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C. Aina – F. Mazzotta – L. Parisi

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DO FLEXIBLE EMPLOYMENT CONTRACTS CHANGE HOUSEHOLD INCOME DIFFERENCES IN ITALY?[*]

Carmen Aina[†]   Fernanda Mazzotta[‡]   Lavinia Parisi[§]

Abstract

This paper examines whether the growing use of non-permanent contracts may have influenced the intra-family income differences in Italy over time. After the 1996, a number of reforms were implemented to reduce the levels of employment protection. Thus we aim at providing evidence on the determinants of potential changes to personal level of income before and after the introduction of such rules. In particular, we calculate the contribution of each individual within the family using two Italian longitudinal data (namely ECHP and IT-Silc). We perform estimations for men and women, separately. Our results confirm that the amount of contribution changes over the span considered. Fathers are generally more likely to support other family members. Sons are instead money receivers, and the magnitude of the coefficient is especially large when labour market flexibility has been already introduced. Individuals with part time temporary contracts face less favourable financial conditions. Finally, those who are out of the labour market (i.e. retired, unemployed, inactive) contribute negatively within the family.

JEL classification: D31 C33 J68 J41 J71

Keywords: Temporary jobs, income differences, employment contracts, family, labour institutional changes, flexibility

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[†]University of Piemonte Orientale Email: carmen.aina@eco.unipmn.it

[‡]University of Salerno Email: mazzotta@unisa.it

[§]University of Salerno and ISER - University of Essex Email: laparisi@unisa.it

1 Introduction

This paper examines whether the labour market flexibility through the growing use of non-permanent contracts may have influenced the intra-family income differences in Italy over time: to the extent that these arrangements, increasing labour market opportunities, contribute to enlarging the relative input into family income. A working household member makes a larger economic contribution than a non-working member, even if he has a low income (Brown and Session, 2005; Booth et al., 2002; Cutulli, 2008; Picchio, 2008; Comi and Grasseni, 2009). So the most interesting question, in this context, is if institutional changes can alleviate intra-family economic inequalities or not.

Over the last fifteen years the Italian labour market has been influenced by several institutional changes. After the 1990s occupational crisis, a number of reforms were implemented to reduce the level of employment protection in favour of permanent workers. These strict regulations were considered as the major cause of high unemployment rates along with negligible replacement rates in the labour market. In particular, the first considerable intervention, in the aforementioned direction, occurred in 1997 through the so-called Pacchetto Treu (L.196/1997). The introduction of such rules widened the opportunities of hiring new staff, i.e. adopting more flexible contractual conditions. More precisely, since then firms have been eligible to make use of fixed term contracts every time technical, organizational and productive motivations, need to adjusting their workforces. This flexibility path was then carried on with the Biagi Law (L. 30/2003) which essentially introduced additional types of temporary contracts. It is worth underlining that the primary effect of such interventions has increased the employment rates over the last decade, in spite of a moderate economic growth.

The proliferation of the so-called atypical or non-standard forms of employment calls into question the greater discrimination of such category of workers. In general, temporary workers experience several disadvantages, such as higher probability of unemployment and risk of on the job injuries, lower welfare provision, lower earnings, lower lifelong training, and lower fertility rate other than limited access to the financial market (OECD, 2004; Guadalupe, 2003). Nevertheless fixed term employees may have worse working conditions than those in similar permanent jobs and they experience frequent periods of unemployment and consequent sharp income fluctuations that endanger their economic self-sufficiency. (Diaz and Sanchez, 2008; Gash and McGinnity, 2007; Petrongolo, 2004).

Overall the reforms have mainly encouraged the labour force participation of women and youths: Italy is indeed one of the developed countries that has the lowest level of female employment and the greatest gap between male and female employment rates. According to the Eurostat statistics, in

2007 female employment rate[1] reached 47.2% in 2008 in Italy versus 60% in European Union.[2] This picture illustrates how difficult it is for women to enter the labour market. Thus such labour market 'flexibilization' helps people to improve their employability, in order to successfully integrate - or be reintegrated - into the active part of the labour market. Especially unemployed people and those who have not yet been economically active but are willing to work or mothers who wish to return to work after a temporary interruption are the primary target of such deregulations (Barbieri and Scherer, 2009).

Most of the previous empirical studies focus on how the introduction of more flexible types of contracts lead to a segmentation of the labour market. This situation is a matter of some concern as, on the one hand, there are permanent workers with more favourable occupational conditions as well as benefits (higher wages, access to training courses, job protection, government subsidies in case of job loss and a better welfare provision once retired). On the other hand, temporary workers are, instead, discriminated both in terms of monetary and non-monetary aspects. This category shows lower wages in sharp contrast with the economic theory, which suggests that fixed term workers should contract higher hourly wage to compensate the risk of becoming unemployed (Rosen, 1986). With regards to Italy, both Picchio (2008) and Cutulli (2008) find wage differentials between permanent and non-permanent employees varying from 7% to 20%, using Italian data drawn from the Bank of Italy. This result is also confirmed by Lucidi and Raitano (2009) who provide evidence of a wage penalty associated to temporary contract owners of about 10%. In addition, non-permanent workers are also penalised regarding the opportunities for career advancement and about receiving work-related training (Arulampalam and Booth, 1997). They face low levels of retention and job satisfaction, too. Many studies concerning fixed term contracts analyse whether they are useful stepping-stones to permanent jobs or not (Booth et al., 2002; Corsini and Guerrazzi, 2007; Berton et al., 2008).

The issues related to the boom in temporary contracts have been widely analysed over recent years, but remarkably little is known about their impact on household income differences. Clearly, the interest in this subject derives from a concern of poverty, and inequality, and recognition that differential resource allocations within households may seriously reduce the welfare of some members. Our attempt is hence to provide evidence on the determinants which may facilitate a better understanding of the potential changes to personal levels of income regarding other family members before and after the reduction of employment protection rules.

