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Labour contracts and stepping-stone effect in Italy: a multinomial analysis

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Abstract
Do short-term contracts facilitate the transition to permanent contracts? The authors use a rich administrative database for Italy to run a stepping stone analysis and evaluate which contractual agreements have more chances to lead to a permanent working position. They find that individual specific characteristics make it more likely for a worker to be employed with a specific contractual agreement and that the contribution toward more working stability varies with the previous contract. The authors conclude that fixed term positions act more as stumbling blocks than building blocks for open-ended contracts.

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Keywords dependent labour, labour market institutions, careers analysis

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1. Introduction

In recent years, most Western economies faced the need to boost market competitiveness, through processes of delocalization, off-sourcing, and with regards to the labour market, increases in the degree of flexibility. More flexibility was meant to allow a larger share of the population to enter the labour market, by means of innovative, short term and so-called "atypical" contractual forms. The parallel scope was endowing firms with flexible instruments to meet swings in final demand, as they could turn to flexible labour contracts when needed.

Institutions, in Italy and in many other European countries, were increasingly urged to introduce more flexible contracts, as global markets entered a phase of harsh competitiveness, especially in the aftermath of the financial crisis, (not to mention the pivotal role of the new Asian manufacturing giants, led by China). "Flexisecurity" (European Commission, 2017) became almost a must for Spain, France, UK, Germany, Italy; but it must be underlined that it started as a progressive liberalization of the labour market at the margin, as short-term jobs, for instance temporary agency contracts, were increasingly deregulated, while the bulk of the permanent contracts legislation was not or only scarcely affected. From 2003 onward, in Italy various reforms (Treu[1], Biagi[2], among others) affected mainly the atypical and short term workers, introducing more opportunities for firms to source labour from temporary agencies or through fixed term contracts.

The most recent major reform of the labour market was introduced in 2015, (Jobs Act) implementing a series of active policies targeting the core of the dependent labour contractual agreements, that is the permanent working contract. The previous contract was substituted with a "contratto a tutele crescenti", removing the possibility of worker's reinstatement ('reintegro') after illegitimate dismissal for economic motives and embeds an increasing monetary compensation in the case of separation. This measure empowered even further the demand side of the labour market, by weakening further the supply side.

The academic and political debate started questioning the effectiveness of the deregulation in creating more opportunities against the odds of instead, more uncertainty in the labour market. Some authors started wondering if firms' productivity was likely to be blessed by such deregulation, or rather suffered from the increasing uncertainty and potential lack of motivation and skills of temporary workers.

The negative effects of the Great Recession probably exacerbated the undesirable aspects of the labour market deregulation. As a matter of fact, the composition and nature of contracts changed dramatically. In about twenty years, Italy experienced the doubling of temporary jobs, from about 7% in 1994 to about 14% in 2014. In other countries, as France, the same figure increased by one third, with temporary jobs growing from 11% to 16%, while Germany experienced an increase from 11% to 13%. Spain ranked third among OECD countries in 2014 with a figure of 24% (OECD: 2016).

In this study we use a large data set of observations over dependent workers in the Italian region Emilia Romagna in the 2008-2012 rime span to evaluate if short term, atypical contracts operated a stepping

[1] The 1997 Treu reform introduced more flexibility in the Italian labour market by allowing free hiring of individuals on a temporary basis.

[2] The Biagi Law in 2003, that redesigned existing employment contracts (part-time work, apprenticeships, coordinated and continuous collaboration) and introduced new forms of employment (on-call working, job sharing, accessory working, work experience programmes, staff leasing on an open-ended basis).

stones toward permanent contracts. We adopt a multinomial approach (Greene, 2012) to identify the relative probability of being awarded a given contract type, considering a set of internal and external factors. The structure of the paper is as follows. Section 2 reviews the relevant literature. Section 3 presents the data. Section 4 describes the methodology and reports the empirical results. Section 5 discusses results and concludes.

2. The stepping-stone issue in the literature.

The academic focus concerning labour market reforms in Italy has been greatly involved in evaluating the "stepping-stone" versus the opposite "dead lock" hypothesis. As for other European countries, changing working conditions can impact on the perceived well-being both on the material and psychological plan (De Graaf-Zijil, 2005), and therefore on the life quality and life style of the society as a whole. If ever increasing short term, temporary jobs fail to create a secure job environment, perhaps resulting in an infinite cycle of temporary jobs, the outcomes could be far from desirable. Jahn, Riphahn Schnabel (2012), when assessing the impact of labour market deregulation of firms productivity, point to a possible trade-off between efficiency and equity.

The research on the working life of people has often turned to sophisticated instruments to see if after being granted temporary contracts, workers are likely or not to end up with permanent jobs. The evidence is mixed, and results change depending on the specific type of contract considered, on age, gender, labour market context, and so on, but it is also likely to depend on the methodology used (Amuedo-Dorantes et al., 2008). In Europe, there is some unclear evidence concerning the effectiveness of temporary jobs in leading to more stable – or fixed term contractual agreements.

On one side, the introduction of "atypical" or "flexible" contractual agreements may actually give an opportunity to enter the labour market where none existed before. Ichino, Mealli and Nannicini (2008) detect two broad theoretical points of view for why temporary employment could offer a springboard to stable jobs: 1) more able workers can use temporary work to signal their skill by making themselves available for screening and 2) temporary jobs may be an opportunity to build extra human capital, social contacts and information. Whenever point 1) prevails, the screening procedure can also induce less shirking and build more stable relationships between employers and employees (Portugal and Varejao, 2009). In the same article, Ichino et al. (2008) provide positive evidence for the springboard effect for workers hired through temporary agencies. Some effectiveness of the stepping-stone is also found in Barbieri and Sestito (2008). On the other, the "trap" or "deadlock" hypothesis in an endless precarious condition cannot be ruled out, so that the empirical investigation only can provide some evidence. According to Blanchard and Landier (2002), the use of temporary workers as buffer stocks increases job instability and uncertainty inside the firm, reduces investment in training, lowers workplace cooperation and workers' motivation, and harm long-run growth prospects. Exactly the opposite evidence as the one found for Italy by Ichino et al. (2008) is instead found in Spain by Amuedo-Dorantes et al., (2008). In the US, Autor and Houseman (2010) take into consideration a welfare-to-work program in Detroit and find that temporary help placements may even harm subsequent employment and earnings outcome.

