The Impact of the crisis on unemployment and income distribution: the case of Italy

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Abstract

      The financial crisis has significantly increased unemployment rates with differential effects on living standards. Our objective in this paper is to analyse the effect on income inequality in the Italian labour market. We will construct a microsimulation analysis into the impact of the crisis on household income, unemployment, and inequality using the European Statistics on Income and Living Conditions Survey, Italian Labour Force Survey data.

      In this regard, we will consider the effect of joblessness on household income and well-being and the impact of different systems of unemployment benefit on unemployment sustainability. Our focus is not only on the pecuniary dimension of well-being, but also the socio-economic impact of unemployment. On the latter we can provide an estimate of cost in terms of limited access to medical tests and dental treatment, and on the perception of not making ends meet for the Italian unemployed compared to their previous employment status.

      The first section of the paper will briefly address the characteristics of the Italian labour market before and after the crisis. The second section will present the data that will be used to carry out the empirical analysis. Our findings from the multivariate analysis on the costs of unemployment in Italy before the crisis are shown in Section 3 while the methodologies used to microsimulate the effect of the crisis on income distribution and income poverty in Italy together with results of their application will be presented in Section 4. The final section will suggest ameliorative policies based on our findings, and draw the conclusions.

Introduction[1]

The current financial crisis is the most severe since the Great Depression. Given the severity of the crisis, it is important to analyze both the short-term cyclical effects on families and individuals and also the long-term effects on investment and economic growth.

In this paper we will analyze the short-term socioeconomic effects of high unemployment, while at the same time delineating potential factors affecting long-term growth. Our focus is on the Italian labour market. The first section of the paper will discuss its characteristics; the second section will present the data used to carry out the estimation, while the methodologies used to test the impact of the crisis are discussed in Section 4. Section 3 and 4 present results from multivariate and microsimulation analyses on the costs of unemployment while the last section will offer concluding observations and policy suggestions.

1. The impact of the crisis on the Italian labour market

The Italian labour market is deeply divided in terms of regional differences between the South and the Centre-North.[2] The former has historically had much higher unemployment rates and inactivity rates than the Centre-North. Furthermore, the South has much higher long-term and youth unemployment. In the year 2007, 15.5% of youths under 25 were unemployed in the EU-27, against 20.3% in Italy. For individuals in the 25-29 age group, higher education does not reduce the risk of being unemployed: the unemployment rate is 11% for those with a low level of educational attainment, 8.6% for those with a medium level of educational attainment and 14% among those with tertiary education (Eurostat, 2009). Italy is also characterized by a wider diffusion of the black market economy, constituting on average 11.7 of the total labour (against a 5% average in other EU-15 countries) with a higher incidence of irregular labour in the South of Italy: in 2004 compared to the overall level of employment it ranged from 7.5% in the Emilia Romagna region to 26.2% in the Calabria region (Cappariello and Zizza, 2009; European Commission, 2004).

[2] On the persistence of these regional disparities, see Svimez (2007).

The Italian labour market is characterized by a high degree of trade union density and union coverage. However, the degree of trade union density has decreased in Italy from 50% in 1980 to 33.3% in 2007 (www.oecd.org).

Since 1996, the non-standard share of Italian employment (including short-term contracts) has significantly increased. According to ISTAT data (2009a), 13.3 percent of employees in 2008 were on short-term contracts, with a higher diffusion of temporary work amongst women (15.6% of women employees) and the young (23.7% of employees under 34 are in temporary jobs) (ISTAT, 2009a, p.242).

Compared to other countries, Italy is characterized by lower activity rates (Table 1). Though on the increase compared to 1994, in 2007 women's activity rate in Italy was on average 50.7 percent, compared to 64.5 percent in the EU-15.

Table 1 – Labour force participation rates 1994-2007, women and men aged 15-64

	1994		2007	
	M	F	M	F
USA	84.3	69.4	81.7	69.1
Italy	74.2	41.9	74.4	50.7
Euro-15	78.4	56.5	79.5	64.5
OECD	81.4	57.8	80.5	61.1

Source: Table B, OECD Employment Outlook 2008, 337-338.

Turning to employment rates (Table 2), in Italy the employment rate among women aged 15-64 in 2007 was 46.6% against 70.7% for men: a 24% gap to women's disadvantage. This compares to a gender gap in employment rates which is on average 14% in the EU-27 and 19% in OECD countries, and as little as 12% in the USA.

Table 2 – Employment rates 1994-2007 women and men aged 15-64

	1994			2007		
	M	F	gender gap	M	F	gender gap
USA	79	65.2	14	77.8	65.9	12
Italy	67.8	35.4	32	70.7	46.6	24
Euro-27				72.5	58.3	14
OECD	75.4	52.9	23	76	57.5	19

Source: www.oecd.org statistical data base.

1.2 – The effect of the crisis on the Italian labour market

Table 3 shows the OECD harmonized unemployment rates from 2006 until the first quarter of 2009. The change in the unemployment rate since December 2007 was 1% in Italy, compared to 4.6 percent in the US. According to OECD forecasts, the unemployment rate in 2010 (fourth quarter) will be 10.5% in Italy and 10.1% in the USA (OECD, 2009, p.27). The most recent data available for Italy are based on the monthly data of the provisional labour force survey, and show an 8.8% unemployment rate in Italy in March 2010 (Istat, 2010) below the 10% average in the Eurozone (http://epp.eurostat.ec.europa.eu/) although with a higher level for women (10.2%: 1.3% higher than in March 2009 compared to a female unemployment rate of 10.1% in the Eurozone) and a lower level among men (7.8%, with an increase of 0.8% since March 2009, compared to the 10% unemployment rate for men in the Eurozone).

