The implementation of merit pay for schoolteachers in Italian schools, 2015-2016: the exception that confirms the rule?

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Abstract (145 Words)

In 2016, a new pay for performance scheme was introduced for schoolteachers in Italy, as part of education accountability policies aimed at improving their performance. From that year, all Italian state schools were offered the opportunity to distribute wage bonuses to deserving teachers. During the first year of implementation, 82% of the schools appointed ad hoc internal committees and distribute the premia, on average to one teacher out of three. A large majority of schools implemented the process of internal distribution of funds, choosing their own criteria for defining what merit is and how much it should be prized. Results suggest that merit pay was mostly uncorrelated to students' achievements; though more than one round of application would be required for more rigorous tests. However, the article argues that the 2015 reform aligned the Italian system of evaluation and assessment with other international accountability policies.

Keywords

Schoolteachers; performance-based evaluation; merit pay; Italian schools; implementation

1. Introduction

The Italian government introduced in 2015 (law 107/2015 better known as "*la buona scuola*") a new component of merit-based salary (on average approximately less than 1% of the salary). For the initial year the funds allocated to merit based incentives to teachers corresponded to an average of 250 euro per teacher (a nationwide total of 200 million Euros). Locally formed evaluation committees had total freedom to select teachers and individual premia, though they were required to keep minutes of the adopted criteria (which are currently under study by Indire, an agency of the Ministry of Education) in order to identify best practices. The parliamentary debate signalled potential opposition from the left wing as well as from the unions. While unions were clearly aiming to an (almost) egalitarian distribution of the wage increase (and also collected signatures to call for a referendum, without being able to reach the validity threshold of half million), the center-left Renzi government was informally supporting a more skewed distribution, by introducing among the procedural indicators for the evaluation of school principals the degree of uniformity according to which these resources are to be distributed.

A previous experience of teachers evaluation was conducted under the center-right government in 2012.[1] A so-called reputational method of evaluation was applied to a self-selected sample of 33 schools: teachers elected a committee made of two colleagues, who joined the school principal in selecting the best 30% of teachers in each school.[2] A parallel experiment was conducted during in

[1] See Trellle Fondazione per la Scuola. (2013) *Valorizza - A Holistic And Contextual Approach For Teacher Appraisal* http://www.treellle.org/files/lll/Valorizza.pdf

[2] "*The teachers' assembly elected two of its members who joined the school head to form an evaluation committee (nucleus). Each of the three evaluators carefully reviewed the questionnaires and the professional background of the candidates and subsequently the evaluation forms completed by parents and students. The evaluators had to bear in mind, as a guideline for their appraisal, the professional profile of the teachers, broadly defined in their national labour contract. No single element of this evaluation process was given priority over others, nor a specific weight. The analysis was carried out individually, without prior agreement and without the exchange of views among the three members during the evaluation process. In conclusion each of the evaluators drew up a personal list of those teachers considered most highly and widely respected for their professional behaviour (up to 30% of the candidates in each school). Finally, the three evaluators gathered for the first time and compared their lists: the teachers who had been chosen by all the three evaluators were selected. Subsequently, candidates who were included in two lists out of three*

the same period, where teachers were assessed as a group according to the value-added achieved in student competences.[3] The two experiments took rather different perspectives, since the former was a one-shot initiative, based on self-promotion of candidates (teachers self-proposed their candidature by compiling a self-assessment template, but adhesion rate was limited, reaching only 903 out of 2809 teachers working in the school sample). The latter took three years to develop (in order to gauge the progress of students over a significant time interval) and the premium was a collective one (namely best schools were awarded a fixed number of premia – 20 premia corresponding to 65000 euro each) which were then distributed among teachers within the school according to local preferences (no information is available regarding the criteria).

In the present paper, we conduct for the first time an empirical investigation of the implementation of the massive experiment conducted in 2015 in all state schools in Italy comprising preprimary, primary and secondary levels.[4] Generally speaking, the "Buona Scuola Reform" is under researched and few academic studies have discussed it in-depth. More specifically, the implementation stage of the 2015 reform policy cycle has not yet been investigated systematically. The purpose of this paper is to offer fresh and original insights from the analysis of government data provided by the Ministry of Education and other government agencies. By doing so, we aim to contribute to the academic debates on the difficult implementation of education accountability policies and controversies associated with the introduction of pay for performance schemes for teachers in public schools in Italy.

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were examined and the "comparatively better" were added to the general list, with the aim that the total would not exceed 30% of the candidates in the school. More than 900 teachers were evaluated in the 33 participant schools and 276 of them were selected. The Ministry rewarded them with a bonus equivalent to a month's salary." (Valorizza, pg.5).

[3] Fondazione Agnelli 2015. *Rapporto finale sull'andamento della sperimentazione VSQ (valutazione per lo sviluppo della qualità delle scuole)* http://www.fga.it/uploads/media/Rapporto_sulla_sperimentazione_VSQ.pdf

[4] Two autonomous regions (Valle d'Aosta and Trentino Alto Adige) were excluded from the application, since they follow local pay rules based on local funds. For similar reasons, private schools were also excluded.

Pay for performance (PFP)[5] was introduced as part of a broader education reform package aimed at improving the quality and performance of teachers and overall accountability of the Italian education system. Teacher's quality matters and it is one of the most important input factors (Braga et al. 2019). Linking rewards to individual performance, instead of a fixed wage, was an innovative aspect of the Renzi Government "modernizing" reform agenda. As Hood and Margetts argue (2010), pay for performance is at the core of Bentham's eighteenth century principle of rational public management and a central tenet of the "Scientific management" movement developed by F. Winslow Taylor. It was introduced in 2014 in England and Wales and has been studied since then by public administration scholars with an interest in education and economists (Marsden, 2015). Pay for performance plans normally replace the administrative pay system based on grades, with one based still on grades but also on some forms of discretionary bonuses. They have been a global phenomenon and many countries around the world have adopted pay for performance schemes for civil servants and schoolteachers. It has been put forward as a strategy to improve the school internal improvement and accountability in 22 out of 28 countries surveyed by the OECD (OECD, 2013).

