

FLEXIBLE EMPLOYMENT, JOB FLOWS AND PRODUCTIVITY: A TALE OF TWO REFORMS

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MOTIVATION 1

- ▶ In a country with rigid EPL (Italy), labour market flexibility has been pursued by promoting the use of temporary contracts. Over the past decade several reforms (Treu and Biagi reforms) aimed at favouring the use of temporary contracts by firms.
- ▶ Temporary contracts affect job flows by increasing both the hiring and the firing of workers.
- ▶ The productivity impact of reforms that liberalize the use of temporary contracts has never been evaluated using firm-level data.
- ▶ Using the staggered exposure of Italian firms to two reforms of temporary employment, we are the first to provide this type of evidence.

MOTIVATION 2

- ▶ Italian employers have access to a rich menu of temporary employment contracts.
- ▶ Reforming one type of contract may have little or no real effect if firms substitute across types of temporary labour, or between permanent and temporary contracts.
- ▶ In this paper we also consider these neglected aspects and estimate the elasticity of substitution between different types of temporary contracts.

WHAT WE DO IN THIS PAPER

1. We exploit exogenous variation in the exposure of firms to two institutional changes: Reform of apprenticeship contracts and reform of fixed-term contracts.
2. We use firm level panel data to investigate the impact of institutional changes on job flows, labour productivity and other margins of firms decisions.
3. We use detailed information on all types of temporary employment used by the firm to analyze substitution across contracts

PREVIEW OF THE RESULTS

1. We find that the reform of apprenticeships has been successful in increasing job flows and labour productivity. Firms substituted external staff (agency workers and cococo) with apprentices.
2. We find that the reform of fixed-term contracts did not obtained the intended results. Job flows and productivity are reduced in firms exposed to this reform. Firms employed more external staff and decreased K/L.
3. Uncertainty on the applicability of the new legislation might have induced firms to substitute fixed-term contracts with other types of temporary contracts.
4. We estimate high elasticity of substitution between contracts that is consistent with this interpretation.

OUTLINE

- ▶ Institutional background
- ▶ Literature review
- ▶ Models and estimation
- ▶ Data
- ▶ Results
- ▶ Conclusion

INSTITUTIONAL BACKGROUND: TEMPORARY EMPLOYMENT IN ITALY

A wide menu of temporary contracts is available to Italian firms:
fixed term, apprenticeships, agency workers, collaborators

	Employment (in thousands)	Social security contributions
Permanent employees	14726	31
Fixed-term employees	1263	31
Apprentices	541	10
Agency workers	256	31
Collaborators	731	17

Note: social security contributions as a percentage of gross earnings.

INSTITUTIONAL BACKGROUND: REFORMS OF TEMPORARY EMPLOYMENT IN ITALY

1. The 'Treu-Package' (1997) legalized temporary work agencies and liberalized both apprenticeship and fixed-term contracts;
2. Decree-Law No. 368 (2001) which eased restrictions on fixed-term contracts further;
3. The 'Biagi Law' (2003) introduced a number of new contracts to the legislation designed to make it easier to employ workers on a temporary basis. New and more flexible forms of apprenticeships were also included in this new law. We focus on reforms 2 and 3.

FIXED-TERM CONTRACT REFORM: LEGISLATIVE DECREE NO. 368/2001

Decree No. 368/2001 Liberalized the contract abolishing the detailed list of specific reasons (causali) and introducing general 'reasons of a technical, organizational, production or replacement nature'.

- ▶ Pros: removed the need of finding specific reasons.
- ▶ Cons: introduced uncertainty on applicability, norm too generic and dependent on judges' interpretation. Labour law experts dubious about its overall cost-reducing impact.
- ▶ Abolished the possibility that unions introduced additional 'causali' in sectoral contracts. Unions could still set quotas for temporary contracts in collective bargaining rounds but they all confirmed previous quotas: homogenous implementation.