The increase in unemployment rates in Italy has been particularly high amongst the young. The unemployment rate for individuals aged between 15 and 24 in Italy was 26.3% in the first quarter of 2009 (Eurostat, 2009). This unemployment rate was higher than the EU average of 18.9%, though lower than Spain (where it reached 35.7% in the first quarter of 2009) (Eurostat, 2009). The increase in the 15-24 unemployment rate by 5% in the first quarter of 2009 was the highest increase since 1992. This increase may be linked to the reduced number of hirings and the low number of temporary contracts renewed (Bank of Italy, 2009). Increased youth unemployment entails a significant long-term cost since it can make acquired human capital deteriorate and discourage the search for further employment (Sen, 1997).

In Italy, the already low activity rate has decreased particularly in the South (Bank of Italy, 2009b). The March 2010 provisional labour force survey data indicate that the inactivity rate for women aged 15-64 is 48.9%, compared to 26.5% among men in the same age group with an increase in inactivity rates by 0.6% since March 2009 among men and by 0.3% for women (Istat, 2010).

The number of workers accessing redundancy funds has increased. According to National Social Insurance Institute data, in the second quarter of 2009 the number of hours paid by the redundancy fund increased by 60% on the first quarter, with the highest increase since 1985 in the number of employees covered by this fund who are not statistically counted amongst the unemployed (Bank of Italy, 2009b). The number of the redundancy hours authorized by the National Institute of Social Security (INPS) increased by 311.4% from 2008 to 2009 (INPS data).

The highest increase in 2009 was in the metallurgic sector (+866%) followed by the mechanical (+449%), woodworking (+425%), trade (+410%), transport and telecommunications (+397%), mineral and non-metal mineral working (+335%), services (+335%) and mining (+328%) (INPS data). Computing employees receiving redundancy payouts amongst the unemployed, the unemployment rate in northern-central Italy increases by 1.4% and in the South by 0.7 percent (Bank of Italy, 2010). If one included the unemployed who were not actively seeking a job in the four weeks prior to the interview but before (having been discouraged) and redundancy fund beneficiaries, the Italian unemployment rate in the second quarter of 2009 would have increased to 10.2% instead of 7.4%. The increase due to computation of redundancy fund beneficiaries is estimated to account for 1.2%, while computing also the discouraged would have accounted for a 1.6% increase (Bank of Italy, 2010).

Table 3 - OECD-harmonized unemployment rates 2006-2009 (first quarter)

	2006	dec.2007	2007	2008	2009 q1	% of increase since dec.07
USA	4.6	4.6	4.6	5.8	8.1	4.6
Italy	6.8	6.4	6.1	6.8	7.4	1
Eurozone	8.3	7.3	7.5	7.6	8.8	2.1
OECD	6.2	5.6	5.7	6	7.5	2.7

Source: Table 1.1 OECD Employment Outlook 2009, p.25

Table 4 - Long-term unemployment rates (12 months and over) as percentages
of the male and female unemployed.

	1994		2005		2006		2007		2008	
	M	F	M	F	M	F	M	F	M	F
Italy	59.6	63.3	50.5	53.8	50.8	54.8	47.3	52.3	44.9	49.9
USA	13.9	10.2	12.6	10.8	10.7	9.2	10.7	9	10.9	10.3
EU 15	46.9	50	43.6	44.6	45.2	44.1	42.3	41.6	38.3	39
Oecd	34.9	36.2	32.7	32.8	32.3	32	29.1	29.1	25.4	26.5

Source: Selection from OECD
(2009) Table G p.272.

The incidence of long-term unemployment (over 12 months), though decreasing, is higher in Italy than the OECD average. Table 4 indicates that in 2008 almost 45% of men and almost 50% of women unemployed in Italy are long-term unemployed compared to 25.4% of men and 26% of women in the OECD countries. The percentage of long-term unemployed in Italy in 2008 was also higher than the EU-15 average. On average, long-term unemployment rates for women are higher than for men in Italy.

The unemployment benefit system in Italy is characterized by inequalities rooted in differences in the conditions of eligibility and in the different duration and degree of coverage (Anastasia, Mancini and Trivellato, 2009). The share of contributory unemployment benefit as compared to previous earnings may range from 80% for ordinary and special wage supplementation funds to 40% for ordinary unemployment benefit after the eighth month of unemployment.

Since eligibility requires previous employment, there is on average a relatively low degree of coverage. According to OECD data, the net replacement rate during the first year of unemployment in 2007 was 37% in Italy, with a five-year average of 7% against a median of 28% (from 72% in Norway to the lowest rate found in the USA and Korea) (OECD, 2009, Table 1.6 p.76). In Italy there is a high variation in the degree of coverage of the system of unemployment benefits according to the type of contract: amongst permanent employees about 96% would be subsidized, compared to 70% of fixed-term contract workers and about 17% of external collaborators (Bank of Italy, 2009 a).

Despite the recent extension of the redundancy system, of ordinary unemployment benefit to fired apprentices with a minimum of three months' tenure, the inclusion of tenure in the eligibility for ordinary unemployment benefits along with employment as collaborators and provisions for the subgroups of external collaborators introduced by the Italian government (laws 2/2009; 33/2009 and 191/2009), the Bank of Italy's simulations (based on EU SILC and ISTAT labour force survey data) show that about 1.6 million employees or those under collaboration contract would not have access to unemployment benefit in the case of redundancy or contract interruption (Bank of Italy, 2009a). Berton, Richiardi and Sacchi (2009) carried out a simulation based on the National Social Security Institute (INPS) microdata, showing that from between 1.5 to 2 million workers will not be eligible for unemployment benefit if they lose their jobs.

