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ABSTRACT

Non-compete Agreements in a Rigid Labour Market: The Case of Italy*

Non-compete clauses (NCCs) limiting the mobility of workers have been found to be rather widespread in the US, a flexible labour market with large turnover rates and a limited coverage of collective bargaining. This paper explores the presence of such arrangements in a rigid labour market, with strict employment protection regulations by OECD standards and where all employees are, at least on paper, subject to collective bargaining. Based on a representative survey of employees in the private sector, an exam of collective agreements and case law, we find that in Italy i) collective agreements play no role in regulating the use of NCCs while the law specifies only the formal requirements, ii) about 16% of private sector employees are currently bound by a NCC, iii) NCCs are relatively frequent among low educated employees in manual and elementary low paid occupations having no access to any type of confidential information, and iv) in addition to NCCs, a number of other arrangements limit the post-employment activity of workers. Many of the NCCs do not comply with the minimum requirements established by law and yet workers do not consider them as unenforceable and appear to behave as they were effective. Even when NCCs are unenforceable they appear to negatively affect wages when they are introduced without changing the tasks of the workers involved. Normative implications are discussed in the last section of the paper.

JEL Classification: J31, J41, J42, L40

Keywords: non-compete clauses, monopsony, labour market concentration

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1. Introduction

A large body of recent empirical research has documented the presence of monopsony power, i.e. the ability of a buyer to set the price of the goods and services it purchases, in modern labour markets (see, among the most recent analyses, Yeh et al., 2022).[1] There are many possible sources of monopsony power, ranging from market concentration to employers' collusion, to the use of various provisions limiting workers' mobility, to "search costs" and labour market frictions (Council of Economic Advisers, 2016). In this paper, we focus on non-compete clauses (NCCs) in employment contracts. A NCC is a clause of a contract, where an employee agrees not to compete with an employer after the employment time period is over. In most countries, NCCs are lawful (under certain conditions) and justified by the need to protect trade secrets and specific investment in the employment relationship by the employer (such as certain types of training and investment in knowledge). However, NCCs can also be used to restrict workers' mobility as such, therefore limiting their outside options and bargaining power.

If NCCs are used only to protect trade secrets, then, they should apply only to a limited share of workers, mostly the medium/high-skilled ones. However, the evidence available for the United States shows that NCCs are rather widespread (30 million workers in the United States according to Starr et al., 2021) and also cover low-wage/low-skilled workers such as sandwich makers or hairdressers (Johnson and Lipsitz, 2022). This suggests that employers use these clauses to limit the outside options of their workers (OECD, 2019) with a negative effect on wages at the bottom of the wage distribution – e.g., Johnson and Lipsitz (2022) and Starr (2019). There is no comprehensive evidence on the diffusion of NCCs and their impact on workers outside the United States. In Europe, even among law professionals, many consider the phenomenon as essentially a US one, typical of a relatively fluid labour market characterised by employment-at-will and high workers' mobility. Yet, the scattered evidence (OECD, 2019) suggests that their rather widespread and increasing use is not just a US phenomenon.

In this paper, we provide a detailed assessment of the regulation and use of NCCs in Italy, a country characterized by a rather strict employment protection legislation, high coverage of collective bargaining and a lower propensity to move among workers. We start by analysing the Italian legislation on NCCs as well as the provisions set in sector-level collective agreements and the case law. We then

[1] Under monopsony, rather than facing an infinitely elastic labour supply, employers can cut wages without losing all workers to competitors. Profit maximizing monopsonists can therefore set wages below labour productivity levels and hire less employees than in a competitive environment. The resulting equilibrium is inefficient as the additional surplus attributed by market power is lower than the surplus lost by workers. Also working conditions can be inefficient under asymmetric market power as employers extract too much effort from workers and expose them to excessive job-related health risk. The presence of monopsony can contribute to explain declining labour shares in total incomes, persistently high levels of workplace accidents and the exposition of workers to job related epidemiological risk in most OECD countries. It also could explain why, contrary to common wisdom, minimum wage hikes have been found to be associated to an increase in employment in some cases (Boeri and van Ours, 2020).

provide the first empirical assessment of the incidence and characteristics of NCCs in Italy drawing on an *ad hoc* survey of 2,000 private sector employees.

The Italian labour market is an interesting and contrasting case study compared to the United States. Differently from a mostly employment-at-will labour market, strict employment protection legislation reduces workers mobility across firms by reducing not only layoffs, but also hiring rates[2]. Moreover, the notice period that workers with a permanent contract have to give when they intend to quit is strictly regulated in industry-wide collective agreements. In addition, employees with a temporary contract cannot quit (and, conversely, cannot be fired) before the foreseen end date of the contract and, if they do so, they may be subject to the payment of a (hefty) penalty. Such strict regulation of hiring, firing and quit should reduce the need of NCCs, as employers run a lower risk of losing employees to competitors in a rigid labour market. At the same time, under strict employment protection firms changing production methods and lines are often compelled to retrain the existing workforce rather than upgrade skills of workers by adjusting along the extensive margin. This retraining involves the typical hold-up problems (Hart, 1995) of investment under uncertainty: an employer may refrain from offering training to workers because of concerns that human capital investment may give them increased bargaining power due to the higher outside opportunities they may have after the training. Under these circumstances, NCCs may contribute to reduce the holdup problem as they are a powerful commitment device. The employer deciding upon investing in training is reassured that the worker will not leave, or at least will not leave immediately, after the costly investment in their human capital is undertaken.

Collective bargaining agreements could also affect the spread of NCCs as industry-level negotiations may in principle internalize the costs of NCCs in terms of misallocation of workers. Moreover, collective bargaining is generally associated with stronger bargaining power of workers reducing the possibility that employers impose NCCs and push wages below the value of marginal productivity. At the same time collective bargaining often forces a co-ordination among employers sitting at the same bargaining table and this co-ordination may allow for collusive agreements in terms of "no-poaching" arrangements among employers or mutual support in imposing NCCs. Thus, in a rigid labour market we can find arguments for both a greater or a lower scope for NCCs, and the question about the incidence and use of NNCs across labour markets characterised by different degree of rigidity is essentially an empirical one.

In Italy, the law provides the general framework for the use of NCCs: the clause must specify a compensation as well as time, sectoral and geographical limits but does not provide stringent indications

[2] See Boeri and vanOurs (2020) for a review of the extensive literature on the effects of employment protection on job and labour turnover. For reference, hiring, separation and quit rates in Italy are about half of those in the United States (Bassanini and Garnero, 2013).

on these limits nor on the workers who can be covered. Over the years, the case law has clarified some of these conditions, but the enforceability and reasonableness of a NCC must still be assessed on a case-by-case basis.

Given the vacuity of the legal provision, one may think that NCCs are mainly regulated by collective agreements. However, despite their extension and importance in regulating many aspects of the employment relationship, collective agreements are found by our analysis to play virtually no role in regulating the use of NCCs in Italy.

Our survey shows that about 16% of private sector employees in Italy are bound by a NCC. This corresponds to about 2 million employees. The incidence of NCCs is broadly in line with evidence from the US (Starr et al., 2021). As in the US, NCCs are not restricted to high-skilled professionals or managers or to workers with access to confidential information but are much more widespread. NCCs are relatively frequent also among workers employed in manual and elementary occupations and low educated and lower earning ones even without access to any type of confidential information. Moreover, when we look at the content of the clauses, the large majority of NCCs appear not to comply with the minimum requirements set by law, i.e., specifying a compensation as well as time, sectoral and geographical limits. This suggests that more than half of the clauses are likely not unenforceable and/or that workers, even those who are sure to have signed one and declare to have read it carefully, have incomplete information on its content. In any case, workers appear largely unaware of the actual enforceability of the NCC. Given that what matters for workers' behaviour is their belief about the likelihood of a resulting trial and court enforcement, unenforceable NCCs may still be effective in discouraging voluntary quits and curtailing workers' bargaining power.

The Italian labour market is characterized by a rather wide inter-regional variation in labour market concentration. This allows us to meaningfully connect two streams of literature on monopsony by exploring the link between NCCs and labour market concentration. We show that the probability of being bound by a NCC is negatively correlated with local labour market concentration, in particular for middle-skilled workers. This suggests that NCCs, as a tool to restrict competition in the labour market, matter less in a more concentrated local labour market where there are already less competitors to start with.

Finally, we explore two other clauses that can affect workers' mobility in the Italian labour market: the notice period that employees with a permanent contract must give if they intend to quit and the penalty that employees with a temporary contract may have to pay in case they want to quit before the end of the contract. We show that the large majority of workers has a notice period aligned with the maximum foreseen in the collective agreement of reference. Interestingly, having a notice period seems negatively correlated with the presence of a NCC suggesting that the two instruments may indeed be

partial substitutes. On the contrary, 12% of temporary workers have a penalty clause and this tends to go hand-in-hand with a NCC.

All in all, our empirical analysis suggests that because of the relatively light regulation and a mix of abuse by employers and lack of awareness by workers, NCCs may contribute to further limit mobility in the Italian labour market, over and above the effect of a strict employment protection and to significantly distort competition. Efforts to increase a fair use of NCCs may require some changes to the Italian legislation but also a considerable investment to foster knowledge and awareness on this issue among employers, workers and social partners.

The rest of the report is organised as follows: Section 2 summarises the evidence on the use of NCCs in other OECD countries. Section 3 discusses in detail the Italian regulatory framework looking at the law, the collective agreements, and the case law. Section 4 describes the survey design. Section 5 presents the results of the survey concerning the spread and characteristics of NCCs. Section 6 looks at correlations between NCCs and labour market outcomes. Finally, Section 7 concludes and provides some policy pointers for the debate.

2. Non-compete clauses in OECD countries

2.1 Non-compete clauses: what are they for?

Non-compete clauses (NCCs, also known as non-compete agreements or non-compete covenants) are contract clauses (or stand-alone agreements) which prevent employees from working for a competitor or starting a competing enterprise after they separate from their employer. Such clause can be part of the initial employment contract, or it can be added at a later stage, and typically specify the time and geographic boundaries within which they apply.

Generally, NCCs come in exchange for additional compensation (see Section 3 for a detailed discussion of the specific regulatory framework in Italy), but the exact regulation varies greatly across OECD countries (OECD, 2019).[3] NCCs should not be confused with other clauses such as non-solicitation of clients, non-poaching of co-workers and non-disclosure agreements, which also have the effect to limit post-employment workers' activity (see Annex 1).

In most countries, NCCs are allowed and regulated by law and, according to the "traditional" view, they are justified by the need to protect legitimate employer interests such as trade secrets, client relationships or specific investment in the employment relationship such as training (Starr et al., 2021 and Posner, 2021). By protecting these interests, a NCC would help solving a "hold-up problem", i.e.,

[3] For example, the so-called "garden leave contracts" constitute an (extreme) variant of NCCs. While a NCC limits the post-employment opportunities, garden leave contracts provide that the employee remains on the employer's payroll – receiving the 100% of the previous salary – but she is required not to work, hence the reference to the garden, which the worker is supposed to tend (Sullivan, 2016).

when a firm makes a costly and irreversible investment, for instance in training, but the employees can "hold up" the employer, for instance by threatening to leave or strike in the absence of a substantial pay rise and hence spoiling the value of the entire investment.

On the other hand, according to an alternative view, NCCs can also be used as an instrument to reduce competition in the product market – by restraining the ability of competitors to hire workers or deterring departing employees from creating a new competing company – and competition in the labour market (i.e., limiting workers' outside options), further limiting employees' bargaining power.[4]

If protection of trade secrets or investment in training were the main explanations for NCCs, they should be found only among employees in occupations which involve trade secrets, access to clients' lists or that require or benefit from occupation- or industry-specific training. Moreover, in this case a NCC should be the result of a negotiation between the employer and employee aimed at making both parties better off. An employee would sign a NCC only in exchange of an *ad hoc* compensation or through higher wage growth over time. Finally, if NCCs solve a "hold-up problem", then employees with a NCC should have higher access to confidential information and receive more training as well as earn higher wages.

However, if NCCs are used mainly to restrain workers' market power, then they can be much more pervasive, and they may be found also among low skilled workers or employees with no particular access to trade secrets. Moreover, in this case, NCCs may come in exchange for little or no compensation and not be the result of a negotiation of the worker with the employer but be the by-product of a unilateral decision of the latter, as it happens in the case of take-or-leave contracts.

To understand the role that NCCs play in a rigid labour market, it is therefore important not only to measure their incidence but also the characteristics of the workers who are bound by them and the conditions in which they have been signed.

2.2 NCCs in the United States

The incidence and the characteristics of NCCs in the United States have been the focus of an increasing number of studies and surveys.

An individual-level survey in 2014 (Prescott et al., 2016; Starr et al., 2021) found that 18% of US private sector and public health care workers are currently covered by a NCC, while 38% have agreed to at least one in the past. An establishment-level survey in 2017 (Colvin and Shierholz, 2019) found a significantly higher incidence: roughly half, 49.4%, of establishments have at least some employees with a NCC with nearly a third indicating that *all* employees in their establishment have

[4] Job-to-job moves are major drivers of wage growth (Moscarini and Postel-Vinay, 2016 and Berson et al., 2020), not just for "movers" but also for "stayers" as employers respond to other firms' poaching by increasing the wages of their workers in order to retain them.

such a clause, meaning that between 27.8% and 46.5% of private-sector workers could be subject to a NCC.[5]

A number of other studies measured the incidence of NCCs among specific groups of employees ranging from executives (Schwab and Thomas, 2006; Garmaise, 2009; Bishara et al. 2015), to electrical and electronics engineers (Marx, 2011), physicians (Lavetti et al., 2019) and hair stylists (Johnson and Lipsitz, 2022). In these studies, the share of workers bound by a NCC is much higher than that found in the general surveys mentioned above: it is as high as 70-80% among executives, 45% among physicians, 43% among electrical engineers and 30% among hair stylists.

These surveys, combined with significant variation in regulation and enforcement of NCCs across US states[6], improved our understanding on how NCCs are used in a fluid labour market and to test some of the competing hypotheses about their role and effects.

As the "traditional" view would suggest, Starr et al. (2021) show that workers who report access to trade secrets are indeed much more likely to be bound by a NCC and to receive more training while Colvin and Shierholz (2019) find that they are more common in establishments with high pay or high levels of education.

However, NCCs in the United States appear to go well beyond the protection of legitimate employer interests: first, they are not only associated with significant lower job mobility but also to lower wages, contrary to what could be expected from a "traditional" view – see Garmaise (2009), Marx et al. (2009), Starr et al. (2021) and US Treasury (2016 and 2022).

Second, NCCs are not a prerogative of high-skilled workers: the share of workers without a college degree reporting a current NCC is about 15 percent, only slightly below the 18 percent share for all workers (Starr et al., 2021). Johnson and Lipsitz (2022) show that NCCs are more common among minimum wage hairdressers than among those working for a higher wage. NCCs have been found also among entry-level workers at fast food restaurants (O'Connor, 2014) where access to trade secrets or company tacit knowledge is highly unlikely. In fact, only less than half of all US workers with a NCC declare having access to trade secrets (Starr et al., 2021).

[5] Colvin and Shierholz (2019) attribute the (sizeable) difference between the two surveys to the fact that the two surveys were three years apart (and hence to an increase in the use of NCCs) and to the fact that businesses know whether their workers are subject to NCCs while workers may not know or remember.

[6] In several US states NCCs are allowed and strictly enforced. In others, notably California, NCCs are completely banned. According to Carosa (2019), the prohibition of NCCs may have been a crucial factor explaining its technological development while Barnett and Sichelman (2020) dismiss this proposition arguing that, in fact, the prohibition has been bypassed in various ways, in particular with a strategic use of pension plans.

In addition, NCCs are rarely the result of a negotiation: only 10% of employees negotiate over their NCCs, with 38% of the non-bargainers not even knowing that they could negotiate and about one-third of employees presented with NCCs after having already accepted job offers (Starr et al., 2021).

