The impact of the current crisis on the Italian labour market

Francesco D'Amuri*

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To be updated with the latest LFS data (2009:3) available shortly.

1 Introduction

The aim of this article is to provide an assessment of the effects of the current crisis on the Italian labour market, with a particular emphasis on the transitions in and out of employment and their impact on incomes and their distribution. Micro-level simulations for the wage losses triggered by the crisis are provided both at the individual and household level, together with unemployment benefits' and income inequality projections.

2 Data and methodology

The Italian Labour Force Survey (ILFS) is the quarterly dataset employed in this study, providing full information on the labour market status and other socio-economic characteristics of a sample representative of the Italian population (for a description, see Ceccarelli et al. (2007)). In this article we use data relative to the first quarter of 2009. This data report respondents' current labour market status, including the net wage earned. Recall questions on labour market status a year before permit identification of transitions in and out of employment on a 12 month interval.

Gross salaries and total gross incomes are predicted based on an auxiliary regression estimated on a tax-forms based dataset. In order to correct for underreporting, gross and net wages are multiplied by a constant factor equalling ILFS total gross wage bill with the seasonally adjusted one reported in the national accounts.

*Bank of Italy - Research Department and ISER, University of Essex; Homepage: http://sites.google.com/site/fradamuri/; email: francesco.damuri@gmail.com. *Opinions expressed here do not necessarily reflect those of the Bank of Italy.* I am indebted to I. Faiella and A. Rosolia for useful comments and to R. Zizza for providing me the stata codes used to simulate Unemployment Benefits and Wage Supplementation Fund.

A set of probit regressions performed on subgroups of workers with different degrees of employment protection estimate job destruction/creation probabilities respectively for employed/unemployed individuals over the period 2008:1-2009:1. Probit regressions include all the main economic and socio-demographic characteristics of the worker and the job (these last ones only for the job destruction regressions). A similar procedure estimates the probability of benefiting from the wage-supplementation fund[1] or of a temporary suspension of the work contract.

Individual probabilities of transition in and out of employment, of work supplementation fund utilization and of suspension of the work contract obtained from the probit regressions are used to impute labour market status for the four quarters following the last one for which data are available. At the moment, transition probabilities are estimated on the 2008:1-2009:1 interval and projected quarterly over the period 2009:2-2010:1. The projection procedure is based on an iterative algorithm that, by means of a stochastic imputation, generates transitions consistent with probit estimated probabilities and quarterly macro forecasts of the unemployment rate and of the wage-supplementation fund utilization (see table 4 for the macroeconomic projections used in this article). Unemployment benefits and transfers from the wage supplementation fund are then simulated according to individual labour market status (for the institutional setting and eligibility criteria see European-Commission (2009)).

[1]The wage-supplementation fund provides government's subsidies covering a variable quota of the last wage to workers in firms experiencing a temporary fall in activity. The fund is dedicated only to certain firms (mainly in the industrial sector) and has a limited duration. The subsidy might also be available for workers in firms undergoing major restructuring or closure.

Labour Market Simulator

Stage 1

Probability estimates

Hypothesis: no transitions out or in the labour force in the short period (12 months)

Estimate probabilities for:

- A transition to employment in the [t-4, t] interval given unemployment at t-4
- A transition to unemployment in the [t-4, t] interval given employment at t-4
- Use of work supplementation fund in t given employment in t
- Suspension of work contract in t given employment in t

Stage 2

Stochastic imputation

Based on the probabilities estimated in *Stage 1*, the model generates quarterly transitions for the period [t+1, t+4] coherent with aggregate macroeconomic projections defined ex-ante. This is implemented via a stochastic imputation based on the comparison between drawings from a normal distribution and individual probabilities of experiencing one of the 4 changes of state introduced in *Stage 1*.

Stage 3

Unemployment benefits' simulation

Once the exact quarterly labour market status of each individual is recovered in *Stage 3*, unemployment benefits and wage supplements are estimated on the basis of the current institutional setting.

Stage 4

Monte carlo projections

Results of the stochastic imputation are sensitive to the actual realizations of the normal drawings in *Stage 2*.

The model estimates labour income and labour market related benefits. In order to provide standard errors for the macro projections based on the simulation, the stochastic imputation is repeated 30 times and average values, as well as confidence intervals are calculated.