Across Europe, temporary jobs are associated with poorer labour conditions with respect to standard employment: lower wages, lower training, higher job insecurity, and lower protection from social

security. In their introduction to an Economic Journal Symposium on temporary jobs, Booth et al. (2002) summarize the thrust of the contributions as suggesting that the expansion of temporary jobs as a way of increasing labour market flexibility may be undesirable, although in some case they indeed find some stepping stone evidence in the case of British workers. Booth, Francesconi and Frank (2002) are the authors of a pioneering work on the stepping stone hypothesis, where apart from assessing the existence of such "entry port", they also find that temporary workers in Great Britain report lower level of job satisfaction, receive less training and lower wages.

Studying the same subject for Australia, Cai, Law and Bathgate (2014) interestingly model the evaluation of the different starting statuses, in particular, when trying to assess the correct probability of transitioning into a fixed term contract from a temporary job, the individuals out of the labour force (Not in the Labour Force, NILF) should be considered as a baseline case, as those who are simply unemployed are anyway putting some effort into finding a job. They find evidence for the stepping stone effect. Addison, Cotti and Surfield (2015) tested the stepping stone for the US workers, finding positive results and controlling for the endogeneity that may lead a worker to be in a given position rather to another, with the special caveat that the labour market in the US is highly polarized between temporary, unskilled, low-pay workers and high-pay, specialized, temporary consultants and contractors. Drawing on data from representative national longitudinal studies, Scherer (2004) finds that lower mobility chances in Italy, and the strongly segmented labour market in Germany, inhibit the exit out of a labour market segment once it has been entered, therefore hinting for an entrapment effect in lower status positions. Bosco and Valeriani (2014), using propensity score techniques, find evidence of trapping effects for temporary agency workers and even more for fixed-term employees.

3. The data.

The database SILER (Sistema Informativo sul Lavoro in Emilia Romagna) is a proprietary database collecting the mandatory communications to be sent whenever a new labour contract is created, extended, transformed or ceased in the region Emilia Romagna. The database offers a wide range of possibilities to analyze the trend and dynamics of the labour force, before the same data is processed at national level. Since every person[3] in the dependent labour market of the region is detected, it becomes possible to track the working life of people in a given time span and to follow them until the exit from the dependent labour market. So, features as age, education, citizenship and industry, among others, can be related to the length and type of the contractual agreements undersigned.

The advantage of this type of data is to get a unique view on employees' working life and to obtain some potentially significant contributions to the empirical studies of the labour market, not only from the economic point of view, but also from the institutional side. While linking the results to macroeconomics data is tricky but interesting (for reasons that will become clear below), it is possible to evaluate the various types of contracts arising through the years: basically permanent jobs versus all the universe of flexible and atypical contracts.

[3]Every person who underwent a registration, termination, transformation or extension of a contract in Emilia Romagna since 2008.

We work on a sample of workers observed through five years, 2008 – 2012, in order to track the working life pattern of all the individuals who appeared for the first time in 2008. We considered all the workers who had at least one contract starting in 2008 and had up to five contracts overall during the period 2008 – 2012. The limit of 5 contracts per worker has a triple rationale. First, in a given year, the number of workers with more than 4 contracts is no larger than 5%. This means that for each year, we are capturing about 95% of workers, that is almost the whole dependent workers population. Even if in a five-year time span the distribution is less concentrated, as workers are more likely to have more than one contract, we are still considering about 80% of them. Second, as the elaboration on such huge data requires prohibitive amounts of time, for a sack of efficiency we set a limit of five contracts, conscious that given the high representativeness of the sample, our results are robust anyway. Third, by ruling out those few individuals with a plethora of very short term, highly volatile contracts, we get rid of some noise stemming from day-by-day contracts, representing quite a minority of the set.

Ideally, the workers can be split into five groups: those who only have one contract in the five years considered, started in 2008; those who have 2, 3, 4, and 5 contracts, but with at least one contract starting in 2008. We don't consider here those workers who have been working since 2007 or earlier and are still on the job in the five years 2008- 2012; and those who start a job in 2009-2012, but not in 2008, (so perhaps they start in 2009 and keep working - they do not appear in the present study). We therefore have an unbalanced panel of individuals. Table 1 reports the distribution of workers according to the number of contracts held.

Table 1. Workers with at least one contract started in 2008 and number of contracts held (up to five contracts, 2008 – 2012).

NUMBER OF CONTRACTS	WORKERS	PERCENTAGE
1	234284	41,35
2	126904	22,4
3	83364	14,71
4	60524	10,68
5	61563	10,86
1288095	566639	100

Totally, there are 1288095 contracts started in 2008 (resulting in 2.27 contracts per person). Some of the contracts we consider are concluded before 31.12.2012, but we don't investigate further on what follows; some other contracts are still "alive" on 31.12.2012, but we right-censored them. Some contracts overlap for the same person, since it happens for part-time workers, for example, to have more than one job at a time (we control for this in the analysis). For each worker we observe: age at the beginning of the contract, sex, citizenship, type of contract according to the taxonomy reported in the Appendix[4] and under Table 2, education level, economic macro sector, province, professional category, skill level. Two time variables have been computed: the length of the contracts in days, and the length of the time span between one contract and another, for those individuals having at least two non-overlapping contracts in the period. This second time variable can be considered the "waiting time"

[4]The reclassification of contractual types was created in 2013 in order to summarize into 8 categories a number of various agreements. The variables according to which contracts were pooled into categories are duration, the degree of independence from the employer, flexibility in working hours and other social variables.

between the end of a contract and the start of another, for those workers having a contract starting after the end of the previous one in the quinquennial. We don't observe the effective length of time between two contracts in the case the first ends before December 31, 2012, and the second starts from January 1, 2013, onwards.