Finally, NCCs are common across the United States, including in states that do not enforce them (Starr et al., 2021 and Colvin and Shierholz, 2019). Companies appear to introduce NCCs in individual contracts even when they are not legally enforceable because they know, or at least they hope, that the *in terrorem* effects of the contract will still block workers (Starr et al., 2022). Indeed, the data show that NCCs are effective, *i.e*., they reduce mobility, even in states where they would not stand up if challenged in courts (Starr et al., 2020; Prescott et al., 2022).

NCCs matter not only for individual workers and companies, but they also might generate negative externalities in the labour market and have potential aggregate effects for the whole economy (Starr et al., 2019). In fact, their stated objective is to offer the protection that companies need to carry out investments and hence promote innovation. However, the evidence on NCCs as a tool to solve a hold-up problem is far from conclusive (OECD, 2019). By restricting mobility, NCCs may actually stifle knowledge spillovers – *i.e*., the diffusion of skills and ideas[7] –, reduce labour market dynamism and limit competition, with a negative effect on innovation and ultimately growth. Belenzon and Schankerman (2013), for instance, show that NCCs lead to fewer local knowledge spillovers in the United States while Marx et al. (2015) demonstrate that, within the US, workers tend to move from enforcing to non-enforcing states leading to a potentially damaging "brain drain". Mueller (2022) shows that stronger non-compete enforcement in the United States leads to an inefficient reallocation of human capital, with inventors forced to move in another sector where they are less productive. Calibrating a search and matching model with data on NCCs for executives in public-listed US firm, Shi (2023) weights the potential social gains in terms of higher firms' investment against the social cost of lower worker mobility and she finds that NCCs generate sizeable distortions in job mobility and only relatively mild effects on firm investment. She concludes that, from a social point of view, the optimal policy is close to a ban on NCCs.[8] All in all, it seems that even the societal benefits of NCCs are far from clear.

The recent evidence on monopsony power and, more specifically, on the overuse and misuse of NCCs has reignited the debate in the Unites States.[9] In 2016, the Obama Administration proposed a ban for certain categories of workers, an increase in transparency and the elimination of unenforceable

[7] An important facilitator of the diffusion of ideas is, perhaps unsurprisingly, the movement of workers across firms within industry (US Treasury, 2016).

[8] Potter et al. (2022) are a bit more nuanced than Shi (2023) but also find that NCCs are socially ineffective.

[9] The debate in the United States goes beyond NCCs and includes the overuse of non-disclosure agreements, non-solicitation agreements, which prohibit employees from soliciting former clients, and non-recruitment agreements, which prohibit employees from recruiting former co-employees. These restrictions often come in a bundle (Balasubramanian et al., 2022).

provisions.[10] In 2021, the Biden Administration signed an executive order encouraging the Federal Trade Commission to ban or limit NCCs.[11] Notably, in early 2023 the Federal Trade Commission ultimately took legal action against three companies and their executives for imposing noncompete restrictions on their workers[12] and proposed a rule to ban NCCs altogether. At the state level, some states have reformed their non-compete laws. In 2018, Massachusetts restricted the use of NCCs, including capping duration at one year.[13] In 2021, Washington D.C. passed a comprehensive ban on NCCs [14]. Finally, in 2022 restrictions to NCCs became effective in Oregon[15], Nevada[16] and Illinois[17].

2.2 NCCs in the European Union

The use of NCCs is not limited to the United States. In many EU countries NCCs are enforceable under employment or civil law when their duration, geographic scope and activities covered are reasonably limited (OECD, 2019 and Posner and Volpin, 2020). There are no comprehensive surveys or studies on their extent as for the United States. Yet, scattered evidence suggests that some of the features found in the United States, notably the fact that they are not limited to high-skill, high-pay employees, are present in European Union countries as well.

In Austria, before 2006 NCCs were enforceable for all adult employees. In 2006, the Austrian Parliament changed the legislation making NCCs not enforceable for employees who had signed their contract after March 2006 and whose earnings were below 2,100 euros[18] per month (Young, 2021). According to a 2005 survey, over 30% of low-earning workers had a NCC in their employment contract (Klein and Leutner, 2006).

In the Netherlands, a 2015 survey (Streefkerk, Elshout and Cuelenaere, 2015) shows that, on average, 18.9% Dutch employees are covered by a NCC. The share goes up to 25.3% among those who have been with the same employer for more than 5 years and to 33.8% among those who are currently self-employed but previously worked as employees. Like in the United States, such clauses are not limited to high-skill workers: 11% of the employees without secondary diploma are bound by NCCs. NCCs are especially concentrated among workers aged 25-34 (26.6%) and, in fact, they are more often

[10] See https://obamawhitehouse.archives.gov/sites/default/files/competition/noncompetes-calltoaction-final.pdf (accessed on 22 August 2022)
[11] See https://www.whitehouse.gov/briefing-room/statements-releases/2021/07/09/fact-sheet-executive-order-on-promoting-competition-in-the-american-economy/ (accessed on 22 August 2022)
[12] See https://www.ftc.gov/news-events/news/press-releases/2023/01/ftc-cracks-down-companies-impose-harmful-noncompete-restrictions-thousands-workers (accessed on 5 January 2023)
[13] See https://www.mass.gov/info-details/mass-general-laws-c149-ss-24l (accessed on 22 August 2022)
[14] See https://lims.dccouncil.us/downloads/LIMS/43373/Meeting2/Enrollment/B23-0494-Enrollment1.pdf (accessed on 22 August 2022)
[15] See https://olis.oregonlegislature.gov/liz/2021R1/Downloads/MeasureDocument/SB169/Enrolled (accessed on 22 August 2022)
[16] See https://www.leg.state.nv.us/App/NELIS/REL/81st2021/Bill/7300/Text (accessed on 22 August 2022)
[17] See https://legiscan.com/IL/text/SB0672/2021 (accessed on 22 August 2022)
[18] Currently the threshold is set at 3,480 euros per month pre-tax and excluding any special payment.

found in temporary contracts (24%) than in permanent ones (19%). However, 89% of employees who signed a NCC in the past believe that this did not represent a major obstacle in finding a new job.

In Finland, a 2017 survey of professional and managerial staff (Akava, 2017) found that 37% of these high-skilled Finnish workers had a NCC in their contract. Interestingly, the use of NCCs tripled for this group in the last twenty years, going from 14% of contracts signed before 2000 to 45% of contracts signed by 2015.

There is some evidence for Denmark as well (Dahl and Stamhus, 2013): *Business Danmark*, the trade union in sales and marketing, conducted a survey in 2012 and found that about 20% of its members are subject to a NCC. Another survey run in 2012 among HK/Privat members (a union for administrative staff and the retail sector) found an incidence of NCC of 11%, mostly involving non-managerial positions. According to data collected by the Engineers' Association, IDA, in 2012, 14% of private sector members had a NCC. Finally, a survey among LO members (one of the three national trade union confederations in Denmark) found that in 2004 one in 15 private sector employees was bound by a NCC.

We are not aware of previous studies on the presence and characteristics of NCCs in Italy or other Southern European countries characterized by strict employment protection regimes and a high coverage of collective bargaining.

3. The regulatory framework

Labour market regulation in Italy is defined by three main layers, namely (national and European Union) law, collective agreements, and case law. We analyse the regulation of NCCs for private sector employees[19] in each of these three layers to understand how the legal framework affect their use.

The Italian Civil Code enacted in 1942, which is still the main piece of legislation applicable today[20], introduced the possibility of restricting post-employment job opportunities under certain

[19] While the focus of this research is on private sector employees, according to article 2596 of the Civil Code NCCs might also cover the contractual relationship between a self-employed worker and her employer. However, there are very few cases in jurisprudence on NCCs among self-employed workers and it is unclear how common they are. Interestingly, NCCs that involve commercial sales agents (a specific group of self-employed workers) are regulated in detail by article 1751 bis of the Civil Code and by collective economic agreements. To be sure, collective economic agreements (this is how collective agreements for commercial sales agents are labeled) are expressly called by the law to further regulate NCCs for commercial sales agents, and indeed provide a very detailed regulation contrary to the collective agreements for employees; for example they include provisions concerning the calculation of the compensation as well as the legitimate timing for agreeing to a NCC (only at the beginning of the contractual relationship). The peculiarity and specificity of these employment relations, as well as the need to limit the scope of our survey, led us to focus our attention on private sector employees.

[20] While formally regulated only at the national level, NCCs may interfere with fundamental principles of the European Union (Article 45 and 49 TFEU) as well as the competition legislation, especially when they disproportionately limit workers' ability to move within the European Single Market (Hyde and Menegatti, 2015; Monti 2002).

conditions[21]. According to Article 2125, a NCC must be based on a written deed, specify a compensation as well as time, sectoral and geographical limits. Although the law provides specific provisions in terms of the maximum duration of the clause (three years, except for executives whose clauses can last up to five years), the amount of the compensation as well as the sectoral and geographical limits are not defined in detail.

We then consider the role of collective agreements, which in Italy regulate pay as well as a wide range of dimensions of the employment relationship, including dismissal regulation, the notice period, the trial period, and the use of temporary contracts. Notably, there are almost 1,000 collective agreements in force in Italy.[22] Most of these agreements cover only a handful of workers and the distribution in terms of coverage is very skewed – more than half of the agreements for which we know the coverage rate, regulate the employment contracts of less than 1,000 workers. However, according to the INPS-CNEL repository[23], 29 collective agreements cover at least 100,000 workers, while 44 collective agreements cover at least 50,000 workers (79.5% and 87% of private sector employees, respectively). We therefore restrict our focus to the 44 agreements covering at least 50,000 workers, and we find that only four of them mention NCCs by simply referencing to Article 2125 of the Civil Code, without adding any specific provision. Even when looking specifically at collective agreements for executives, there is no evidence of any regulatory role: there are 19 collective agreements specifically dedicated to this category of workers, covering 108,868 workers in total; 16 of these agreements do not include any reference to NCCs, while 3 provide some further indication on NCCs; however, these 3 agreements have a very limited scope in terms of coverage (1,863 workers in total), and they do not add much new on the most contentious issues – *e.g.*, a minimum compensation is not defined.[24] This indicates that collective agreements do not play any role in the regulation of NCCs.

Neither the applicable law nor collective agreements define the criteria to be used for assessing the compensation, sectoral and geographical scope of NCCs. Consequently, these issues are typically dealt with in courts. To date, conducting a quantitative analysis of case law in Italy is hardly feasible given the absence of a comprehensive database, especially regarding local and lower courts decisions. Therefore, our analysis of case law is a qualitative one, and relies on the available and most quoted decisions delivered by the Court of Cassation (the highest court in Italy). Nevertheless, to give a

[21] NCCs refer to post-employment competition. Instead, in Italy competition during the employment relationship is subject to a duty of loyalty, which restricts any form of competition throughout the employment relationship. The line between what an employee can and cannot do during the employment relationship is not always clearly defined, especially when the employee is planning to start her own business after the termination of the employment relationship (Graves, 2020).

[22] 985 in July 2021, when we conducted our analysis. In November 2022, 946 collective agreements were recorded in the national repository run by the National Council for Economics and Labor (CNEL). Data accessible at: https://www.cnel.it/Archivio-Contratti

[23] *Id*.

[24] On the other hand, by recalling the main legal principles and rules, these three collective agreements might help workers being more aware of these legal provisions.

"quantitative" sense of the perception of this phenomenon as it looks like if we consider only the case law, we search for trials involving a NCC on *Dejure*[25], one of the most comprehensive legal databases in Italy. Searching for "non-compete agreement" among the decisions of the Court of Cassation (labour section) during the last 10 years (2012-2021), we find a total number of 159 cases; 52 cases involve private sector employees, suggesting that in recent years the Court of Cassation has been adjudicating an average of approximately 5 cases per year.[26] Still on *Dejure*, we look for "case briefs" – *i.e.*, case recaps prepared for lawyers and other professionals – during the same periods: 24 are related to Court of Cassation decisions, 9 to Courts of Appeal, and 21 to Tribunals which are the name of courts of first instance in Italy. As anticipated, this is far from being a reliable quantitative assessment of the relevant case law; however, it provides a potential explanation of why this phenomenon has not received much attention so far.

The main legal principles established by case law and recalled recently by the Court of Cassation[27] can be summarized as follows: a NCC is a contract (or a clause included in an employment contract) according to which the employer commits to pay a certain amount of money (or other benefits) to the employee who, in exchange, agrees not to carry out activities in competition with the employer for a period after the termination of the employment relationship; while the aim of a NCC is to safeguard the employer from an undue transfer of its intangible assets to a competing firm, such a clause cannot undermine excessively the employee's ability to find and accept another job opportunity; after the termination of the employment contract, a worker typically recovers the full and absolute freedom to join any employer or start her own business and, therefore, this freedom cannot be limited in a way that it jeopardises the professional skills and undermine the earnings ability of the employee. Beyond these general principles that guide judges in adjudicating each specific case, case law provides some further guidance in the definition of the sectoral and geographical scope of a NCC as well as the minimum amount of the mandatory compensation.

A NCC must provide a definition of its scope, *i.e.*, the sector(s) or specific companies that fall under the clause. One established rule is that that a NCC aimed not at restricting private economic initiative, but at completely precluding one contractual party (the worker) from using her professional skills is null as it infringes the Constitutional provisions (in particular, Articles 4 and 35 of the Italian Constitution).[28] In other words, even a compensation equal to the previous salary does not entitle the

[25] *Dejure* contains all the decisions delivered by the Court of Cassation starting from 2006, *see* https://www.giuffrefrancislefebvre.it/media/1624457821.pdf

[26] The other cases mostly involved sales commercial agents (63 cases, with an average of approximately 6 cases per year) or did not relate to NCCs after a deeper analysis (43 cases). Only one case involved a self-employed worker.

[27] *See* Court of Cassation, decision No. 5540/2021.

[28] *See* Court of Cassation, decision No. 24159/2014. Thus, agreements such as the so-called "garden leave" (Sullivan, 2016) – whereby an employee is instructed to stay away from work during the non-compete period while remaining on the payroll – would not be valid in Italy.

employer to restrict completely the employee's right to use her professional skills and to prevent her from any other earning opportunity. Apart from this somewhat extreme case, understanding courts' reasoning is more challenging. While in the past NCCs were supposed not to go beyond the tasks carried out by the employee (*i.e.*, a clause is null if not confined to the tasks previously performed), more recently the Court of Cassation repeatedly stated that NCCs can legitimately cover any work activity that may compete with the employer.[29] Conversely, courts consider that business activities unrelated to those pursued by the employer cannot be subject to a NCC. The most important assessment, then, is whether the scope of the agreement is such that it excessively restricts the actual earnings and professional perspectives of the worker or if it is defined.

No different than for the sectoral scope, courts must assess the geographic scope of a NCC on a case-by-case basis considering how much the agreement restricts the earning and professional ability of the worker. Interestingly, geographical boundaries have been progressively extended in recent decades.[30] Several factors can explain this trend, but certainly globalisation and the development of the European Single Market have led to an expansion of the geographical scope of (labour) markets, at least for high-skilled workers (less for the low skilled). Firms' interest in enforcing wider NCCs has grown up accordingly.

Finally, the third important dimension is the compensation. Again, neither the Civil Code nor collective agreements provide any reference as to what amount can be considered as fair, nor they indicate how the compensation should be paid. Established case law provides the following guidance: NCCs must set a compensation to be valid; the compensation must be adequate, which means that clauses with a symbolic compensation must be considered null, and likewise those that entail a clearly unfair or disproportionate compensation; the adequacy of the compensation must be assessed with respect to the costs imposed to the worker in terms of reduced earning potential, regardless of the hypothetical benefits for the company (i.e. even if the benefits are limited, the compensation must be proportionate to the restriction imposed on the worker). The validity test is twofold: first, the compensation must be determined or determinable just as for every contract (Article 1346 of the Civil Code); second, the compensation cannot be symbolic, manifestly unfair, or disproportionate. In practice, the compensation can vary significantly but there is no sufficient compensation that can justify the restriction of any employment opportunity, as explained before for the sector boundary. A further important characteristic is the form of the compensation. Usually it takes two forms: a payment during the employment relationship or a payment after the termination of the employment relationship either in a single instalment or at regular intervals. Although both forms are admitted, the first one may

[29] *See* Court of Cassation, decision No. 13282/2003.