3 Results

3.1 Transitions in and out of employment

As a starting point we estimate individual probabilities of transition from employment to unemployment and viceversa *(Stage 1)* on yearly intervals. We include in estimation both a pre-crisis interval (2007:1-2008:1) and an interval including the incept of the crisis (2008:1-2009:1). For the job destruction and creation equations we estimate the following equation on the full interval:

$$y_{it_{|yit-4=1}} = \alpha + \beta X_{it} + \lambda_{Crisis} + \varepsilon_{it} \tag{1}$$

where y_{it} is individual i working status at time t (equal to one if the individual is employed and 0 if the individual is unemployed at time t in the job destruction equation, opposite definition in the job creation one). The equation is estimated separately for four group of workers: employees with Open Ended Contracts (OEC), employees with Fixed Term Contracts (FTC), quasi-employees[2] and self-employed workers. The dummy λ_{Crisis}, equal to one for the 2008:2-2009:1 interval and zero otherwise identifies the average effect of the crisis on transition probabilities for each of the workers' subgroups. Finally, the matrix X_{it} includes usual controls for socio-demographic characteristics (in both equations) and job-related characteristics (only in the job-destruction one). We can note that the interval used to estimate the crisis dummies is almost perfectly balanced. Indeed it includes 6 pre-crisis and 6 post-crisis months taking september 2008 as the starting month of the downturn following the Lehman Brothers collapse. According to our estimates, the crisis significantly increased (decreased) the probability of experiencing a transition out of employment (into employment) (tables 1 and 2). In absolute terms, employees on a FTC experienced the highest probability of losing employment, equal to 10.1 per cent. The crisis determined a 3.7 percentage point (57 per cent) increase in the probability of experiencing this transition in the 2008:2-2009:1 period. Indeed the average probability estimated on a model setting to zero the average effect of the crisis on labour market flows predicts an average flow out of employment equal to 6.4 per cent of those employed in 2008:1. Quasi-employees where the hardest hit in relative terms, experiencing a 108% increase in the probability of losing their job due to the crisis, but any category experienced a sharp increase (ranging from +21.4 per cent for self-employed workers to +57 per cent for employees on a FTC). As expected, the crisis also decreased the probability of experiencing the opposite transition, by 10 per cent. Without the crisis, the model estimates that 59 per cent of those looking form employment in quarter 2008:2 would have found employment in quarter 2009:1. This percentage decreases to 53 per cent with the crisis.

[2]This category includes formally self-employed individuals actually working as employees mainly for tax reasons and for reducing Employment Protection Legislation.

Overall, according to our estimates, in the 2008:1-2009:1 period the crisis caused an increase of slightly more than 300 thousand in the number of the unemployed, 60.4 per cent of which for an increase in job destruction and 39.6 per cent for a decrease in job creation.

3.2 Labour market aggregate projections

Based on the methodology outlined in section 2 and on the macroeconomic projections outlined in table 4 the simulator provides the following projections for the 2009:1-2010:1 period (tab. 5). The fall in 1.6 per cent in total employment (consistent with table 4) is partially balanced by a nominal annual unitary wage growth rate of 1.8 per cent. The total gross wage bill is expected to shrink by 1.05, while the number of workers getting wage supplementation or having their contracts temporarily suspended is forecast to increase by 81.6 per cent in the period. Focussing on the pool of individuals gainfully employed in 1:2009, and thus not taking into consideration those individual who might get a job during the 2009:1-2010:1 period, the total wage bill is expected to decrease by 4.3 per cent.

3.3 Unemployment benefits

The drop in total gross labour income of individuals employed in 2009:1 halves when including Unemployment Benefit (UB) and the Wage Supplementation (WS) transfers into account. This is an underestimate since not all *ad hoc* schemes (cassa integrazione in deroga) are included and long term unemployment insurance (indennita' di mobilita') is not included in this simulation. The average figure hides a wide variation in replacement rates across sectors and occupations, a well known feature of the Italian system. Average replacement rates are slightly below 40 per cent in the first quarter of unemployment/suspension, but across contract types and sectors replacement rates vary from 80 to 0 per cent and (see fig. 1 and 6). Coverage drops quickly with time in unemployment or suspension: after four quarters average replacement rates are equal to 7 per cent.