The initial set contains 566,639 workers aged between 13 and 75, with this age bracket representing the age at the beginning of the first contract registered in 2008. In order to fully appreciate the information on contractual types, it is advisable to preliminary go through Table A1, where each type of reclassified contractual agreement is illustrated[5]. Basically, we have open-ended contracts on one side, (representing the 30% of the first contractual agreements signed in 2008), and atypical contracts on the other, fully differentiated into seven subgroups of temporary contractual agreement[6]. Our set, referring to the first contractual agreement signed in 2008 can be described by the figures in Table 2.

Table 2. Descriptive statistics of workers by working arrangement (mean values)

	Open-ended	Fixed term	Internships	Domestic workers	Jobs on call	Parasubordinate work	Temporary agency work	Apprenticeships and access-to-work
Individual characteristics								
Age	36.26	35.92	22.62	41.30	33.26	38.51	30.77	21.04
Female	0.40	0.50	0.56	0.86	0.56	0.45	0.42	0.42
Foreign	0.26	0.28	0.10	0.91	0.17	0.08	0.24	0.22
Education level								
Primary School	0.59	0.61	0.60	0.88	0.64	0.69	0.54	0.67
Junior High School	0.20	0.22	0.15	0.06	0.22	0.11	0.23	0.18
High School	0.16	0.13	0.18	0.04	0.13	0.13	0.19	0.14
University	0.05	0.04	0.07	0.02	0.02	0.07	0.04	0.02
Job characteristics								
Duration in days[a]	855.7	225.7	156.0	393.1	339.3	346.2	139.2	395.5
Part time	0.22	0.25	0.12	0.81	0.23	0.06	0.16	0.19
Waiting time in days[b]	107.0	178.9	240.4	180.7	220.9	152.8	123.8	243.6
Overlapping[c]	0.009	0.009	0.003	0.052	0.008	0.002	0.005	0.006
Sector								
Industry	0.27	0.16	0.22	0.01	0.04	0.12	0.55	0.25
Agriculture	0.008	0.181	0.010	0.003	0.001	0.006	0.006	0.005
Trade and Tourism	0.16	0.24	0.23	0.01	0.63	0.14	0.18	0.33
Services	0.39	0.24	0.44	0.97	0.28	0.50	0.20	0.22
Education[d]	0.038	0.064	0.036	0.000	0.014	0.169	0.002	0.002
Construction	0.10	0.07	0.03	0.01	0.01	0.04	0.02	0.16
Skill level								
High	0.26	0.14	0.41	0.01	0.09	0.67	0.11	0.12
Medium	0.44	0.47	0.50	0.22	0.72	0.28	0.42	0.79
Low	0.30	0.39	0.09	0.78	0.20	0.05	0.43	0.09
N	175532	241331	9250	18801	9637	43285	36248	29805

Notes

[a]:For open-ended contracts of contracts lasting more than 5 years, the maximum allowed is 1826 days. Part time contracts were weighted by 0.5 as for lenght.

[b]: Only for those individuals with more than one contract in the 2008-2012 time span, as number of days between the end of the first contract and beginning of the second contract, with non-overlapping contracts

[c]: Percentage of individuals with more than one contract at once, after the first one registered

[d]: Workers in the Education sector, as a proxy for employees in the Public Sector. They were subtracted from the Services sector

[5]The reclassification is aimed at creating uniform job categories. Nonetheless, about 8 percent of contracts were the result of merging two different types, whenever the first one was transformed in another contractual type, such as from fixed-term to an open-ended type. For details on the initial treatment of the data, see CRISP (2014).

[6]It must be underlined, though, that the number of people with an open-ended contract is much higher than 30%, over total Emilia Romagna's workforce: here we pick the moment of creation of new contracts, but do not observe pre-existing contracts that did not undergo some kind of mandatory communication.

Younger workers are engaged in apprenticeships and internships, but the way to the open-ended contract is quite long, since on average a workers gets one at 36. Domestic workers, that are females (and foreign) are the older workers, followed by those workers with parasubordinate contractual agreements. The percentage of males in open-ended contracts is 60%, a first sign of gender discrimination that appears also from other indicators (as the fragmentation of working life contracts, much higher for women, even if we can't tell without further investigation if this is at least partly due to individual/family preferences). The educational attainments of workers is pretty low. University degrees (and post-university education) is pretty rare. Fixed term contracts on average last about eight months, while the shortest duration is registered for temporary agency workers. It must also be underlined that these workers are also those who wait less between the first contract and the following one, while it takes really long to find another job after an internship. Open-ended contracts are the most popular in Services and Industry, while jobs on call are especially concentrated in Trade and Tourism (this is explained with the seasonality of the touristic area on the seaside of Romagna). Parasubordinate workers are those with the highest average skill level (in fact, they are also those with a high concentration of university graduates). Domestic, female workers, are those with the lowest skill level.

In the Appendix, a descriptive exploration through likelihood quantifies for each type of contract observed the importance of several factors, the same we use in the stepping-stone analysis below. Coefficients larger than 1 imply that he factor increases the probability of the given contract type; below zero, it is decreased.

After how many contracts, if ever, do these workers end up with an open-ended contract? The transition into a permanent position happens as depicted in Table 3. On the first column, we have the initial working agreement observed in 2008. In the other columns, we have the number of workers who reach the permanent contract as respectively second, third, fourth and fifth contract.