[30] Two relevant and well-known cases were decided by the Court of Cassation in the early 2000s. *See* Court of Cassation, decision No. 15253/2001; Court of Cassation, decision No. 13282/2003. *See* also Milan Labor Court decision 22.10.2003; Milan Labor Court decision 3.05.2005; Milan Labor Court decision 16.07.2013.

generate some issues, especially when the employment relationship terminates after a short period of time and the compensation ends up being inadequate. In short, there have been attempts to infer from case law a minimum threshold or amount of compensation which can be considered as adequate – a compensation equal to 10% of the salary has been repeatedly considered adequate in past cases – but any decision must still be based on a case-by-case assessment of the specific circumstances. The guiding rule of thumb should be the broader the limitations, the higher the compensation. In brief, given the lack of precise indications provided by law or collective agreements, courts must assess each case with respect to its specificities, particularly focusing their attention on the restrictiveness of the clause. To be sure, this assessment is not far from the reasonableness test under the rule of reason employed in the United States and other OECD countries. What significantly differentiate the case of Italy (and other European Union countries) is the presence of a mandatory compensation.

Despite its abstractness and width, the Italian legal framework permits to divide a sample of NCCs into two clusters: (*i*) the cases in which we can safely assume that the clause is not enforceable due to the absence of a mandatory minimum requirement (*e.g.*, when the agreement is not in a written form, the duration is not specified, the sectoral scope is not specified, there are no territorial boundaries, or the compensation is not foreseen) and (*ii*) the other cases in which the reasonableness test must be employed. This division is a critical one, as it differentiates the legal premises of our empirical analysis from the ones of other currently available research. In states where NCCs are enforceable in the U.S., the rule of reason is employed to assess the reasonableness of the restriction (Prescott et al., 2014; Starr et al., 2021). The presence of minimum legal requirements, instead, restrict the scope of the reasonableness test to the cases in which these minimum standards are met. In the remaining cases – namely, in the absence of mandatory minimum requirement – NCCs are almost certainly not enforceable without the need of any further evaluation. Being able to assess whether a NCC is potentially enforceable or rather certainly unenforceable allows us to safely infer that workers are not aware of the legal framework when their subjective beliefs about NCCs enforceability are wrong (Prescott et al., 2022).

4. Survey design

To collect data on the incidence and the characteristics of NCCs in Italy, we closely followed Prescott et al. (2016) and we designed an *ad hoc* online survey in the steps of that run in the United States but adapted to the Italian legal framework and labour market. The survey was aimed at gathering information on the incidence of NCCs as well as on employee experiences with and understanding of NCCs.

4.1 Content of the survey

The survey focused on six main aspects beyond the basic socio-demographic characteristics of the respondent: information on the current employment relationship (occupation, sector, type of contract, size of the company as well as the respondent's employment history with the employer, the training received (if any), the access to private information (if any) and the satisfaction with the job/employer), the presence and the content (duration, sectoral and geographical scope, presence and amount of compensation and of a buyout clause) of the NCC (as well as other clauses such as non-disclose, non-solicitation of colleagues and/or clients, etc.), the respondent's beliefs about NCCs (if it is perceived as justified and enforceable or not) and the circumstances in which the NCC has been signed (when and how their employer asked to sign the NCC and if they tried to negotiate it).

4.2 Survey implementation

To collect responses to the survey, we hired a survey and data collection firm, which runs a panel of 150,000 active members, representative of the entire Italian population.[31]

In a first phase, from this panel we randomly sampled respondents to reach a target of 2,000 completed interviews by private sector employees aged 16+, therefore excluding from the sample all public sector employees, the self-employed, the unemployed and inactive (students, pensioners, etc.). Each prospective respondent was sent the survey via e-mail and only invited panellists[32] could respond to the survey as the link was individualised and could not be re-used. Quotas, i.e. constraints on the numbers of respondents with particular characteristics or sets of characteristics, were used to control the characteristics of the final sample to align it with the distribution in terms of age, gender and geographical area of private sector employees in Italy using the information available in the *Registro Statistico Asia-occupazione* by Istat (see Table 8 and Table 9 in Annex 2).

In a second phase, in order to have a wider sample of private sector employees with a NCC[33], we oversampled workers with a NCC to reach a target of 1,000 respondents in total with a NCC.

[31] The panellists are recruited via various sources, online and offline (advertisement, emailing, social network, etc.). Membership to the panel is voluntary and is done through double consent. At the moment of the enrolment, panellists provide their basic socio-demographic information, and a series of quality checks are implemented to ensure that only real individuals are enrolled.

[32] This means that this survey was not accessible to anyone on the web, and panellists could not volunteer to participate.

[33] We do so to strengthen the statistical power of the analyses based on respondents with a NCC only, for example the analyses on the content of the clause and the circumstances in which it was negotiated and signed. Panellists sampled for individual surveys receive an invitation email, which always contains information about the expected time for filling out the questionnaire and the value of the incentive.

All respondents completing the interview were compensated for taking the survey, as it is typical in these kinds of surveys.[34] The survey was conducted between May 25, 2022, and June 20, 2022.[35] On average, it took 21 minutes to fill for respondents with a NCC and 11 for respondents without a NCC. A number of real-time checks were implemented to ensure the quality of responses. First, the link could be used only once to prevent multiple participation. Second, three recurrent types of misbehaviour were identified and blocked[36]: "speeders", i.e. participants who complete a questionnaire in less than 25% of the median length of interview (LOI); "straight-liners", i.e. respondents who in a series of questions, typically items with the same response scale or matrices, always clicks on the same step of the scale (e.g., provides answers all in the same column); and, finally, "happy clickers", i.e. panellists who provide mutually inconsistent responses, answering randomly without reading the question carefully.

Given that some of the questions in the survey are relatively cognitively demanding, prior to the fieldwork we undertook an in-depth cognitive test of the draft survey with six respondents (three women and three men). During the cognitive test, the respondents were asked to fill the survey in the premises of the survey company and under the supervision of an expert, discussing in detail the phrasing of the questions and the answer items which they were found to be unclear or ambiguous. Moreover, a pilot with 105 respondents was undertaken to validate the script of the survey, test the flow and check whether the questions were clear or understandable. The feedbacks received were reflected in the final version of the survey.

4.3 Sources of potential selection bias

Online surveys are by far the most widely used in market research, opinion surveys and social research[37] in all OECD countries, including in Italy. As discussed extensively by Prescott et al. (2016) for the case of the United States, there are a number of pros and cons in using an online survey to study the incidence and content of NCCs. The main advantage compared to other survey modes such as phone, mail or in-person interviews is that the cost is dramatically lower and the time to complete the fieldwork significantly shorter. However, these practical advantages may come at the cost of sample selection.

In our case, there are three sources of potential selection bias that may be at play: first, not the entire Italian population is active online; second, not all internet users sign up to be survey panellists;

[34] Participants earn points in proportion to the length of the questionnaire and/or the complexity of the effort required. After reaching a certain amount of points, panellists can convert them into a prize (telephone recharges or gasoline vouchers, shopping vouchers at large-scale retail brands, electronic vouchers).

[35] Between May 25th and June 3rd for the main survey and between June 7th and June 20th for the oversampling.

[36] If the system detects one or more of the types of misbehaviour listed in the text, the answers are excluded from the list of completed interviews and the panellist is sanctioned in real time, i.e. she does not get the expected incentive and this is communicated at the end of the interview.

[37] See, for instance, the data on both buyers and suppliers in *Insights Practice - GreenBook Research Industry Trends Report – 2022 Edition.*

third, not all invited panellists respond to the invitation to complete the survey.[38] In what follows, we discuss in detail the likelihood and risk of each source of sample selection that may have an impact on our final estimates.

The first source of selection is that not the entire Italian population is online. The latest official data by Eurostat show that, in 2021, 90% of the households in Italy had access to internet (via computer, smartphone or tablet) and 82% individuals used internet in the last three months. The data, however, also show a strong age gradient: 95% of 16 to 24 year old used internet, 92% among the 25 to 34 year old, 89% among the 35 to 44 year old, 78% among the 55 to 64 year old and a mere 52% among the 65 to 74 year old. The specific target sample of our survey are private sector employees aged 16+. The publicly available data do not allow having an estimate of internet usage for the specific group targeted in our survey, but it is possible to see that internet usage increases to 89% among people in the labour force (employed and unemployed) and to 91% among employed individuals aged 25 to 64. Overall, it appears that this first type of selection bias should not be very acute except for the 65+ who, however, represent only 2.9% of the employed individuals in Italy (the average effective retirement rate was 63.1 in 2020 according to OECD, 2021).

The second source of bias is that not all internet users sign up to be part of online panels. The panel is designed to reflect the observable characteristics of the Italian population and it is regularly used and maintained by the survey company to ensure that it can provide a useful and meaningful support to the clients' needs. However, some unobservable characteristics of the panel members may affect our results, in particular if people who are more likely to sign up to the panel are also more likely to have a NCC. This is not an issue that we can disregard out of hand, but the arguments for this specific type of sample selection are also not very strong. The online panel of our survey company has been developed mostly for the business sector to be used for marketing and product development purposes and it is seldom used for economic and labour market research. In the hiring phase that preceded (by far) the fieldwork of our survey, there was no reference to NCCs or even to labour market issues in general.[39] Focus groups are conducted regularly by the polling company to test the reasons to join the

[38] A fourth source of bias mentioned by Prescott et al. (2016) is linked to who receives the survey. However, as mentioned above, in our case respondents were randomly selected from the panel to participate in the survey using quota sampling. Therefore, the only selection at play in this case is the intended one, i.e. by quotas.

[39] Messages in the hiring phase vary depending on the channel used for hiring the prospective panellists but are usually very general. Some examples are the following:

- "*We will cover shopping and consumer habits; travel and vacations; technology and innovation; society, politics and the environment; fashion and wellness; culture and customs; sports and motors; and many other topics of interest.*"
- "*The panel aims to gather ideas and suggestions from consumers and all citizens, many aspects on which the quality of our lives depends: new products and new services, our relationships with companies and institutions, work, what new things we expect from politics and in society*."
- "*The panel is an opportunity to facilitate the provision of better products and services, but also to express and enhance your ideas on economic issues and societal trends.*"

panel and the motivations to remain part of it. The arguments reported by the panel members usually revolve around the following main areas:

- The rewards that can be achieved by filling properly the surveys;
- The management of the panel (respect of the commitments, the responsiveness of the company, the ability to solve problems);
- The quality of the questionnaires (from the respondents' point of view): the fact that they are well done, error-free, respectful of the respondent.

The final source of bias, as far as our survey is concerned, is the standard non-response bias that affects any survey: even if prospective respondents are randomly selected to take part in the interview, not all take part to it or complete it. And even if quotas ensure that the final sample reflects the composition of the reference population, there may still be selection along unobservable characteristics that cannot be controlled for. This is a concern also with probabilistic surveys where people are contacted by phone, mail or by a surveyor at their home door. In the case of these surveys, the invitation to take part to the survey was very general and it did not mention NCCs or even labour market issues in general.[40] However, even if there is no selection based on the topic, non-response is never random: typically, younger, less educated, single and poorer populations tend to have higher non-response rates. According to Qualtrics (2022), the average response rate tends to fall between 20% and 30% and a survey response rate below 10% is considered very low. In our case, 26.4% of contacted panellists started the survey and, of those who started, 90.7% completed it.

All in all, there are no specific reasons to believe that selection is a major concern for the validity of our data and we believe that the measures taken during the implementation of the survey contributed to minimise this risk. However, we cannot entirely discount the issue because some factors remain inherently unobservable and, therefore, these results should be considered as a first estimate for Italy.

5. The incidence and the characteristics of NCCs in Italy

In this section, we present the main results of the survey. We show the incidence of NCCs among Italian private sector employees and the characteristics of these employees and the companies employing them. Then, we analyse if and how much employers and employees negotiate the introduction of a NCC in a contract and what they bargain about. Third, we describe the characteristics of the clauses, comparing their content to what is foreseen in the Italian civil code and case law. Finally, we look at other legal clauses such as the notice period for permanent employees and the penalty clause for temporary workers that may restrict the possibility to quit the current job and move to another one.

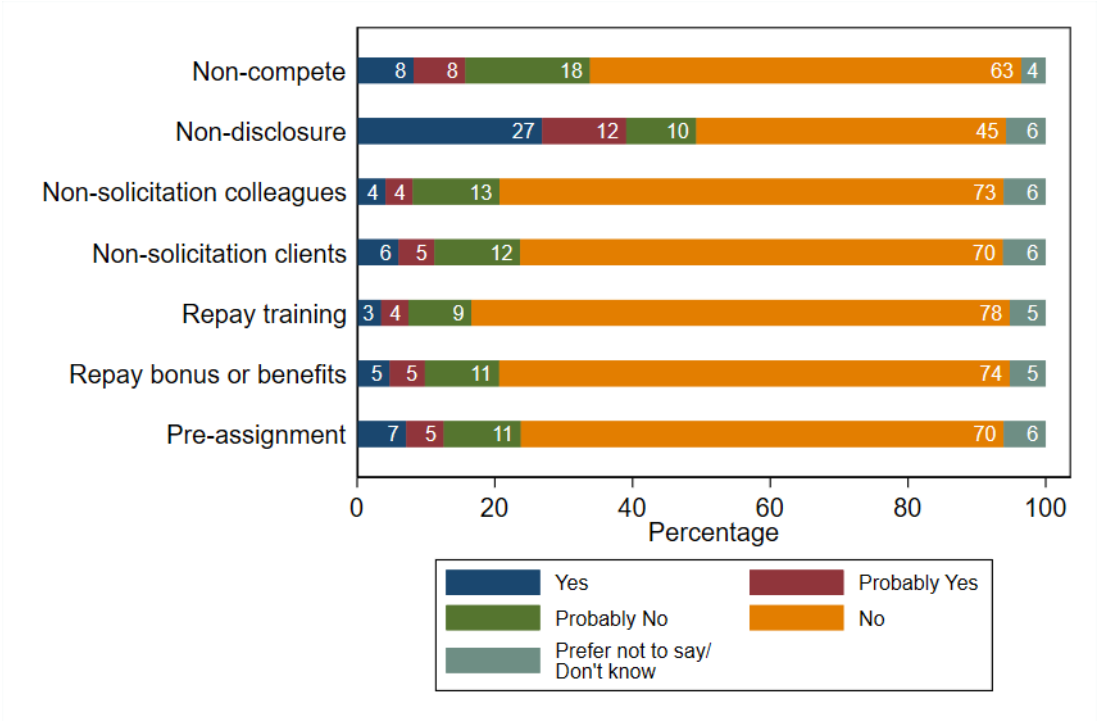
[40] The invitation email reads as follows: "*Hi, we have launched a new survey. Please participate! The survey takes a maximum of 20 minutes. Those who complete it in full will be credited <number> points. To respond use the following link. Thank you for your cooperation!*".

5.1 The incidence of NCCs

In Italy, the share of private sector employees who have agreed to a NCC at least once in their career is 22% while 15.7% of private sector employees are currently bound by a NCC[41], which corresponds to almost 2 million employees (Figure 1). The share of workers currently bound by a NCC in Italy is lower but not very far from the one found in the United States for private sector and public health care workers where – according to Starr et al. (2021) – 18% of US private sector and public health care workers are covered by a NCC[42], while 38% have agreed to at least one in the past. Table 1 provides means – overall and by non-compete status – of the main variables in our sample.

NCCs are not the only legal tool to regulate post-employment activity, as discussed in Section 2, as shown in Figure 1. By far the most common clause in Italian employment contracts is the non-disclosure agreement (NDA): 39% of private sector employees in Italy are covered by a non-disclosure agreement. Other clauses are also quite widespread: 12% of private sector employees are bound by a pre-assignment agreement (a contract which assigns to the employer ownership over any invention created while employed); 11% by a clause of non-solicitation of clients; 10% by a repayment of benefits and bonuses clause; 8% by a clause of non-solicitation of colleagues; and 7% by a repayment of training costs clause.