FIXED-TERM CONTRACT (2)

- ▶ For the decree to become effective, the implementation of the general provisions required approval in collective bargaining rounds.
- ▶ Only some sectors had collective bargaining rounds in the years that followed the legislation. Textiles, Wood Products, Chemicals, Construction, Transportation, Retail Trade, Food Products and Telecommunication in 2005 and 2006. Metal Manufacturing and Banking renewed the collective agreements during the period but decided to postpone the implementation. We test endogeneity.
- ▶ This determines variation by sectors and over time in firms exposure to the new conditions for fixed-terms, which we exploit in estimation.

APPRENTICESHIP CONTRACT REFORM (LAW 30/2003)

(1)

Apprenticeships have a long tradition in Italy. The law meant to incentive their utilization by:

- ▶ Abolishing the need of certifying qualifications obtained by the employee;
- ▶ Extending the upper age limit for applicability from 25 to 30;
- ▶ Introducing the option to perform training at the workplace rather than externally.
- ▶ However, before the new law could be implemented, it required a set of regulations to be issued by the regions.
- ▶ Only some regions and not others issued the necessary regulations. In some cases, regulations were experimental and only affected some sectors.

APPRENTICESHIP CONTRACT REFORM (LAW 30-2003)

(2)

- ▶ Some regions regions passed guidelines in 2006 and 2007. Some regions enacted experimental projects for the new contract in specific sectors (mainly Retail Trade, Banking and Hotel and Restaurants). These experimental projects were implemented in 2005. We test endogeneity of experiments.
- ▶ Additionally, Law 80-2005 established that in the absence of regional regulations, sector-specific collective agreements could specify the training content of the new contracts.
- ▶ All this generates variation over time across regions and sectors in the possibility of firms to utilize the new apprenticeship contracts, which we exploit in estimation.

LITERATURE (1)

- ▶ Some models conclude that fixed-term contracts are used as buffer-stock and boost the number of hirings and firings in the economy while the variation of aggregate employment remains ambiguous. [Aguirregabiria and Alonso-Borrego (1999), Bentolila and Bertola (1990), Bentolila and Saint-Paul (1992), and Boeri and Garibaldi (2007)]
- ▶ In Blanchard and Landier (2002), Cahuc and Postel-Vinay (2002), and Wasmer (1999) temp contracts are seen as churning policies that affect negatively wage setting and may generate higher unemployment and lower productivity.
- ▶ Ichino et al (2008) show that being on a temp contract has a causal effect on the probability of finding a permanent match (good screening devices). Temp contract should then increase productivity.

LITERATURE (2)

Some recent papers on the effects of EPL on productivity.

- ▶ Autor, Kerr and Kugler (2007). Find small negative effects (not always significant) of EPL on TFP and labour productivity using US cross-state and firm variation.
- ▶ Cingano et al. (2008 and 2010). Diff in Diff approach following a Italian EPL reform and cross-country evidence. Mixed evidence regarding productivity, EPL triggers capital-labor substitution.
- ▶ Bassanini et al. (2008). Sectoral cross-country exercise. Negative effect of EPL on TFP.
- ▶ Dolado et al. (2012) EPL reduces effort.
- ▶ Cahuc et al. (2012) EPL substitution perm. with temp.

DATA

- ▶ Excelsior-Asia database. Balanced panel of about 13000 firms observed over the years 2004-2007.
- ▶ Information on the types of employment contracts used within the firm
- ▶ Balance sheet information: value added and capital stock
- ▶ Apprenticeship introduced mostly in 2006, fixed-term in 2005.

DESCRIPTIVE STATISTICS

	Full sample	Never treated	Reform of app	Reform of fixed term
N of observations	53144	26182	24208	12994
2004	13286	13286	0	0
2005	13286	6922	3671	4316
2006	13286	3170	10095	4339
2007	13286	2804	10442	4339
Total employment	203.21	210.95	193.90	201.30
% Permanent contracts	88.11	87.92	88.05	88.76
% Fixed term contracts	6.02	5.78	6.38	5.99
% Apprenticeships	1.92	1.76	2.09	2.31
% Agency workers	2.32	2.25	2.44	2.10
% Collaborators	2.11	2.57	1.69	1.48
% Blue collars	60.85	60.09	61.12	60.32
% White collars	37.56	38.24	37.38	38.13
% Managers	1.59	1.67	1.50	1.55
Capital per capita	63653.45	63367.87	64548.91	58655.62
Job turnover	11.33	11.61	11.32	11.01