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[1]Eurostat calculates the female employment rate by dividing the number of women aged 15-64 in employment by the total female population of the same age group

[2]Statistics available at http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home

For each individual, living in a specific family, we refer to the general household utility framework, which goes back to Becker (1974, 1981) and Samuelson (1956), to assess the difference between his/her personal income from the relative household income. This unitary approach is based on the assumption that preferences are identically distributed within the family and household utility is maximised subject to a single budget constraint. As a result, income redistribution within the household does not change family behaviour.

The hypothesis of equal sharing resources between all household members is definitely a more practical strategy to reaching our final aim that is to detect if lowering labour market protection reduces income inequality between family members. In particular, the contribution of each individual to other family members, as the ratio between (1) the difference of his/her personal income and the per-capita income and (2) the equivalent household income, is calculated. Two longitudinal data drawn from the Italian surveys - ECHP and IT-Silc - conducted respectively over the period 1995-1996 and 2004-2005 are used. Panel data technique is performed and also the analysis is carried out for men and women, separately.

Our results confirm that the contribution changes over the span considered. Men are generally more likely to support other family members. Sons appear to be money receivers with regard to other family members, and the magnitude of the coefficient is especially large when labour market flexibility has been already implemented. Finally, with regard to the contract-related variables, the category of workers, in a less favourable financial conditions, is part time temporary contract holders compared to those who have other atypical contract forms. Individuals who are out of the labour market for several reasons, i.e. retirement, unemployment and inactivity, contribute negatively within the family.

In the following section, the data source are described and the raw data are examined to see the extent of temporary job holding in Italy, while the empirical strategy is available in section III. The estimates are presented in the fourth section. The final section summarises and draws conclusions.

2 Data

The empirical investigation focuses on Italy. Two surveys are taken into account in order to describe whether the pervasive use of non-permanent contracts may have affected intra-family income differences in Italy. In particular, for the period before the so-called Pacchetto Treu (L.196/1997) the Italian questionnaire of the European Community Household Panel is used (ECHP). While the Italian questionnaire of Statistics on Income and Living Conditions (IT-Silc) is adopted for analysing the impact of labour market reforms in terms of employment flexibility during the period 1997-2003

Table 1: Sample size by gender over the two periods

	ECHP		IT-Silc	
	1995	**1996**	**2004**	**2005**
Men	8099	7607	10543	14965
Women	9243	8687	12197	17368
Total	17342	16294	22740	32333

(namely the Pacchetto Treu, the Decree Law (2001) and the Biagi Law (L. 30/2003)). These data are based on a standardized questionnaire filled by individuals and households in several European countries and on several issues. The former is composed of 8 waves (1994-2001) while the latter by 4 waves (2004-2007). However, after some elaborations (mainly on income) the following waves have been considered: 1995-1996 for ECHP and 2004-2005 for IT-Silc. In this way a ten years span is covered in order to describe the determinants of potential changes occurred to personal levels of income before and after the reduction of employment protection rules.

Both ECHP and IT-Silc collect information on monetary transfer between families based on the assumption that these are between heads of household, but these two surveys do not provide any details about money contribution to and from individuals within the households[3].

We look at other datasets available for Italy and we conclude that: 1) Bank of Italy data (SHIW - Survey on Household Income and Wealth) are not useful for our purpose; although this dataset provide information on income transfers between individuals, such information exclusively refers to members of different households instead of members of the same family. Furthermore, building a panel over the period considered reduce dramatically the number of observations as only 25% of households contained in the previous wave are re-interviewed. Finally, the most important motivation is that the disaggregation of the employment contract by different categories is not available in 1995; 2) Share (Survey of Health, Ageing and Retirement in Europe) collects monetary transfers between individual within a family, but includes only individuals aged 50 and over and interviewed only twice, namely 2004 and 2006.

As mentioned above, although the datasets we used do not collect directly information on money transfers within the family, they are a rich source of data regarding both the individual and household characteristics. Moreover the period covered by information is suitable for our empirical exercise as it refers both to the time before and after the implementation of the new regulations.

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[3]ECHP collects individual money transfers received i.e. financial support from relatives, friends or other persons outside the household, while IT-Silc collects inter-household cash transfer received and paid

Monetary contributions within the family depend on different choices each family member makes: investment in education, labour market participation and consequently earnings profile. Moreover such contributions are associated with the role each member has in the family, his bargaining power and his mutual exchanges. For these reasons two different samples are exploited and separated regressions by gender are run. Table 1 shows the number of observations in each group for the two periods.

We, then, define money contribution within the family according to the following strategy: first, we assume that consumption of each members of the family is equal to the per-capita income. Secondly, following an OECD procedure (OECD, 2001) the contribution of each member within a family is defined as: (1) the personal income from labour and pension minus (2) per-capita income from labour and pension[4] divided by (3) the total equivalized net household income[5]. The share of individual contribution, which can be negative when a person is a receiver or positive when a member is a giver, is provided. Table 2 shows the distribution of income by gender over the two periods under consideration.

In the two periods family equivalised income increases by 38% from 1995 to 2006 (from 11243 to 15547) while per capita income increases by 57% (from 6186 to 9697). Moreover, the personal income from work and pension for men is almost 50% more than women (12338 versus 8483 in the 1995, for example) and finally males' personal income increases more than women's personal income over time. Looking at the personal contribution we notice that on average men are givers while women receivers within the family. The income differences reduce after the implementation of 'flexibility' rules as both the contribution of men and the burden of the women decrease.

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[4]The per-capita income from labour and pension is calculated as the sum of personal income from labour and pension of all the members of the household divided by the number of the household members.

[5]The total equivalized net household income is calculated as the sum of personal income from labour and pension of all the members of the household and other sources of income at household level (imputed rent, income from rental, interest, dividend and other capital income, family/children allowances, other social exclusion, housing allowances and regular inter-household cash transfer received) divided by the OECD equivalence scale.