Figure 1: Share of employees bound by clauses regulating post-employment activity



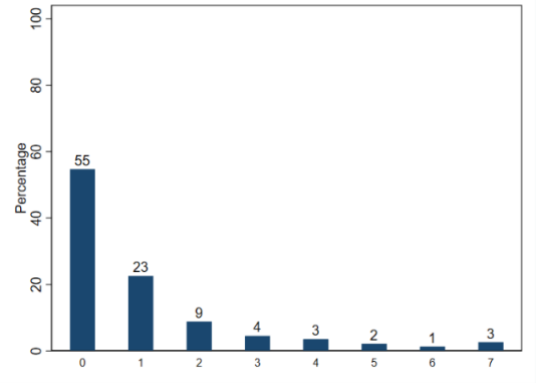
[41] More precisely, 8.2% answered yes, 7.5% answered probably yes.

[42] But this has to be interpreted as a lower bound estimate as the survey only allowed to answer yes, no or maybe.

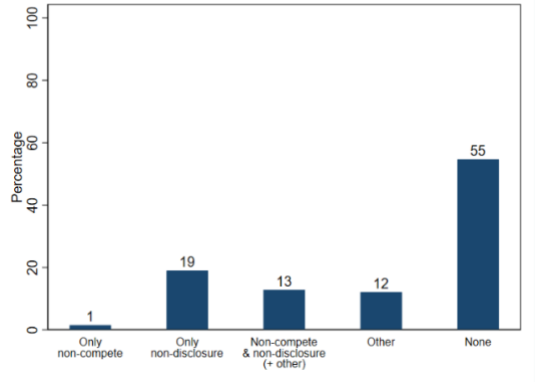
Clauses regulating post-employment activity often come in a bundle (Balasubramanian et al. 2022): out of the total population of private sector employees, Panel A in Figure 2 shows that 55% are not covered by any clause, 23% are covered by one clause only (typically a non-disclosure agreement) while 22% are covered by more than one clause. Panel B in Figure 2 shows that about 1% are bound by a NCC only, 19% by a non-disclosure agreement only, 13% by both a NCC and at least a non-disclosure agreement and the rest (12%) have a number of other combinations of post-employment clauses.[43]

Figure 2: Bundles of clauses regulating post-employment activity

Panel A: Share of employees covered by one or more clauses



Panel B: Share of employees covered by different bundles



[43] Interestingly, 4.9% of workers (almost a third of those bound by a NCC) are covered by both a non-compete and repayment of training costs clause (a contract or clause which provides for the employee to repay the costs associated with attending training courses – that the employer has paid for – if the employee ceases employment within a certain period of time).

Table 1: Sample means by NCC use

Variable	Overall	*With clause*	*Without clause*	*Difference*
Male	0.59	0.66	0.57	0.09***
Age	42.55	42.53	42.55	-0.02
Lower secondary school or less	0.07	0.04	0.07	-0.03***
Upper secondary school	0.56	0.5	0.57	-0.07**
Bachelor degree	0.12	0.13	0.12	0.01
Higher than bachelor degree	0.25	0.33	0.23	0.1***
Wage >=2000 euro	0.21	0.39	0.17	0.22***
Member of a trade union	0.19	0.24	0.18	0.07***
High-skilled	0.32	0.44	0.3	0.14***
Medium-skilled	0.49	0.39	0.51	-0.12***
Low-skilled	0.18	0.17	0.19	-0.02
Employer size: < 15	0.22	0.11	0.24	-0.13***
Employer size: 16-50	0.16	0.14	0.16	-0.03
Employer size: 51-100	0.12	0.17	0.11	0.06***
Employer size: 101-250	0.1	0.13	0.1	0.04*
Employer size: > 250	0.36	0.42	0.34	0.07***
Employer size not known	0.04	0.03	0.04	-0.01
Operational area: only Italy	0.68	0.57	0.7	-0.12***
Operational area: both Italy and abroad	0.31	0.42	0.29	0.12***
Operational area not known	0.01	0.01	0.01	0
Area: North West	0.36	0.35	0.37	-0.02
Area: North East	0.24	0.25	0.24	0.01
Area: Center	0.21	0.22	0.21	0
Area: South and Islands	0.18	0.19	0.18	0.01
Permanent contract	0.82	0.82	0.82	0

Note: Low-skill workers are those with jobs in sales and services and elementary occupations (CP11 5 and 8). Middle-skill workers hold jobs as clerks, craft workers, plant and machine operators and assemblers (CP11 4, 6 and 7). High-skill workers are those who have jobs in managerial, professional, technical and associated professional occupations (ISCO 1, 2 and 3). *** p< 0.01, ** p<0.05, * p<0.1.

The use of NCCs differs significantly across types of workers. Table 1 shows that NCCs are more common among men than women while they are evenly spread across age groups. NCCs are also used for workers with a temporary contract, even if the average expected duration of a temporary contract is just one year. In interpreting this result it is important to take into account that in Italy fixed-term

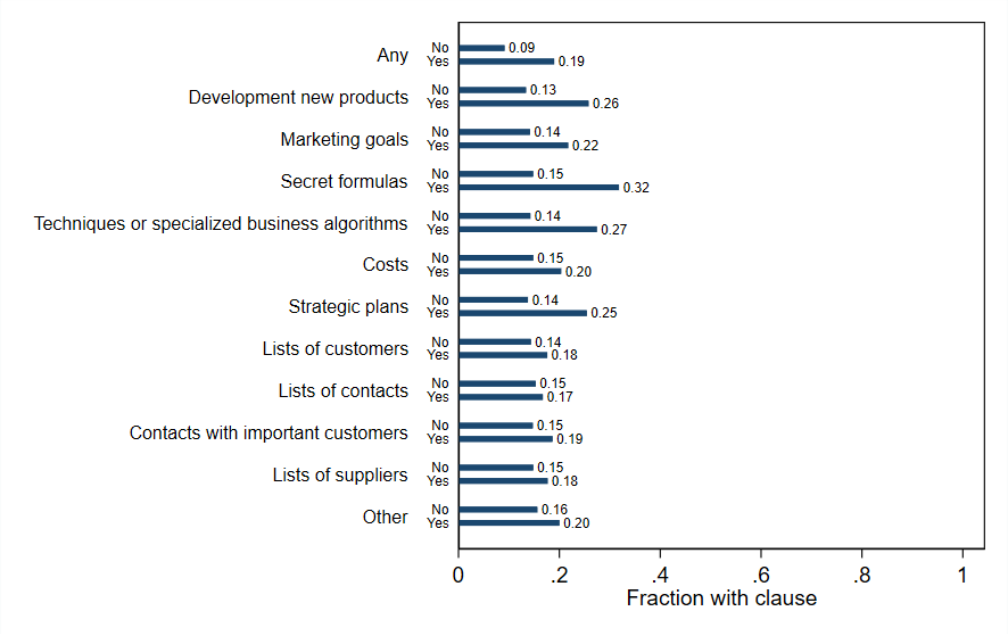
contracts in most of the cases do not have the characteristics of "replacement contracts" as in the UK or US, e.g. as temporary hires justified by a leave of the job holder, but are used by employers to reduce the strictness of employment protection legislation.

Consistent with the idea that NCCs are used to protect legitimate business interests, they are more common among managers and professionals and among highly educated and higher earning employees. However, NCCs are also relatively frequent among workers employed in manual and elementary occupations and low educated and lower earning ones (see Table A.3 in Annex 2): 9.4% of the employees with less than secondary education are currently bound by a NCC, 12% among those earning less than 2,000 euros/month, 8% among those employed in craft and related trade, 9% among plant and machine operators and 13% in elementary occupations.

Interestingly, the incidence of NCCs is higher among trade union members but this is likely to reflect just a composition effect as the difference disappears when controlling for worker's and company characteristics. This is in line with the finding of our analysis of collective agreements that collective bargaining and unions more in general appear to play no role in the regulation and enforcement of NCCs in Italy.

According to the "traditional view", NCCs are necessary to protect legitimate business interests. This could be even more the case in a rigid labour market where companies cannot innovate and change by acting on the extensive employment margin (i.e. firing less skilled workers to hire new and more skilled ones). However, if we look at the incidence of NCCs by access to confidential information (such as secret formulas, strategic plans, the development of new products, list of important clients or suppliers, etc.) we observe that this is not always the case. Figure 3 shows that while clauses are indeed more prevalent among employees who have access to some kind of confidential information, 9.1% of the employees who do not have access to any kind of confidential information also have a NCA.

Figure 3: Share of employees bound by a NCC, by access to confidential information



The use of NCCs also differs across types of employers (Table 2). The incidence of NCCs is higher in mid-sized companies (50-250 employees) than in small ones. In small and micro firms of less than 15 employees, only 8% of workers are bound by a NCC compared to 13% in firms with 16-50 employees and 22% in firms with 51-100 employees (see Table 2)

It is also higher in multinational companies (i.e., companies which have establishments both in Italy and abroad) than in national ones. Moreover, NCCs are more common in services than in manufacturing, with a non-negligible share of employees bound by a clause also in relatively low-skilled service sectors such as household activities and hotels and restaurants. Finally, we find very little variation across geographical areas, and NCCs appear to be quite evenly spread across the entire country despite the high heterogeneity in terms of economic structure of Italian regions.

Table 2: Share of employees bound by a NCC by characteristics of the firm

Variable	Incidence clause
Size firm	
Less than 15	0.08
16-50	0.13
51-100	0.22
101-250	0.20
More than 250	0.19
Don't know	0.14
Operational area of the firm	
Only in Italy	0.13
Both in Italy and abroad	0.21
Don't know	0.17
Sector	
Primary	0.13
Secondary	0.13
Tertiary	0.17
Geographical area	
North West	0.15
North East	0.16
Centre	0.16
South and Islands	0.17

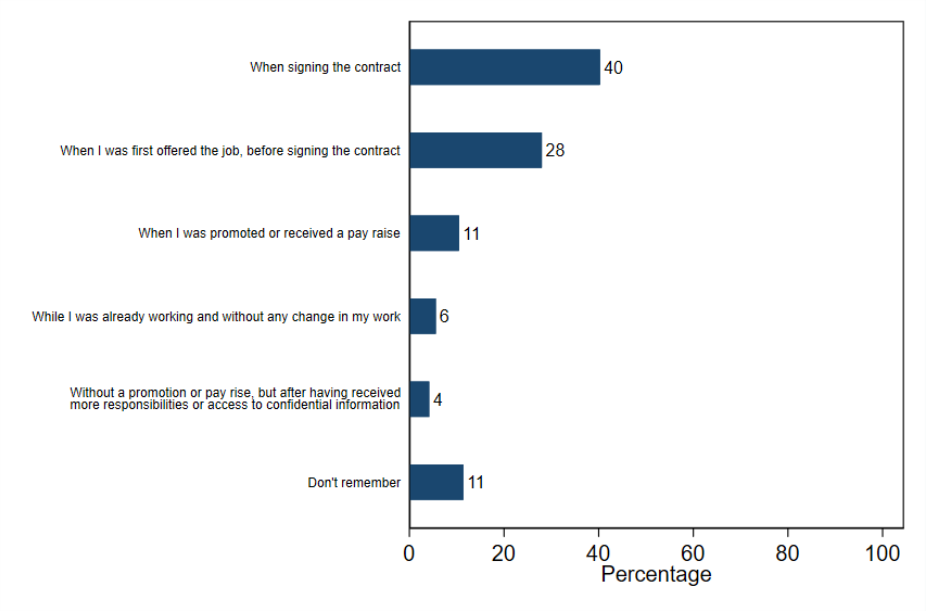
Note: Geographical area refers to the place of residence of the respondent. Primary refers to Agriculture, forestry and fishing and Mining and quarrying; *Secondary* to Manufacturing and Construction, Tertiary to all remaining business sectors.

5.2 The NCC contracting process

We now turn to analyse the contracting process between employers and employees to understand when employees were first told about the clause, if and how much they negotiated it and what was negotiated. To increase the number of observations and therefore the precision of our estimates, we use the "extended sample" that results from the merging of the randomly selected main sample with the oversampling of employees with a NCC (see the survey methodology section).

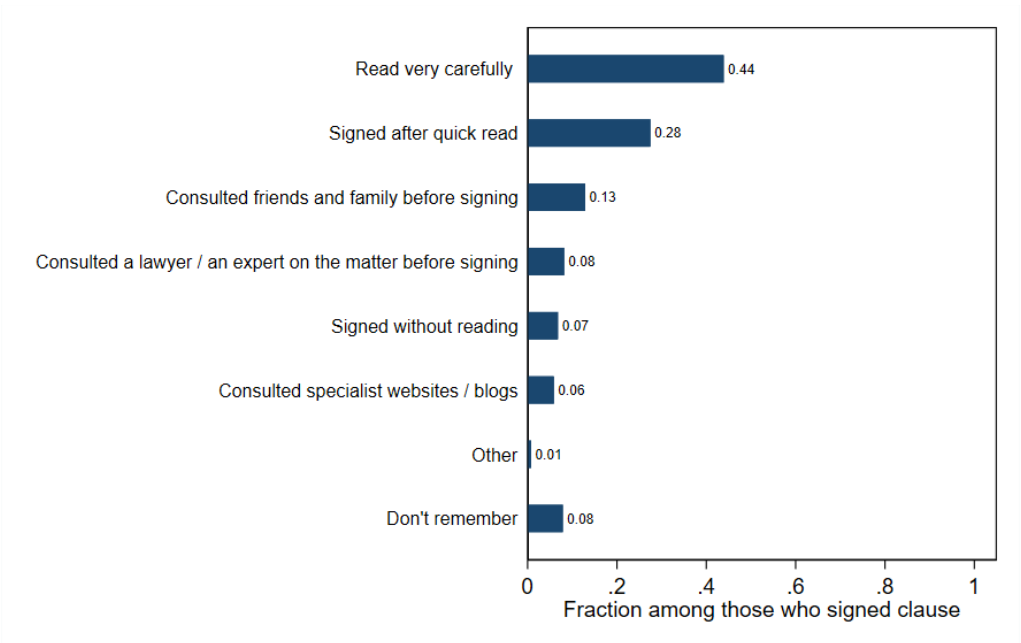
Figure 4 shows that the majority of employees currently bound by a NCC discovered about the clause before the beginning of the job, either at the moment of signing the contract (40%) or even before, when they were offered the job (28%). 15.2% of the clauses were introduced after the signature of the contract but in exchange for a promotion, a pay rise or an increase in responsibilities. 5.6% have been introduced after the signature of the contract with no change in the work performed.

Figure 4: Timing of discovery of the NCC, percentage of employees bound by a NCC



When asked to sign the NCC, not all respondents behave in the same way (Figure 4): 44% of the employees bound by a NCC read it very carefully before signing it while 28% read it only quickly. 13% consulted friends and family members, 8% asked a lawyer or an expert in the field while 6% consulted specialised websites or blogs. Finally, 7% signed it without reading.

Figure 5: Behaviour when discovering the NCC, percentage of employees bound by a NCC

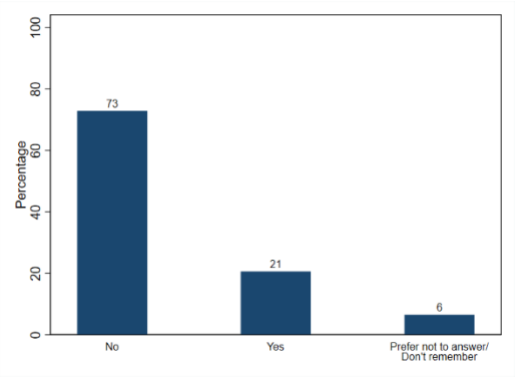


Notes: multiple options allowed.