This paper is a study in the design and implementation of pay for performance in Italy, as adopted in 2015. Linking reward to performance of individual schoolteachers is notoriously difficult to design, and let alone to implement effectively. As noted in a recent systematic review of teacher merit pay (Ritter et al, 2019), the majority of programs, at least in the United States, are short-term experiments that have issues of long-term sustainability. They suggest that reforms are viewed as temporary by school staff and teachers and the scope for institutional learning is very low. Pay for performance reforms are notoriously difficult to implement effectively due to the lack

[5] By Pay for Performance (PFP), we refer in this paper to government programmes aimed at incentivise teachers to improve their performance. The rationale for these programmes is that incentive pay (or merit pay) may motivate teachers in exerting more effort in their activities(Duflo et al, 2012)

of evidence that proves the positive effects on motivation (Marsden, 2010). The expected consequence of improving teachers' motivation has proved elusive. However, the difficult implementation of pay for performance should not alienate scholars from studying this post-decisional process and mechanisms that lead to positive and negative effects. The next section of the paper will review the major theoretical arguments for and against schoolteachers pay for performance, that will then be used as assessment criteria for this case study.

2. The Shift to Performance Accountability in Education

Educational accountability reforms, coupled with poor performance of students on international ranking have attracted the interest in the design and implementation of pay for performance policies as instruments to raise standards and the quality of education system (Hanushek, 2011). Teachers are rewarded for good performance, and this will improve consequently the quality of teaching. In the United States, the 1983 report "A Nation at Risk" triggered the emergence of the educational accountability reform agenda, based on the introduction of strong assessment measures of teachers' performance and financial incentives to the best performing ones. The report by the National Commission on Excellence in Education warned that if the United States were to compete in a global economy, investment on skills formation was needed. Thus the emphasis of this movement was on academic achievement (Graham, 2005; Jennings, 2012). According to Hamilton and Koretz, accountability is "a set of policies and procedures that provide rewards and/ or sanctions as a consequence of scores on large-scale achievement tests" (Hamilton & Koretz, 2002, p. 3).

One of the most prominent policy changes in education accountability has been the issue of raising 'standards' and 'performance' (OECD, 2013). Beginning in the 1980s, in the US and UK, the

underpinning assumption about the quality of an educational system came to be viewed as its capacity to improve students' achievements. The quality of education came to drive reform expectations and policy programs. Primary and secondary schools in Europe adopted new instruments to improve their accountability mechanisms, through performance indicators, management by objectives, business plans, quality and teachers assessment, and evaluation (Mattei, 2009).

Accountability for performance is a new approach that emphasizes the use of performance mechanisms intended to improve the quality of public services (Hanushek and Raymond, 2001). Performance pay schemes are illustrations of this new approach to administrative reforms. Accountability for one's action came to be defined as demonstrating one's performance (Mulgan, 2000). This new approach implies the need to produce new data and information regarding teacher's performance and evaluation (Behn, 2001). It also triggers the adoption of new organizational values. The Buona Scuola reform in Italy went in this direction and represented a major path breaking change from the past.

Performance accountability finds its intellectual and historical tradition in the good estate management. As Day and Klein (1987) discuss it, one of the key historical developments in the system of financial accountability in England was the creation of the statutory Commission for Examining the Public Accounts in 1780, which integrated the notion of balancing the entry with the management of resources, namely economy with efficiency (Day and Klein, 1987: 14). In its literal sense of book keeping, accountability is an Anglo-Norman practice. It can be traced to the Norman conquest of England after 1066, when William I required all the property holders in his realm to render a count of what they possessed. As Day and Klein suggest: "*'managerial accountability' is about making those with delegated authority answerable for carrying out agreed tasks according to agreed criteria of performance*" (1987: 27). According to this conceptualization,

managerial accountability is foremost a technical process by which governments ensure that fiscal regularities, efficiency and value for money have been achieved. Accountable management means holding individuals responsible for performance measured on the basis of objective and agreed criteria. Individual managers and their units are answerable for their performance to the actors who have delegated authority to them, such as politicians and citizens. Managerial models of administrative reforms require those with delegated authority, such as heads of hospitals or schools, to be answerable for producing outputs and meeting targets. The values embodied in managerial accountability are cost effectiveness, efficiency and managerial autonomy (Sinclair, 1995: 222).

Managerial accountability has different dimensions, discussed by Day and Klein (1987). Mainly they refer to financial accountability, as public managers have become responsible for devolved budgets to schools and hospitals. The delivery of public social services in recent decades has been marked by greater devolution of budgets to lower level units within the public sector (Glennerster, 2002). For instance, some schools in England were allowed to 'opt out' of local education authority's control and became more autonomous. Financial accountability consists of spending the allocated money according to appropriate rules within agreed legislative framework. Another important component of managerial accountability is efficiency accountability, which refers to the process of generating value for money. Input and output oriented managerial types of accountability depend ultimately on measuring performance and assessing organizational efficiency. In the case of most social services, outputs are not easily measurable nor are production processes clearly understood.

Table 1. Input and Output-Based Types of Accountabilities in Schools

	Performance (Output) Accountability	Political Accountability (Input)	Professional Accountability
Accountability holders			
External	Ministry of Education and/or local government	Voters	None
Internal	Governing bodies and head teachers	None	Peers (teachers)
Accountable actors	School principals and teachers	Elected representatives	Teachers
Content	Performance and Output	Representation (Input)	Teaching practices, qualifications, knowledge
Mechanism	Output Measurement	Election	Collegiality

Source: own elaboration

Professional accountability, based on professional expertise and specific skills, does not fit the notion of performance accountability. It is a horizontal type of mechanism whereby professionals are answerable to peers rather than principals (according to principal-agent theory). Teachers define their own pedagogic activities with a large degree of 'discretion' from local or central bureaucracies. Being professionally accountable for one's work means to represent the interests and values of particular occupational groups, like teachers, rather than the public interest (Sinclair,

1995). Therefore, performance accountability and professional accountability rest on different mechanisms.