3.4 Impact on labour income distribution

According to the micro level projections, the effects of the crisis will be felt among workers earning less than 3000 euros per month (approximately the lowest 80 per cent of the labour income distribution among the labour force). Losses will intensify during the 2009:1-2010:1 interval (see fig. 2 and 3).

Once UB and WS tranfers are included, income losses are cushioned, but there is still a considerable

amount of displaced individuals with gross income lower than 1000 euros per month, or no income altogether (fig. 4).

The crisis will increase labour income inequality, with a Gini index calculated on the labour force (employed plus unemployed) raising from 61.3 in 2009:1 to 62.6 in 2010:1 (tab. 7). When considering only the individuals gainfully employed in 2009:1, the increase is steeper (62.4 in 2009:2; 64 in 2010:1). As expected, UB and WS transfers limit, but do not eliminate, the adverse effects on the income distribution.

Results remain mainly unchanged when considering gross labour equivalent income at the family level instead of gross labour income at the individual level.

4 Conclusions

In the 2008:1-2009:1 period, the start of the economic crisis reduced employment by 302 thousand units, due to an increase in job destruction (+184.000 units) and a decrease in job creation (-118.000 units). The adverse impact of the current crisis on the labour market will continue to be felt in the 2009:2-2010:1 period, in particular among workers earning less 3000 euros per month (the lowest 80 per cent of the labour income distribution). The fragmented Italian unemployment benefit system will be able to cushion wage losses only in the short run and for particular categories of workers.

The crisis will increase labour income inequality among individuals participating to the labour force. This increase is robust to the unit of measurement (individual incomes or family equivalent incomes).

References

Ceccarelli, C., A. R. Discenza, and S. Loriga (2007). The Impact of the New Labour Force Survey on the Employed Classification. *Data Analysis, Classification and the Forward Search*, 359–367.

European-Commission (2009). Italy. *Labour Market and Wage developments*, 228–235.

Table 1: **Employment to unemployment transitions**

	Employees OEC	Employees FTC	Quasi-employees	Self-employees
Crisis	0.146**	0.259**	0.394**	0.077**
	-227.26	-258.71	-181.99	-62.79
Female	0.137**	0.056**	0.251**	0.159**
	-192.28	-52.24	-110.38	-116.06
High school	-0.060**	-0.135**	-0.103**	-0.088**
	-78.9	-113.08	-35.02	-65.39
University	-0.112**	-0.191**	-0.469**	-0.259**
	-78.6	-96.31	-137.86	-130.34
Public sector	-0.513**	-0.319**	0.167**	
	-326.52	-204.09	-70.9	
Married	-0.154**	-0.096**	-0.237**	-0.281**
	-215.46	-76.99	-90.15	-212.6
North east	-0.170**	-0.028**	-0.073**	0.221**
	-172.58	-19.52	-20.66	-108.17
Centre	0.073**	-0.009**	0.135**	0.269**
	-80.2	-6	-47.42	-132.03
South	0.253**	0.158**	0.419**	0.538**
	-277.14	-107.52	-136.56	-288.05
Islands	0.266**	0.093**	0.298**	0.394**
	-224.99	-49.98	-70.46	-164.96
Tenure	-0.058**	-0.086**		
	-422.46	-320.58		
$\text{Tenure}^2/100$	0.079**	0.266**		
	-158.68	-281.66		
Observations (weighted)	1.22E+08	1.59E+07	4363182	4.33E+07

Notes: * significant at 5%; ** significant at 1%. Weighted probit regression for the probability of transition from employment to unemployment. Estimated on the 2007:1-2009:1 period. Robust z statistics in brackets. Additional controls: age, marital status, firm size, industry. OEC stands for Open Ended Contract, FTC stands for Fixed Term Contract.

Table 2: **Unemployment to Employment transitions**

Crisis	-0.157**
	-180.73
Female	-0.009**
	-10.39
High School	0.110**
	-113.94
University degree	0.485**
	-327.11
North east	0.176**
	-112.72
Centre	-0.033**
	-23.55
South	-0.290**
	-225.16
Islands	-0.452**
	-316.24
At least one work exp.	0.323**
	-276.37
Constant	-0.986**
	-57.94
Observations (weighted)	8794740

Notes: * significant at 5%; ** significant at 1%. Weighted probit regression for the probability of transition from unemployment to employment. Estimated on the 2007:1-2009:1 period. Robust z statistics in brackets. Additional controls: age, marital status.

