under-employment that may lead to lower trust. To the extent that self-employment reflects underemployment and/or exclusion in the region, this could explain the negative causal relationship we find between self-employment and trust. Self-employment in Latin America has been shown to reflect a mix of valued jobs for those "exiting" from the reach of state institutions and employment of last resort for those unable to find formal salaried jobs (Perry et al 2007). This highlights that in emerging economies contexts, the type of job, the opportunities the job provides, and the way jobs connect people to the state and with other people may be more relevant for social cohesion.

6. Conclusions

The interrelation between trust and jobs takes place in a highly interactive context where empirical evidence and existing theories are not conclusive about mutual interrelations. This paper

implements a cohort fixed effects approach to study the dynamic interactions between trust and employment status. The very short time span of panels based on household level data is overcome by constructing cohorts of individuals that can be followed over long periods. Besides, the aggregation process implicit in the construction of cohort level variables helps mitigate measurement errors present at the individual level. We know of no other study that uses this approach for the analysis of trust and jobs.

The results obtained show that employment status changes do precede changes in trust. However, which state of employment matters is very context- specific. That is, where unemployment is indicative of a poor labor outcome (such as in Europe), higher unemployment rates precede lower levels of institutional trust and vice-versa. In Latin America, the relationship between unemployment and institutional trust is the inverse and certainly not in line with the existent literature. When considering the particular context, however, this becomes consistent with our hypothesis: in Latin America, cyclical self-employment reflects the poorest labor outcome, rather than unemployment. And in fact, when looking at self-employment we obtain similar results to those found in Europe for unemployment: higher levels precede lower rates of institutional and interpersonal trust and vice-versa.

As expected, we also find evidence of changes in trust influencing labor market outcomes within cohorts over time. Both in Latin America and in Europe higher levels of government trust precede decreases in cyclical unemployment. As discussed in the paper, this could reflect the importance of social networks and trust in institutions in improving individuals' access to economic opportunities both in salaried or self-employment.

In light of the scarcity of time-series based studies of trust and jobs at the micro level, the results of this paper offer new light to this literature that spans sociology, political science, and economics. Future studies for other countries could corroborate the findings and subject to more

detailed robustness analysis. In particular, it would be interesting to explore whether panel regression results differ when the sample is split into possibly heterogeneous groups like individuals with high and low education. In further extensions of this work it would be interesting to investigate with more detail the role of these and other unmeasured individual factors and their interactions in the interrelation between trust and employment status.

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Table A.1 - Pseudo-individual construction. Example: France (*Eurobarometer*)

Decade of Birth	cohort	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
20-29	**1**	44	17	32	12	0	0	0	0	0	0	105
30-39	**2**	191	116	224	254	227	305	177	184	152	117	1,947
40-49	**3**	239	110	227	235	272	420	316	300	281	290	2,690
50-59	**4**	320	158	362	305	297	488	294	327	332	332	3,215
60-69	**5**	424	209	405	356	339	479	332	324	305	321	3,494
70-79	**6**	387	161	320	335	341	487	308	327	333	345	3,344
80-89	**7**	171	131	263	292	261	403	254	280	238	243	2,536
90-99	**8**	0	0	0	0	20	46	57	70	91	105	389
Total		1,776	902	1,833	1,789	1,757	2,628	1,738	1,812	1,732	1,753	17,720

Table A.2 – Correlation among trust in institutions variables

Eurobarometer	**Trust in justice**	**Trust in political parties**	**Trust in government**	**Trust in parliament**
Trust in justice	1			
Trust in politicalparties	0.3336	1		
Trust in gov'nt	0.4003	0.4871	1	
Trust in parliament	0.4365	0.4845	0.7249	1

	Trust in justice	**Trust in political parties**	**Trust in government**	**Trust in parliament**
Trust in justice	1			
Trust in politicalparties	0.3693	1		
Trust in gov'nt	0.3475	0.3188	1	
Trust in parliament	0.4618	0.414	0.4065	1

T**able A.3 – Employment Status –*Eurobarometer***

Employment Status: *Eurobarometer* (2010)					
Country	**Non-active**	**Self-employed**	**Employed**	**Unemployed**	**Total**
France	38.51	4.28	49.23	7.99	100
Belgium	39.54	6.63	43.76	10.08	100
The Netherlands	38.86	10.52	45.82	4.8	100
Italy	38.34	15.42	42.09	4.15	100
Luxembourg	42.76	5.2	47.85	4.19	100
Denmark	37.28	5.59	50	7.13	100
Ireland	38.09	7.67	40.9	13.34	100
Greece	38.84	23.14	29.05	8.97	100
Spain	35.63	7.55	37.15	19.67	100
Portugal	36.56	6.55	42.11	14.78	100
Finland	42.22	6.7	45.35	5.73	100
Sweden	36.55	6.19	52.16	5.1	100
Austria	31.18	7.05	57.1	4.66	100
CzechRepublic	31.04	9.03	51.67	8.26	100
Estonia	38.64	6.61	45.54	9.21	100
Hungary	43.58	4.94	38.7	12.78	100
Latvia	36.14	5.35	40.72	17.79	100
Lithuania	38.1	4.55	40.6	16.75	100
Malta	58.5	4.06	34.14	3.3	100
Poland	46.73	9.61	34.59	9.07	100
Slovakia	29.03	7.35	54.68	8.94	100
Slovenia	46.92	9.32	33.78	9.98	100
Bulgaria	35.72	5.45	43.34	15.48	100
Romania	46.72	6.13	38.63	8.52	100
Turkey	59.32	11.92	19.45	9.32	100
Croatia	41.37	5.15	36.79	16.69	100
Macedonia	37.73	7.03	26	29.23	100
Iceland	34.4	11.32	50.96	3.31	100
Germany	39.44	7.44	44.28	8.83	100
UK	39.41	6.37	43.42	10.8	100
Cyprus	40.41	8.5	42.7	8.39	100
Total	39.53	7.87	41.98	10.62	100

Table A.4 – Employment Status - *Latinobarometer*

Employment Status: *Latinobarometer* (2009)					
Country	**employed**	**self-employed**	**unemployed**	**Inactive**	**Total**
Argentina	31.83	23.62	5.02	39.53	100
Bolivia	15.69	46.04	4.18	34.1	100
Brazil	25.71	40.02	6.17	28.11	100
Colombia	20.59	30.02	11.87	37.52	100
Costa Rica	33.99	20.69	8.63	36.69	100
Chile	37.16	15.16	6.75	40.93	100
Ecuador	22.77	39.13	3.9	34.2	100
El Salvador	22.14	37.01	8	32.85	100
Guatemala	16.34	46.72	5.1	31.84	100
Honduras	18.53	32.71	10.56	38.2	100
Mexico	24.66	31.44	7.13	36.77	100
Nicaragua	19.19	40.46	7.09	33.26	100
Panama	27.22	24.61	10.22	37.96	100
Paraguay	24.29	42.49	4.55	28.67	100
Peru	17.41	43.09	3.24	36.26	100
Uruguay	35.06	19.62	8.72	36.6	100
Venezuela	26.89	26.8	4.21	42.1	100
Spain	40.85	10.5	16.38	32.27	100
Dominican Republic	27.39	34.09	7.93	30.59	100
Total	26.52	30.68	7.74	35.07	100