ESTIMATING FRAMEWORK

$$Y_{it} = \gamma_F d_{it}^F + \gamma_A d_{it}^A + \delta_t + \sum (\theta_s + \lambda_{st}) Z_i^s + \sum (\theta_r + \lambda_{rt}) Z_i^r + \beta' X_{it} + \varepsilon_{it}$$

- ▶ Using firms sector and location we can determine whether they were exposed to the institutional changes over time (no one exposed in 2004)
- ▶ Let d_{it}^F be a dummy capturing the exposure of firm i in time t to the reform of fixed-term contracts, and d_{it}^A a dummy capturing the exposure of firm i in time t to the reform of apprenticeship contracts, with $t = 2004 - 2007$.
- ▶ We control for region and sector specific effects (levels and trends)
- ▶ Firms fixed effects when outcomes are in levels.

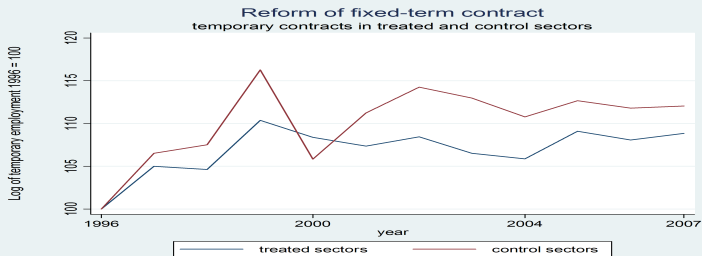
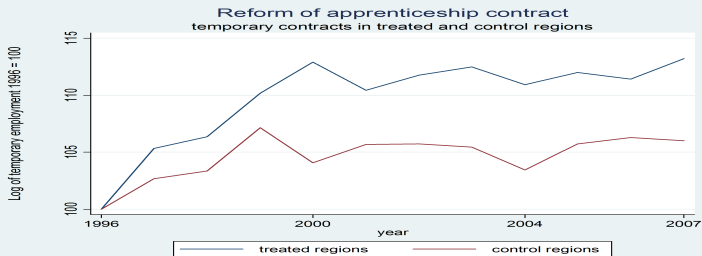
VALIDITY OF IDENTIFICATION (1)

- ▶ The validity of the identification rests on the exogeneity of the reforms. In the ideal case (i) the reform adoption decisions would be independent random events that varied in timing and (ii) had no spill-over effects to non-adopting regions or sectors.
- ▶ Mobility of individuals to adopting sectors ruled out in regression of mobility indicator on year dummies on LFS longitudinal data. Equality of coefficients on year dummies before and after cannot be rejected (P-value = 0.64).

VALIDITY OF IDENTIFICATION (2)

- ▶ One possible concern is that the regions and-or sectors which had higher or lower than average employment growth in temporary contracts or productivity were also the same to adopt the reforms of the apprenticeship contract or of the fixed-term contract.
- ▶ Italian Labour Force Survey (LFS) for employment and National Accounts for hourly productivity between 1996 and 2007. We regress the two treatment dummies defined at the sectorial level (for the fixed-term contract reform) or regional level (for the apprenticeship contract reform) on leads and lags of log employment in temporary contracts. Hourly productivity, derived from National Accounts, is averaged across treated and control sectors and regions using employment weights.