The aim of this paper is to analyse the costs of unemployment in Italy (Section 3) and, given the current non-availability of data on income, we aim to use microsimulation techniques in order to estimate the costs of unemployment in terms of income inequality and income poverty (Section 4).

2. The Data

For the purpose of investigating the short-term socioeconomic effect of the current financial crisis, we have used two different sources of data: the European Union Statistics on Income and Living Conditions for Italy (IT SILC) referring to year 2007, and the Italian Labour Force Survey (LFS) for year 2009.

IT SILC data provide detailed information on socioeconomic individual and household characteristics, with particular attention to income, poverty and social exclusion issues. Thus, IT

SILC represents a key instrument for assessing the effect of unemployment in terms of income poverty, but also of access to health services and so on. Furthermore, as the EU SILC survey is conducted in almost all EU Member States,[3] it constitutes a key instrument for improving cognition in a cross-national comparative perspective. The latest available IT SILC data represent a sample of 20,982 households and 52,772 individuals and refer to the year 2007, i.e. to the pre-crisis period, as these data are made known with a long delay.

Therefore, we need additional information to carry out a micromisulation analysis and estimate the effect of the increase in unemployment following the financial crisis. This information is drawn from the Italian Labour Force Survey provided by ISTAT, the Italian National Institute of Statistics, and represents the main data source on the features of the Italian labour market. Apart from socio-demographic individual and household data, it collects information on the current and previous employment situation and characteristics: economic sector, working time, type of contract, on-the-job training and income level. Data are made available on a quarterly basis, but, since 2004, they have been collected during every week of the quarter. In order to carry out the microsimulation procedure, we use data from the third quarter of 2009, based on 66,333 households and 156,258 individuals.

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[3] The EU-SILC sample for 2007 consists of the following countries: Belgium, the Czech Republic, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, the Netherlands, Austria, Poland, Portugal, Slovenia, Slovakia, Finland, Sweden and the United Kingdom, among the EU countries, and Norway and Iceland among the non-EU countries. From the EU-27 Member States, only Belgium and Romania are missing.

3. **The experience of unemployment in Italy**

In this section, we examine a multivariate analysis carried out to estimate the effect of joblessness on household income and well-being, and the impact of previous employment status (and related unemployment benefit) on unemployment sustainability. Our focus is not only on the pecuniary dimension of well-being, but also the socio-economic impacts of unemployment.

A direct cost of unemployment is the loss of income. Italian unemployment benefits are very fragmented and this can produce different costs according to one's prior employment status. OECD (2009) analysis on the ability of the social transfer system to alleviate poverty indicates that in Italy the alleviation of poverty focuses more on jobless householders than on working households.

The latest available EU SILC – European Union Statistics on Income and Living Conditions for Italy (IT SILC 2008) refer to 2007 income levels and report on the difficulties experienced by families in the 12 months preceding the last quarter of 2008. Preliminary results indicate an increase in the number of households experiencing greater difficulties in making ends meet (17% in 2008 against 15.4% in 2007); with worse figures in the South of Italy (from 22% in 2007 to 25.6% in 2008) whereas it is stable and lower in the Centre (14.3%) and North (12.6%) (ISTAT, 2009c).

We extend our analysis to the increased probability of the unemployed being income-poor. For this purpose we estimate a probit model using IT SILC 2007 microdata. The results in Table 5 indicate that unemployment increases the probability of being defined as income poor (when the equivalised disposable income is less than the poverty threshold: 60% of median equivalised disposable income[4]). The probability of being income-poor significantly increases amongst those unemployed who have previously been self-employed (+27%). Those who were formerly employees, though experiencing an increase in the probability of being defined income-poor, show a lower probability of being income-poor than other unemployed; the probability of slipping into poverty increases by 8% in this case. The probability of being income-poor if unemployed and having never worked increases by 16%, while for the inactive the poverty probability increases by

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[4] Equivalised total disposable household income obtained by using the modified OECD equivalence scale.

2%. The higher income probability of poverty for the unemployed who were previously self-employed may be linked to the inclusion in this group of self-employed without employees or to those who were in non-standard collaboration contracts with less or no unemployment protection and a lower level of income.

Table 5 – Probability of being income-poor

Probability of being income-poor		
	Coefficients (robust z)	Marginal effects
Age	0.045**	0.01
	(6.13)	
Age squared	-0.001**	-0.0001
	(6.88)	
Female	-0.083**	-0.02
	(2.99)	
Married or cohabiting	-0.192**	-0.04
	(4.65)	
Separated or divorced	0.247**	0.06
	(4.43)	
Widowed	0.032	0.01
	(0.36)	
Secondary	-0.293**	-0.06
	(7.40)	
High school	-0.634**	-0.13
	(15.46)	
Tertiary	-1.060**	-0.15
	(17.04)	
Part-time	-0.416**	-0.09
	(8.44)	
Unemployed previously self-employed	0.864**	0.27
	(6.35)	
Unemployed previously employees	0.301**	0.08
	(4.34)	
Unemployed never employed before	0.563**	0.16
	(6.80)	
Inactive	0.097*	0.02
	(1.98)	
Chronically ill	0.061	0.01
	(1.67)	
At least one child under 6	0.287**	0.07
	(7.03)	
At least one child aged from 6 to 14	0.255**	0.06
	(8.14)	
At least one child aged from 15 to 17	0.295**	0.07
	(8.34)	
South	0.780**	0.19
	(30.75)	
Constant	-1.475**	
	(9.91)	
Observations	33423	

We then went on to measure poverty by using a subjective index based on the perception of difficulties in making ends meet as stated by the individual. For this purpose we designed an ordered probit model to highlight the effect of unemployment taking into account family, personal and regional variables. As estimates in Table 6 show, greater difficulties are perceived by the unemployed in making ends meet, with the effect being higher for the unemployed who were formerly self-employed. These results are consistent with the limited coverage of the Italian system of unemployment benefit as discussed in the previous section.