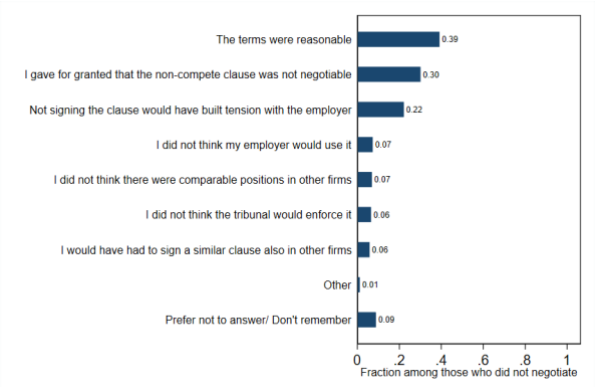
Only 21% of the employees with a NCC tried to negotiate it (Panel A in Figure 6) while 73% did not try to negotiate for a number of reasons (Panel B in Figure 6): 39% of those who did not try to negotiate the clause found it reasonable, while 30% took for granted that the clause was not negotiable. 22% feared that the clause would have generated tensions with the employer. Some of the employees did not negotiate because they thought that the clause would not be enforced by the employer (7%) or a tribunal (6%). Finally, few employees did not negotiate because they did not have alternative comparable offers (7%) or because in any case they would have had to sign a similar clause with another employer (6%).

Figure 6: Negotiation of the NCC

Panel A: Share of employees who negotiated the NCC, % of those with a NCC



Panel B: Reasons why the employee did not try to negotiate



Notes: In Panel B multiple options were allowed.

Moreover, a majority of employees – except among those working in elementary occupations and in craft and related trades and agriculture – consider that there are good reasons to sign a NCC in their current job (Figure 7).

Figure 7: Share of employees with a NCC who thinks that the clause is justified in their firm, by occupation

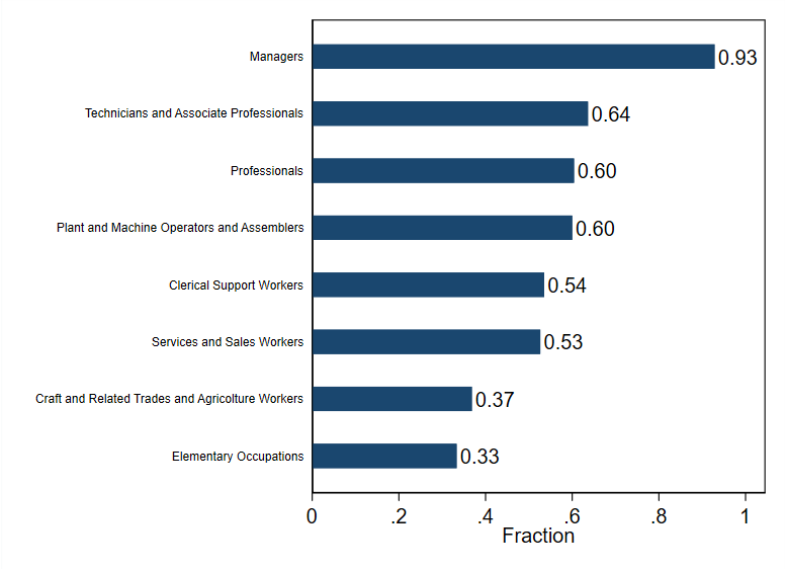
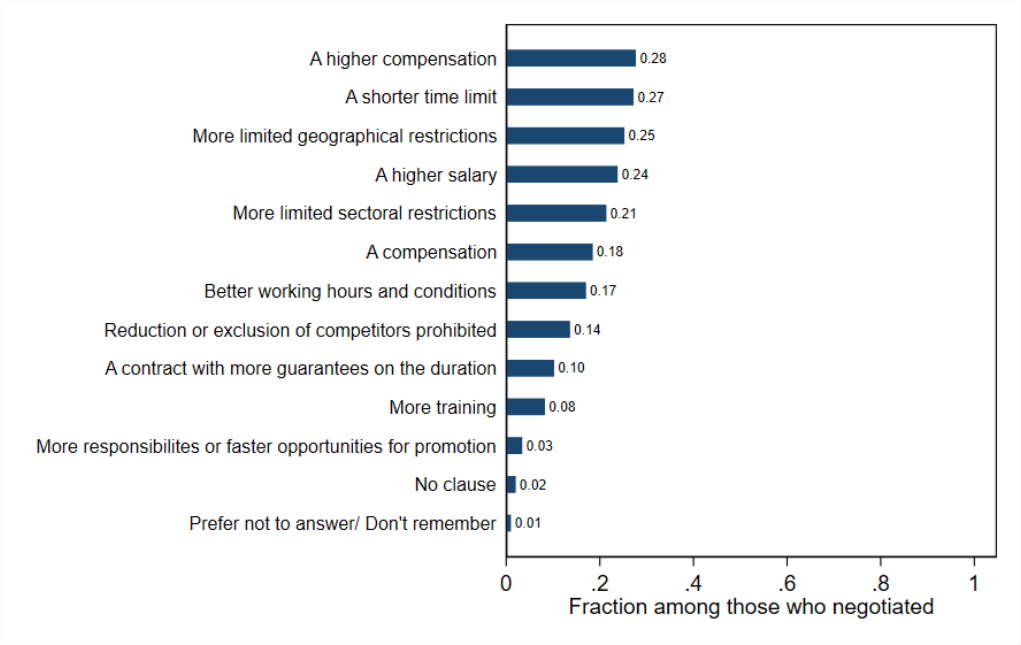


Figure 8 shows that when the employees tried to negotiate the clause, some asked for (more) money (28% asked for a higher compensation, 24% for a higher salary, 18% asked to add a compensation for the clause that was initially not foreseen). Other tried to negotiate less binding limitations (27% asked for a shorter duration, 25% for more limited geographical restrictions, 21% for more limited sectoral restrictions and 14% for a reduction or the exclusion of competitors covered by the clause). Finally, some tried to improve the quality of their job (17% asked for better working hours and conditions, 10% for more guarantees on the duration of the employment relationship, 8% for more training and 3% for more responsibilities). Only 2% of the employees asked to get rid of the clause itself. Interestingly, most of the employees who tried to negotiate with the employers obtained what they asked for, either in full (39%) or at least in part (48%).

Figure 8: Objectives of negotiation by the employees who tried to negotiate the NCC



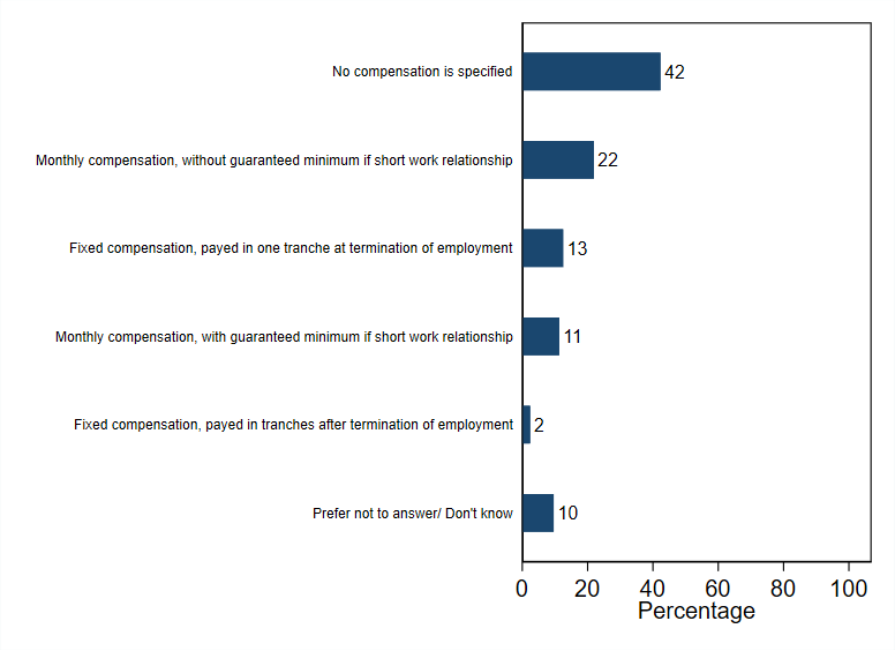
Notes: multiple options allowed.

5.3 The content of NCCs

In this third part, we analyse the content of the NCC, again using the "extended sample". As discussed in Section 3 on the regulatory framework, to be enforceable a NCC in Italy must be based on a written deed and it must specify a compensation as well as time (its duration cannot exceed three years except for executives whose clauses can last up to five years), sectoral and geographical limits.

Figure 9 shows that 42% of the NCCs do not foresee any specific compensation while 22% have a monthly compensation without a guaranteed minimum in case of short duration of the employment relationship, 13% have a fixed compensation paid in one single instalment at the end of the employment relationship, 11% have a monthly payment with a guaranteed minimum and a small share (2%) has a fixed compensation but paid in tranches after the end of the employment relationship.

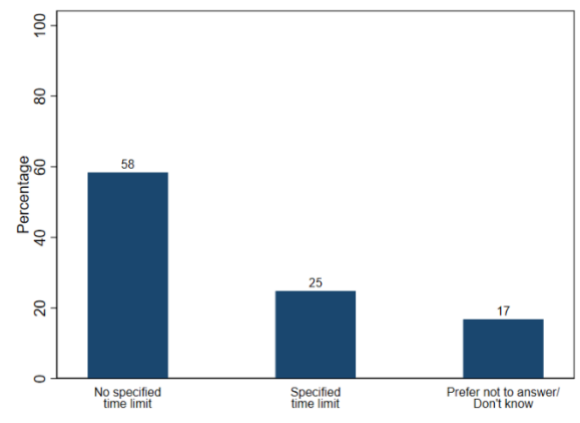
Figure 9: Share of NCCs including a compensation, by type of compensation



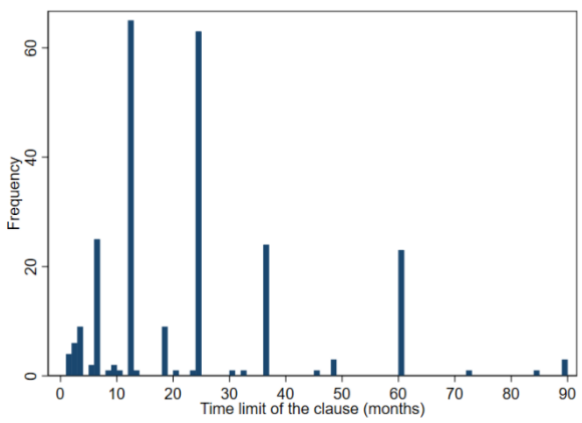
Moreover, 58% of the respondents state that their NCC does not specify any time limit while 25% report a time limit and 17% do not know or prefer not to answer (Panel A in Figure 10). On average, when the time limit is specified and the worker reports the information, the NCC lasts for almost two years but with peaks at six months, one, two, three and five years (Panel B in Figure 10).

Figure 10: Duration of the NCC

Panel A: Share of NCCs including a time limit, percentage of workers bound by a NCC

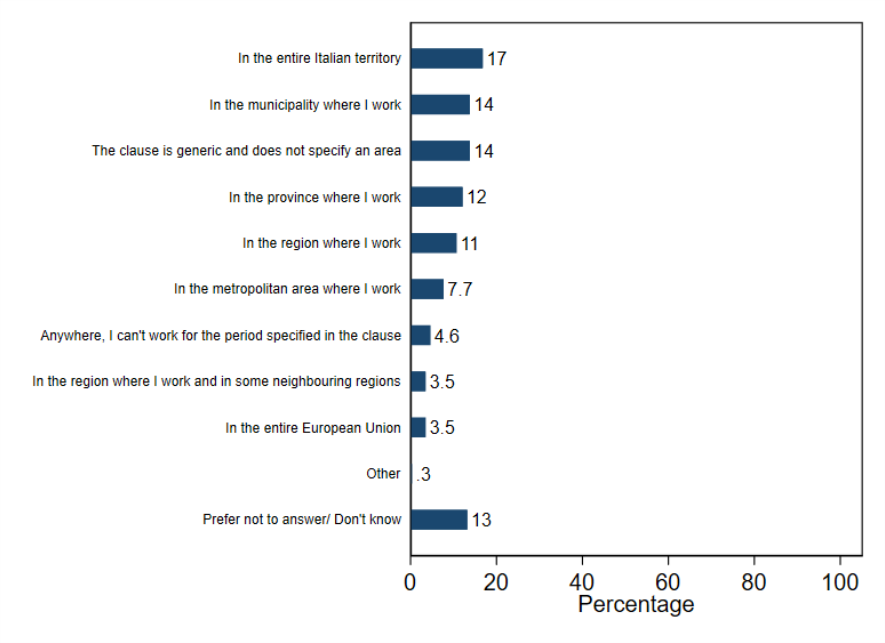


Panel B: Duration of the time limit, number of months



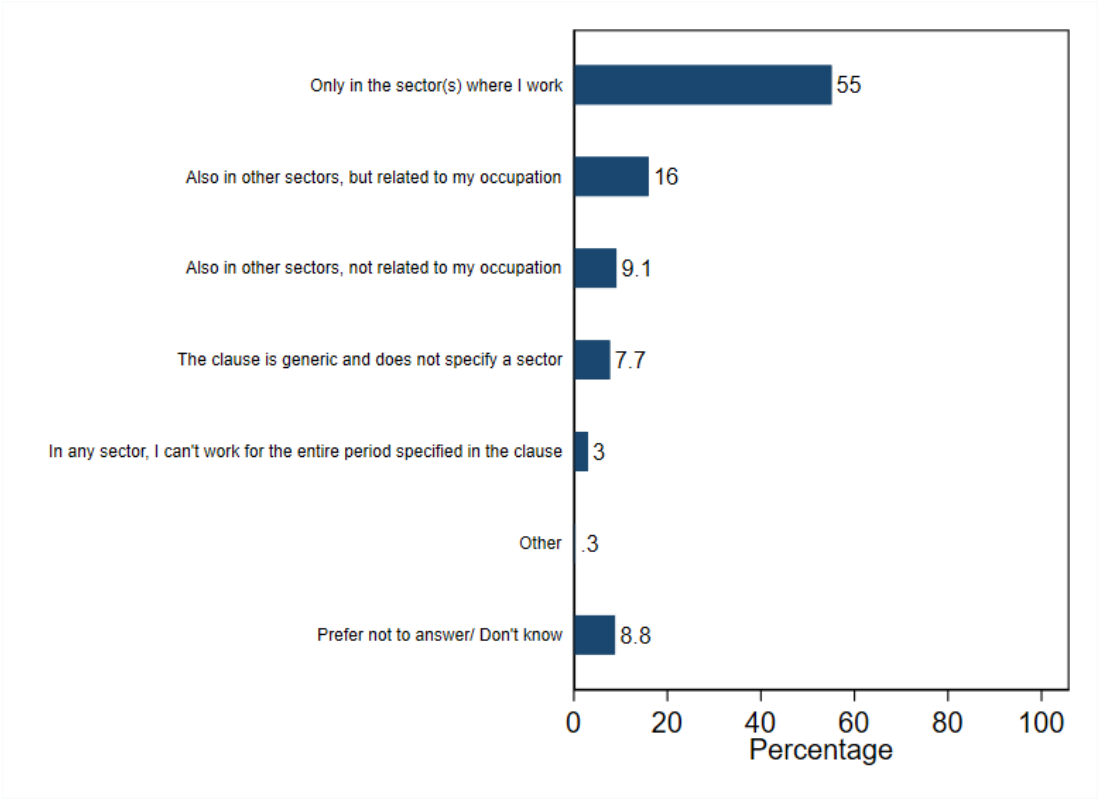
As for the geographical scope of the agreements, Figure 11 shows that 17% of employees with a clause are restricted from working in the entire Italian territory while for 14% of them the restriction applies only to the municipality where they work, 12% to the province and 11% to the region. According to 14% of the respondents with a NCC, the restriction is generic and does not specify any geographical limit. Finally, for a small share of workers (3.5%), the restriction covers the entire European Union.

Figure 11: Share of NCCs including a geographical limit, by scope of the limit



In terms of business sectors, Figure 12 shows that 55% of employees with a NCC are restricted from working only in the sector where their company operates. For 16% of them, the restriction extends to other sectors as well but just for jobs related to their current occupation, while for 9% of employees the restriction also covers different occupations in other sectors. Finally, 7.7% of the agreements do not specify sectoral limits and 3% cover the entire economy (and hence the employee cannot do any kind of work for the duration of the clause). In the case of few employees, the restriction applies to a precise list of companies.