Table 3: **Labor Market flows:2008:1-2009:1 interval**

Employment to unemployment transitions	Employees OEC	Employees FTC	Quasi-employees	Self-employees
Stock of employed at 1:2009	15095646	2073420	471778	5325394
Out of employment (real)	0.019	0.101	0.078	0.011
Out of employment (simulated - no crisis)	0.014	0.064	0.038	0.009
Perc. Variation due to crisis	0.379	0.570	1.081	0.214
Abs variation due to crisis	-79445	-75867	-19159	-9969
Unemployment to employment transitions				
Stock of unemployed at 1:2009			1982170	
In employment (real)			0.53	
In employment (simulated - no crisis)			0.59	
Perc. Variation due to crisis			-0.10	
Abs variation due to crisis			118052	
Total loss in employment			302493	
of which: job destruction			184440 (60.1%)	
of which: decrease in job creation			118052 (39.9%)	

Notes: Out of employment (real), is the real flow (in percentage points) from employment in quarter t to unemployment in quarter $t+4$. Out of employment (simulated - no crisis) is the same flow simulated based on the probit regressions of table 1 setting the *Crisis* dummy equal to zero. A symmetric definition applies to *In employment* transitions.

Table 4: **Macroeconomic projections; 2009:1=100**

Year	Quarter	Employment	Wage supplementation fund (hours)
2009	1	100.0	100.0
2009	2	99.7	185.0
2009	3	98.9	203.1
2009	4	98.3	206.8
2010	1	98.0	207.6

Table 5: **Labour market simulator macro projections**

Quarter		2009.01	2009.02	2009.03	2009.04	2010.01
Employment	Level	22966237	22902673	22775009	22660079	22595759
	S.E.	0	5900.314	9047.945	9497.308	9747.165
	95% C.I.(min)	22966237	22891108	22757275	22641464	22576654
	95% C.I.(max)	22966237	22914238	22792743	22678693	22614863
Unemployment	Level	1982170	2045735	2173399	2288329	2352649
	S.E.	0	5900.314	9047.945	9497.308	9747.165
	95% C.I.(min)	1982170	2034170	2155665	2269714	2333544
	95% C.I.(max)	1982170	2057299	2191133	2306944	2371753
Unemployment rate(%)	Level	0.079451	0.081999	0.087116	0.091722	0.094301
	S.E.	0	0.000237	0.000363	0.000381	0.000391
	95% C.I.(min)	0.079451	0.081535	0.086405	0.090976	0.093535
	95% C.I.(max)	0.079451	0.082462	0.087827	0.092469	0.095066
Suspension or WS	Level	289974	488708.3	521251.8	521261.3	526601.7
	S.E.	5075.459	8454.346	4900.253	6149.399	3760.978
	95% C.I.(min)	280026.1	472137.8	511647.3	509208.5	519230.2
	95% C.I.(max)	299921.9	505278.8	530856.3	533314.2	533973.2
Tot gross lab inc.	Level	160851.1	159665.1	159176.1	159022.5	159156.1
Million of Euro	S.E.	35.00586	86.18401	67.0611	80.99233	72.61701
	95% C.I.(min)	160782.5	159496.2	159044.7	158863.7	159013.8
	95% C.I.(max)	160919.7	159834	159307.5	159181.2	159298.4
Tot gross lab inc.	Level	160851.1	157955.4	156062.2	154787.5	153982.1
Million of Euro	S.E.	35.00586	80.31298	49.07166	82.80194	55.00815
(only empl in 2009:1)	95% C.I.(min)	160782.5	157797.9	155966	154625.2	153874.3
	95% C.I.(max)	160919.7	158112.8	156158.4	154949.8	154089.9
Tot gross lab inc.,UB+WS	Level		159814.6	158745.6	157717.5	156846.9
Million of Euro	S.E.		55.04859	40.4677	63.1689	56.35045
(only empl in 2009:1)	95% C.I.(min)		159706.7	158666.3	157593.7	156736.4
	95% C.I.(max)		159922.5	158824.9	157841.3	156957.3

Note: UB do not include some of the *ad hoc* wage supplementation schemes and the long term unemployment assistance (indennita' di mobilita').