Table 6 – Probability of making ends meet

	Ordered Model on ability to make ends meet[5]
Age	-0.029**
	(8.32)
Age squared	0.000**
	(10.88)
Female	0.016
	(1.24)
Married or cohabiting	0.067**
	(3.70)
Separated or divorced	-0.237**
	(8.93)
Widowed	-0.138**
	(3.08)
Secondary	0.191**
	(9.34)
High school	0.503**
	(24.37)
Tertiary	1.018**
	(40.82)

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[5] The variable on the perceived ability to make ends meet takes the following values: 1 with great difficulty; 2 with difficulty; 3 with some difficulty; 4 fairly easily; 5 easily; 6 very easily.

Part-time	0.199**
	(8.29)
Unemployed, previously self-employed	-0.758**
	(9.35)
Unemployed, previously employees	-0.375**
	(9.48)
Unemployed, never employed before	-0.296**
	(5.90)
Inactive	0.083**
	(3.30)
Chronically ill	-0.221**
	(12.58)
At least one child aged under 6	-0.029
	(1.49)
At least one child aged from 6 to 14	-0.101**
	(6.61)
At least one child aged from 15 to 17	-0.145**
	(8.00)
South	-0.407**
	(32.37)
Constant	
Observations	33423

Robust z statistics in parentheses * significant at 5%; ** significant at 1%

In order to account for different dimensions in the costs of being unemployed, we analysed the probability of having unmet medical or dental needs. Previous studies have outlined how one of the costs of joblessness is related to poorer health (Sen 1997a, 1997b). Our analysis shows that the unemployed have a higher probability of not having access to medical or dental checkups or treatment since they are considered too expensive, and that the result differs according to their previous employment status. In fact, this probability increases by 6% for those unemployed who were previously self-employed and by 3% if they were previously employees (Table 7).

Table 7 – Probit model on the difficulties in accessing medical and/or dental Examination or treatment

	Coeff.	Marg. Effects
Age	0.020*	0.02
	(2.31)	
Age squared	-0.000	-0.00002
	(1.69)	
Female	0.083**	0.01
	(2.61)	
Married or cohabiting	-0.027	-0.003
	(0.57)	
Separated or divorced	0.244**	0.03
	(3.76)	
Widowed	0.233*	0.03
	(2.52)	
Secondary	-0.186**	-0.02
	(4.04)	
High school	-0.346**	-0.04
	(7.26)	
Tertiary	-0.773**	-0.06
	(11.47)	
Part-time	-0.213**	-0.03
	(3.80)	
Unemployed, previously self-employed	0.406**	0.06
	(2.85)	
Unemployed, previously employees	0.190*	0.03
	(2.47)	
Unemployed, never employed before	-0.049	-0.006
	(0.46)	
Inactive	-0.240**	-0.03
	(4.16)	
Chronically ill	0.459**	0.07
	(12.86)	
At least one child aged under 6	0.042	0.005
	(0.87)	
At least one child aged from 6 to 14	0.139**	0.017
	(3.79)	
At least one child aged from 15 to 17	0.197**	0.026
	(4.62)	
South	0.206**	0.004
	(7.03)	
Constant	-1.810**	
	(10.52)	
Observations	33423	

Robust z statistics in parentheses
* significant at 5%; ** significant at 1%

4. The effect of increased unemployment on poverty rates and income distribution

We outlined the costs of being unemployed in the previous section in terms of income poverty and the difficulties in making ends meet, outlining also the costs connected to having limited access to dental and medical care services and treatments. However the above analysis is based on IT SILC 2007 data which, though allowing us to measure the costs connected with unemployment, does not account for the effect of the crisis on income distribution and poverty probability. EU-SILC data provide detailed individual and household socio-economic characteristics that must be taken into account when analysing the broad impact of the financial crisis. However, EU-SILC data, although collected every year, are usually released with a long delay, and up to now only data for the year 2007 are available. Given the current non-availability of data on income, in order to proceed with the analysis we had to turn to microsimulation techniques.

4.1 – Microsimulation methodologies to estimate the impact of the crisis on income distribution

Two ways to microsimulate the impact of the crisis on income distribution were followed: reweighting and imputation of unemployment probability.

An important econometric tool for microsimulation modelling, which may be used when cross-sectional data are not available, is represented by the calibration approach. Within this framework, researchers can use auxiliary information on the changes that have taken place in the population to re-weight their data. In our case, we use the Italian Labour Force Survey, which collects information about Italian labour market behaviour and is released a short time after data collection. Using this dataset, through the re-weighting procedure, we may simulate changes in the aggregate Italian unemployment rate. The underlying strategy is straightforward. Sampling weights are needed in empirical analyses for making sample data conform to the population distributions of relevant characteristics (for example age, gender, race). The calibration approach consists in computing new weights, which minimize the distance compared to the starting weights, while adjusting the sample distribution to the new unemployment rates underlying the new scenario and preserving the sample distribution compared to other key variables.