Figure 12: Share of NCCs including a sectoral limit, by scope of the limit



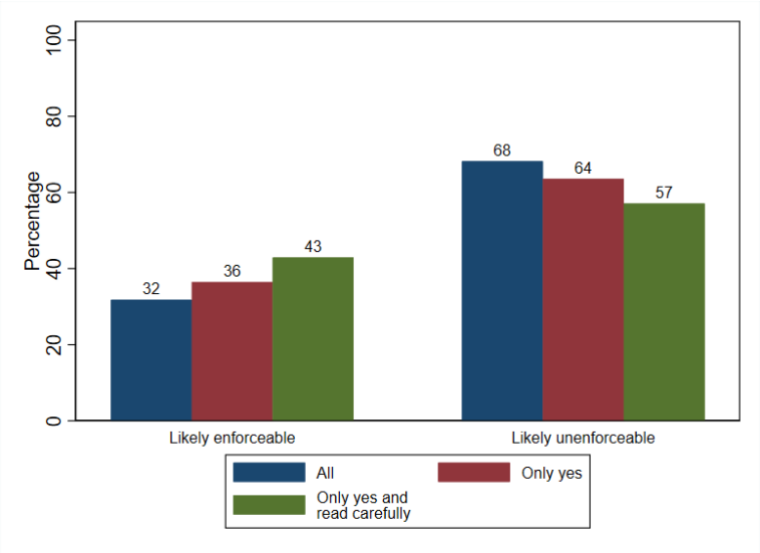
All in all, according to our respondents, just a third of NCCs specifies a compensation as well as time, sectoral and geographical limits in compliance with Italian law, while two thirds of agreements do not mention one or more of these necessary elements. This suggests that two thirds of NCCs are simply unenforceable[44] ("null and void" in the legal jargon) and/or that employees are not aware of their actual content (Figure 13). Another possibility is that workers are not aware of the exact limits defined by the contract. In the latter case, the mere existence of a clause of this type could hamper mobility well beyond its actual scope.

To shed some light on these two alternative explanations for the absence of reported limits to the NCCs, we redo the same analysis restricting the sample to workers who answered "yes" to the question on NCCs (hence excluding those who answered "probably yes", who are less likely to correctly remember the content of the clause). The results in Figure 13 are almost unchanged: 36% of the clauses fulfil the formal requirements while 64% do not.

[44] In some countries, courts can redraft unreasonable or unlawful clauses in order to make them enforceable, under the so-called "blue-pencil" rule (OECD, 2019). This is not possible in Italy at least as far as the minimum formal requirements are concerned: when the nullity sanction applies, the clause is deemed as not included and therefore unenforceable.

Finally, we further restrict the sample to those workers who not only are sure to have signed a NCC but also declare to have read it carefully: the share of likely unenforceable clauses in Figure 13 goes down to 57% but it remains very high.

Figure 13: Share of potentially unenforceable clauses across different samples



Notes: "All" refers to the entire sample of employees bound by a NCC (i.e. employees who answer yes or probably yes to the question on the NCC). "Only yes" refers to the sample of employees who answered "yes", excluding therefore those who answered "probably yes". "Only yes and read carefully" refers to the sample of employees who answered "yes" and declare to have read carefully the NCC.

Interestingly, unenforceable clauses are not limited to a specific group of workers, to a type of company or to specific sectors, occupations or regions but they are spread quite uniformly across the board (Table 3). However, their incidence is higher among low educated/low skilled workers for whom a NCC is generally less justified. This suggests that firms may be less careful about ensuring that the clause is fully compliant with the legal requirements if they use it mainly to scare workers away from looking for another job and are not really planning to go to court to enforce them. In alternative, or in addition, low educated/low skilled workers either are less aware of their rights and agree on a clause even when clearly unenforceable or tend to be less aware of its actual content.

Table 3: Share of potentially unenforceable clauses, by characteristics of workers and firms, percentages

Variable	Whole sample	Clause "Yes"	Clause "Yes" and read carefully
Gender			
Female	83	83	83
Male	79	74	71
Age			
19-30	78	79	72
31-40	80	76	73
41-50	80	76	73
51-65	85	81	83
Education			
Lower secondary school or less	93	93	nd
Upper secondary school	84	84	85
Bachelor degree	81	76	73
Higher than bachelor degree	73	69	66
Wage			
<2000 euro	85	84	83
>=2000 euro	76	73	67
Sector			
Primary	81	70	nd
Secondary	80	79	78
Tertiary	81	78	74
Occupation level			
High-skilled	77	73	72
Medium-skilled	83	83	80
Low-skilled	87	83	81
Size firm			
Less than 15	88	88	88
16-50	86	86	85
51-100	85	84	83
101-250	80	76	75
More than 250	77	72	67
Don't know	59	50	nd
Operational area of the firm			
Only in Italy	83	83	82
Both in Italy and abroad	78	71	69
Don't know	67	nd	nd
Geographical area			
North West	77	71	67
North East	80	78	77
Center	84	82	75
South and Islands	85	89	91
Duration of the position			
Temporary	89	91	91

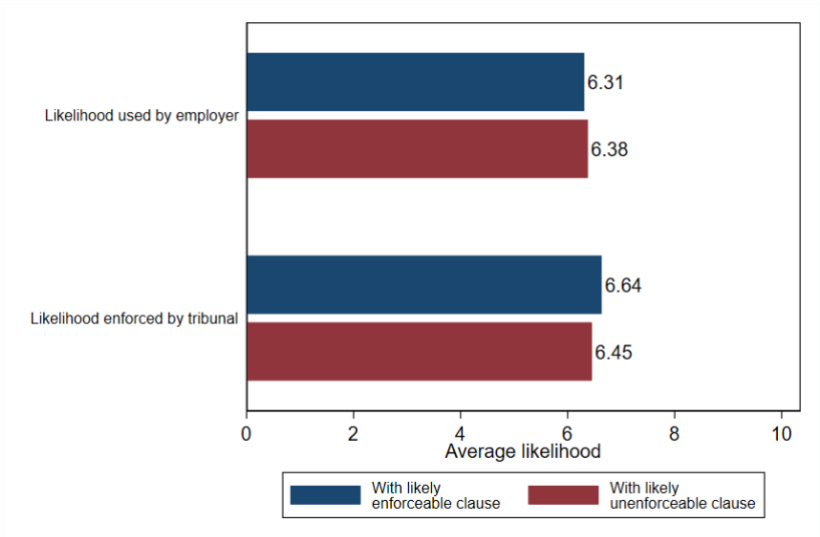
Permanent	79	76	73

Notes: "Whole sample" refers to the entire sample of employees bound by a NCC (i.e. employees who answer yes or probably yes to the question on the NCC). "Clause yes" refers to the sample of employees who answered "yes", excluding therefore those who answered "probably yes". "Clause "Yes" and read carefully" refers to the sample of employees who answered "yes" and declare to have read carefully the NCC. Primary refers to Agriculture, forestry and fishing and Mining and quarrying; *Secondary* to Manufacturing and Construction, Tertiary to all remaining business sectors. Low-skill workers are those with jobs in sales and services and elementary occupations (CP11 5 and 8). Middle-skill workers hold jobs as clerks, craft workers, plant and machine operators and assemblers (CP11 4, 6 and 7). High-skill workers are those who have jobs in managerial, professional, technical and associated professional occupations (ISCO 1, 2 and 3). *Nd:* not disclosed. Estimates are not disclosed when based on less than 10 observations.

Despite the fact that more than half of the clauses appear to be unenforceable, when asked to rate between 0 and 10 the likelihood that the employer takes legal action to enforce the NCC if the worker was to leave the company, 51.6% of the respondents think that is likely or even sure (a rate between 6 and 10) while only 32.2% think that is unlikely or impossible (a rate between 0 and 4). And in case the employee is brought to court by the employer, 54.3% think that the tribunal will enforce the clause (a rate between 6 and 10) while 28.4% do not think so.

The perception about the risk of being taken to court and being found liable by a judge is uncorrelated with the likely enforceability of the clause (Figure 14): the average likelihood of a legal action by the employer is rated at 6.4 among employees with a potentially enforceable clause and at 6.3 among employees with an unenforceable one. The likelihood of being found liable by a tribunal is rated at 6.6 among employees with an enforceable clause and at 6.5 among employees with an unenforceable one.

Figure 14: Perceived likelihood of being brought to court and being found liable, by enforceability of the clause



To put these results into context, it is useful to remember that in the United States NCCs are present also in states where they are banned (Starr et al., 2021 and Colvin and Shierholz, 2019). The presence of unenforceable contracts is also not peculiar to the labour market as a matter of fact – Furth-Matzkin (2017) reports that as many as 73% of residential rental leases in the Greater Boston Area in

the United States contain unenforceable clauses. And the behaviour of the parties is not necessarily influenced by the actual contract's enforceability: Starr et al. (2020) and Prescott et al. (2022) show that in the United States what matters in terms of workers' behaviour is their belief about the likelihood of a resulting trial and about court enforcement and not the *actual* likelihood (the so-called *in terrorem* effect) – according to their results 70% of employees with unenforceable NCCs mistakenly believe the opposite, namely that they are enforceable. As a result, NCCs may be used – or have the effect of influencing employees' behaviours – even when the employer knows that they are unenforceable just to "scare" the employee.

While the estimates presented in this section must be interpreted as an upper bound of the actual share of unenforceable clauses, they suggest that a non-negligible number of clauses in Italy are likely "null and void" but workers are unaware of their unenforceability. Since these information gaps are generally stronger at the low end of the skill distribution, NCCs can be particularly effective in reducing workers mobility across jobs, thus increasing the bargaining power of employers vis-a-vis workers who are already in a vulnerable position within the firm.

5.5 NCCs and local labour market concentration

A recent and prolific literature has been looking at labour market concentration as another possible source of monopsony power.[45] This literature has looked at the impact of local labour market competition on wages as well as on non-wage attributes, showing that higher concentration tends to go hand in hand with lower wages as well as lower job security (i.e., a lower probability of being hired with a permanent contract).

No evidence is available to date on the link between labour market concentration and NCCs. On the one hand, it can be argued that, as a tool to restrict competition in the labour market, NCCs may matter less in a more concentrated local labour market because there are already less (or no) competitors. However, as discussed in Section 2, NCCs can also be used to restrict competition in the product market by restraining the ability of competitors to hire workers and enter the market or deterring departing employees from creating a new competing company on their own. In this case, NCCs may still be relevant even in a concentrated labour market.

To shed some light on the link between the use of NCCs and labour market concentration, we match each employee in our sample to the labour market concentration of her local labour market as

[45] Among the many papers, see Azar et al. (2022); Rinz (2022) and Benmelech et al. (2022) for the United States and Martins (2018); Marinescu et al. (2021); Bassanini et al. (2021); OECD (2021 and 2022) for other countries.

estimated by Bassanini et al. (2022).[46] We then estimate the probability of being bound by a NCC for a given local labour market concentration using the following specification:

$$NCC_{i,l} = \beta \log(HHI_l) + \gamma X_{i,l} + \varepsilon_{i,l}$$

where i indexes the worker and l the local labour market defined as 1-digit CP-2011 occupations and NUTS3 geographical areas[47]; NCC denotes a dummy variable equal to 1 when the individual is bound by a NCC and 0 otherwise; HHI is the Herfindahl-Hirschman index based on new hires;[48] and, X is a vector of individual and firm's characteristics. Standard errors are clustered at the local-labour-market level for all estimates.

The results in Table 4 show that the probability of being bound by a NCC is negatively correlated with labour market concentration (even if only at the 10% significance level) suggesting that, on average, the two are imperfect substitutes one of another (less need of a NCC in a more concentrated local labour market): an increase in labour market concentration by one standard deviation from the mean is correlated with a reduction in the probability of being bound by a NCC of about 14%. The negative relationship seems to be driven in particular by middle-skilled workers[49] while it is not significant for high-skilled and low-skilled ones.

Table 4: Labour market concentration and probability of being bound by a NCC

	(1)	(2)	(3)	(4)
	All	High skilled	Medium skilled	Low skilled
log(HHI)	-0.0210*	-0.00742	-0.0337**	-0.0446
	(0.0115)	(0.0184)	(0.0141)	(0.0337)
Constant	0.128*	0.161	0.0908	0.0531
	(0.0663)	(0.106)	(0.0773)	(0.147)
Observations	2,001	650	981	370
R-squared	0.068	0.074	0.062	0.093

Note: Clustered (at the local-labour-market level) standard errors in parenthesis. The dependent variable is a dummy equal to 1 when the individual is bound by a NCC and 0 otherwise. Control variables include gender, age, education, (3

[46] We are very grateful to Giulia Bovini and Federico Cingano for kindly sharing their estimates on labour market concentration in Italy.

[47] The NUTS classification (Nomenclature of territorial units for statistics) is a hierarchical system for dividing up the economic territory of the EU and the UK for the purpose of collection, development and harmonisation of European regional statistics. NUTS-3 is the most disaggregate level of this classification. It has the advantage to cover the entire national territory but it does not necessarily take into account the fact that catchment areas of cities often go beyond the borders of NUTS-3 regions. See Bassanini et al. (2022) for an in-depth discussion.

[48] Bassanini et al. (2022) calculate an Herfindahl-Hirschman based on new hires based on 4-digit ISCO occupations and NUTS3 geographical areas between 2013 and 2018. Since in our survey we only have information on CP-2011 occupations at the 1-digit level and one year, we calculate an average Herfindahl-Hirschman index using a hand.-created crosswalk between ISCO and CP-2011 at the 1-digit occupation level and we weight for the number of hirings in each 4-digit occupation. Our average HHI index has mean 0.0709 and standard deviation 0.0737.

[49] Middle-skill workers hold jobs as clerks, craft workers, plant and machine operators and assemblers (ISCO 4, 7 and 8).

dummies), tenure, occupation (3 dummies), part-time, geographical area (4 dummies), wage (4 dummies), firm size (3 dummies), business sector (3 dummies), multinational.
*** p< 0.01, ** p<0.05, * p<0.1.

5.6 Other restrictions to labour mobility

As discussed in the introduction, (at least) two further contractual clauses can affect workers' mobility by restricting the possibility to quit and move to work for a competitor: the notice period that employees with a permanent contract have to give if they intend to quit and the penalty that employees with a temporary contract may have to pay in case they want to quit before the end of the contract.

In the case of workers with a permanent contract, the Italian law (Article 2118 Civil Code) grants the employee the option to terminate the relationship subject to a notice period to allow the company to adjust to the "unforeseen event" and find a suitable replacement or readjust its activity. The notice is not due in the case of resignation for "just cause", for instance in the case of non-payment of wages (or, in some cases, late payment of wages), failure to pay social security contributions, sexual harassment by the employer, bullying, request to commit wrongdoing, demotion (outside the cases allowed by law). The employee and the employer can also come to an agreement for a shorter notice. The maximum number of days of notice in the case of resignation is determined by the collective agreement applied by the employer and varies by sector, occupation and seniority of the employee. The number ranges from a minimum of 5 days for an entry-level position in a relatively low skilled occupation to a maximum of one year for a manager with more than 10 years of tenure in the firm.[50] The median minimum notice established in collective agreements is one month, the median maximum is three months.