Table 3. Transition to the final open-ended contract, 2008-2012

	OPEN-ENDED CONTRACT AS ENDING ARRANGEMENT BY NUMBER OF CONTRACTS			
INITIAL ARRANGEMENT	*2 contracts*	*3 contracts*	*4 contracts*	*5 contracts*
Apprenticeships and access-to-work	2595	1586	939	536
Fixed term	15414	11848	9715	6481
Open-ended	27129	10698	4842	2346
Internships	882	668	412	225
Domestic workers	626	390	252	158
Jobs on call	487	320	224	140
Parasubordinate work	2471	1877	1099	714
Temporary agency work	3597	3091	2079	1554
n.a.	259	158	82	40
N	53460	30636	19644	12194

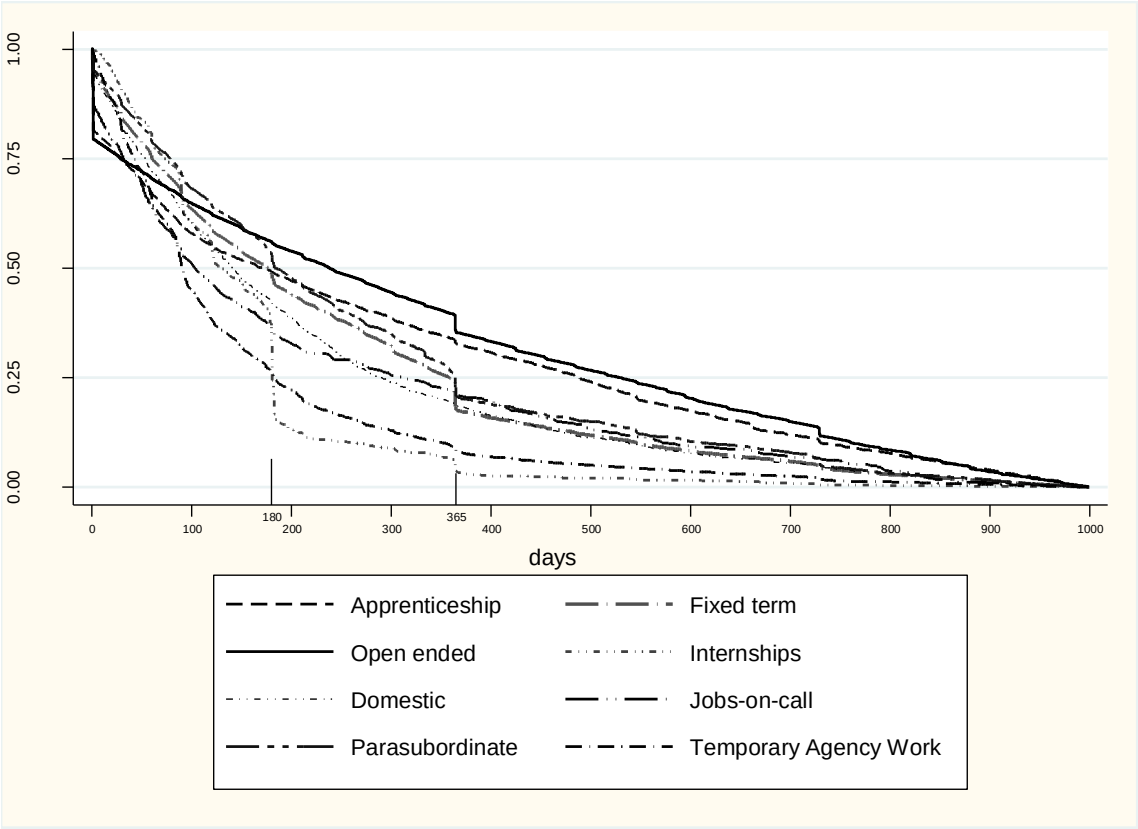
Those who start with a permanent contract also represent the majority of permanent contracts in the following working positions and most transits take place between the first and the second contract. The second category most likely to reach a permanent position is the fixed term workers, followed by temporary agency workers. Though, it seems that temporary agency workers have a higher probability

of entering an open ended contract with respect to the institutionally longer agreement, the fixed term contract: for those who reach the permanent position at the second contract, temporary workers are about 9.9%, while fixed term are 6.3%. Therefore, we find here traces for an effect which could go on the opposite direction of what was found by Amuedo-Dorantes et al., (2007), as for the Spanish case agency workers endured a lower likelihood of being hired on a permanent basis following their temporary assignment than their direct-hire (fixed term) counterparts. Parasubordinate workers do worse, as only 5.7% obtain an open ended contract as second contract. Interestingly, the entry rate into a permanent position (second contract) is 8.9% for apprentices, a bit lower than for temporary workers.

A possible explanation is that a learning effect is taking place for temporary agency workers, as they have a higher chance to be subsequently hired with regular contracts than their fixed term counterparts (and even apprentices!). Or perhaps firms are using temporary agency workers as a screening device, while they are adopting fixed term contracts as a real alternative to regular contracts, and not in the perspective of hiring workers on a more stable basis.

After how long, if ever, do workers reach a permanent working position? We computed Kaplan-Meier estimates of duration of non-employment between the first and second contract, when the second contract is permanent (this refers to column 2 in Table 3). The estimates in Figure 1 reveal that the transition varies with the starting contract type.

Figure 1. Transition to permanent contract, average in days, from first to second contract



Permanent workers changing their jobs wait on average less than anyone else. Not only have they more probability of obtaining a permanent position, but also they do wait less than the rest. Also apprentices have a relatively easy transition. The six months and one-year thresholds are particularly evident for

parasubordinate workers and for interns. When considering the full contracts observed, we obtain Table 4, reporting the mean "waiting time" in days between the first contract observed and the next permanent contract.

Table 4. Transition in days to the final open-ended contract, waiting time, mean values by initial contract type and by number of contracts

	Days before the open-ended contract by number of contracts			
Initial arrangement	*2 contracts*	*3 contracts*	*4 contracts*	*5 contracts*
Apprenticeships and access-to-work	133	94	66	57
Fixed term	126	87	60	54
Open-ended	55	61	61	62
Internships	143	82	63	46
Domestic workers	67	94	67	73
Jobs on call	149	88	85	56
Parasubordinate work	125	81	69	60
Temporary agency work	88	89	76	42
n.a.	104	61	35	40
N	110	82	65	54

As time goes by, the waiting time decreases. The cumulated effects of age and experience probably favour the worker's stabilization. Some contracts though suffer more than others, as jobs on call and internships. Temporary agency workers perform better than fixed term in this extent, and this result is in line with the ratios discussed above.

4. Empirical strategy

Our objective is to take into account several internal and external factors that can affect the ex post probability of being awarded a given contract type with respect to a baseline case.