Table 2: Distribution of incomes over the two periods

	ECHP			IT-Silc
	1995	**1996**	**2004**	**2005**
Equivalised income	11243	11015	15443	15547
Per-capita income	6186	6184	9574	9697
Personal income				
Men	12338	12376	15805	15997
Women	8483	8574	10644	10820
Men with permanent contract	14986	15132	19210	19349
Women with permanent contract	11715	11937	14400	14610
Men with not permanent contract	8042	9806	12864	12881
Women with not permanent contract	6792	7184	10895	9665
Personal contribution				
Men	19.71	19.62	15.77	16.92
Women	-23.81	-23.21	-19.87	-20.55

Note: Incomes are reported in real value: base-year 2000.

2.1 Explanatory variables

Both ECHP and IT-Silc contain information on household and individuals: demographic characteristics, personal income, housing conditions, employment. Regarding the last information we know whether he/she is working, the type of contract, and the contract duration is grew, i.e. permanent versus fixed term contracts. Clearly due to the existing differences between the two data sources; all the variables used have been made homogeneous between ECHP and IT-Silc[6].

Two groups of coovariates have been considered: let P_i be the first set of explanatory variables describing individual characteristics. P_i includes age, age squared, education dummies, area of residence, working status, and the type of contract. Let F_i be the second set of coovariates describing family composition. F_i will include number of females, number of members with permanent and fixed term contract, number of unemployed, and number of members out of labour forces. It is remarkable to underline that each aforementioned variable is constructed without counting the respondent.

The analysis focuses on the type of contract related variable. This classifies individuals according to the following categories: (1)individuals who have a permanent employment contract; (2)individuals with fixed term or short-term contract, or specific training/apprenticeship contracts[7]; (3)individuals with other type of contract, such as people classified as family worker or some other work arrangement and also those people who did not indicate any status in employment but have a salary; (4)individuals who self-defined themselves as unemployed; (5)the retired and finally (6)the other inactive that are mainly students and housewives[8].

Table 3 shows descriptive statistics for different types of contract/ economic status for both men and women divided in employee (upper panel) and not-employee (bottom panel). We notice an increase in the percentage of both the part time and the non-permanent workers. This concerns mainly women: the percentage of women with temporary contracts varies from 10% to 16% across the two periods. At the same time in the two periods considered, unemployed and other workers decrease.

Table 4 shows the distribution of personal income by type of contract/ economic status during the two periods for both men and women. Incomes increase especially for those who are out of the labour market, named other workers or unemployed who probably have had occasional work experience during the year. The same increase can be noticed also for temporary workers, both for men and women. Over time we do not notice changing in gender differences once we look at permanent workers. However because men's incomes are always higher than women's and such difference is around 20%

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[6]Details are not reported for the sake of brevity but they are available upon request.

[7]For categories (1) and (2) we also make a distinction between full time and part time.

[8]Self employed were excluded because they are not regulated by any specific contract.

Table 3: Distribution of individual by economic status/type of contract and gender across the two periods (percentages)

| | ECHP | | | | IT-Silc | | | |
| | 1995 | | 1996 | | 2004 | | 2005 | |
	Women	Men	Women	Men	Women	Men	Women	Men
Workers								
Permanent	81,1	87,7	81,8	85,7	80,1	86,2	80,2	86,8
Full time	91,6	99,3	85,2	98,1	77,2	97,3	79,0	97,5
Part time	8,4	0,7	14,8	1,9	22,8	2,7	21,0	2,5
Not permanent	9,9	7,9	10,1	8,2	15,8	11,8	15,6	10,5
Full time	85,6	92,2	78,6	90,7	70,8	88,8	68,4	88,1
Part time	14,4	7,8	21,4	9,3	29,2	11,2	31,6	11,9
Other worker	9,0	4,5	8,0	6,1	4,1	2,0	4,2	2,7
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Non-workers								
Unemployed	8,5	13,7	8,5	13,7	5,6	7,5	5,9	7,5
Retired	19,0	36,0	18,8	36,0	24,6	45,7	24,4	45,1
Other Inactive	72,5	50,3	72,7	50,3	69,8	46,8	69,7	47,4
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

for full time and 50% for part time. This result confirm the hypothesis that women work more than men with atypical or non-standard contracts and also they have lower salary than men in the same position (Villa, 2004).

Table 5 shows the personal contribution by type of contract, economic status, and gender during the two periods. Men contribute always more than women. Positive contributions decrease over time both for men and women as well as for each type of contract. Such result together with an increase in personal income highlight a reduction in the income differences within the family. Regarding negative contributions associated to individuals who are a burden for the family, it is noticeable a reduction in the absolute value since the entity of the transfer appears to be less negative over time.

Table 4: Distribution of personal incomes from labour and pension by type
of contract/economic status and gender, across the two periods

	ECHP				IT-Silc			
	1995		**1996**		**2004**		**2005**	
	Women	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**
Permanent FT	12077	15017	12373	15144	15722	19345	15922	19473
Permanent PT	7536	11217	9370	14430	9934	14235	9674	14535
Not permanent FT	7233	7902	7554	10135	12000	13431	10767	13419
Not permanent PT	4725	7692	5925	6035	8215	8354	7254	8891
Other worker	3645	6621	3788	7640	9458	10726	10347	18187
Unemployed	1247	1410	960	1732	2555	3419	2918	4483
Retired	6824	9588	6749	9390	8963	13601	9397	13690
Other Inactive	856	366	947	493	2165	1796	2250	1794

Note: Incomes are reported in real value: base-year 2000.