The web of accountability is more extended than a simple hierarchical model, and more so in the case of the delivery of public services (Mattei, 2009). Schoolteachers are located at the centre of a very complex network of account holders, to the extent that performance accountability is multidimensional (Romzek, 1996; Mattei, 2012a). Teachers need to be responsive to peers, to parents, to head teachers, to local and central bureaucracies, and to the society at large. It is an ever-expanding terrain of social relationships. Adding one layer of accountability (performance) over the others (professional) increases the complexity, but whether it makes accountability more effective remains to be tested. More research on the evaluative frameworks of accountabilities is needed. It may be that in fact each line of accountability is weakened in a multi-layered system, whereby teachers and their associations can resourcefully play one accountability holder against the other.

3. Open controversies in the literature

Pay for performance schemes have been discussed widely in the academic literature, not only by economists of education, but also public policy and political scientists. The general consensus presumes that enhanced accountability in education puts pressures on the teaching professions and school organizations that will eventually promote appropriate behaviors on the part of teachers and improve the overall quality of education, and possibly for this reason it has been ironically defined the “promise of performance” (Dubnick, 2005). However, there is no clear-cut evidence of a positive impact of pay for performance. Table 2 presents a summary of theoretical

arguments in favor and against the use of pay for performance for schoolteachers. In the sequel we will shortly review the controversial arguments underneath these propositions.

Table 2. Theoretical Controversies related to Pay for Performance for schoolteachers

Arguments For Pay-for-Performance	**Arguments Against Pay-for-Performance**
• Improves the quality of teaching (Murphy, 2011; OECD, 2005; Atkinson et al, 2004)) • Improves the recruitment of high-productivity employees (Lazear, 2000) • Changes teachers' behavior with positive effects (Lavy, 2002; Atkinson et al, 2004; Podgursky, 2007) • Improves goal setting within schools (Marsden, 2015) • Improves quality of education system (Braga et al, 2019) • Enhance public accountability (Mattei, 2012b) • Knowledge and skills based reward plans are ineffective (Hanushek and Rivkin, 2004) • Gains in labour market by students (Lavy, 2015)	• Not suited to the "nature of teaching" (Murname and Cohen, 1986) • Pay levels are not a source of motivation (Varlaam et al, 1992) • Increases cheating, and teaching to the test (Dolton et al, 2003) • Teachers don't support them (Murname and Cohen, 1986) • Evidence that compensation motivation mechanisms don't work (Marsden, 2010) • Triggers trade unions' opposition (Ballou, 2001)

Source: own elaboration

Pro-reform Claims:

Merit-based pay for schoolteachers has been put forward as a strategy to serve both the quality of teaching (Murphy, 2011; Braga et al., 2019; Atkinson et al, 2004) and the internal management of the school as organization (Marsden, 2015; Mattei, 2012). Financial rewards linked to performance are viewed as appropriate instruments to change behavior and encourage teachers to work better and improve their productivity (Lavy, 2007). Their impact may be long-lasting on students' returns in the labour market, as Lavy shows in a study of Israel policies (Lavy, 2015). Quality of teaching matters as it is positively correlated to students' achievements. Therefore, incentives that change behavior of teachers have a positive impact on the overall quality of education (Lazear, 2000). As far as the internal management of schools is concerned, Marsden (2015) argues that pay for performance is effective in the alignment of individual and organizational goals. He presents robust evidence from the analysis of the British case showing how pay for performance brings positive effects when it interacts with other processes, such as organizational values and organizational goal setting. Performance appraisal is useful as a goal-setting instrument. Performance based management is also more likely to improve accountability for public services, as it generates data and information publicly available to users and decision makers (Mattei, 2012). Evidence to the contrary (that input-based pay systems work more effectively) is challenged by the study of Hanushek and Rivkin (2004). They provide empirical evidence that students' achievements do not improve in the case of Knowledge and Skills pay plans.

Anti-reform claims:

One of the most vociferous arguments against the introduction of pay for performance schemes is that teachers don't support them and that trade unions oppose them. The opposition of teachers' unions to instruments intended to measure performance has been extensively documented and researched (Ballou, 2001). Merit pay reforms are expected to fail due to strong trade union's opposition. Moreover, in 1986, Murnane and Coehen published one of the fiercest criticisms

against linking pay of schoolteachers to performance. Their argument is based on the "nature of teaching" which is different from the private sector. They point to the fact that these plans are introduced as experiments and they never spread widely because they are not suited for the collegial and teamwork characteristic of the teaching profession. Pay for performance encourages isolation and diminishes teachers' morale (Dolton et al, 2003). Richardson (1999) likewise criticizes the pay for performance scheme because they underpin the cooperation, which is typical of the teaching profession. The output of teachers is not marketed, and thus business-like methods of performance pay are not suitable in the public education sector.

A second line of argument emphasizes the perverse effects of performance accountability, such as teaching to the test and cheating (Koretz, 2002). A third line of criticism concerns the effects of performance pay on motivation. A growing body of empirical evidence shows that pay levels in the teaching professional are not a source of motivation (Vaarlem, 1992). Marsden corroborates these findings by showing that the motivational positive consequences of pay for performance have proved elusive. Results from a survey conducted in England and Wales by Marsden (2015) show that pay for performance, introduced in 2014, was viewed negatively by teachers and that motivational effects were not positive as anticipated by the reform. This is also confirmed by the study by Ritter et al. (2019). Having said that, we note that the arguments put forward by Murname and Cohen in 1986 did not take into account the technological developments obtained in the last twenty years, and the progress governments have made in collecting performance measurement data and monitoring evaluation. It is also worthwhile considering that context matters when assessing the implementation of pay for performance schemes.

4. The Italian experiment in merit-pay for teachers (2015)

In 2015, a new political consensus triggered the center-left Renzi Government in Italy to re-introduce in education the mechanisms of performance-based accountability, drawing from international experiences and policy learning from other countries. A more accountable teaching profession would perform better as it responds to external pressures.