Table 6: **UB replacement rates unemployment or suspension duration**

Quarter	Mean	Std. Dev.	Min	Max
1st quarter	0.36	0.20	0	0.80
2nd quarter	0.32	0.22	0	0.80
3rd quarter	0.20	0.18	0	0.75
4th quarter	0.07	0.15	0	0.75

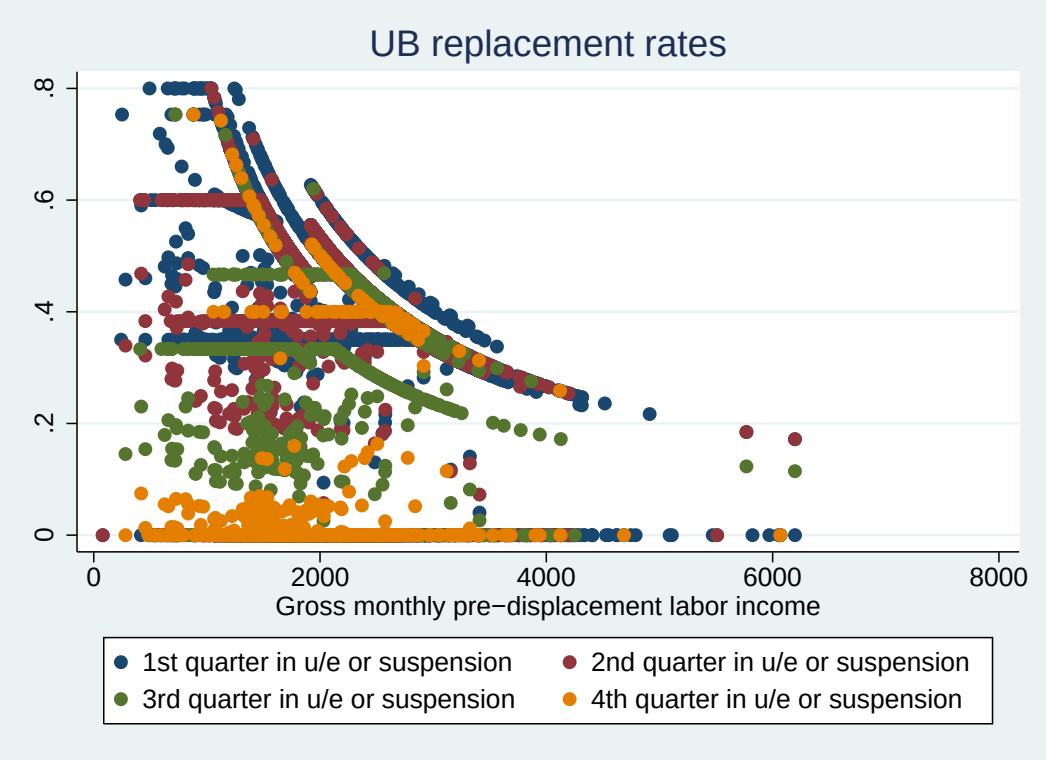
Note: UB do not include some of the *ad hoc* wage supplementation schemes and the long term unemployment assistance (indennita' di mobilita').

Table 7: **Crisis' redistributive impact: Gini indexes**

Quarter	2009.01	2009.02	2009.03	2009.04	2010.01
Individual					
Gross labour income	0.61	0.62	0.62	0.62	0.63
Gross labour income		0.62	0.63	0.64	0.64
Only for the employed in 1:2009					
Gross labour income plus UB		0.62	0.62	0.63	0.63
Only for the employed in 1:2009					
Family					
(Equivalent income)					
Gross labour income	0.63	0.64	0.64	0.64	0.64
Gross labour income					
Only for the employed in 1:2009		0.64	0.64	0.64	0.65
Gross labour income plus UB					
Only for the employed in 1:2009		0.63	0.63	0.64	0.64

Note: UB do not include some of the *ad hoc* wage supplementation schemes and the long term unemployment assistance (indennita' di mobilita').