Table 5: Distribution of personal contribution by type of contract/economic
status and gender during the two periods

	ECHP				IT-Silc			
	1995		**1996**		**2004**		**2005**	
	Women	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**
Permanent FT	31,38	78,99	34,18	77,85	21,58	58,03	21,30	59,16
Permanent PT	7,55	41,51	17,35	70,57	7,61	23,83	4,88	23,11
Not permanent FT	8,18	35,31	14,83	53,78	13,42	35,13	6,52	36,48
Not permanent PT	-4,04	45,81	1,98	15,82	1,28	38,75	-3,21	26,63
Other worker	-22,81	16,49	-13,58	27,31	7,54	8,60	-1,18	40,71
Unemployed	-42,87	-34,63	-47,17	-30,53	-35,91	-22,60	-33,40	-14,79
Retired	0,19	37,71	0,53	37,19	-7,58	25,92	-7,30	26,99
Other Inactive	-46,82	-50,10	-46,65	-48,66	-42,79	-42,67	-42,87	-42,59

Note: Values are the percentages of money contribution each individual gives/receives to
level income differences.

3 Methods

As already stated, the Italian questionnaire of two datasets (ECHP and IT-Silc) have been used in this analysis. They are both longitudinal, so panel data technique is used to estimate which factors affect the money contribution within the family.

In particular two different equations for both men and women[9] and for both ECHP and IT-Silc are estimated. Let $y_i t$ be the money contribution for any man (woman) i ($\forall i = 1, ..., N$). The model can be written:

$$y_{it} = \alpha_0 + P_{it}\beta_1 + F_{it}\gamma_1 + u_i + \epsilon_{it} \tag{1}$$

where

$$E(u_i|Pi, Fi) = 0$$

and

$$E(u_i{}^2|Pi, Fi) = \sigma_u{}^2$$

The composite error can be written as:

$$v_{it} = u_i + \epsilon it \tag{2}$$

3.1 Implications of the estimation's procedure

Panel data method gives the opportunity to look at time-invariant individual effect. On the one hand the fixed effect model allows the individual effect to be correlated with the regressors, removing the bias that would result. It uses the within variation but it needs sufficient variation over time and can only estimate coefficients on time-varying coovariates. On the other hand, the between regression uses only the between-group variation amplifying the individual effect and estimating with the potential bias due to the correlation between the individual effect with the regressors. A more general panel data technique is the random effect model where the use of the generalised least squares method weight the between and the within variation providing the efficient combination of the two. Of course, the choice of random effect model in the context of panel data technique is based on whether the assumption of individual effect uncorrelated with the regressors holds (Wooldridge, 2002). A random effect model is chosen to estimate time-invariant coovariates. In fact, there are only two years for each panel and some of the variables included in the estimates, namely area of residence and education, do not vary between them.

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[9]A maximum likelihood ratio test has been performed to test whether the un-restricted model (i.e. two separate model for men and women), has to be preferred to the restricted one (i.e. one pooled equation for men and women). The test reject the assumption of no differences between males and females, so two separate equations were estimated

4 Estimates

Table 6 contains the random effect panel regressions of both samples used in our analysis, performed for men and women, separately.

Considering the age and its squared term, it is clear that the contribution changes both across gender and over the span considered, in order to keep personal income level with the per-capita one. Men behave in an inverted U-shaped in age as they reach the maximum at 55.5 years in the ECHP sample and 37 years in the IT-Silc, respectively. This suggests that men are more likely to support other family members since the beginning of their occupational career; in particular as time passes by they reduce the entity of such money transfer. However, it is remarkable to note that, this process varies over time. Mainly, before the reduction of the levels of employment protection through diverse reforms, males decrease the amount of money transferred to other family members once are close to retirement. On the contrary in the IT-Silc sample, where the maximum of this age function is reached earlier than what emerged in the ECHP sample, men diminish the entity of transfer versus any family member probably at the age when they have more stable jobs. Regarding this variable instead, women follow an U-shaped pattern in age with a minimum in adulthood (31 in ECHP and 34.5 in IT-Silc, respectively). According to empirical evidence on female labour market participation (Del Boca, 2002; Di Tella and Mac Culloch, 2002; Jaumotte, 2003), women are more likely to experience occupational interruptions when they are close to this age, especially because of pregnancy. In addition, women may also face lower employment rates before 30s because of being still in education; as a result they are less economically supportive within the family. As expected, differences between males and females emerge. The latter are more likely to be receivers within the family.

With respect to regional area of residence, the results reflect the poorest economic conditions which characterise Italy. Regardless of gender and span, what it emerges is that people living in the South are more willing to share their incomes with all the other family members, possibly to overcome occupational problems of some members.

Educational qualification estimates suggest that, less educated men, on average, make a larger contribution to promote the reduction of intra-household income differences. On examining males' sample coefficients associated to education in IT-Silc, the situation is different as highest educated individuals appear to be more supportive within the family. Not surprisingly instead, females sub-sample shows, in both data, especially those with a levels of education over compulsory schooling, namely high school diploma or a degree, positively contribute to narrow family income differences. According to the ISTAT statistics (ISTAT, 2009) labour market participation is greater for more educated women (i.e. 58.5% and 72% for the case of upper secondary school and tertiary education respectively), thereby having

a job may help to reduce such household inequality.

Each member has a particular role in the family. In both surveys fathers make larger transfers to other members living in the household, even if the entity is smaller in the last period. Instead sons, as expected, play the role of money receivers with regard to other family members, and the magnitude of the coefficient is larger when labour market flexibility has been already implemented. Even mothers are on average economically supportive in spite of a smaller entity over the period considered.

Results related to the economic status of each family member show that the pattern is equally distributed within the two sub-samples and across span. Generally, people who have a permanent contract are significantly more likely to promote an equal share of resources within the family. Evidently, intrinsic characteristics associated with this type of contract explain why this variable is a good predictor of the propensity to transfer money within the family, namely job tenure, higher wages, better welfare provision, etc. The category of workers, in a less favourable financial condition is part time temporary contract holders apart from those who have other atypical contract forms. Those who are out of the labour market for several reasons, i.e. retirement, unemployment and inactivity, regardless of gender and data considered, contribute negatively to level income differences. However, the retired do not place a large financial burden on other family members as unemployed, students and housewives do since they receive the pension.