The Renzi government could benefit from a few historical antecedents in Italy. The link between financial rewards and merit-based evaluation was not new in 2015, but had been discussed and introduced for the first time in 1958 by the then-Minister of Education Aldo Moro. He introduced the instrument of career and salary promotion for schoolteachers based on their performance to be assessed through a national public examination (so-called "*concorso per merito distinto*" – see Previtali 2018). This was cancelled in 1974 because it was held not egalitarian. It resurfaced again in 1999, when Luigi Berlinguer was Minister of Education (1996-2000). Art. 29 of the 1999 national contract of schoolteachers introduced merit-pay based for 20% of all schoolteachers (approximately 150.000). It established that 1 out of 5 teachers could be eligible for a monthly pay rise equivalent to 353 Euro (the total annual payment would have been 4.236 euro for teacher per annum, gross of taxes) subject to the results obtained at a national public examination (so-called "*concorsone").* Only teachers with 10 years of seniority could participate to the public examination. This system was intended to reward best teachers on the basis of their teaching practices. The reward was significant and based on the need to promote a more meritocratic system.[6] In the summer of 1999, the national contract of teachers spelled out the instruments to be used in the "concorsone" (25% of the mark was linked to the Curriculum Vitae, 25% to the national exam's results, and 50% to the teaching observation and/or mock lesson in front of the examining committee, indicated as "*verifica in situazione*"). The public examination was called for in December 1999. In February 2000, it was suspended and never implemented thereafter.

[6] See a recent interview with Luigi Berlinguer, in Corriere della Sera, on July 12th, 2019.

Minister Berlinguer was forced to resign in April 2000, after fierce opposition by all trade unions of schoolteachers, and direct demonstrations that took the streets of Rome and other Italian cities on February 17th, 2000. Initially, the opposition came from the most radical trade unions, such as Gilda and Cobas, but soon after all major national trade unions opposed vehemently the adoption of merit pay.

The 2015 "Buona Scuola" reform marked a significant shift towards performance accountability, namely a shift from input to output based performance management. "Input" criteria in schools refer to teaching practices, knowledge and skills of teachers, teachers' training and qualifications; "output" mainly concerns students' learning outcomes and student achievements. Pay for performance schemes can be divided in two categories, though there exists a wide variety of designs and forms. On one hand, there are Merit-based Pay schemes that reward teachers in relation to improved output-factors, such as students' achievements and learning outcomes; on the other, there are Knowledge and Skills based Pay plans that emphasize the knowledge and training acquired by teachers, the use of innovative pedagogic methods, but have no relevance for students' outcomes (Podgursky and Springer, 2007; Hanushek and Rivkin, 2004). In the empirical analysis of the 2015 reform, we have classified schools along the input-output based criteria, in order to trace the extent of the shift from input to output accountability mechanisms.

In order to study the Italian implementation of a new merit pay scheme (which involves less than 1% of an average yearly wage[7]) we combined three different datasets. The first one contains information collected in 2014-15 and 2015-16 and made available to schools to endorse self-assessment reports (called *RAV-Rapporto di autovalutazione*, available online for each school in

[7] Considering 30.000 euro as the average gross salary for an Italian teacher (OECD 2016 *Education at a glance*, table D3, reports a figure of 32995 US dollars at purchasing power parity in 2014 for a teacher with 15 years of seniority), 250 euro (average per-teacher allocation available for distribution in each school) represent the 0.8% of the salary.

the website http://cercalatuascuola.istruzione.it/cercalatuascuola/). This database contains information on teachers and school principals (numerouness, type of contract, seniority and level of qualification) as well as on internal management procedures. The second database consists of student achievements according to *prove SNV-Invalsi*, a sort of PIRLS/PISA test which is taken at grades 2, 5, 8 and 10; finally the third database has been directly created by the schools reporting their accomplishment of the new pay scheme (called *Monitoraggio della valorizzazione professionale*[8] - *Merit* for short). As often the case, when working with datasets derived from administrative sources, the main problem is defining the boundaries of the relevant population.[9]

With an overall population of 13040 schools recorded in the school year 2015-16, a fraction (1814) consists of schools where the tests were administered but self-assessment reports are not available.[10] This includes autonomous regions (Valle d'Aosta – 33 schools; Trentino Alto Adige – 92 schools), having local students sitting the national tests but not teachers and school principals compiling the self-assessment reports or distributing merit premia. Similarly, 2137 private schools are excluded, since they were not required to introduce merit premia for teachers, who are paid according to school budgets. Thus our working sample consists of 8997 schools distributed in 18 regions. For 92.7% of them we do have all information about the merit distribution, while for the remaining 653 schools we presume they were unable to appoint a committee leading to the distribution of the merit premia.[11] One should also note that there are few cases (33 schools) where premia have been distributed without information available in the self-assessment report.

[8] The forms were available to schools in the website http://ext.pubblica.istruzione.it/monprofdocenti/login.
[9] In Table A.1 in the Appendix we report the number of schools that are available in different datasets.
[10] This should not come as a surprise, since merger of schools are rather frequent, especially in regions experiencing declining fertility rates.
[11] Compiling the online forms was not compulsory but highly recommended. It is therefore possible that some of these schools ended up distributing the premia without reporting to the Ministry of Education. However, since school heads are going to be evaluated in their turn according to several criteria, one of them being how selective they have been in this distribution, it is a rather unlikely event a school failing to report information to the monitoring procedure. Our impression is that these are real occurrences of undistributed funds. Yet it is not clear what will happen to undistributed

Net of this small group, the number of teachers involved in the merit assessment is reported in Table 3: over a total of 668.979 tenured teachers, only a small fraction (corresponding to 2.4% of the total) are working in schools that were (self) excluded from the merit assessment and/or premia distribution. Temporary teachers were excluded from the premia distribution by law.

Table 3 – Number of tenured teachers (*insegnanti di ruolo*) in state schools by involvement or not in bonus distribution – school year 2015-16

	in schools not involved in the bonus distribution	in schools involved in the bonus distribution	number of schools involved in bonus distribution	tenured teachers per school involved
Piedmont	1585	44348	566	78.35
Liguria	377	14834	192	77.26
Lombardy	2182	93431	1131	82.61
Veneto	1024	48418	597	81.10
Friuli V.G.	590	12349	168	73.51
Emilia Romagna	559	43347	540	80.27
Tuscany	812	39450	483	81.68
Marche	231	18415	242	76.10

funds at school level, whether they will be called back by the Ministry or schools will be given an additional opportunity (for example combining the distribution over two years together).