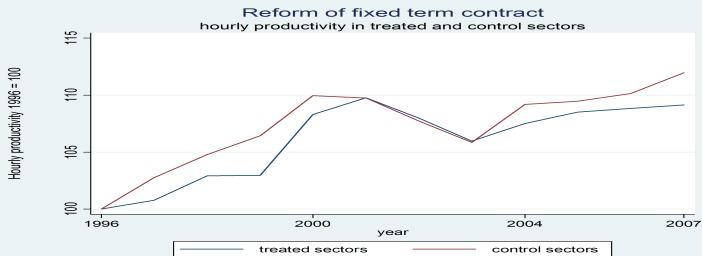
LOG TEMPORARY EMPLOYMENT



REFORM ADOPTION AND TRENDS IN TEMPORARY EMPLOYMENT

	Dummy reform of apprenticeship		Dummy reform of fixed term	
	(1)	(2)	(3)	(4)
Log temporary employment	-0.0037 (0.0668)	-0.109 (0.158)	-0.0572 (0.175)	0.480 (0.437)
Log temporary employment t-1	0.0683 (0.0741)	-0.122 (0.164)	0.0117 (0.131)	0.568 (0.417)
Log temporary employment t-2	0.0783 (0.0764)	-0.265 (0.179)	-0.123 (0.127)	0.589 (0.423)
Log temporary employment t-3	0.0240 (0.0719)	-0.242 (0.154)	-0.139 (0.129)	0.464 (0.344)
Log temporary employment t-4	0.0803 (0.0742)	-0.237 (0.152)	0.0215 (0.139)	0.460* (0.258)
Log temporary employment t-5	0.112 (0.0709)	-0.116 (0.112)	-0.0479 (0.117)	0.338 (0.221)
Log temporary employment t+1	0.0390 (0.0701)	-0.0381 (0.138)	0.0946 (0.155)	0.697 (0.456)
Log temporary employment t+2	0.0789	-0.0348	-0.0595	0.510

HOURLY PRODUCTIVITY



REFORM ADOPTION AND TRENDS IN HOURLY PRODUCTIVITY

	Dummy reform of apprenticeship		Dummy reform of fixed term	
	(1)	(2)	(3)	(4)
Hourly productivity	0.0094 (0.0326)	0.0026 (0.0488)	0.0036 (0.0098)	-0.0171 (0.0133)
Hourly productivity t-1	-0.0056 (0.0353)	-0.0210 (0.0571)	-0.0043 (0.0095)	-0.0083 (0.0131)
Hourly productivity t-2	-0.0182 (0.0302)	-0.0834 (0.0550)	0.0068 (0.0092)	-0.0243** (0.0112)
Hourly productivity t-3	0.0244 (0.0293)	-0.0161 (0.0369)	-0.0003 (0.0098)	-0.0092 (0.0116)
Hourly productivity t-4	0.0148 (0.0314)	0.0182 (0.0355)	0.0114 (0.0093)	0.0021 (0.0089)
Hourly productivity t-5	-0.0097 (0.0286)	0.0388 (0.0376)	-0.0012 (0.0075)	0.0135 (0.0094)
Hourly productivity t+1	0.0240 (0.0333)	0.0258 (0.0406)	0.0027 (0.0107)	-0.0185 (0.0124)
Hourly productivity t+2	0.0204	-0.0211	-0.0133	-0.0154

JOB TURNOVER N=39857

	Total employm (1)	Permanent contract (2)	FT contract (3)	Apprent. (4)	Agency workers (5)	CoCoCo (6)
Ref-App	-0.0020 (0.0028)	0.0021 (0.0049)	-0.0022 (0.0149)	0.0313** (0.0147)	-0.0094 (0.0151)	-0.0230 (0.0163)
Ref-FT	-0.0054** (0.0023)	0.0119** (0.0050)	0.0309** (0.0146)	-0.0134 (0.0150)	-0.0040 (0.0157)	0.0220 (0.0160)
Cons	0.114*** (0.0146)	0.113*** (0.0248)	0.505*** (0.0805)	0.259*** (0.0673)	0.225*** (0.0549)	0.498*** (0.0830)
R2	0.018	0.018	0.004	0.022	0.053	0.014