Considering explanatory variables related to the household composition of each respondent, excluding himself, the patterns by gender are quite similar, but the coefficients differ in magnitude. A unit change in the number of women living in a specific household enhances on average the entity of the contribution, mainly for the case of males. Nevertheless, the amount reduces in size over time. The same path is noticed, both for males and females, for inactive and unemployed, even if in the IT-Silc males make large contribution to avoid household income differences when the number of members out of the labour force in his/her family increases. On the contrary, after lowering labour market protections, potentially, those who benefited more than others of such interventions were females. They now become a small financial burden on men thanks to the availability of more flexible jobs. Finally, the greater is the number of individuals with a job in a family, regardless of the type of contracts, the smaller is the magnitude of the contribution each individual has eventually to share with all the other family members, especially for the case of men.

Table 6: Estimates of random effect model for personal contribution within the family

	ECHP 1995-1996		IT-Silc 2005-2006	
	Men	**Women**	**Men**	**Women**
Age	1.11***	-0.62***	1.47***	-0.69***
Age squared	-0.01***	0.01***	-0.02***	0.01***
Area of residence ♭				
North	-2.18*	-0.06	-1.05	-0.51
South	4.10***	2.81***	1.99***	1.31**
Education ♮				
Tertiary education	-2.08	11.05***	2.40**	8.91***
Upper secondary education	-2.81***	6.44***	0.04	5.36***
Member within the family §				
Parents	38.50***	14.59***	20.33***	12.59***
Children	-29.22***	-0.54	-34.09***	-0.70
Type of contract ♯				
Permanent part time	-10.48**	-12.89***	-13.70***	-14.74***
Not permanent full time	-13.33***	-19.49***	-9.68***	-11.90***
Not permanent part time	-26.43***	-30.70***	-11.03***	-22.07***
Other workers	-33.07***	-46.50***	-10.67***	-21.08***
Retired	-29.61***	-37.86***	-23.30***	-42.44***
Unemployed	-69.91***	-67.67***	-51.77***	-49.95***
Other inactive	-63.01***	-71.76***	-45.34***	-61.94***
Family characteristics				
Number women	9.71***	5.40***	3.92***	5.15***
Number permanent contract	-10.76***	-5.08***	-4.86***	-6.28***
Number not permanent contract	-17.46***	-9.60***	-9.92***	-9.28***
Number unemployed	6.16***	4.38***	12.94***	4.43***
Number out of labor force	7.65***	-1.15***	15.55***	2.07***
Constant	21.36***	22.81***	-2.97	13.12***
σ_u	34.29***	26.00***	30.67***	25.29***
σ_e	27.39***	23.11***	19.50***	18.05***
Number of observations	15706	17930	25508	29565
Log likelihood	-80068	-87583	-125297	-141125

Note: $* : p < 0.1$; $** : p < 0.05$; $*** : p < 0.01$, Reference categories: ♭ Center; ♮
Compulsory education; ♯ Permanent full time; § Other members

4.1   Further investigations

Tables 7 and 8 show predicted values computed from the estimates. Four patterns are considered: full time and part time permanent workers and full time along with part time temporary workers. We also provide the predicted values of non-workers: unemployed, inactive and retired. Each value is computed under the assumptions that the individual's contribution changes with age, and distinguishing between parents (table 7) and children (table 8). Other coovariates are hold constant as follows: parents/children living in the North, with an upper secondary school diploma and with number of women, unemployed, person with permanent and temporary contracts equal to the each sample mean.

Considering firstly the predicted values for parents, regardless of any personal characteristics considered, it is remarkable to note that mother always report lower rates of contribution compared with their counterpart and the gap becomes larger once we look at temporary contracts, both part-time and full-time. This results is in line with the income dynamics observed by gender (see table 4). After the reforms, for example, a 30 year old father with a part time permanent contract, contributes up to 51.5% to level household income differences against 9.08% of mothers in the same situation. The difference is even bigger if we consider 30 year old workers with part time temporary contracts (53.73% for men and 1.75% for women). However, within each age group, on average these differences by gender are definitely narrowed than what found before the introduction of flexibility. In fact these variations in contribution reduce as regards the difference between men and women in absolute value (i.e 59.36 minus 4,07 vs 53,73 minus 1,75, respectively before and after the reform, still for 30 year old). However, considering this age group, the entity of such contribution increases if we take into account the relative terms, namely the ratio between men and women (i.e. 59.36/4,07 vs 53,73/1,75, respectively before and after the reform). The latter result underlines that mothers overall transfer less part of their income to other family members than were able to do before the reform. Finally, 60 year old mothers with temporary contracts, both part time and full time, are the only ones to increase their own contribution in the family (from 14% to 16% and from 25% to 26%, respectively). A plausible explanation is associated to the number of interventions implemented in the labour market in terms of flexibility after 1996, which favour the participation of women in the job market along with the opportunity of working even if already retired (L.289/2002). In general, we can observe, both before and after the introduction of flexible types of contracts, that especially aging women increase their contributions. This is the category which has probably received the most benefits of all these reforms, especially because mature women do not experience job interruption, for example because of maternity.

Once we look at the non-working parents, we notice that unemployed mothers are less burdensome over the time. In fact, after the reforms, the burden of an unemployed 40 year old mother reduces from -32% to -24%, even more when is 50 year old, namely from -28% to -19%. On the contrary, retired women after the reforms become a burden for all the other family members, as they predicted values are now negative.

Finally, predicted values are also provided for children. It is interesting to note that only permanent workers, whether son or daughter, positively contribute to other family members. The children with temporary contracts working part time increase their burden after the reforms. The amount of money transferred increases as age passes by. In addition, the entity of such contribution is large after the reform. Daughters (regardless of age) transfer overall more than sons, if they are permanent and full time workers. Instead, as expected, those who absorb more resources from the other family members are unemployed and inactive children. This is even more noticeable after the reform.