Umbria	395	10191	139	73.32
Lazio	2399	60031	719	83.49
Abruzzo	598	15805	202	78.24
Molise	425	3761	55	68.38
Campania	1967	79793	1000	79.79
Basilicata	58	8226	123	66.88
Apulia	235	49656	675	73.56
Calabria	801	26595	383	69.44
Sicily	1501	64648	854	75.70
Sardinia	598	19344	275	70.34
Total	**16337**	**652642**	**8344**	**78.22**

Within the school population under analysis we observe three behaviours, which are worth interpreting: schools that have been unable to start the process, because there is no evidence of appointment of the assessment committee (corresponding to 10% of the schools – see Table A.2 in the Appendix – but only to 5.5% of teachers); schools that have appointed the committee, but for various reasons were unable to conclude the assessment, and therefore to reach approved minutes for bonus distribution (corresponding to 7.6% of schools and 8.1% of teachers); finally, schools that distributed the bonus, though with different outcomes (82.4% of schools and 86.4% of teachers). This is a first indication of an open support to the initiative: the limited number of schools unable to reach an agreement and/or the limited number of teachers excluded from the potential distribution stays in sharp contrast to what has happened two decades earlier, when a Minister of Education was forced to resign on a similar proposal (though supported by a larger amount of bonuses to be distributed).

One possibility to account for the fact that almost one school out of five was unable to achieve the distribution of this extra salary possibly relies in the terms of appointment of school principal. If we cross-tabulate the distribution outcome with the information about the principal, we observe that the more permanent is the principal position, the higher is the chance to complete the process of distribution (see Table **Errore. L'origine riferimento non è stata trovata.**): while permanent principals achieve the full distribution in 87% of cases, the same percentage declines to 17% in schools were likely the principal is absent.

5. Patterns of distribution of resources

The patterns of distribution are nevertheless rather different among schools. By taking the ratio between teachers obtaining a bonus and total number of tenured teachers in the school, the mean is 41% over 7281 schools where we have information about successful distribution, while the median is 36% (meaning that in half of the schools one out of three teachers obtained a premium). As a consequence, the distribution is rightward skewed, as noticeable from graph 1 where a normal distribution is overimposed. Very restrictive distributions (one could be tempted to name them “meritocratic” if we could know the criteria adopted in the distribution) are present in a minority of schools (at 5% of the distribution the fraction of awarded teachers is 18%); one fourth of schools have distributed to one teacher out of four (28% corresponds to the boundary of the first quartile – see also table **Errore. L'origine riferimento non è stata trovata.**). At the other tail of the distribution, one fourth of schools have awarded the premium to half of the teachers (or more), and there is also a minority of schools (less than 3%) having awarded the premia to nine teacher out of ten.

This can be taken as an indicator of success of this innovative wage policy for teachers: the vast majority of the schools endogenously adopted a policy that allocated a bonus to only one third of them. Though the list of the beneficiaries was generally not made public,[12] it seems impressive that teachers did not reject the implicit message of the policy that "one teacher out of three is better qualified than the rest". Looking backward to previous attempts to promote merit assessment, this can be counted as the first experience of policy induced wage differentiation in the Italian educational system. One may object that the lack of opposition derives from the small size of the bonus (if the per-teacher allocation was 200 euro per year and only one third of them received the bonus, the average bonus amounts to 600 euro per year. In addition this measure was perceived as temporary, and the anticipation was confirmed the following year (2016-17) when the unions obtained the transfer of the funds earmarked for merit evaluation to the general fund for wage bargaining within the schools.

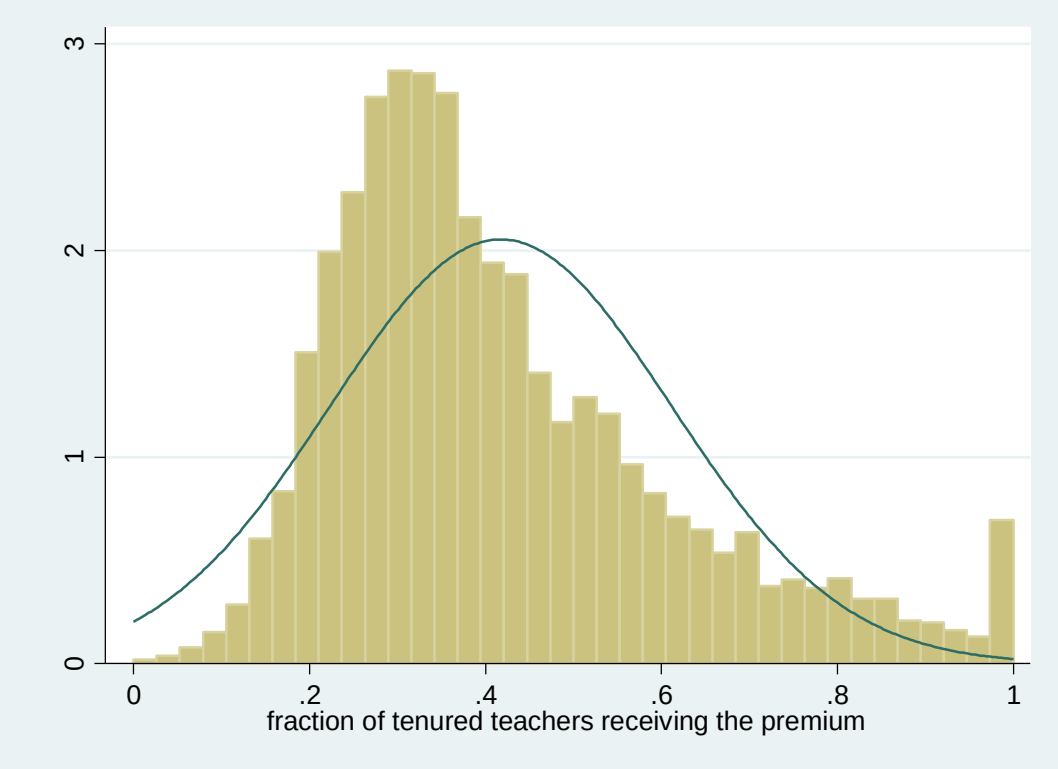
Graph 1 – Distribution of the bonus selectivity index among schools awarding the bonus

[12] In 40% of cases information went only to teachers awarded the bonus, and in another 30% of cases this was accompanied by some sort of official communication; the remaining fraction of cases followed public channels of information

Way to communicate the bonus allocation

reserved communication to individual teachers awarded the premium	3073	41.5%
communication to the group of teachers awarded the premium	132	1.8%
communication to individual teachers awarded the premium + notice board	1892	25.5%
communication to the group of teachers awarded the premium + notice board	351	4.7%
communication to all teachers	449	6.1%
just school notice board	743	10.0%
communication to all teachers + notice board	644	8.7%
not indicated	129	1.7%
total	7413	100.0%

It is likely that the channel of communication were selected according to the outcome: if we observe the share of beneficiaries in each school we can notice that more restrictive distributions tend to be associated to more reserved ways of communication, especially when dealing with group awarding of equal size premia.