The basic theory for calibration is provided by Deville and Särndal (1992). A complete review of the new techniques of the re-weighting approach may be found in Estevao and Särndal (2006).

EU-SILC data provide both household and individual weights. We chose to apply the calibration strategy to the former, as we are interested in estimating the effect of unemployment on the well-being of the whole household and not only of the individual. Using this procedure, we end

up with the EU-SILC sample for 2007, for which two different sets of weights are available. Using the starting weights, we conformed our data to the 2007 population, while using the calibrated weights, we obtained those for the 2009 population.

The variables we maintained in the re-weighting procedure are the following: area where the family lives, number of household components, gender, educational level and age group of the family members.

Together with re-weighting, another technique based on the imputation of unemployment probability and simulated unemployment benefit was followed to obtain a new simulated income measure to evaluate the costs of the crisis and joblessness in terms of income distribution. In order to simulate the effect of increased unemployment on income distribution and poverty rates, we imputed to each record of IT SILC07 the probability of being unemployed having been previously employed, estimated on the third quarter data of the Italian labour survey (Table 8), on the hypothesis that people who were unemployed in IT SILC07 would also be unemployed in 2009. To account for gender differences in the probability of becoming unemployed, the model was estimated separately for women and men. Unlike men, women aged 35 to 39 were statistically significantly more likely to become unemployed in 2009, while this likelihood significantly decreases for both groups for workers older than 55. Higher education reduces the likelihood of becoming unemployed, while the probability of becoming unemployed increases by 0.2% for women and 1.2% for men if they live in the South of Italy. Turning to the impact of the type of sector, marginal effects show a 3% increase in the probability of becoming unemployed for men employed in the construction sector and 2% if employed in the real estate sector. The probability of becoming unemployed is higher in blue-collar, and unskilled work positions for both men and women, yet unlike men, women in scientific and highly skilled positions show an increase of 2.3% in their probability of being made unemployed.

Table 8 – Probability of becoming unemployed in 2009 III quarter

Variables	Men		Women	
	Coeff.	marg. at means	Coeff.	marg. at means
15-19	-0.875**	-0.019	-0.641**	-0.008
	(6.38)		(4.59)	
20-24	0.012	0.001	0.035	0.001
	(0.17)		(0.42)	
25-29	0.049	0.002	0.062	0.002
	(0.78)		(0.88)	
30-34	0.013	0.001	0.069	0.002
	(0.21)		(1.08)	
35-39	0.079	0.004	0.185**	0.005
	(1.51)		(3.31)	
55-59	-0.149*	-0.006	-0.443**	-0.007
	(2.32)		(4.41)	
60-64	-0.458**	-0.014	-0.695**	-0.009
	(5.33)		(5.54)	
Tertiary	-0.220**	-0.008	-0.163*	-0.003
	(2.72)		(2.03)	
High school	-0.113**	-0.005	-0.175**	-0.004
	(2.69)		(3.22)	
Agriculture	-0.039	-0.002	-0.232	-0.004
	(0.42)		(1.95)	
Manufacturing	0.299**	0.016	0.232**	0.007
	(4.20)		(2.92)	
Construction	0.473**	0.031	0.203	0.006
	(6.35)		(1.06)	
Trade	0.265**	0.015	0.138	0.004
	(3.37)		(1.76)	
Hotels	0.262*	0.015	0.202*	0.006
	(2.34)		(2.33)	
Transport	0.291**	0.017	-0.072	-0.002
	(2.99)		(0.49)	
Financial	0.292*	0.017	0.136	0.004
	(2.22)		(0.85)	
Real estate	0.335**	0.020	0.052	0.001
	(3.81)		(0.61)	
Other sectors	0.223*	0.012	-0.000	0.000
	(2.26)		(0.00)	
Scientific and highly-skilled positions	0.044	0.002	0.553**	0.023
	(0.38)		(4.09)	
Technical positions	0.041	0.002	0.518**	0.019
	(0.47)		(5.23)	
White-collar	0.223*	0.012	0.642**	0.028
	(2.27)		(6.11)	
Skilled in Trade and services	0.222*	0.012	0.771**	0.036
	(2.49)		(8.10)	
Craft, skilled blue-collar, agric.	0.317**	0.017	0.757**	0.040

	coeff.	Marginal eff.	coeff.	Marginal eff.
	(3.97)		(6.37)	
Machine operators and semiskilled blue collar	0.175	0.009	0.699**	0.036
	(1.87)		(5.49)	
Unskilled	0.567**	0.042	0.899**	0.052
	(6.57)		(9.44)	
Army	-0.520*	-0.014		
	(2.30)			
South	0.241**	0.012	0.100*	0.002
	(6.92)		(2.40)	
Married	-0.223**	-0.010	-0.298**	-0.007
	(5.35)		(6.70)	
Self-employed collaborator	-0.260**	-0.010	-0.083	-0.002
	(5.13)		(1.21)	
Constant	-2.210**		-2.482**	
	(29.20)		(30.64)	
Observations	47359		49455	

Robust z statistics in parentheses
* significant at 5%; ** significant at 1%

Source: Our elaborations on ISTAT Labour Force Survey Data 2009

Taking into account the higher probability of receiving wage supplementation during the current crisis (as outlined in Section 1), the same set of microdata was used in order to estimate the probability of being employed but on a wage supplementation scheme. This is a condition that is not defined as unemployment in labour force surveys but that is found to reduce current income and induce uncertainty on future labour market conditions. The probability of receiving wage supplementation does not increase in the South, and it is significantly higher for men in various employment sectors. Currently, being employed in manufacturing increases the probability of receiving wage supplementation by 7% for men and 2.7% for women.