To sum up, over the span considered, the reduction in the contribution, as shown in the predicted values for working parents; is essentially due to a rise in the entity of the family income, which increases more than the personal income. In fact from 1995 to 2005 the real per capita income increases on average of 57% , instead the real personal income increased by 29% for permanent men and about 25% for women (Table 2)[10].

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[10]We remind that the dependent variable is defined as the difference between personal income from labour and pension and the relative per-capita income divided by the total equivalised net household income. As a result a reduction in the contribution can be due to several factors, namely a reduction in the personal income, an increase in family income which increases both equivalised and per-capita income, and a reduction in family members.

Table 7: Predicted values from random effect model: parents

| | ECHP 1995-1996 | | | | | | IT-Silc 2004-2005 | | | | | |
| | Age | | | | | | Age | | | | | |
	20	30	40	50	60	70	20	30	40	50	60	70
Men												
Permanent FT	81,63	85,79	87,17	85,76	81,58	–	57,54	64,75	68,96	70,15	68,32	–
Permanent PT	71,15	75,31	76,69	75,29	71,10	–	43,83	51,05	55,25	56,44	54,62	–
Not permanent FT	68,29	72,45	73,83	72,43	68,24	–	47,86	55,07	59,28	60,47	58,64	–
Not permanent PT	55,20	59,36	60,74	59,34	55,15	–	46,51	53,73	57,93	59,12	57,30	–
Retired	–	–	–	56,15	51,97	51,97	–	–	–	46,84	45,02	45,02
Unemployed	11,72	15,88	17,26	15,86	11,67	–	5,77	12,98	17,19	18,38	16,55	–
Other Inactive	18,62	22,78	24,16	22,75	18,57	–	12,20	19,42	23,62	24,81	22,99	–
Women												
Permanent FT	35,71	34,77	35,94	39,23	44,64	–	24,25	23,81	25,97	30,71	38,05	–
Permanent PT	22,83	21,88	23,05	26,34	31,75	–	9,52	9,08	11,23	15,97	23,31	–
Not permanent FT	16,22	15,28	16,45	19,74	25,15	–	12,35	11,91	14,06	18,81	26,14	–
Not permanent PT	5,01	4,07	5,24	8,53	13,94	–	2,19	1,75	3,90	8,65	15,98	–
Retired	–	–	–	1,37	6,78	6,78	–	–	–	-11,72	-4,39	-4,39
Unemployed	-31,95	-32,90	-31,73	-28,43	-23,02	–	-25,70	-26,14	-23,98	-19,24	-11,90	–
Other Inactive	-36,05	-36,99	-35,82	-32,53	-27,12	–	-37,69	-38,13	-35,97	-31,23	-23,89	–

Note: Predicted values for parents living in the North with secondary level of education and with all the other covariates set at the sample mean.

Table 8: Predicted values from random effect model: children

	ECHP 1995-1996				IT-Silc 2004-2005			
	Age				**Age**			
	20	30	40	50	20	30	40	50
Men								
Permanent full time	3,12	10,34	14,54	15,73	13,91	18,07	19,45	18,05
Permanent part time	-10,58	-3,37	0,84	2,03	3,43	7,60	8,97	7,57
Not permanent full time	-6,56	0,66	4,86	6,05	0,58	4,74	6,12	4,71
Not permanent part time	-7,91	-0,69	3,51	4,70	-12,52	-8,36	-6,98	-8,38
Unemployed	-48,65	-41,43	-37,23	-36,04	-56,00	-51,84	-50,46	-51,86
Other Inactive	-42,21	-35,00	-30,80	-29,61	-49,10	-44,94	-43,56	-44,96
.								
Women								
Permanent full time	10,97	10,53	12,68	17,42	20,59	19,65	20,82	24,11
Permanent part time	-3,77	-4,21	-2,06	2,69	7,70	6,76	7,93	11,22
Not permanent full time	-0,94	-1,38	0,77	5,52	1,10	0,16	1,33	4,62
Not permanent part time	-11,10	-11,54	-9,39	-4,64	-10,11	-11,06	-9,88	-6,59
Unemployed	-38,98	-39,42	-37,27	-32,53	-47,07	-48,02	-46,85	-43,56
Other Inactive	-50,97	-51,41	-49,26	-44,52	-51,17	-52,12	-50,94	-47,65

Note: Predicted values for children living in the North with secondary level of education

and with all the other coovariates set at the sample mean.

5 Conclusions

This paper has been motivated by the introduction of a number of reforms implemented in Italy to reduce the levels of employment protection in favour of permanent workers. This have been called into question the great benefits this category derives regarding the non-permanent one. Up to the very recent years, very little was known about the impact of the so-called atypical or non-standard forms of employment on household income differences. Our attempt was hence to fill in the gap providing evidence on the determinants of the potential changes to personal levels of income with regard to other family members before and after the introduction of employment flexibility rules. We thus calculated the money contribution of each individual within the family and used two longitudinal data (namely the Italian questionnaire of ECHP and IT-Silc) so to be able to compare results across years before (ECHP 1995-1996) and after (IT-Silc 2004-2005) the reforms. Panel data techniques were performed for men and women, separately.

Our results showed that men are overall more supporting other family members since the beginning of their occupational careers and mainly after the reforms. The amount of money transferred to other family members decreases as the age passes by. The opposite is true for women, with a minimum in adulthood (31 in ECHP and 34.5 in IT-Silc, respectively) confirming that they are more likely to experience occupational interruptions when they are close to this age, especially because of pregnancy. Moreover, women contribute more than men when they have high levels of education.

Looking at the type of contract variable, we then saw that the contribution of full time permanent workers reduces after the reforms signaling a reduction of the income disparities within the family.

We also provided predicted values computed from the estimates analysing both the type of contracts for workers and the non-workers and assuming that the individual's contribution changes with age. We also distinguish between men and women and parents and children.