We ran a multinomial analysis for the second type of contract observed for every individual with at least two contracts, given the initial category of contract. We could therefore track the likelihood of ending up with a given type contract, given the previous status. In this second step, we ruled out those type of contracts that are not deemed to be proper "dependent labour" contracts, that is domestic labour, jobs on call and traineeships (as the first only relate to working at households as caretakers or nurses, the second is very erratic and the third is often unpaid and unstable even if potentially leading to a more stable job).

We focus on the transition between first and second contract as we rely on the high number of initial observations to control for potential latent variables inducing self-selection into a given working position.

Specifically, the multinomial analysis allows for computing the "success probability" of an event with respect to a base event category, using as explaining factors the people's features, the location of the contract, the economic branch, and so on. This methodological approach is used in the literature seen

above, when trying to assess the stepping stone hypothesis, toward a fixed term contract type. It fits those situations where the variable one wants to explain in terms of success/not success is of categorical type, and the related fitted coefficients for the explanatory variables (expressed as relative risks ratios) describe the probability that an event belongs to a given category with respect to the base event/category, that can be arbitrarily chosen, when a change in the explanatory variable is observed. We created dummies for the economic sectors and for the Bologna province. The following equation:

$$Y_i = \beta_0 + \beta_1 X + \varepsilon_i$$

is estimated through the maximum likelihood method (Greene, 2011; Verbeek, 2012). Y_i is the categorical variable assuming the different observed contract types on the second contract observed. X is a vector of covariates related to age, sex, citizenship, education, sector and capital town (Bologna) dummies.

We evaluate the likelihood of observing a given type of contract in the agreement following the first one, given the initial contractual type. This provides us with a range of probabilities of transition from a contractual form (all types) to a different job, or to the same as the previous one, as a partial answer to the question if any given contractual agreement is likely to lead to a permanent job position, or act efficiently as a stepping-stone or rather a dead-end.

Unfortunately, at the time being we do not have the information on the employment/not in employment status for those individuals who conclude a contract and disappear, since workers are only observed when entering and exiting a contract. Therefore we can only assume they have been looking for a job until they find one, apart from the subjects that appear once in our time span, and then disappear (as for the cases of people retiring).

As mentioned before, under this empirical investigation, we only focus on open-ended contracts, fixed term contracts, parasubordinate contracts (as those are basically formally independent workers, but often engaged in long term collaborations)[7], apprenticeships (as the typical port of entry into the dependent labour world), and temporary agency workers (as one of the most investigated case in the literature over the stepping stone hypothesis). The results of this specification, limited to the relative risks for open-ended contracts are reported in Table 5.

[7]We partially followed the choice adopted in the Rapporto Ervet on the Labor Market (2015), where the aggregation of the "proper" dependent labor concerned open-ended contracts, fixed term contracts, apprenticeships, and temporary agency workers. We opted for retaining in this study the parasubordinate workers since the weight of parasubordinate workers among the first contractual agreement observed is over 7%, and remains stable in the second contractual agreements observed, larger than the slightly more than 6% of temporary agency workers; even from the taxation point of view, they are assimilated to dependent workers in Italy since 2001, with the same personal income tax and employees' social security contributions.

Table 5. Multinomial logit. Determinants of contractual types given the first contractual type, open-ended contracts as second contract.

A. Full database		Number of observations			289974
		LR chi(48))			124532
		Prob > chi2			0.000
Log likelihood = -302954.54		Pseudo R2			0.1705
Base outcome: fixed-term contracts					
		Relative-risk	Std. Error	z	P>|z|
Open ended contracts					
	Age	1.14	0.03	48.49	0.0000
	Age^2	0.99	0.00	-47.83	0.0000
	Female	0.69	0.01	-36.3	0.0000
	Foreign	0.91	0.01	-7.61	0.0000
	University degree	1.18	0.02	8.26	0.0000
	Bologna	1.30	0.14	24.16	0.0000
	Agriculture	0.08	0.04	-48.49	0.0000
	Trade & Tourism	1.50	0.01	11.63	0.0000
	Constructions	2.37	0.09	23.23	0.0000
	Industry	2.92	0.10	30.73	0.0000
	Education	1.09	0.04	2.46	0.0140
	Services	3.28	0.11	34.58	0.0000
	constant	0.02	0.00	-58.22	0.0000
Predicted CTI	Mean	27.9%			

B. Conditioning on apprenticeships		Number of observations			17006
		LR chi(48))			4338.04
		Prob > chi2			0.0000
Log likelihood = -20913.403		Pseudo R2			0.094
Base outcome: fixed-term contracts					
		Relative-	Std. Error	z	P>|z|
Open ended contracts					
	Age	1.27	0.025	12.15	0.000
	Age^2	0.996	0	-10.19	0.000
	Female	0.83	0.041	-3.6	0.000
	Foreign	0.89	0.051	-2	0.046
	University degree	1.01	0.153	0.07	0.947
	Bologna	1.16	0.065	2.7	0.007
	Agriculture	0.08	0.023	-8.58	0.000
	Trade & Tourism	1.01	0.185	0.09	0.924
	Constructions	2.04	0.39	3.73	0.000
	Industry	2.149	0.39	4.17	0.000
	Education	0.379	0.14	-2.56	0.011
	Services	1.77	0.32	3.15	0.002
	constant	0.112	0.003	-13.26	0.000
Predicted CTI	Mean	20.4%			

C. Conditioning on open ended contracts		Number of observations			62874
		LR chi(48))			9146.52
		Prob > chi2			0.000
Log likelihood = -53096.874		Pseudo R2			0.0793
Base outcome: fixed-term contracts					
		Relative-risk	Std. Error	z	P>|z|
Open ended contracts					
	Age	1.05	0.00	8.11	0.000
	Age^2	0.99	0.00	-7.47	0.000
	Female	1	0.02	0.15	0.878
	Foreign	0.75	0.02	-12.74	0.000
	University degree	1.44	0.07	7.11	0.000
	Bologna	1.1	0.02	4.58	0.000
	Agriculture	0.172	0.02	-18.09	0.000
	Trade & Tourism	1.03	0.08	0.45	0.656
	Constructions	0.99	0.08	-0.06	0.953
	Industry	1.86	0.14	8.16	0.000
	Education	3.92	0.39	13.56	0.000