Table 9 – Probability of being on a wage supplementation fund scheme

	Men		Women	
	coeff .	Marginal eff.	coeff .	Marginal eff.
15-19	-0.605	-0.002		
	(1.59)			
20-24	-0.194	-0.001	-0.332	0.000
	(1.51)		(1.32)	
25-29	-0.351**	-0.001	-0.432**	0.000
	(3.23)		(2.82)	
30-34	0.003	0.000	-0.099	0.000
	(0.03)		(0.99)	
35-39	0.044	0.000	-0.229*	0.000
	(0.61)		(2.06)	
55-59	-0.055	0.000	-0.198	0.000
	(0.65)		(1.62)	
60-64	-0.450**	-0.001	-1.052**	-0.001
	(3.03)		(3.07)	

Tertiary	0.042	0.000	-0.024	0.000
	(0.29)		(0.13)	
High school	0.042	0.000	0.090	0.000
	(0.76)		(1.01)	
Energy Industry and Extraction	0.638	0.008	0.410	0.001
	(1.88)		(1.22)	
Manufacturing	1.939**	0.069	1.554**	0.027
	(7.35)		(6.55)	
Construction	1.182**	0.027		
	(4.27)			
Trade	1.420**	0.046	1.025**	0.008
	(5.25)		(3.68)	
Hotels	0.149	0.001	0.274	0.001
	(0.39)		(0.78)	
Transport	0.924**	0.016	1.060**	0.011
	(3.22)		(3.80)	
Real estate	1.094**	0.026	0.819**	0.005
	(3.82)		(3.13)	
Other sectors	0.625	0.008	0.329	0.001
	(1.77)		(0.96)	
Scientific and highly-skilled positions	0.093	0.001	0.213	0.000
	(0.30)		(0.49)	
Technician positions	0.452	0.004	0.239	0.001
	(1.62)		(0.70)	
White collar	0.536	0.005	0.266	0.001
	(1.81)		(0.76)	
Skilled in Trade and Services	0.427	0.004	0.098	0.000
	(1.42)		(0.25)	
Crafts, skilled blue-collar	0.565*	0.005	0.569	0.002
	(2.00)		(1.60)	
Machine operators and semiskilled	0.807**	0.011	0.723*	0.004
	(2.84)		(2.02)	
Unskilled	0.514	0.005	0.359	0.001
	(1.70)		(0.99)	
South	0.018	0.000	-0.009	0.000
	(0.31)		(0.11)	
Married	0.048	0.000	0.047	0.000
	(0.76)		(0.61)	
Constant	-4.129**		-3.658**	
	(11.61)		(17.70)	
Observations	35514		39447	

Robust z statistics in parentheses
* significant at 5%; ** significant at 1%

Source: Our elaborations on ISTAT Labour Force Survey Data 2009

Italy is characterized by a high incidence of inactivity amongst the working age population (especially women). In order to account for the loss in income connected with being inactive but still searching for a job or available to accept a job, we estimated the probability of being in this

condition by gender by using ISTAT LFS 2009 data and imputed this probability to the IT SILC 2007 microdata. Apart from for very young and older women, the probability of being inactive increased in 2009, decreasing for more educated people (this probability decreases by 4.4% for women having completed tertiary education and by 2.4% for men with tertiary education) and significantly increases for those living in the South of Italy (by 7.7% for men and 10% for women). The probability of being inactive is also higher (it increases by 2%) for mothers of children aged from 6 to 14 where full-time schooling is less widespread and the system of parental leave is less generous.

Table 10 – Probability of being inactive but searching for a job or being available to work in 2009

	Men		Women	
	coeff .	Marginal eff.	coeff .	Marginal eff.
15-19	0.190**	0.021	-0.149**	-0.020
	(4.23)		(3.26)	
20-24	0.602**	0.086	0.307**	0.054
	(14.17)		(7.77)	
25-29	0.465**	0.060	0.335**	0.060
	(10.52)		(8.63)	
30-34	0.268**	0.030	0.234**	0.039
	(6.08)		(6.47)	
35-39	0.016	0.002	0.178**	0.029
	(0.34)		(5.04)	
55-59	-0.072	-0.006	-0.377**	-0.045
	(1.48)		(8.25)	
60-64	-0.101	-0.009	-0.649**	-0.066
	(1.91)		(12.33)	
Tertiary	-0.312**	-0.024	-0.359**	-0.044
	(6.64)		(9.93)	
High school	-0.279**	-0.025	-0.222**	-0.032
	(9.89)		(8.83)	
South	0.675**	0.077	0.598**	0.101
	(27.04)		(27.83)	
At least one child aged less than 3	-0.039	-0.004	-0.054	-0.008
	(0.91)		(1.49)	
At least one child aged 3 to 5	0.010	0.001	-0.026	-0.004
	(0.24)		(0.75)	
At least one child aged 6 to 14	-0.050	-0.005	0.139**	0.022
	(1.61)		(5.45)	
Constant	-1.891**		-1.499**	
	(58.45)		(58.04)	
Observations	47359		49480	

Robust z statistics in parentheses
* significant at 5%; ** significant at 1%

Source: Our elaborations on ISTAT Labour Force Survey Data 2009

In order to account for the increase in unemployment rates on entry or re-entry into the labour market, we estimated the probability of becoming unemployed after having been inactive (Table 11). This probability is higher for individuals under 34 (for men) and 39 (for women) with an increase by 4% for men and women aged 20 to 24. Having a child of primary school age increased the probability of their mothers becoming unemployed if previously inactive by 0.8% in 2009, while living in the South of Italy increases the probability of being unemployed for the previously inactive by 1.4% for men and 0.8% for women.