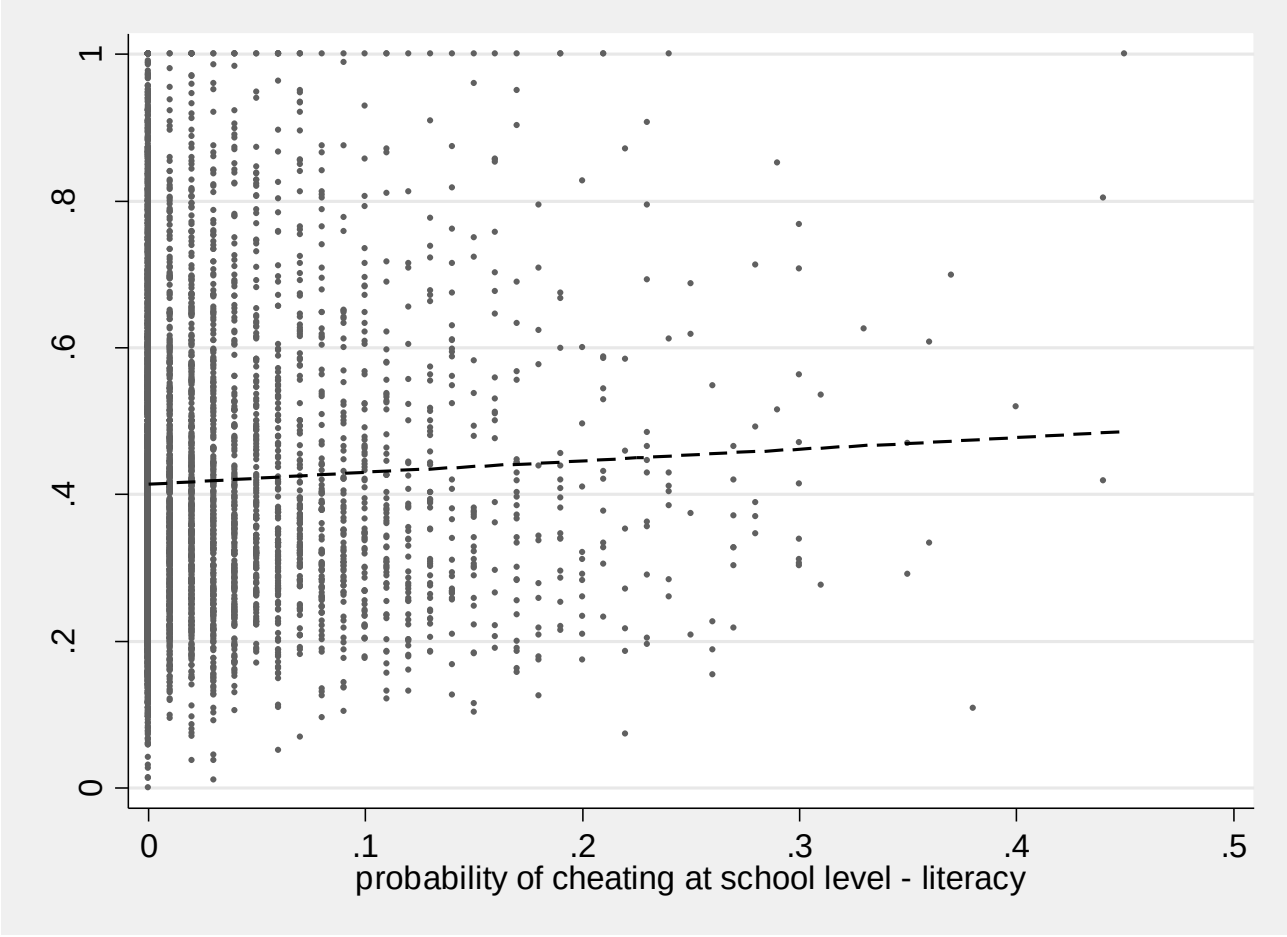


We investigated the existence of potential correlation between observable features at school level and fraction of teachers receiving the bonus. Apart from school size (the larger is the school, the smaller is the fraction of awarded teachers), we were unable to detect any statistically significant correlation with gender composition, teachers' average age or level of qualification. In order to test the potential existence of union opposition, we asked for the membership rate at school level, which however was refused by the Ministry for privacy protection; as a consequence, we proxied this effect with the school turnout rate for election of union representatives at school level: the correlation is positive but statistically insignificant.

Some evidence of the effect of the school climate can be inferred by the correlation between attitude towards student testing and generosity of the bonus allocation. The Italian testing agency (Invalsi) estimate for each class taking a test either in literacy or numeracy a probability of

cheating, based on covariances between students' answers to different items.[13] When a school displays a high level of cheating (the horizontal axis in figure 2), it may be indicative of a relaxed attitude towards outcomes. And if results are irrelevant (or even opposed as criterion for accountability), then is does not come as a surprise if a positive correlation emerges between a generous (i.e. not selective) allocation of bonuses and cheating to the test.

Graph 2 – Bonus selectivity and cheating



[13] For details see Bertoni et al. (2013). Especially in primary and lower secondary schools there is reported evidence of teachers suggesting the correct answers to students and/or imputing the correct answers when uploading the results of their students.