D. Conditioning on parasubordinates		Number of observations			25117
		LR chi(48))			5916.59
		Prob > chi2			0
Log likelihood = -22743.285		Pseudo R2			0.1151
Base outcome: fixed-term contracts					
		Relative-	Std. Error	z	P>|z|
Open ended contracts					
	Age	1.11	0.016	7.47	0.000
	Age^2	0.99	0.000	-6.94	0.000
	Female	0.74	0.035	-6.13	0.000
	Foreign	0.88	0.065	-1.63	0.103
	University degree	0.93	0.070	-0.85	0.394
	Bologna	1.11	0.055	2.24	0.025
	Agriculture	0.15	0.044	-6.61	0.000
	Trade & Tourism	0.85	0.150	-0.87	0.386
	Constructions	0.96	0.190	-0.2	0.844
	Industry	1.38	0.250	1.81	0.070
	Education	0.86	0.160	-0.74	0.457

	Services	1.95	0.14	8.87	0.000
	constant	0.62	0.09	-3.13	0.002
Predicted CTI	Mean	66.9%			

	Services	1.29	0.220	1.5	0.133
	constant	0.115	0.036	-6.83	0.000
Predicted CTI	Mean	14.5%			

E. Conditioning on fixed term contracts					147367
					36776.27
					0.0000
Log likelihood = -103270.97					0.1511
Base outcome: fixed-term contracts					
		Relative-risk	Std. Error	z	P>|z|
Open ended contracts					
	Age	1.13	0.005	26.28	0.000
	Age^2	0.99	0	-28.05	0.000
	Female	0.81	0.013	-12.78	0.000
	Foreign	0.91	0.016	-4.83	0.000
	University degree	1.05	0.036	1.59	0.111
	Bologna	1.31	0.023	15.22	0.000
	Agriculture	0.1	0.008	-29.19	0.000
	Trade & Tourism	1.58	0.087	8.23	0.000
	Constructions	2.78	0.164	17.27	0.000
	Industry	2.38	0.133	15.55	0.000
	Education	1.01	0.616	0.19	0.848
	Services	3.24	0.177	21.49	0.000
	constant	0.01	0.001	-39.84	0.000
Predicted CTI	Mean	15.9%			

F. Conditioning on temporary workers					Number of observations 26,234
					LR chi(48)) 5279.66
					Prob > chi2 0
Log likelihood = -30467.509					Pseudo R2 0.0797
Base outcome: fixed-term contracts					
		Relative-	Std. Error	z	P>|z|
Open ended contracts					
	Age	1.04	0.014	2.98	0.0030
	Age^2	0.99	0	-3.1	0.0020
	Female	0.83	0.323	-4.56	0.0000
	Foreign	0.92	0.042	-1.66	0.0980
	University degree	0.95	0.076	-0.53	0.5930
	Bologna	0.95	0.039	-1.1	0.2700
	Agriculture	0.061	0.017	-9.71	0.0000
	Trade & Tourism	0.9	0.125	-0.73	0.4640
	Constructions	1.37	0.216	1.99	0.0460
	Industry	1.5	0.203	2.99	0.0030
	Education	0.173	0.068	-4.45	0.0000
	Services	1.34	0.184	2.19	0.0280
	constant	0.32	0.087	-4.19	0.0000
Predicted CTI	Mean	19.8%			

Table 5 reports six panels. Panel A contains the estimates for all the workers with a second a contract (only the effect for those with an open-ended as a second contract is shown here). The other panels condition on a selected type for the first contract. Therefore, the first panel can be considered as a baseline for the other estimations.

Results are reported as relative-risk ratios, and the threshold for interpretation, although quite complicate (Greene, 2011), is represented by the value "1", as all coefficients larger than 1 mean that the risk of being observed lies with the current outcome with respect to the base outcome, and vice-versa. Age always represent a plus when evaluating the probability of observing an open-ended contract after a first contract of any kind, but the effect is stronger when the first contract observed was an apprenticeship contract. Age squared increased the performance of the specification, but the value always ranges around the value of 1, meaning probably that experience in itself is not a key determinant in the type of the second contract. Being female is never an asset, as the risk of an open-ended contract always decreases if the worker is a woman (with respect to the base outcome, fixed term). Only in the case the first contract was an open-ended contract, being female has a neutral impact. In all other cases but this last, even being a foreign worker gives more chance to get an open-ended contract than being a woman. Having a university degree always leads to higher probability of getting an open-ended contract, but for the case in which the previous contract was a temporary agency contract. The probability is especially high (1.44) in the case also the previous contract was an open-ended contract. This same pattern is reflected in jobs undertaken in the capital, Bologna. Construction, Trade and Tourism, and Industry are those sectors where the risk of ending up with an open-ended contract is higher, no matter the first contract. For the Education sector, the risk is much stronger in case the previous contract was another open-ended contract.

We are particularly interested in the predicted value for open-ended contracts stemming from the estimation. In panel A, the predicted value is 27.9%. This corresponds to the real percentage of individuals with an open-ended as second contract in the population, or in other words, the model exhibits enough terms to fully explain the effective percentage of individuals with an open-ended as second contract; the model is said to be fully saturated.

When we move to the other panels, we find different predictions. In particular, we have 66.9% probability of observing an open-ended contract if the previous was open-ended as well. No prediction is higher, therefore we can conclude that no situation is better than this to expect a second open-ended contract. What about the other previous contractual forms? If we were looking for some stepping stone effect, we could compare the same values when observing other contractual forms. And if we were asked about fixed term contracts as a stepping stone to open-ended contract, the answer would be a clear "no". Actually, only parasubordinates workers perform (marginally) worse than fixed term contracts in increasing the probability of getting an open-ended contract (14.5% versus 15.9%). The best predictor is the apprenticeship contract (20.4%) followed by the temporary agency contract (19.8%). All in all, no stepping stone is observable from this analysis, as none of the categories observed performs better than the baseline outcome in panel A, the very open-ended contract itself, hinting for the presence of a strong hysteresis (trapping effect), rather than a stepping stone effect.