EMPLOYMENT GROWTH N=39857

	Total employ (1)	Perm contract (2)	FT contract (3)	Apprent. (4)	Agency workers (5)	CoCoCo (6)
App	0.0034 (0.0035)	0.0038 (0.0059)	-0.0048 (0.0098)	0.0161*** (0.0049)	0.0043 (0.0073)	-0.0109** (0.0054)
FT	-0.0093*** (0.0026)	-0.0135*** (0.0032)	0.0054 (0.0071)	-0.0087** (0.0041)	-0.0199*** (0.0060)	0.0101** (0.0042)
Cons	-0.0077 (0.0229)	-0.0003 (0.0263)	0.0389 (0.0426)	-0.0064 (0.0257)	-0.0304 (0.0236)	0.0115 (0.0227)
R2	0.008	0.004	0.002	0.003	0.003	0.002

SUMMARY RESULTS: TURNOVER AND EMPLOYMENT GROWTH

- ▶ Firms exposed to the reform of apprenticeship contracts increased their use of the new apprenticeship contract. Negative and significant coefficient estimated on the growth rate of collaborator workers consistent with the idea that firms used the new apprenticeship contracts for substituting external workforce with apprentices employed by the firm.
- ▶ The reform of fixed-term contracts, instead, had no significant effect on the growth rate of fixed-term contracts and at the same time had negative significant effects on the use of all other contracts except for collaborators.

ROBUSTNESS TURNOVER (1)

Excluding firms exposed to regional-sectorial experimentations of the "new" apprenticeship (N=36989)

	Total employ (1)	Permanent contract (2)	FT contract (3)	Apprent. (4)	Agency workers (5)	CoCoCo (6)
App	-0.0011 (0.0031)	0.0028 (0.0055)	-0.0066 (0.016)	0.0248 (0.0162)	-0.0159 (0.0166)	-0.0173 (0.0178)
FT	-0.0057** (0.0023)	0.0119** (0.0050)	0.0310** (0.0147)	-0.0130 (0.0151)	-0.00244 (0.0158)	0.0213 (0.0161)
Cons	0.114*** (0.0146)	0.113*** (0.0248)	0.504*** (0.0804)	0.257*** (0.0674)	0.225*** (0.0549)	0.500*** (0.0830)
R2	0.019	0.017	0.005	0.020	0.055	0.014

ROBUSTNESS TURNOVER (2)

Excluding firms of the Banking and Metal manufacturing sector
(N=31157)

	Total employ (1)	Permanent contract (2)	FT contract (3)	Apprent. (4)	Agency workers (5)	CoCoCo (6)
App	-0.0013 (0.0033)	0.0024 (0.0059)	-0.0256 (0.0172)	0.0136 (0.0169)	-0.0318* (0.0173)	-0.0306 (0.0189)
FT	-0.0076** (0.0029)	0.0088 (0.0060)	0.0550*** (0.0178)	0.0169 (0.0183)	0.0278 (0.0191)	0.0264 (0.0197)
Cons	0.116*** (0.0148)	0.119*** (0.0252)	0.499*** (0.0812)	0.294*** (0.0686)	0.212*** (0.0556)	0.501*** (0.0840)
R2	0.018	0.017	0.005	0.025	0.054	0.016

ROBUSTNESS TURNOVER (3)

Model with interaction term (N=39857)

	Total employ (1)	Permanent contract (2)	FT contract (3)	Apprent. (4)	Agency workers (5)	CoCoCo (6)
App	-0.0036 (0.0029)	0.0011 (0.0052)	-0.0058 (0.0157)	0.0304* (0.0155)	-0.0085 (0.0160)	-0.0281 (0.0171)
FT	-0.0121*** (0.0032)	0.0080 (0.0067)	0.0156 (0.0212)	-0.0171 (0.0204)	-0.0003 (0.0212)	0.0007 (0.0231)
Inter.	0.0095** (0.0037)	0.0054 (0.0069)	0.0219 (0.0223)	0.0053 (0.0214)	-0.0054 (0.0216)	0.0305 (0.0242)
Cons	0.115*** (0.0146)	0.114*** (0.0248)	0.507*** (0.0805)	0.259*** (0.0673)	0.225*** (0.0550)	0.501*** (0.0830)
R2	0.018	0.018	0.005	0.022	0.053	0.014

ROBUSTNESS OF TURNOVER RESULTS

Results on turnover are generally robust. The coefficient of the apprenticeship contract reform on the turnover of apprentices loses size and significance when exclude the Banking and Metal Manufacturing sectors. Note however that in this panel we test the robustness to the fixed-term contract reform and the coefficient on apprenticeship contract reform is not the object of the sensitivity analysis. The coefficient drops in size and significance because we excluded from the sample firms in Banking and Metal Manufacturing and these same two sectors are part of the treatment group of the apprenticeship contract reform.