It is not therefore surprising that on average we do not find evidence of correlation between school outcomes (as measured by student test achievements) and premia distribution.[14] In Table 4 below, one can detect a slightly more restrictive attitude in best performing schools (and vice versa, more generous distribution in less performing schools). But correlations are weak from a statistical point of view, and they even disappear once we replace student achievements with parental background measures (typically the ESCS index measuring economic, social and cultural status of the family of origin – not reported in the table).

[14] Since test are taken at different grades and are not strictly comparable, we have standardised test score at grade level, and then averaged them across grades, in order to get a single score at school level.

Table 4 – Schools by student achievement and fraction of teachers obtaining the premium

	0-28% restricted	28-36% rather restrictive	36-50% rather generous	50-100% generous	Total	number of schools
test score (Invalsi)	literacy					
low	24.23	22.63	25.83	27.30	100	1564
middle-low	25.67	22.85	26.43	25.05	100	1593
middle-high	24.25	23.51	26.24	26.00	100	1608
high	26.99	23.08	25.22	24.72	100	1586
missing	*22.26*	*20.43*	*27.20*	*30.11*	*100*	*930*
Total	24.90	22.69	26.10	26.32	100	7281
	numeracy					
low	25.39	22.34	25.13	27.14	100	1540
middle-low	23.39	23.83	27.52	25.27	100	1599
middle-high	25.11	24.12	24.31	26.46	100	1625
high	27.28	21.74	26.78	24.20	100	1587
missing	*22.26*	*20.43*	*27.20*	*30.11*	*100*	*930*
Total	**24.90**	**22.69**	**26.10**	**26.32**	**100**	**7281**

6. The process of bonus distribution

From the third dataset we get some information on the process of merit assessment within participating schools. When we tabulate the composition of the assessment committee by

different stages attained in the premia distribution, we notice that the presence of external members (despite one member being required by law to be external to the school) make the achievement of an agreed distribution more difficult and/or more restrictive (see table A.4. Overall in such cases we are dealing with a small number of schools, such that this does not alter the general process of distribution.

When considering the procedures followed by the committees in order to achieve a distribution (see Table 5) one can observe that explicit framing of the criteria seems to help achieving the final outcome: whenever the committee has made explicit reference to the three criteria suggested by the law (paragraph 129 of the law 107/2015 known as "Buona scuola")[15] the probability of achieving an effective distribution raises by 6 percentage points, though not necessarily becoming more generous in terms of fraction of teachers awarded the premia. The qualitative analysis of the criteria designed by individual schools show that the committees followed closely the central government's blueprint.

Table 5 – Bonus distribution and criteria adoption

	premia have been distributed ?			% teachers obtaining premium
Has the committee made explicit the criteria for premia distribution ?	% no	% yes	number of	

[15] The paragraph 129 makes explicit reference to three criteria: teaching outcomes, innovative teaching methods and organizational roles. It says: "*Il comitato individua i criteri per la valorizzazione dei docenti sulla base: a) della qualità dell'insegnamento e del contributo al miglioramento dell'istituzione scolastica, nonchè del successo formativo e scolastico degli studenti; b) dei risultati ottenuti dal docente o dal gruppo di docenti in relazione al potenziamento delle competenze degli alunni e dell'innovazione didattica e metodologica, nonchè della collaborazione alla ricerca didattica, alla documentazione e alla diffusione di buone pratiche didattiche; c) delle responsabilità assunte nel coordinamento organizzativo e didattico e nella formazione del personale.*"

			schools	
no	10.37	89.63	548	42.34
yes	8.44	91.56	7417	41.64
Total	8.57	91.43	7965	41.69
Has the committee followed the indications of the law 107/2015 wrt criteria (paragraph 129 point 3 letters a, b, c) ?	% no	% yes	number of schools	
no	14.39	85.61	140	43.56
yes	8.32	91.68	7277	41.61
Total	8.44	91.56	7417	41.64

The framing of the procedure was guided by the law, but local committees at the school level were free to adopt additional criteria and/or assign different weights to the proposed criteria. There was ample flexibility in the implementation of criteria of evaluation by the school committee. As expected, the vast majority of the school committees followed the law requirements: 7345 schools out of 7388 (99%) made explicit reference to the three criteria, though half of them (57%) used different weights for different items.

In order to understand how the national framework setting out the three performance criteria was implemented by schools' committees, we conducted a qualitative text analysis of the minutes in a

sample of 70 schools provided by the Italian Ministry of Education.[16] The Ministry collected data from self-evaluation of schools as part of a monitoring exercise of the implementation of the 2015 reform. We analyzed the committee formal minutes, which detailed extensively in the vast majority of cases the merit pay criteria applied to the school. It is worth noting that schools' participation to the monitoring exercise was voluntary. Although the committees had to follow the national legal framework, the process of elaboration of merit pay criteria was very resourceful and creative. In the vast majority of cases (97.7%), the schools used all the three criteria provided by the law. Only in a few cases, the schools did not establish a committee and therefore did not allocate the premia. In one case only, the school established the committee but did not distribute the funds. In the vast majority of the cases, schools embarked upon a process of designing performance pay criteria for their schoolteachers. In two third of the cases, the school committee assigned different weights to different criteria. In order to test the significance of the input-output types of accountabilities presented earlier in the theoretical framework of the paper, we created a coding frame to analyze all the committees' minutes. We focused exclusively on teaching activities and not organizational and management activities (such as mentoring a junior colleague, or attendance to collegial meetings). We developed the coding frame deductively from the existing literature on merit pay, and we used Podgursky's (2007) classification. The results of the qualitative analysis we conducted led to a classification of schools in the sample along three categories:

a) predominantly input-based criteria for bonus distribution;

b) predominantly output-based criteria; and

c) balanced mixing of input and output based criteria.

[16] Among the schools that distributed the premia, there was the possibility of candidate as "best practice", among which the Ministry would have selected approximately one hundred cases to be assessed at the end of the experimentation phase. We have drawn our sample among these schools, despite the absence (so far) of a Ministerial assessment.