5. Discussion and conclusions

The idea of short term contracts working as stepping-stones toward more stable form of contractual agreements for dependent workers dates back to 2002, when the first massive flexibilization at the margin in the labour market, mainly concerning short term and temporary agency workers, spread wide across European countries.

In Italy, several reforms brought about a plethora of industry tailored atypical contracts, in the hope of boosting employment for young and women cohorts, but also with the objective of empowering firms in their fight for competitiveness.

The current Italian panorama has been investigated with a rich dataset of observation over Emilia Romagna dependent workers. We used a multinomial logit model to detect if any stepping-stone effect is at work in region. We find that the best stepping stone towards permanent jobs is a permanent job itself. Actually workers tend to remain with the same contract type through time, and even fixed-term workers represent the prevalent contractual agreements, they do have a high probability of being awarded the same type of contract again rather than to be transformed into permanent workers.

We find that temporary agency workers have a relative higher probability of entering a permanent working position, as 9,9% of those with a previous temporary agency job succeeds in getting a permanent contracts as next job, while the same figure is only 6.9% for fixed term workers. We also find that even parasubordinate workers, typically education professionals, scientists, lawyers, engineers and the like, do have a lower chance to enter the world of permanent jobs, with a percentage of 5.7%.

Being female is never an asset, as the risk of an open-ended contract always decreases if the worker is a woman (with respect to the base outcome, fixed term). Only in the case the first contract was an open-ended contract, being female has a neutral impact. In all other cases but this last, even being a foreign worker gives more chance to get an open-ended contract than being a woman. Having a university degree always leads to higher probability of getting an open-ended contract, but for the case in which the previous contract was a temporary agency contract.

The lesson we can draw from this evidence is against the wide use of short term jobs as instruments for job stabilization. Although it seems quite pacific that new contracts eased the access to labour market for given categories, workers are being defined as "employed" by the national statistical institute questionnaires if the interviewees answer "yes" to the question: "Have you been working at least one hour in the past week"?

So, the discussion should probably move from the presence or not of a stepping-stone, to the definition itself of "employment" and how it did change in the recent decades. It appears evident that working life perspectives and therefore the working experience in itself cannot be evaluated using the same instruments adopted 20 years ago, as labour market conditions changed substantially. A number of workers remain trapped into their previous contract type, in a perpetual loop of renewals where psychological factors can induce more stress and less resilience on the job.

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Appendix

Reclassification of labour contractual agreements.

Codes	Description
CTI – Open-ended contracts	Open-ended contracts Open-ended dependent labour in the public administration Open-ended job sharing Open-ended domestic labour Open-ended labour in the Arts&Show sector Maritime open-ended contracts
CAI – Apprenticeships contracts	Apprenticeship leading to a profession Apprenticeship to fulfill the duty-responsibility of education/training Apprenticeship to obtain a diploma or higher education programs Apprenticeship as per art.16. Law 196/97. Access to work contracts Contracts for line-up type a1 Porting
CTD – Fixed term contracts	Fixed term contracts Fixed term dependent labour in the public administration Fixed term job sharing Fixed term labour in the Arts&Show sector Maritime fixed term contracts Fixed term contracts for substitution Fixed term contracts in Agricolture
SOM – Temporary agency work	Open-ended temporary agency work Fixed term temporary agency work
LINT – Jobs on call	Open-ended jobs on call Fixed term jobs on call
LDOM – Domestic labour	Open-ended domestic labour Fixed term domestic labour
LPAR – Parasubordinate work	Project contracts/ continued and coordinated collaboration Casual work Open-ended association in participation Fixed term association in participation Autonomous work in the Arts&Show sector Open-ended agency contracts Fixed term agency contracts
ELAV – Traineeships	Traineeships, internships Community service

Determinants of contractual types, first contract (2008)

		Number of			561494
		LR chi2(84)			322545.82
		Prob > chi2			0.0000
Log-likelihood	-684585.68	Pseudo R2			0.1907
Base outcome: fixed-					
		Relative-risk ratio	Std. Error	z	P>|z|
Open-ended					
	Age	1.02	0.0003	40.36	0.0000
	Female	0.7	0.0051	-48.95	0.0000
	Foreign	0.98	0.0078	-1.58	0.1140
	University degree	1.37	0.0229	19.28	0.0000
	High School degree	1.27	0.0123	24.89	0.0000
	Bologna	1.37	0.0110	39.73	0.0000
	Education	0.85	0.0199	-6.92	0.0000
	Trade & Tourism	1.01	0.0194	0.57	0.5710
	Industry	2.31	0.0440	44.11	0.0000
	Services	2.36	0.0441	46.32	0.0000
	Agriculture	0.06	0.0021	-85.61	0.0000
	Constructions	1.84	0.0384	29.33	0.0000
	constant	0.34	0.0074	-49.44	0.0000
Apprenticeships					
	Age	0.75	0.001	-166.23	0.0000
	Female	1.00	0.015	0.07	0.9460
	Foreign	0.72	0.012	-19.33	0.0000
	University degree	1.55	0.077	8.96	0.0000
	High School degree	1.25	0.026	10.91	0.0000
	Bologna	1.15	0.020	8.48	0.0000
	Education	0.09	0.013	-17.45	0.0000
	Trade & Tourism	1.28	0.050	6.5	0.0000
	Industry	2.01	0.080	17.78	0.0000
	Services	1.26	0.050	5.91	0.0000
	Agriculture	0.03	0.003	-37.91	0.0000
	Constructions	3.16	0.133	27.33	0.0000
	constant	1.44	1.440	95.71	0.0000
Parasubordinates					
	Age	1.020	0.000	50.97	0.0000
	Female	0.630	0.007	-38.7	0.0000
	Foreign	0.270	0.005	-68.31	0.0000
	University degree	1.130	0.026	5.56	0.0000
	High School degree	0.760	0.013	-15.98	0.0000
	Bologna	1.690	0.021	43.24	0.0000
	Education	3.320	0.117	34.23	0.0000
	Trade & Tourism	0.870	0.030	-4.03	0.0000
	Industry	1.020	0.036	0.68	0.4940
	Services	3.310	0.102	34.92	0.0000
	Agriculture	0.040	0.003	-44.88	0.0000
	Constructions	0.770	0.031	-6.46	0.0000
	constant	0.060	0.003	-70.62	0.0000
Traineeships					
	Age	0.790	0.002	-94.08	0.0000
	Female	1.190	0.028	7.81	0.0000
	Foreign	0.350	0.012	-29.46	0.0000
	University degree	3.400	0.154	27.02	0.0000
	High School degree	1.340	0.040	10.07	0.0000
	Bologna	1.220	0.032	7.68	0.0000
	Education	1.020	0.084	0.26	0.7980
	Trade & Tourism	0.820	0.052	-3.13	0.0020
	Industry	1.730	0.110	8.67	0.0000
	Services	2.180	0.134	12.72	0.0000
	Agriculture	0.070	0.009	-21.1	0.0000
	Constructions	0.620	0.055	-5.33	0.0000