EMPLOYMENT, FIXED EFFECTS

	Total employ (1)	Permanent contract (2)	FT contract (3)	Apprent. (4)	Agency workers (5)	CoCoCo (6)
App	0.0013 (0.0029)	0.0065 (0.0050)	-0.0013 (0.0170)	0.0521** (0.0214)	0.0356 (0.0248)	-0.0652** (0.0200)
FT	-0.0093** (0.0040)	-0.0025 (0.0061)	0.0040 (0.0233)	-0.0119 (0.0314)	-0.0931*** (0.0323)	0.0858** (0.0276)
Cons	4.246*** (0.171)	4.122*** (0.179)	6.033*** (1.321)	3.320 (5.293)	6.307** (2.565)	5.862*** (2.035)
Obs	53144	52932	31490	14623	17834	19434
R2	0.013	0.006	0.016	0.028	0.035	0.016
N firms	13287	13286	10844	6480	7175	8704

INVESTMENT, FIXED EFFECTS

	Capital	Capital	Investm.	Invest.	Skill ratio
	(1)	per worker	(3)	per worker	(5)
	(1)	(2)	(3)	(4)	(5)
Ref-App	-0.0070 (0.0056)	-0.0080 (0.0060)	0.0125 (0.0757)	0.0148 (0.0761)	-0.0193 (0.0594)
Ref-FT	-0.0265*** (0.0081)	-0.0160* (0.0084)	-0.142 (0.244)	-0.171 (0.242)	0.0140 (0.0720)
Cons	13.90*** (0.112)	9.642*** (0.168)	-93.68 (92.98)	-102.1 (93.52)	-1.690 (2.062)
Obs.	52147	52147	15440	15440	53144
R2	0.007	0.006	0.015	0.014	0.003
N firms	13267	13267	9460	9460	13287

SUMMARY RESULTS ON E, I AND H/L

- ▶ The apprenticeship contract reform: positive effect on the net employment of apprentices, the other effect of this reform is a reduction in the level of employment of collaborators, minus 6.5 p.p..
- ▶ The reform of fixed-term contracts: no significant effects on employment but effects on the levels of agency and collaborator workers that go in opposite directions with respect to each other.
- ▶ If reforms make the use of temporary workers easier and facilitate adjustment firms may substitute out of capital with new (temporary) workers and reduce productivity. The reform of fixed-term contracts impacted negatively on investment.
- ▶ No effects on skill ratio: temp contracts for both H ad L.

PRODUCTIVITY, FIXED EFFECTS

	VA per worker (1)	Sales per worker (2)	TFP (3)
Reform of Apprenticeship	0.0147*** (0.0047)	0.0092** (0.0042)	0.0162*** (0.0046)
Reform of Fixed term	-0.0279*** (0.0065)	-0.0349*** (0.0058)	-0.0238*** (0.0064)
Constant	9.791*** (0.456)	11.61*** (0.260)	-0.487 (0.452)
Observations	52840	53144	52675
R-squared	0.008	0.023	0.010
Number of firms	13275	13287	13260

ROBUSTNESS PRODUCTIVITY (1)

Excluding firms exposed to regional-sectorial experimentations of the "new" apprenticeship

	VA per worker (1)	Sales per worker (2)	TFP (3)
Reform of Apprenticeship	0.0149*** (0.0050)	0.0102** (0.0046)	0.0165*** (0.0049)
Reform of Fixed term	-0.0310*** (0.0068)	-0.0371*** (0.0060)	-0.0267*** (0.0066)
Constant	9.701*** (0.493)	11.56*** (0.279)	-0.547 (0.488)
Observations	49036	49320	48880
R-squared	0.009	0.025	0.011
Number of firms	12320	12331	12306