Table 11 – Probability of becoming unemployed if inactive

	Men		Women	
	coeff .	Marginal eff.	coeff .	Marginal eff.
15-19	0.298**	0.013	0.122	0.006
	(4.05)		(1.79)	
20-24	0.667**	0.041	0.541**	0.039
	(10.46)		(8.67)	
25-29	0.482**	0.025	0.508**	0.035
	(7.20)		(9.10)	
30-34	0.200**	0.008	0.365**	0.022
	(3.07)		(6.34)	
35-39	0.022	0.001	0.233**	0.012
	(0.30)		(4.00)	
55-59	-0.098	-0.003	-0.499**	-0.015
	(0.99)		(5.00)	
60-64	-0.168	-0.005	-0.930**	-0.021
	(1.53)		(6.70)	
Tertiary	0.045	0.002	0.068	0.003
	(0.74)		(1.32)	
High school	-0.066	-0.002	-0.053	-0.002
	(1.61)		(1.30)	
South	0.371**	0.014	0.169**	0.008
	(10.17)		(5.13)	
Married				
	-0.408**	-0.014	-0.145**	-0.007
	(7.77)		(3.30)	
At least one child aged unde 3	-0.054	-0.002	-0.095	-0.004
	(0.92)		(1.69)	
At least one child aged 3 to 5	0.039	0.001	-0.018	-0.001
	(0.64)		(0.34)	
At least one child aged 6 to 14	0.070	0.002	0.156**	0.008
	(1.39)		(3.87)	
Constant	-2.266**		-2.118**	
	(36.07)		(40.81)	
Observations	47359		49480	

Robust z statistics in parentheses
* significant at 5%; ** significant at 1%

Table 12 – Net unemployment benefit – Heckman two-step estimate

	Un. Benefit	Unemployed
Age	0.178	-0.077**
	(1.62)	(14.82)
Age squared	-0.002	0.001**
	(1.42)	(8.12)
Unemployed, never worked	-1.301	
	(1.71)	
Unemployed, formerly self-employed with employees	-3.039**	
	(8.02)	
Unemployed, formerly self-employed without employees	0.314	
	(0.75)	
South	-0.003	0.121*
	(0.01)	(2.46)
Male	-0.361*	0.004
	(2.03)	(0.08)
Married	0.350	0.074
	(1.62)	(0.77)
Separated or divorced	0.149	0.102
	(0.42)	(0.95)
Widowed	0.348	-0.413*
	(0.33)	(2.01)
Secondary	0.385	-0.348**
	(0.73)	(5.03)
High School	0.338	-0.494**
	(0.50)	(6.49)
Tertiary	-0.289	-0.601**
	(0.34)	(5.96)
Chronically ill		0.200*
		(1.96)
Presence of children aged under 6		-0.067
		(0.60)
Presence of children aged 6-14		-0.004
		(0.07)
Presence of children aged 15-17		-0.297**
		(2.79)
Constant	3.315*	
	(2.39)	
Observations	31729	31729
Robust z statistics in parentheses		
* significant at 5%; ** significant at 1%		

Source: Our elaborations of IT SILC 2007

We then imputed to those who were not unemployed according to IT SILC 2007 survey but who (according to the simulation) would be unemployed in year 2009, with unemployment benefit obtained by estimation using a two-step Heckman model on IT SILC07 data (Table 12). With regard to those who are unemployed and former employees, formerly self-employed with employees show a reduction in their estimated unemployment benefit. Unemployment benefit decreases significantly compared to the formerly employees for those unemployed who have never

worked. These results are in line with the analysis on the effects of unemployment (according to previous unemployment status) on income poverty for Italy shown in Section 3. Unemployment benefits tend to increase with the age of the unemployed.

The wage supplementation fund subsidy was imputed as being up to 80% of former employment income, according to a threshold set by the National Social Security Institute just as those simulated on the scheme.

4.2 – The impact of the crisis on income distribution and poverty rates

Having obtained microsimulated data that account for the effect of joblessness on both individual and family income, we then proceeded to analyse the effect of the crisis by using the different techniques presented in Section 4.1: reweighting (rw) and imputation of unemployment probability (ip).[6]

At the national level, the first moment of income distribution referring to the whole population showed a reduction in equivalised household income by 2% in the *ip* microsimulated income and by 1% in the *rw* income (Table 13).

Table 13 - Descriptive statistics on actual and simulated equivalised
disposable household income in 2009

Variables	Mean	Std. Dev.
simulated (rw) equivalized household income (whole sample)	17271.23 -1%	12020.82
simulated (ip) equivalized household income (whole sample)	17191.97 -2%	12131.61
actual equivalized household income (whole sample)	17472.92	12080.54

Source: Our elaborations of IT SILC07 and simulated microdata
rw= simulated through reweighting
ip=simulated through imputation of un.prob.

Equivalised household income inequality as measured by the Gini Index (Table 14) shows higher inequality in income distribution in the South of Italy and an increase by 1% if one uses the simulated *i.p.* equivalised household disposable income in both the North and South of Italy, whereas these changes would not be visible by reweighting.

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[6] t-tests performed on the descriptive statistics presented in this Section confirm statistic significance of the obtained differences.

Table 14 - Gini Index actual and simulated equivalised household income

		Gini Index				
Area	Obs.	Simulated (rw)	rw-actual	Simulated (ip)	ip-actual	Actual
North	19993	0.29	0.00	0.30	0.01	0.29
Centre	10585	0.31	0.00	0.31	0.00	0.31
South	13751	0.32	0.00	0.33	0.01	0.32
Total	44329	0.32	0.00	0.32	0.01	0.31

Source: Our elaborations of IT SILC07 and simulated microdata

rw= simulated through reweighting

ip=simulated through imputation of un. prob.