	constant	1.310	1.046	32.53	0.0000
Domestic Labour					
	Age	1.05	0.001	63.55	0.0000
	Female	4.82	0.114	66.37	0.0000
	Foreign	2.78	0.789	117.66	0.0000
	University degree	0.72	0.046	-5.11	0.0000
	High School degree	0.72	0.033	-7.04	0.0000
	Bologna	1.17	0.026	7.57	0.0000
	Education	0.15	0.056	-5.09	0.0000
	Trade & Tourism	0.34	0.043	-8.58	0.0000
	Industry	0.80	0.101	-1.76	0.0790
	Services	2.95	3.027	33.08	0.0000
	Agriculture	0.11	0.018	-13.48	0.0000
	Constructions	1.12	0.163	0.8	0.4240
	constant	0.00	0.000	-87.89	0.0000
Jobs on call					
	Age	0.99	0.001	-9.1	0.0000
	Female	0.96	0.021	-2.12	0.0340
	Foreign	0.53	0.015	-22.24	0.0000
	University degree	0.47	0.036	-9.88	0.0000
	High School degree	0.69	0.022	-11.5	0.0000
	Bologna	0.62	0.019	-15.51	0.0000
	Education	0.27	0.028	-12.69	0.0000
	Trade & Tourism	2.94	0.170	18.68	0.0000
	Industry	0.28	0.021	-16.88	0.0000
	Services	1.37	0.082	5.38	0.0000
	Agriculture	0.01	0.002	-15.39	0.0000
	Constructions	0.14	0.017	-15.76	0.0000
	constant	0.06	0.004	-41.59	0.0000
Temporary agency					
	Age	0.96	0.0006	-63.16	0.0000
	Female	0.86	0.0108	-11.83	0.0000
	Foreign	0.87	0.0123	-9.86	0.0000
	University degree	1.00	0.0410	10.26	0.0000
	High School degree	1.60	0.0219	19.65	0.0000
	Bologna	1.36	0.0229	38.81	0.0000
	Education	0.03	0.0043	-27.03	0.0000
	Trade & Tourism	0.80	0.0267	-6.65	0.0000
	Industry	3.84	0.1223	42.41	0.0000
	Services	0.90	0.0297	-3.20	0.0010
	Agriculture	0.05	0.0038	-40.74	0.0000
	Constructions	0.38	0.0176	-20.91	0.0000
	constant	0.44	0.0164	-21.92	0.0000

Age at the beginning of the contract has a positive impact on all types of contract but traineeships, apprenticeships, jobs on call and somehow temporary agency workers. Being female does not improve the "risk" of being hired into an open-ended contract with respect to a fixed term contract, but females are especially unlikely to get a parasubordinate job, with respect to all the other job categories; instead, being female represents a plus when domestic labour is taken into account, and with a much stronger risk ratio (4.82) than any other variable and category. The gender effect is particularly reinforced by being a foreign worker, as being foreign for domestic labour is the only situation where the relative risk ratio is pretty larger than 1 and significantly different from zero. In all other cases, being foreign sounds more as a disadvantage. This evidence is explained by the widespread phenomenon of foreign, mid-aged women coming from abroad to work as caretakers. Women have a marginal advantage respect to men only in two entry-level categories of contracts, traineeships and apprenticeships.

Having an university-level degree has a positive impact over all categories with respect to fixed term contracts, but on domestic labour, jobs on call and temporary agency workers. The category that benefits more from a university degree (with an effect almost triple than the other types) is traineeships, indicating as this is likely to be the preferred port of entry into the labour markets for the youngsters after completing a cycle of superior studies, as also confirmed by the negative impact of age. The fact of working in Bologna, capital town of the region, affects positively the risk in all categories but in jobs on call, for which instead a specific sector specific pattern emerges in Trade & Tourism. Jobs on call are typically exploited during the summer season on the coastal areas (Rimini, Riccione, etc..) while those working in the same sector in Bologna are not subjected to such a strong seasonality effect and are likely taken in with other contractual agreements. Open-ended contracts have a positive risk of being adopted over fixed term contracts in the services and industry sectors: the risk over a fixed term is more than double.

The typical agency worker has more chances in the industrial sectors than in any other sector (3.84); traineeships are more frequent in services (for high skilled, managerial and professional positions). Teachers and instructors, isolated from the other services to proxy for the role of the public administration (as teachers are basically all public employees) have a positive risk of being hired as parasubordinate workers with respect to fixed term, but the risk is otherwise negative for the other contractual forms, and while other contractual forms are simply irrelevant for teachers (who do not enter the domestic labour market, for instance, nor do apprenticeships) the negative effect is relevant with when assessing the open-ended contracts too. This can be interpreted in the light of the progressive de-stabilization of the teacher contractual type, once considered a sort of safe haven against unemployment – as all teachers were basically taken in with fixed term contracts. This is a meaningful episode that confirms the increase perception of uncertainty detected by the ESS data, as baseline, stable type of jobs, simply do not exist anymore in that sector, or decrease in importance through time. When considering the first contract, 51% of workers in the education sector were hired through a fixed term contract, 24% as parasubordinate workers and 21% with open-ended contracts. Teachers represent over 60% of workers hired in the education sector, and half of them are hired through fixed term contracts.