ROBUSTNESS PRODUCTIVITY (2)

Excluding firms of the Banking and Metal Manufacturing sector

	VA per worker (1)	Sales per worker (2)	TFP (3)
Reform of Apprenticeship	0.0026 (0.0054)	-0.0031 (0.0049)	0.0044 (0.0053)
Reform of Fixed term	-0.0139* (0.0073)	-0.0213*** (0.0064)	-0.0104 (0.0071)
Constant	9.685*** (0.550)	11.28*** (0.527)	-0.476 (0.550)
Observations	41315	41572	41164
R-squared	0.007	0.013	0.007
Number of firms	10614	10627	10597

ROBUSTNESS PRODUCTIVITY (3)

Model with interaction term

	VA per worker (1)	Sales per worker (2)	TFP (3)
Reform of Apprenticeship	0.0221*** (0.0053)	0.0183*** (0.0049)	0.0229*** (0.0052)
Reform of Fixed term	-0.0132 (0.0081)	-0.0169** (0.0074)	-0.0105 (0.0078)
Interaction of reforms	-0.0255*** (0.0080)	-0.0311*** (0.0073)	-0.0230*** (0.0077)
Constant	9.831*** (0.302)	11.61*** (0.0777)	-0.452 (0.291)
Observations	52840	53144	52675
R-squared	0.008	0.023	0.010
Number of firms	13275	13287	13260

SUMMARY RESULTS ON PRODUCTIVITY

- ▶ Apprenticeship contract reform: positive and significant impact on all measures of productivity, between 0.9 p.p. and 1.6 p.p. The rise in productivity is likely to reflect a compositional shift. The reform induced firms to shed relatively unproductive external staff in exchange for more motivated apprentices.
- ▶ Fixed-term contract reform: all coefficients are negative, sizeable (between 2.4 and 3.5 p.p.) and statistically significant. The negative effect of fixed-term contract reform is more evident in those firms that are exposed to both reforms (interaction term).

ELASTICITY OF SUBSTITUTION

- ▶ production function where the four types of temporary contracts are partial substitutes and the entire group of temporary contracts is substitutable for permanent contracts. We model the substitution across different types of labour contracts using a nested CES technology:

$$Q_{it} = K_{it}^{\alpha} [L_{pit}^{\sigma} + (\sum_{\tau} L_{\tau it}^{\rho})^{\frac{\sigma}{\rho}}]^{\frac{(1-\alpha)}{\sigma}},$$

- ▶ In particular $\eta_{\rho} = \frac{1}{1-\rho}$ defines the substitution elasticity between varieties of temporary labour, while $\eta_{\sigma} = \frac{1}{1-\sigma}$ defines the substitution elasticity between permanent and temporary labour

ESTIMATES OF ELASTICITY OF SUBSTITUTION

Year	2004-2007	2004	2005	2006	2007
η_ρ (across temp. contracts)	1.392*** (0.148)	1.215*** (0.113)	1.802* (1.023)	1.478*** (0.223)	-0.715*** (6.89)
η_σ (betw. temp. and perm.)	1.062*** (0.254)	1.070*** (0.085)	1.058*** (0.040)	1.060*** (0.220)	1.056*** (0.09)
Observations	53145	13287	13286	13286	13286

CONCLUSIONS

1. The reform reduced the cost of apprenticeship contracts and firms were encouraged to substitute external temporary staff with apprentices.
2. The reform increased labour productivity possibly through the increase of average worker effort through the employment of more motivated workers (i.e. apprentices facing the prospects of training and wage growth) to replace external, less motivated staff.
3. The reform of fixed-term contracts has not been successful (in the first years after the reform) because firms increased the use of external staff and reduced the capital-labor ratio and productivity. Probably employers feared the uncertainty of the norm and the risk attached to going to court.