We noticed that mother always report lower rates of contribution compared with their counterpart and the gap becomes especially large once we look at temporary contracts, both part-time and full-time. The differences between men and women reduce as age passes by. 60 year old mothers with temporary contracts, both part time and full time, are the only ones to increase their own contribution in the family (from 14% to 16% and from 25% to 26%, respectively). We believed this result may be understood through the number of interventions in terms of flexibility implemented after 1996, which favour both the participation of women in the job market and the opportunity of working even if already retired.

Regarding the children we showed that daughters with full time permanent contracts contribute more than sons in the same position and this is even stronger after the reforms. On the contrary, offspring with part time

temporary contracts increase their burden after the reforms.

To sum up we may drawn some conclusions: firstly the reduction in the contribution is essentially due to a rise in the entity of the family income, which increases more than the personal income. Secondly the flexibilization, mainly devoted to the categories of individuals usually discriminated in the labour market (i.e. women and/or young people), has increased the job opportunity of women older than 40 years old, and for young people has enhanced the benefits of those with secure employment. Finally, the reduction of employment protection rules did not decrease the differences in the labour forces participation between men and women and did not enrich the contribution within the family of those individual working part time or with non permanent contracts.

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Appendix A: Institutional labour market background

In the last ten years the development of the Italian Labor Law System allows companies to introduce both new types of temporary jobs and to loosen the ties of employment contracts already in use. The two principal landmarks have been the Treu and Biagi reforms of 1997 and 2003, respectively. The motivation of the "Treu package", was to increase employment, particularly among the young with special provision for the economically depressed South. This Law (n. 196 of June 1997) constitutes a sort of watershed representing the beginning of the development of temporary contracts. It eased regulation of the new apprenticeships and work-training contracts, and created incentives for on-the job training temporary work via private agencies and intra-regional labour mobility. Apprenticeships contracts are extended to all sectors, including agriculture, the age increased from 15 - 20 to people aged 16-24 (26 in the case of Southern Italy) and the age increase of two years for disabled and artisans. It also legalised worker-dispatching services and the temporary work agencies and liberalised fixed term contracts (OECD, 2009). Besides, article 13 of the Treu package introduced a set of provisions granting incentives for reduced working hours, by means of relief on social security contributions. However, these measures to encourage working hours reduction have to be implemented yet - owing to factors such as the continuing discussion surrounding the draft bill to introduce the 35-hour working week-.

The second labour-market reform in Italy was in 2003 when an additional and wider law have been implemented, namely the Biagi Law (L. n. 30/2003). Such law aimed at taking some of the Treu reforms further, in order to increase employment among youth, women, older workers and job-seekers, particularly in the poorest Southern regions. The new measures allow private employment agencies to compete in the full range of services with public ones. The purpose is to create a plausibly set of instruments to ensure the transparency and efficiency of the labour market, and to improve work entry possibilities by the unemployed and by first-job seekers, with particular reference to the weak segments of the labour force. Another measure is the creation of a 'national continuous labour exchange' (Borsa Continua Nazionale del Lavoro). This consists of an on-line information system that facilitates the matching between labour supply and demand, and enables the monitoring of active employment policies, equal opportunity measures and labour market integration of disadvantaged workers. A second aspect of the Biagi reform bill focuses on the definition of new types of employment contract, and the modification of existing ones, with a view to enhancing the quality and stability of work by making the employment relationship more adaptable to the needs of firms and workers. Moreover, wide margin is left for collective bargaining to define the conditions of, and possible restrictions on, the use of the new types of employment contract. The main innovations are the following: the introduction of fixed term or open-ended staff leasing

contracts . Under this system, companies may 'lease' the workers they need for technical, productive or organisational reasons from employment agencies. Secondly the so-called on-call job, whereby the worker is available by the employer during a fixed period of time. The reform bill, also, confirms and specifies regulations on job sharing, an arrangement based on a special contract whereby two or more workers jointly assume the responsibilities of a single work obligation (L. 30/2003 - article 41). This is intended to encourage firms to use part time work, and to facilitate the labour market entry of people who need to reconcile work with family responsibilities, study or other commitments. The bill seeks to foster the use of part time work - both 'vertical' (i.e. comprised of working days similar to those of full time workers, but less working day in a week), or 'horizontal' (with reduced hours every day) - by including elastic clauses which allow employers (according to criteria and at the conditions agreed by the parties) to increase working time and modify schedules. An especially significant part of the reform bill concerns the rules on contracts for employer-coordinated freelance work (the so called co.co.co) - 'semi-subordinate' contracts which, according to the most recent surveys, currently affect around 2.3 million Italian workers. A freelancer should be classified as self-employed, although a person who has been regularly retained by a single employer for some time may also be regarded as an employee. The reform bill also introduces a supplementary work category - that is, work of a merely occasional nature undertaken by people at risk of social exclusion or who have not yet entered the labour market or who are about to leave it. By 'merely occasional' is meant activities involving a worker for no more than 30 days per calendar year, and for which in any case the remuneration amounts to no more than EUR 5,000 in a calendar year. The service performed must take the form of minor and exceptional domestic work (for instance, child and elderly care). Finally, another set of employment relations addressed by the reform bill is about training, such as apprenticeships. It will be possible to conclude an apprenticeship contract with a young person aged between 18 and 29 for various purposes, these being: (a) fulfilling the right/duty to education and training; (b) gaining a qualification by means of on-the-job training and technical-professional instruction; and (c) acquiring a diploma or complementing a higher education programme. Furthermore, for particular categories, such as young people aged 18 to 29 and disadvantaged workers (long-term unemployed people aged under 32, unemployed workers aged over 45, women resident in areas with high levels of female unemployment, etc.) the law introduces a work entry contract, in order to conform the worker's professional skills in a particular job and to support his/her labour market entry or re-entry, through an individual project (L. 30/2003 - article 55). This employment relationship will replace the existing work/training contract, which has been criticised by the EU for their overly wide scope of application.