Figure 1: **Individual replacement rates: scatterplot**



Note: UB do not include some of the *ad hoc* wage supplementation schemes and the long term unemployment assistance (indennita' di mobilita').

Figure 2: **Gross labour income distribution**

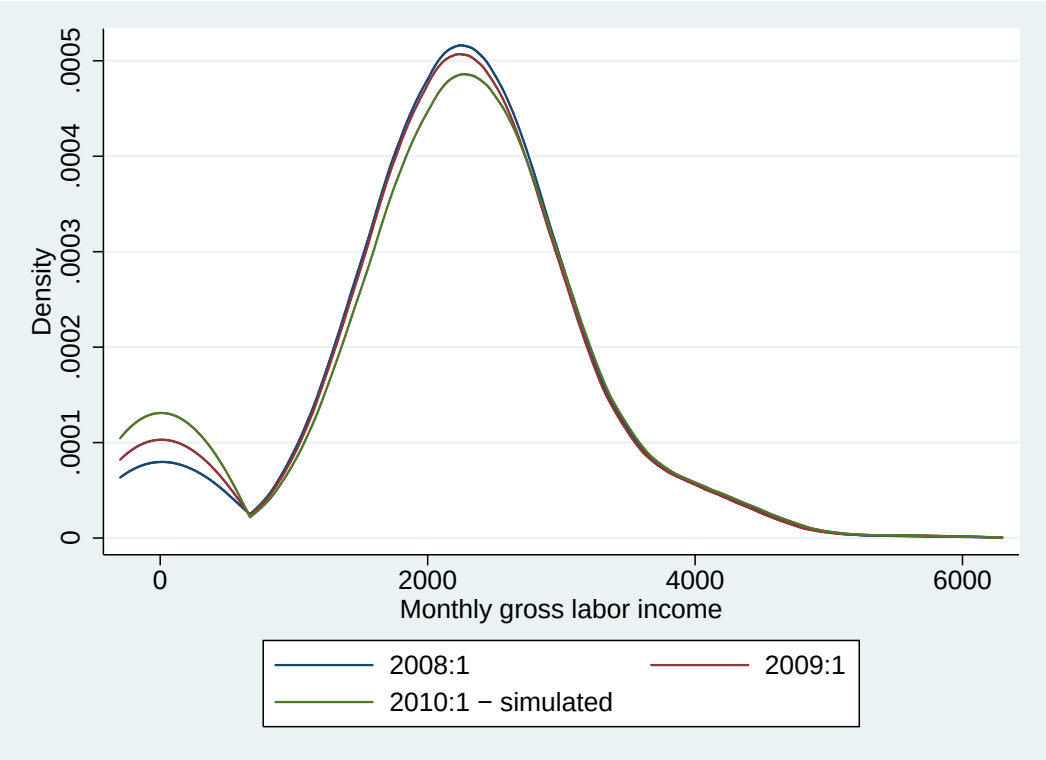


Figure 3: **Changes in the gross labour income distribution**