Among the respondents with a permanent contract, only 9.2% do not have a notice period in their employment contract.[51] On average, for those who have one, the notice is 47 days but there is a huge variability across workers. Figure 15 plots the notice that each employee with a permanent contract has to give in case of resignation and her tenure in the company. Even for a given tenure, the notice period can vary a lot. This partly reflects differences across sectors, partly difference across occupations but also differences across individual employment contracts. If we compare the notice for each worker to the maximum notice applicable in the collective agreement valid in that sector of activity[52] and the tenure of that worker, only 3.4% of workers appear to have a notice exceeding the maximum number of days established in the collective agreement (the orange dots in Figure 15). This estimate is a lower

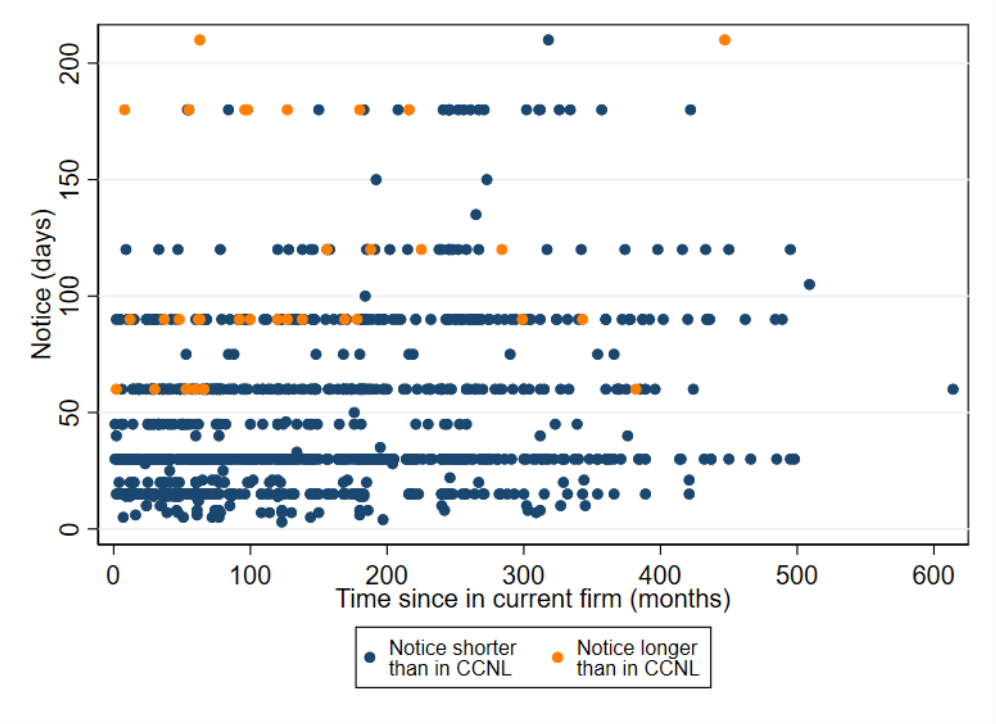
[50] For this analysis, we use the same sample of collective agreements used in Section 3 on the regulatory framework, i.e. the 44 collective agreements with at least 50,000 workers each covering 87% of the private sector employees.

[51] However, the minimum established in the collective agreement of reference applies unless the employer and the employee have explicitly agreed otherwise.

[52] We use the mapping by CNEL to assign each collective agreement to business sectors.

bound of the degree of non-compliance to the maximum notice period[53] but overall the notice period does not appear to be misused.

Figure 15: Notice period in case of resignation, by tenure



Note: CCNL are the sectoral collective agreements. Blue dots represent workers with a notice period equal or lower to the maximum established in their collective agreement. Orange dots represent workers with a notice period higher than the maximum established in their collective agreement.

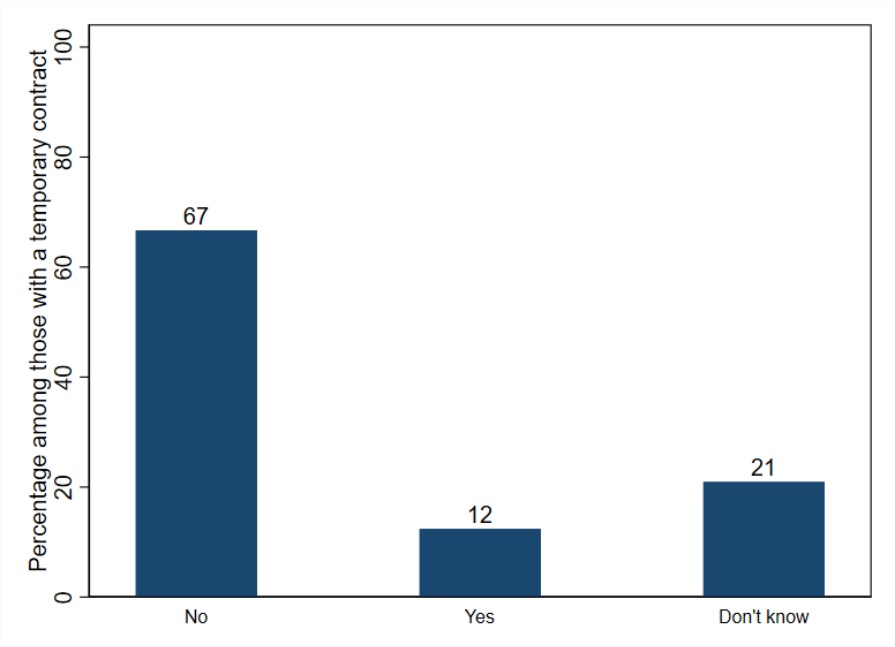
We now turn to the penalty clause in case of resignation from a temporary contract. In the case of workers with a temporary contract, in Italy the employment relationship cannot be terminated before the date foreseen in the contract (except, again, for just cause or mutual consent) – *i.e.*, the employer cannot dismiss the worker and the worker cannot quit. Dismissal without just cause entails the employee's right to damages, which tend to be equal to all the (monthly) wages that would have been due to the employee up to the initially scheduled expiration. Similarly, if the employee decides to resign without just cause, the employer can claim a compensation equal to the period missed until the contract is completed. In practice, often the employer and the employee come to an agreement. However, employers could specify the compensation (in this analysis, we refer to it as the "penalty clause") due in case of early resignation in the employment contract, thus setting *ex ante* the cost of quitting. The enforceability of such a clause is questionable and requires a difficult assessment essentially because any compensation must be commensurate to the damage generated, which is hardly established

[53] We cannot precisely estimate the degree of non-compliance because we cannot match the occupation level of the worker with the occupational scales used in collective agreements. We follow the standard ISCO classification while collective agreements follow other groupings.

beforehand. The penalty might turn out to be (relatively) high if the resignation happens well before the agreed contractual term, or small if the resignation occurs close to it. One plausible explanation, therefore, is that penalty clauses specified *ex ante* are mainly used to deter the worker from resigning rather than to set the correct consideration due. Such clauses were considered very rare until recently, when anecdotal evidence[54] showed that companies were enforcing them in response to the increase in resignations after the peak of the COVID-19 pandemic.

Among the respondents with a temporary contract, 12% have a penalty clause in their contract (Figure 16). For those who remember its amount, the average penalty corresponds to 660 euros. This finding is therefore in line with anecdotal evidence in suggesting that such clauses are not as rare as most lawyers and practitioners may have thought. Moreover, given that, as discussed, a penalty clause is likely not enforceable as such (unless, by chance, the amount foreseen fairly approximate the damage generated by the early resignation), we can conclude that it is used as a tool to limit workers' outside options more than as a tool to defend the employers' legitimate interests.

Figure 16: Share of employees with a temporary contract with a penalty clause



How do the notice and the penalty interact with NCCs? Both can be used to reinforce the deterrent role played by a NCC or be a "functional equivalent", *i.e.* an alternative, since in the presence of a NCC, there is less need for a (longer) notice period/penalty or vice versa. Controlling for a range of workers' and firms' characteristics, Table 5 shows that, among permanent workers, having a NCC is negatively associated with having a notice period in case of dismissal but not with the length of the notice. This suggests that the two tools are imperfect substitutes one of another (less need for a notice period in the

[54] See, for instance, https://tribunatreviso.gelocal.it/treviso/cronaca/2022/01/23/news/penali-di-mille-euro-per-chi-cambia-lavoro-decine-di-contratti-annullati-nella-marca-1.41160582 (accessed on 21 July 2022)

presence of a NCC and vice versa). Once the employee is covered by the notice period, the length of the notice is not shorter (nor longer) if she is already covered by a NCC. Among temporary workers, having a NCC appears to be positively correlated with having a penalty clause. In this case, the two instruments seem to reinforce each other.

Table 5: Correlation between clause and notice and fine for leaving the firm

	(1) Notice (any)	(2) Notice (days)	(3) Penalty
NCC	-0.0460*	3.055	0.347***
	(0.0260)	(3.208)	(0.0723)
Observations	1,189	1,078	278
R-squared	0.037	0.174	0.216
Controls	yes	Yes	yes
Sample	Permanent	Permanent	Temporary

Notes: Robust standard errors in parenthesis. The Table shows the correlation between being bound a NCC and in column (1) having a notice period in case of resignation for employees with a permanent contract, in column (2) the number of days of notice and (3) the presence of a penalty clause in case of early resignation among employees with a temporary contract. Control variables include gender, age, education, (3 dummies), tenure, occupation (3 dummies), part-time, geographical area (4 dummies), wage (4 dummies), firm size (3 dummies), business sector (3 dummies), multinational. *** p< 0.01, ** p<0.05, * p<0.1.

6. NCCs and labour market outcomes

The previous Section has shown that in a country with strict employment protection, low job mobility and an extended coverage of collective bargaining the share of workers bound by a NCC is similar to that observed in flexible labour market countries such as the US. As for the legal framework specifically dedicated to NCCs, the strictness of employment protection does not seem to play a major role in their spread. It is true that such clauses are more developed in middle-sized and large firms that are subject to higher costs of dismissals (but have less liquidity problems) than small units. However, NCCs are also relevant among workers with fixed-term contracts, whose job can be destroyed at contract expiration without having to pay a severance to the workers involved. On the other hand, the composition of the institutional barriers to mobility is somewhat different across firms and contractual types offering a varying degree of employment protection.

In this Section, we look at the correlation between NCCs and a number of labour market outcomes to better understand the nature of NNCs in a rigid labour market and compare it with the results found in the US (see Section 2). Following Starr et al. (2021), who also look at labour market outcome using a cross-sectional survey, we focus on four main outcomes: wage, training (in general, therefore including also informal training, as well as training paid by the employer only), sharing of relevant information by the employer and job satisfaction (in particular, satisfaction with the current

position and satisfaction with pay). If NCCs are used to protect legitimate business interests such as trade secrets, client relationships or specific investment such as training, we should observe a positive relationship with all these outcomes. If, on the other hand, NCCs are used (also) as an instrument to reduce competition in the product and in the labour market, the positive correlation may disappear or even turn negative. In the absence of recent reforms (the legal framework in Italy has not been changed since 1942) or regional variation as in the US (the regulation is the same over the entire territory) or suitable instruments[55], we can only estimate simple correlations which may suffer from reverse causality or selection on unobservables.

To partially address the endogeneity of the estimates, we limit our analysis to the sample of workers bound by a NCC (hence, somewhat more comparable than the full sample of workers) and compare the outcomes linked to different types of NCCs. In other words, rather than estimating the correlation between NCCs and labour market outcomes, we simply compare NCCs across a number of dimensions (enforceability, timing of their introduction, motivation, etc.). If the various types of NCCs are meant to protect legitimate business interests, we should observe no heterogeneity across NCCs types. If instead some are used to protect legitimate interest while others are used to restrict the employee's bargaining power, the correlations may go in different directions.

First, we start by looking at the enforceability of NCCs: unenforceable clauses may play a deterrent ("*in terrorem*") effect, discouraging workers from leaving, but may not effectively protect against the holdup problem (because workers bound by unenforceable clauses may leave especially those more skilled with a better understanding of the legislation). Second, we look at the timing of signature of the NCC: clauses introduced in the labour contract at the onset of the employment relationship or at the occasion of changes in role or tasks are more likely to be genuine ones than clauses introduced during the employment relationship without any change in the tasks of the workers. Finally, we look at the heterogenous effects of clauses linked to access to confidential information, and hence potentially justifiable from a business perspective vs. clauses without access to confidential information which more likely reflect a simple limitation of workers' bargaining power.

Our empirical specification takes the following form:

$$y_i = \alpha + \beta TypeNCC_i + \gamma X_i + \delta OtherClauses_i + \varepsilon_i$$

where the subscript *i* refers to an individual worker, *y* is the outcome of interest (wage[56], training, information sharing, and job satisfaction), *TypeNNC* is a dummy variable for different types of NCCs

[55] Starr et al. (2021) considered the differences in the enforcement regime (not applicable in our setting) and the projected incidence of NCCs by others in the same occupation and industry (potentially applicable in our setting even if the number of observations would be quite limited given the relatively small sample size of our survey) as suitable instruments but both approaches yielded implausible estimates.

[56] In particular wages are grouped in the following five brackets (<1000, >=1000 e <2000, >=2000 e <3000, >=3000 e <4000, >=4000", training refers to the previous year, the respondent agrees or strongly agrees with the

(likely unenforceable clauses vs. potentially enforceable ones; clauses signed before the beginning of the employment relationship vs. clauses signed during the employment relationship with a change in job tasks vs. clauses signed during the employment relationship without a change in job tasks; clauses associated with access to confidential information vs. clauses without access to confidential information), X is a set of workers' and firm's characteristics[57]. In the most advanced specification, we also include *OtherClauses*, another dichotomic variable controlling for the presence of other clauses regulating post-employment activity (non-disclosure agreements, non-solicitation provisions, etc.[58]). Because NCCs and other post-employment restrictions are frequently bundled together (Figure 2), it is important to disentangle the relationship between NCCs and labour market outcomes from that of other clauses by controlling for these other relevant clauses. Moreover, as argued by Starr et al. (2021), the use of post-employment restrictions generally correlates with employer or employee quality or sophistication, and therefore controlling for these other clauses also allows to control for the residual quality not addressed by the basic workers' and firms' controls.[59]

The results presented in Tables 7 and 8 suggest that the correlation with labour market outcomes markedly differs across different types of NCC (the results are robust when restricting the sample to those workers who answered "yes" to the question on NCCs, hence, excluding those who answered "probably yes", who are less likely to correctly remember the content of the clause). Consistent with the research in the US examining the enforceability of NCCs (Balasubramanian et al., 2020; Garmaise, 2009, Starr et. al., 2021), we find that unenforceable clauses, i.e. clauses that are more likely to be used just to deter workers from moving and not to protect business interests, go hand-in-hand with lower wages compared to likely enforceable ones. On the opposite, they are not associated to higher or lower training opportunities,[60] information sharing or job satisfaction. In line with findings by Starr et al. (2021) in the US, clauses signed during the employment relationship without any change in job tasks, i.e. clauses that again are unlikely to be used to protect business interests, are associated with lower wages and lower training opportunities (in particular, training paid by firms) than clauses signed at the onset of the employment relationship. On the opposite, clauses signed during the employment relationship and associated with a change in job tasks go hand-in-hand with higher wages. Finally,

statement that the employer has been sharing relevant information, and the worker agrees or strongly agrees with the statement that she/he is satisfied with the current position or wage.

[57] The controls are the following: gender, age(^3), education, geographical area, permanent contract, part-time, tenure, occupation, firm size, sector, multinational firm, access to confidential information (with the exception of regressions with clauses associated with access to confidential information) and the wage level (with the exception of regressions on wages).

[58] Non-disclosure agreement; non-poaching of co-workers or non-solicitation of colleagues; non-solicitation of clients; repayment of training costs clause; repayment of benefits and bonuses clause; pre-assignment agreement – see Annex 1.

[59] These controls are likely to be equally endogenous. However, it is useful to check if the correlations that we find between NCCs and labour market outcomes are robust to the inclusions of these controls.

[60] This is different from the US where Starr (2019) finds that NCCs in US states where their enforceability is higher are associated with higher training than in states where their enforceability is lower.

NCCs without access to any type of confidential information are consistently associated with lower wages, less information sharing and lower satisfaction with pay than clauses associated with access to confidential information. The results are robust when restricting the sample to workers who answered "yes" to the question on NCCs (hence excluding those who answered "probably yes", who are less likely to correctly remember the content of the clause).

All in all, these results, even if they do not provide any causal evidence, confirm the feeling emerging from the descriptive evidence that there is significant heterogeneity in the use of NCCs in Italy. Those clauses, the majority, that have characteristics that resemble to "abusive" ones – i.e. they are likely unenforceable or they have been introduced after the start of the job without any change in tasks or are not associated to any particular access to confidential information – are associated with worse labour market outcomes than those clauses that, at least on paper, appear as "genuine" ones. Further work, based on data allowing to identify causal effects, is required to go beyond this suggestive evidence.