Table 9: Descriptive statistics: Men IT-Silc

Variable	N. of obs.	Mean	Standard Deviation	Min	Max
Contribution	25508	16.44	62.91	-626.47	654.15
Age	25508	41.17	23.03	0.00	8.00
North	25508	0.46	0.50	0.00	1.00
South	25508	0.31	0.46	0.00	1.00
Tertiary education	25508	0.07	0.25	0.00	1.00
Upper secondary education	25508	0.28	0.45	0.00	1.00
Up to lower secondary education	25508	0.65	0.48	0.00	1.00
Parent	25508	0.34	0.47	0.00	1.00
Children	25508	0.39	0.49	0.00	1.00
Permanent full time	25508	0.34	0.47	0.00	1.00
Permanent part time	25508	0.01	0.09	0.00	1.00
Not permanent full time	25508	0.04	0.19	0.00	1.00
Not permanent part time	25508	0.01	0.07	0.00	1.00
Other workers	25508	0.01	0.10	0.00	1.00
Retired	25508	0.27	0.44	0.00	1.00
Unemployed	25508	0.04	0.21	0.00	1.00
Other inactive	25508	0.28	0.45	0.00	1.00
Number women	25508	1.28	1.28	0.00	8.00
Number permanent contract	25508	0.10	0.31	0.00	3.00
Number not permanent contract	25508	0.54	0.70	0.00	4.00
Number unemployed	25508	0.10	0.34	0.00	4.00
Number out of labor force	25508	1.27	0.99	0.00	10.00

Appendix B: Descriptive statistics

Table 10: Descriptive statistics: Women IT-Silc

Variable	N. of obs.	Mean	Standard Deviation	Min	Max
Contribution	29565	-20.27	18.27	-753.07	500.00
Age	29565	44.00	22.77	0.00	80.00
North	29565	0.46	0.50	0.00	1.00
South	29565	0.31	0.46	0.00	1.00
Tertiary education	29565	0.06	0.25	0.00	1.00
Upper secondary education	29565	0.28	0.45	0.00	1.00
Up to lower secondary education	29565	0.66	0.47	0.00	1.00
Parent	29565	0.40	0.49	0.00	1.00
Children	29565	0.29	0.46	0.00	1.00
Permanent full time	29565	0.17	0.38	0.00	1.00
Permanent part time	29565	0.05	0.21	0.00	1.00
Not permanent full time	29565	0.03	0.17	0.00	1.00
Not permanent part time	29565	0.01	0.11	0.00	1.00
Other workers	29565	0.01	0.11	0.00	1.00
Retired	29565	0.18	0.38	0.00	1.00
Unemployed	29565	0.04	0.20	0.00	1.00
Other inactive	29565	0.51	0.50	0.00	1.00
Number women	29565	0.75	0.85	0.00	7.00
Number permanent contract	29565	0.08	0.29	0.00	3.00
Number not permanent contract	29565	0.56	0.70	0.00	4.00
Number unemployed	29565	0.09	0.32	0.00	4.00
Number out of labor force	29565	1.11	0.95	0.00	9.00

Table 11: Descriptive statistics: Men ECHP

Variable	N. of obs.	Mean	Standard Deviation	Min	Max
Contribution	15706	19.65	76.92	-75.00	448.40
Age	15706	36.94	22.13	0.00	87.00
North	15706	0.35	0.48	0.00	1.00
South	15706	0.46	0.50	0.00	1.00
Tertiary education	15706	0.05	0.22	0.00	1.00
Upper secondary education	15706	0.26	0.44	0.00	1.00
Up to lower secondary education	15706	0.68	0.46	0.00	1.00
Parent	15706	0.38	0.48	0.00	1.00
Children	15706	0.48	0.50	0.00	1.00
Permanent full time	15706	0.34	0.47	0.00	1.00
Permanent part time	15706	0.00	0.06	0.00	1.00
Not permanent full time	15706	0.03	0.17	0.00	1.00
Not permanent part time	15706	0.00	0.05	0.00	1.00
Other workers	15706	0.02	0.14	0.00	1.00
Retired	15706	0.22	0.41	0.00	1.00
Unemployed	15706	0.08	0.27	0.00	1.00
Other inactive	15706	0.30	0.46	0.00	1.00
Number women	15706	1.50	0.87	0.00	7.00
Number permanent contract	15706	0.07	0.29	0.00	3.00
Number not permanent contract	15706	0.57	0.70	0.00	4.00
Number unemployed	15706	0.20	0.53	0.00	6.00
Number out of labor force	15706	1.19	0.89	0.00	6.00

Table 12: Descriptive statistics: Women ECHP

Variable	N. of obs.	Mean	Standard Deviation	Min	Max
Contribution	17930	-23.54	0.44	-75.00	328.18
Age	17930	15.45	0,9375	0.00	87.00
North	17930	0.36	0.48	0.00	1.00
South	17930	0.45	0.50	0.00	1.00
Tertiary education	17930	0.04	0.20	0.00	1.00
Upper secondary education	17930	0.25	0.43	0.00	1.00
Up to lower secondary education	17930	0.70	0.46	0.00	1.00
Parent	17930	0.45	0.50	0.00	1.00
Children	17930	0.38	0.48	0.00	1.00
Permanent full time	17930	0.16	0.37	0.00	1.00
Permanent part time	17930	0.02	0.14	0.00	1.00
Not permanent full time	17930	0.02	0.14	0.00	1.00
Not permanent part time	17930	0.00	0.06	0.00	1.00
Other workers	17930	0.02	0.14	0.00	1.00
Retired	17930	0.15	0.35	0.00	1.00
Unemployed	17930	0.07	0.25	0.00	1.00
Other inactive	17930	0.56	0.50	0.00	1.00
Number women	17930	0.97	0.92	0.00	6.00
Number permanent contract	17930	0.07	0.28	0.00	3.00
Number not permanent contract	17930	0.62	0.70	0.00	4.00
Number unemployed	17930	0.21	0.54	0.00	7.00
Number out of labor force	17930	0.96	0.87	0.00	6.00