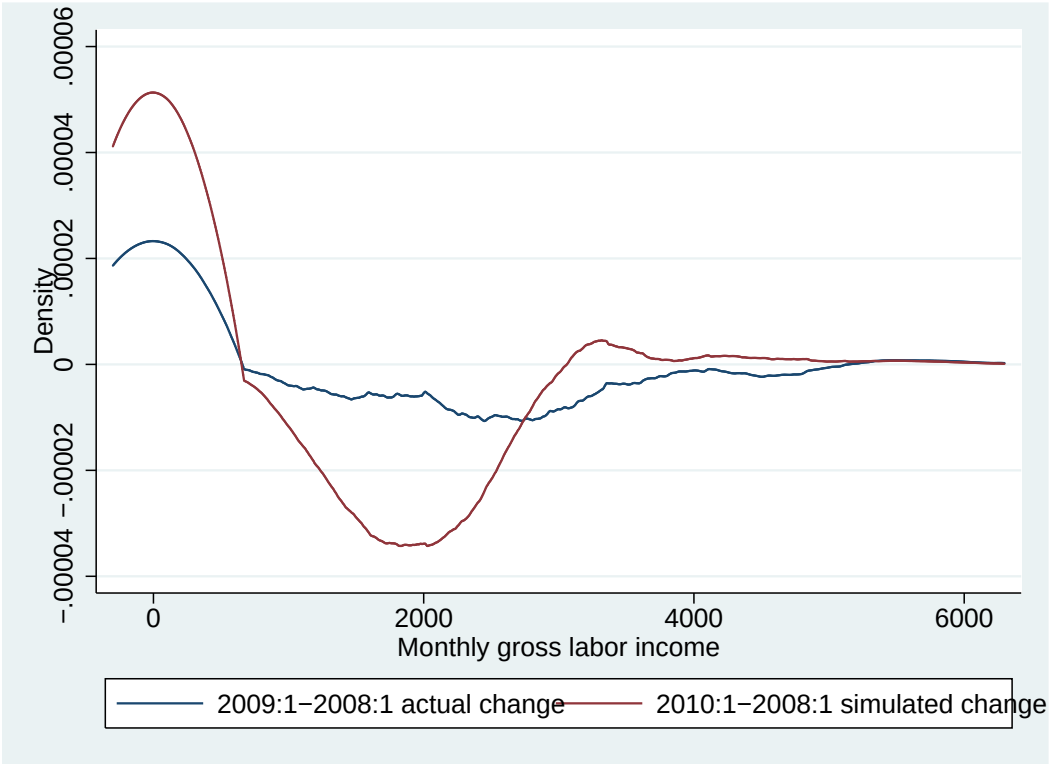
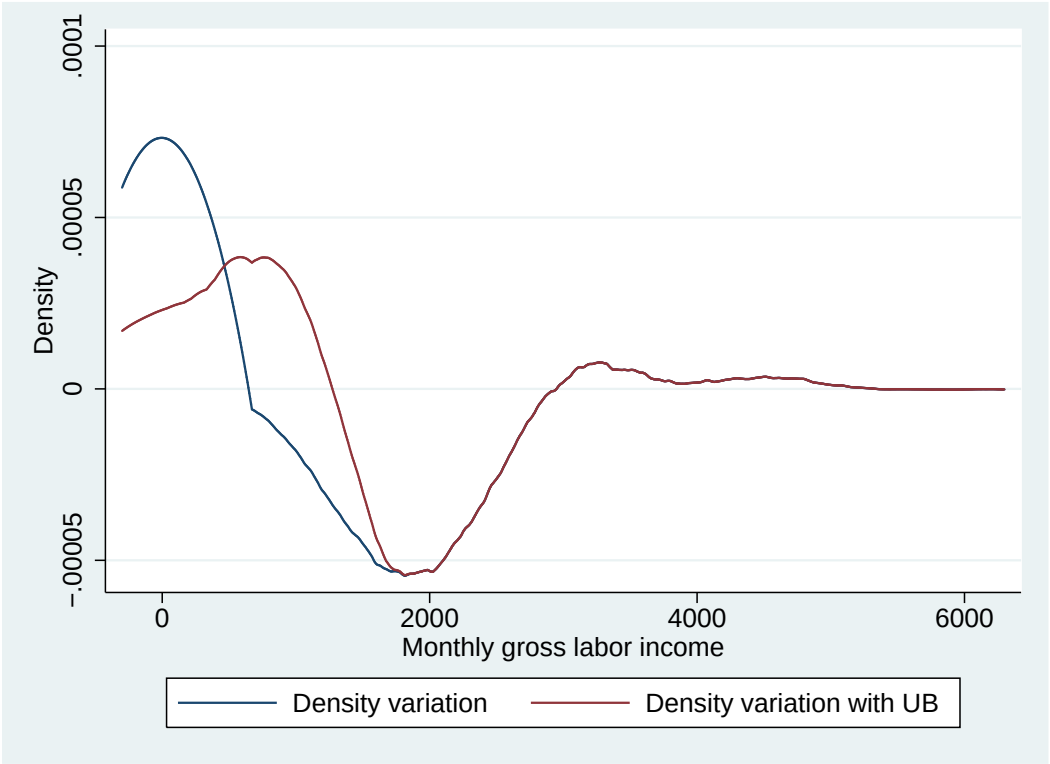


Figure 4: **Changes in the gross labour income distribution and UB/WS**



Note: UB do not include some of the *ad hoc* wage supplementation schemes and the long term unemployment assistance (indennita' di mobilita').