We then estimated poverty rates by using simulated (according to the two techniques) equivalised household income as compared to the actual one (Tables 15, 16, 17).

Poverty rates (computed by using simulated equivalised household disposable income or by using reweighting) increase by 1% at national level and do not show relevant differences in the techniques used. However, when poverty distribution by area is analysed, a higher difference occurs when using the imputation technique with reference to Northern and Southern Italy (Table 15). The simulated effect of the unemployment increase on poverty rates brings about an increase in the poverty rate by 3% in the South of Italy, this may occur since there is a higher probability that the unemployed in the South were formerly inactive, youth or in jobs that did not foresee unemployment benefits.

Table 15 - Poverty rates in Italy by area (simulated and actual equivalised income)

		Poverty Rates							
		simulated (r.w.) eq. income			simulated (i.p.) eq. income			actual eq.income	
Area	Obs.	Mean	Std.Dev.	Diff.	Mean	St.Dev.	Diff.	Mean	Std.Dev.
North	20324	0.11	0.31	0%	0.12	0.32	1%	0.11	0.31
Centre	10727	0.14	0.35	1%	0.14	0.35	1%	0.13	0.34
South	14088	0.34	0.47	1%	0.36	0.48	3%	0.33	0.47
Total	45139	0.20	0.40	1%	0.20	0.40	1%	0.19	0.39

Source: Our elaborations of IT SILC07 and simulated microdata

rw= simulated through reweighting

ip=simulated through imputation of un.prob.

Poverty rates are significantly higher in households with children under 15 on the whole in Italy. With reference to this group of households the increase in poverty rate is higher when using the imputation technique than by using reweighting in the North and in the South of Italy (Tables 16 and 17).

Table 16 - Poverty rates in Italy by area, households without children under 15.
(simulated and actual equivalised income)

Area	Obs.	Poverty Rates household without children aged less than 15							
		simulated (r.w.) eq. income			simulated (i.p.) eq. income			actual eq. income	
		Mean	Std. Dev.	Diff.	Mean	St. Dev.	Diff.	Mean	Std. Dev.
North	15973	0.11	0.31	0%	0.11	0.32	0%	0.11	0.31
Centre	8468	0.13	0.33	1%	0.13	0.33	1%	0.12	0.33
South	10662	0.32	0.47	1%	0.33	0.47	2%	0.31	0.46
Total	35103	0.18	0.39	0%	0.19	0.39	1%	0.18	0.38

Source: Our elaborations of IT SILC07 and simulated microdata
rw= simulated through reweighting
ip=simulated through imputation of un.prob.

Table 17 - Poverty rates in Italy by area, households with children aged under 15
(simulated and actual equivalised income)

Area	Obs.	Poverty Rates household with children aged less than 15							
		simulated (r.w.) eq. income			simulated (i.p.) eq. income			actual eq. income	
		Mean	Std. Dev.	Diff.	Mean	St. Dev.	Diff.	Mean	Std. Dev.
North	4351	0.11	0.31	0%	0.13	0.33	2%	0.11	0.31
Centre	2259	0.19	0.39	1%	0.19	0.39	1%	0.18	0.38
South	3426	0.41	0.49	1%	0.43	0.49	3%	0.40	0.49
Total	10036	0.24	0.43	1%	0.25	0.44	2%	0.23	0.42

Source: Our elaborations of IT SILC07 and simulated microdata
rw= simulated through reweighting
ip=simulated through imputation of un.prob.

Conclusions

As a result of the crisis, the Italian labour market has experienced an increase in unemployment rates that must be complemented with data on the beneficiaries of redundancy pay (who are not computed amongst the unemployed) in order to assess the effect of the crisis on the labour market more completely. A wide share of the population (particularly in the South of Italy and particularly amongst women) are inactive, and have been discouraged from job searching. This calls for statistical and econometric techniques able to account for their presence (Brandolini, Cipollone and Viviano, 2006; Jones and Riddel, 2006) and for a specific target in the employment and social policies to avoid their exclusion from the labour force.

Our results on the socioeconomic costs of unemployment indicate that the unemployed have more difficulties in making ends meet, a higher degree of income poverty, and a high probability of not accessing medical or dental examination or treatment. These costs also change according to employment status prior to unemployment. Our evidence based on microsimulation indicates an

increase in poverty associated with the increase in unemployment, inactivity and workers receiving wage supplementation funds in 2009. The impact on poverty rates is higher in the South of Italy, as shown by using imputed unemployment probability microsimulation.

Redundancy benefit increased in 2009 with access extended by the Italian government as a reaction to the crisis. However, the Italian system of unemployment benefits is highly heterogeneous with an averagely low coverage. The multivariate analysis on the costs of unemployment carried out in this paper also shows differences in the employment status prior to unemployment that mirror the fragmentation of the safety net in Italy. These results call for a reform of unemployment benefit in Italy to achieve greater equality among the unemployed.

During the crisis, regional governments in Italy (like the Emilia Romagna region, with regional resolution 1036/2009 extended with resolution 2556/2009 until the end of the year 2010) introduced temporary exemptions from prescription charges for specialist medical care for the unemployed or redundancy fund recipients and their families. This underlines the need to improve access to health services for the unemployed and can be considered in line to the need of addressing the problems in accessing health services shown in the multivariate analysis in Section 3.

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