Table 6: Correlations between characteristics of different types of NCC and the wage

Panel A: By likely enforceability

	(1)	(2)	(3)	(4)	(5)	(6)
	yes + maybe yes			yes only		
Unenforceable clause	-0.342***	-0.168**	-0.163**	-0.455***	-0.170*	-0.163*
vs. likely enforceable	(0.0794)	(0.0680)	(0.0676)	(0.111)	(0.0982)	(0.0977)
Constant	1.708***	3.160**	3.000**	1.923***	1.500	1.209
	(0.0731)	(1.389)	(1.395)	(0.101)	(1.961)	(1.966)
Worker's and firm's characteristics	No	Yes	Yes	No	Yes	Yes
Other post-employment clauses	No	No	Yes	No	No	Yes
Observations	948	948	948	482	482	482
R-squared	0.022	0.343	0.348	0.038	0.365	0.370

Panel B: By timing of signature of the NCC

	(1)	(2)	(3)	(4)	(5)	(6)
	yes + maybe yes			yes only		
During work, without change to tasks	-0.371***	-0.317***	-0.299***	-0.506***	-0.360***	-0.343***
vs. pre-work	(0.0942)	(0.0779)	(0.0783)	(0.131)	(0.109)	(0.112)
During work, with change to tasks	0.219***	0.228***	0.233***	0.187	0.213*	0.225*
vs. pre-work	(0.0843)	(0.0760)	(0.0763)	(0.136)	(0.123)	(0.123)
Constant	1.450***	3.077**	2.894*	1.600***	0.388	0.147
	(0.0358)	(1.502)	(1.502)	(0.0514)	(2.086)	(2.090)
Worker's and firm's characteristics	No	Yes	Yes	No	Yes	Yes
Other post-employment clauses	No	No	Yes	No	No	Yes
Observations	845	845	845	453	453	453
R-squared	0.020	0.352	0.355	0.024	0.377	0.381

Panel C: By access to confidential info

	(1)	(2)	(3)	(4)	(5)	(6)
	yes + maybe yes			yes only		
No access to confidential info	-0.473***	-0.367***	-0.337***	-0.514***	-0.549***	-0.517***
vs. access to confid info	(0.0604)	(0.0544)	(0.0548)	(0.0943)	(0.0885)	(0.0883)
Constant	1.518***	3.370**	3.175**	1.652***	1.691	1.371
	(0.0328)	(1.390)	(1.395)	(0.0488)	(1.979)	(1.985)
Worker's and firm's characteristics	No	Yes	Yes	No	Yes	Yes
Other post-employment clauses	No	No	Yes	No	No	Yes
Observations	948	948	948	482	482	482
R-squared	0.043	0.339	0.344	0.040	0.359	0.364

Note: Robust standard errors in parenthesis. Worker's and firm's characteristics include the following: gender, age(^3), education, geographical area, permanent contract, part-time, tenure, occupation, firm size, sector, multinational firm and, with the exception of Panel C, access to confidential information. Other post-employment clauses are a set of dummies equal to 1 if the worker is covered by one or more of the other clauses listed in Annex 1.

*** p<0.01, ** p<0.05, * p<0.1.

Table 7: Correlations between characteristics of the NCC and labour market outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Employer shares jobs-relevant info		Training last year		Training paid by firm last year		Satisfied with position		Satisfied with pay	
	yes + maybe yes	yes only	yes + maybe yes	yes only	yes + maybe yes	yes only	yes + maybe yes	yes only	yes + maybe yes	yes only
Panel A: By likely enforceability										
Unforceable clause	-0.00907	-0.0823	0.0100	-0.0292	0.00903	-0.0520	0.00644	-0.0642	0.0283	-0.00641
vs. likely enforceable	(0.0411)	(0.0528)	(0.0411)	(0.0568)	(0.0428)	(0.0586)	(0.0414)	(0.0567)	(0.0421)	(0.0572)
Constant	0.257	0.875	0.537	0.470	0.647	0.861	0.666	1.743	0.327	0.291
	(0.996)	(1.485)	(0.988)	(1.452)	(1.005)	(1.408)	(0.932)	(1.333)	(1.007)	(1.498)
Worker's and firm's characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other post-employment clauses	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	948	482	948	482	948	482	948	482	948	482
R-squared	0.118	0.184	0.073	0.104	0.057	0.095	0.073	0.095	0.086	0.122
Panel B: By timing of signature of the NCC										
During work, without change to tasks	0.0381	0.0796	-0.171**	-0.180**	-0.151**	-0.175**	-0.0476	-0.0491	-0.0429	-0.0985
vs. pre-work	(0.0683)	(0.0854)	(0.0714)	(0.0872)	(0.0671)	(0.0792)	(0.0726)	(0.0890)	(0.0685)	(0.0846)
During work, with change to tasks	-0.00786	0.0196	0.0428	0.0179	-0.0431	-0.0593	-0.0766*	-0.0846	-0.0241	-0.126*
vs. pre-work	(0.0458)	(0.0685)	(0.0434)	(0.0730)	(0.0479)	(0.0740)	(0.0463)	(0.0730)	(0.0468)	(0.0729)
Constant	0.286	0.298	0.646	0.273	0.699	0.484	0.490	1.208	-0.251	-0.449
	(1.033)	(1.531)	(1.007)	(1.469)	(1.042)	(1.466)	(0.955)	(1.370)	(1.039)	(1.489)
Worker's and firm's characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other post-employment clauses	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	845	453	845	453	845	453	845	453	845	453
R-squared	0.118	0.184	0.094	0.109	0.075	0.101	0.073	0.101	0.094	0.133
Panel C: By access to confidential info										
No access to confidential info	-0.212***	-0.307***	-0.0817*	-0.0837	-0.0165	-0.0732	-0.0688	-0.144**	-0.135***	-0.195***
vs. with access to confid info	(0.0424)	(0.0614)	(0.0438)	(0.0648)	(0.0435)	(0.0658)	(0.0445)	(0.0662)	(0.0429)	(0.0638)
Constant	0.460	1.006	0.630	0.492	0.673	0.823	0.742	1.749	0.491	0.472
	(0.993)	(1.486)	(0.986)	(1.448)	(1.005)	(1.414)	(0.931)	(1.341)	(1.004)	(1.487)
Worker's and firm's characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other post-employment clauses	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	948	482	948	482	948	482	948	482	948	482
R-squared	0.118	0.180	0.073	0.104	0.057	0.094	0.073	0.093	0.085	0.122

Note: Robust standard errors in parenthesis. Worker's and firm's characteristics include the following: gender, age(^3), education, geographical area, permanent contract, part-time, tenure, occupation, firm size, sector, multinational firm, access to confidential information (with the exception of Panel C) and the wage level. Other post-employment clauses are a set of dummies equal to 1 if the worker is covered by one or more of the other clauses listed in Annex 1.

*** p<0.01, ** p<0.05, * p<0.1.

7. Normative implications and conclusion

Growing evidence has shown that NCCs are a widespread phenomenon in the United States that goes well beyond the protection of legitimate business interests. In our study we show that this is not just a specificity of a labour market characterised by employment at will and relatively high workers' mobility such as that in the United States but also of labour markets with strict employment legislation and relatively low mobility. Our results, based on a survey with a representative sample of 2,000 employees in all private sectors and occupations in Italy, show that, at 16%, the overall incidence of NCCs in Italy is only slightly lower than in the United States (Starr et al., 2021). Despite the major differences in terms of labour market regulation, the main patterns across workers and companies are very similar between the two countries, and NCCs are not limited to high-skilled/high-paid job but also cover low skilled/low-paid employees. Interestingly, the Italian legal framework allows us to further investigate the role of institutions in conforming the behaviours of individuals – namely, employers and workers (Starr et al., 2020; Prescott et al., 2022). The results of the survey indicate that a rather large share of clauses is likely unenforceable because they do not comply with the minimum provisions set in the law (they do not specify a compensation and/or they do not define clear time, sectoral and geographical limits). Workers, however, are largely unaware of these minimum requirements – even those who are sure to have signed a NCC and declare to have read it carefully before signing. Their beliefs on employers' legal actions (*i.e.*, the probability that the employer will try to enforce the clause) and enforceability are unrelated to the actual content of their clauses, thus suggesting that the legal framework is uninformative and does not reach the intended recipients. All in all, the evidence emerging from our study suggests that, because of a mix of abuse by firms and lack of awareness by workers, in a non-trivial number of cases NCCs may lead to a distortion of the labour market, further restricting job-to-job mobility in Italy which is already relatively low by international standards.

The correlations documented by our empirical analysis also indicate that, conditional on being subject to a NCC, the enforceability of these clauses is associated with higher wages than in the case of unenforceable clauses. Changes in jobs related to the introduction of a NCCs are also associated with higher wages than NCCs not involving changes in the job specification, while access to confidential information for those subject to NCCs goes hand in hand with higher pay levels. This may point to a relevant role of supply-side factors in the presence of NCCs.

Do these novel findings call for restrictive measures to limit the use of NCCs as it has happened in the United States? To date, relying on case law evidence, the Italian legal debate has mostly focused on issues concerning the calculation of the compensation – the amount, but also how and when it should be paid – and the extent of the sector and geographical scope. However, these new results suggest that NCCs are more pervasive than traditionally thought, also covering many employees who have no access

to confidential information and, besides, employees appear largely unaware of their actual enforceability.

The debate on the optimal regulation of NCCs involves multiple tradeoffs. Likewise, firms have other legal tools to protect their legitimate interests, such as trade secrets litigation (Franzoni et al., 2022). Nevertheless, we argue that there is scope to promote a fairer use of NCCs and enhance the transparency of the negotiation process. The presence of NCCs among many low skilled workers, and the fact that workers with low levels of education are often unaware of the actual enforceability of such clauses may contribute to increase earning inequalities. For low-skilled workers NCCs can be a more powerful deterrent to quit than for the highly skilled ones, who have a stronger bargaining power, can buy the rights to leave the firm, or overcome obstacles to mobility.

Providing more detailed criteria to define the amount and form of the compensation as well as the geographical and sector limits might be helpful, but it would not resolve the upstream bigger issues, namely the pervasiveness of unenforceable clauses and the general lack of knowledge and awareness. Similarly, banning NCCs for certain categories of workers could be desirable, but it also does not deal with the problem of effectiveness and awareness of the legal framework.

Policies dealing with the spread of NCCs should therefore aim at raising awareness on the regulation of NCCs, thus helping employees to know when the clause is enforceable and employers to write enforceable clauses. One option that might increase the transparency would be to require to accompany any NCC with an explicit reference to the text of the Article 2125 of the Civil Code, which states the minimum requirements for the validity of such clause. An explicit reference would help at least those workers who read the contract before signing, but it could also push employers to ensure a higher degree of compliance with the law. Such measures are not new: the Italian consumer protection legislation contains similar provisions aimed at improving the transparency and fairness of contracts' clauses. Further, we have shown that collective agreements are silent with respect to NCCs. For sure they might play a major regulatory role, but even an explicit mention of the cases where NCCs are not enforceable could be advisable. Public authorities, then, should consider issuing guidelines. To the best of our knowledge, indeed, there are no institutional websites that provide basic information about NCCs. Finally, the presence of a NCC in the employment contract could be added to the list of items included in mandatory communications.[61] This might lead to a more cautious use of NCCs. For instance, the introduction of a NCC after the signature of the contract would be more costly. On the other hand, adding NCCs to the list of items to be communicated would allow policymakers, regulators,

[61] In Italy when a firm hires an employee or converts its contract from temporary to permanent, a written communication ("*comunicazione obbligatoria*") must be sent to the Ministry of Labour and Social Policies stating the main terms of employment (e.g., place of work, type of contract, duration, occupation, collective agreement applied).

enforcement institutions and researchers to better estimate the extent and characteristics of the phenomenon as well as guide the work of inspectors.

Another set of issues concerns the involvement of antitrust authorities in the regulation of NCCs. Our results and those of the literature point to relevant interactions between product and labour market power. NCCs may reduce entry of firms notably in sectors where human capital endowments are a crucial component of competitiveness. Concentration in hiring and in product market can also be self-fulfilling, e.g., by easing collusive agreements, such as "no-poaching" agreements across firms. In addition, these interactions between product and labour markets should not be overlooked also from a macroeconomic standpoint. Monopoly power combined with monopsony power may indeed further depress wages by combining wage setting power with lower levels of production. For these reasons antitrust authorities may wish to consider issuing guidelines, taking legal action or proposing new rules on NCCs drawing on the experience of the US and Portuguese authorities (DOJ & FTC, 2016; AdC, 2021; FTC, 2023).

Besides information campaigns and guidelines, sanctions and a stricter control may play an important role in limiting the abuse of NCCs. Among other previously mentioned issues, this is a rather important one: apart from nullity and (consequently) unenforceability – that arise only before courts – there are no further sanctions for the misuse of NCCs in Italy. The inclusion of unenforceable NCCs in employment contract is essentially costless, and therefore one might question what incentives the law provides to comply with it. Regardless of whether employers misuse NCC for anticompetitive purposes or for other reasons, they bear no consequences. Employers' motivations interact with workers' beliefs in the process of contracting a NCC, and while workers' beliefs have received an increased attention, future studies should look more closely into the reasons behind employers' strategies. Further policy measures should be discussed accordingly.

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Annex 1

Other clauses regulating post-employment activity

Non-disclosure agreement (also known as confidentiality agreements): a contract or clause that establishes that the sensitive information an employee may obtain during the employment relationship will not be made available to any other employer. A non-disclosure agreement between an employer and an employee can be valid for the duration of the employment contract but also after its termination.

Non-poaching of co-workers or non-solicitation of colleagues: a contract or clause that prevents employees from reaching back to their former colleagues and recruit them in their new business.

Non-solicitation of clients: a contract in which an employee agrees not to solicit or otherwise attempt to establish any business relationship with the company's clients or customers after leaving the company.

Repayment of training costs clause: a contract or clause which provides for the employee to repay the costs associated with attending training courses – that the employer has paid for – if the employee ceases employment within a certain period of time.

Repayment of benefits and bonuses clause: a contract or clause which provides for the employee to repay certain benefits and bonuses (for instance, a signing bonus) if the employee ceases employment within a certain period of time.

Pre-assignment agreement: a contract or clause which assigns to the employer property rights (e.g., intellectual property rights) over any invention created while employed. While this clause ceases to have an effect with the end of the contract, it may still have an indirect effect on post-employment job opportunities, especially in tech companies.

Annex 2

Additional tables

Table 8: Age and gender in the sample compared to the reference population

		Reference population		*Main sample*	
		#	%	#	%
men	15-29 y.o.	1,146,007	9.4	153	7.6
	30-49 y.o.	3,907,036	32.0	655	32.7
	50+ y.o.	2,175,359	17.8	363	18.1
women	15-29 y.o.	824,355	6.8	140	7.0
	30-49 y.o.	2,844,104	23.3	475	23.7
	50+ y.o.	1,272,391	10.4	214	10.7
Other		24,128	0.2	1	*
Total		12,193,379	100.0	2001	100.0

Source: the data on the reference population come from the Registro Statistico Asia-occupazione by Istat.

Table 9: Geographical area in the sample compared to the reference population

	Reference population		*Main sample*	
	#	%	#	%
North West	4,349,743	35.7	729	36.4
North East	2,898,755	23.8	483	24.1
Center	2,654,822	21.8	430	21.5
South and Islands	2,290,059	18.8	359	17.9
Total	12,193,379	100.0	2001	100.0

Source: the data on the reference population come from the Registro Statistico Asia-occupazione by Istat.

Table 10: Share of employees bound by a NCC by characteristics of the employee

Variable	Fraction with clause
Age	
19-30	0.16
31-40	0.16
41-50	0.16
51-65	0.14
Gender	
Female	0.13
Male	0.18
Education	
Lower secondary school or less	0.09
Upper secondary school	0.14
Bachelor degree	0.17
Higher than bachelor degree	0.21
Wage	
<2000 euro	0.12
>=2000 euro	0.31
Occupation	
Managers	0.32
Professionals	0.21
Technicians and Associate Professionals	0.20
Clerical Support Workers	0.14
Services and Sales Workers	0.15
Craft and Related Trades and Agriculture Workers	0.08
Plant and Machine Operators and Assemblers	0.09
Elementary Occupations	0.13
Duration of the position	
Temporary	0.16
Permanent	0.16