Output-based criteria refer mainly to the use of standardized tests administered by INVALSI on students' achievements as measures of teachers' performance. Input-based criteria refer to the acquisition of teachers' new skills in ICT, teachers' training and time allocated to acquiring new qualifications. Input also referred to developing new pedagogic instruments, or new pedagogic methods, which were not explicitly linked to students' achievements and results. Among the 70 schools we have analysed, more than half (37 schools corresponding to 52.8% of the total) distributed the bonus predominantly on input criteria and one fourth (17 schools corresponding to 24.3%) adopted a mixed approach. Only a small fraction followed an output approach (10 schools equivalent to 14.3%).[17] The limited role assigned to output measures in this new salary policy introduced in Italy is indicative, at best, of the predominant orientation towards the traditional content of professional accountability: the best teachers are identified as those who improve their qualification, knowledge, teaching methods, independently of their impact and level of effectiveness in teaching, as measured by students achievements. The multiple types of accountabilities discussed earlier in the paper are institutionally entrenched in complex institutional networks that make the implementation of reforms and radical change very difficult to achieve (Hill and Hupe, 2014).

We then analyse the correlation between the input-output classification which we created and the distribution of the premium using two measures, the share of teachers receiving the bonus and the Gini index in the bonus distribution within the schools.[18] As we can see from Table 6, the share of teachers obtaining the bonus is consistently lower for schools that adopted the output-based

[17] There are 6 schools that we were unable to classify according to our scheme because the lacked details in the process of bonus attribution.

[18] For all the schools that have filled the monitoring forms we know the fraction of teachers receiving the bonus, but we do not have information about the internal distribution. For a subset of schools (those who were quick enough to conclude the procedure and pay the bonus by August 2016) we also have information about the internal distribution, that we describe using a known inequality index (the Gini concentration index).

categories; symmetrically the Gini index is constantly higher in the same schools. This shows that the distribution of the premium was more "meritocratic" and less egalitarian for schools that adopted an output-based accountability model whereby performance was assessed on the basis of students' achievements. This is also consistent with the aggregate evidence of positive correlation between generosity of the distribution and probability of cheating in test taking.

Table 6 – Bonus distribution by Input-Output classification and salary inequality

(first figure: share of teachers receiving a bonus (58 schools)

– *second figure: Gini index in salary distribution (27 schools))*

	input	mixed	output	Total
generous	0.69	0.67	0.54	0.67
	0.53	*0.67*	*0.77*	*0.61*
rather generous	0.43	0.45	0.40	0.43
	0.70	*0.69*	*0.69*	*0.70*
rather restricted	0.37	0.30	0.32	0.35
	0.78			*0.78*
restricted	0.24	0.36	0.21	0.27
	0.81	*0.80*	*0.87*	*0.82*
Total	0.49	0.54	0.37	0.48
	0.67	*0.69*	*0.76*	*0.69*

7. Conclusions

In this paper, we have examined in depth the implementation of a highly innovative teachers' incentive programme in all Italian public schools in 2015 and 2016. This reform is path breaking in two fundamental ways: first, it departs from the historical path dependency of failed reforms concerning teachers' performance; second, it aligns the Italian educational accountability system with international education reforms. From 1958, when Aldo Moro introduced the first attempts to assess teachers, to date, education experiments intended to evaluate teachers' performance have not been fully implemented in Italy. Our expectation was that the 2015 Buona Scuola reform would have had the same unfortunate destiny. In some cases, ministers had to withdraw their government plans and suffered a very high political cost for attempting to introduce performance pay schemes for schoolteachers. In 2000, the Minister of Education, Berlinguer resigned from his job in the midst of strikes, public demonstrations, and teachers' fierce opposition to his plans.

Against the backdrop of repeated aborted attempts to introduce merit pay for teachers in Italy, the data presented in this paper shows that in 2015-2016, the *Buona Scuola* reform, introduced by the Renzi government in Italy, was implemented by the vast majority of Italian schools, allocating a (rather low level of) salary bonus to one third of teachers per school. This suggests that the professional and organizational values of Italian teachers and schools have changed, to the point that it becomes openly acceptable that one teacher out of three is better qualified than the other two (ranking).

However, the Italian reform remains an unfinished business and a rather timid one, in so far as monetary incentives are less focused on the improvement of students' achievements (outputs). Our qualitative analysis of the minutes of a sample of 100 schools selection committees suggests that input-based principles were prevalent in the process of defining the performance criteria, pushing for a more generous distribution of the bonus. Input-based measures are traditionally

linked to professional accountability that favours peer reviews, qualifications, teaching practices, and collegiality. As Lavy showed in his study of teachers' performance incentives in Israel (2002), teachers' incentives programmes focused on students' achievements are more cost effective than resource-based programmes (such as additional teaching time and teacher's training).

This paper does not suggest that the 2015 experiment under study is the optimal incentive structure in schools or the only performance system to improve students' achievements. On the contrary, we found that individual teachers' efforts are difficult to measure, and individual performance is technically problematic to assess with a high level of accuracy. Generally, monetary incentives to teachers as a function of the improvement of students' achievements are rare and remain at the level of local experiments that are not suitable for scaling up. For this reason, we believe that group incentives of schoolteachers in Italy may represent in the future a promising avenue to explore, while the new Italian government discusses programme design and how best to correlate teachers' performance with students' achievements. There are two clear advantages of group interventions: first, competences formation is a cumulative effect and, second, group evaluation is more in line with organizational values. We need further research on group performance interventions for teachers in Italy, though there is evidence of their success in other countries (Lavy, 2002).

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Appendix – **Additional tables**

Table A.1 – Number of schools in different datasets and matching possibilities – 2015-16

	school identifiers available at least in one dataset	just in national student testing (invalsi)	in self-assessment report database (RAV)				total sample
			just in RAV		just in merit database	RAV+ Merit	
			private schools	state schools			
Valle d'Aosta	33	33	0	0	0	0	0
Piedmont	920	163	129	62	1	565	628
Liguria	300	42	58	8	2	190	200
Lombardy	1975	394	396	54	2	1129	1185
Veneto	896	105	164	30	3	594	627
Trentino A.A.	92	0	0	(92)	0	0	(92)
Friuli V.G.	233	26	27	12	0	168	180
Emilia Romagna	766	91	114	21	3	537	561
Tuscany	674	55	108	28	1	482	511
Marche	298	15	30	11	0	242	253
Umbria	200	29	13	19	0	139	158
Lazio	1329	240	309	61	6	713	780

Abruzzo	302	42	32	26	1	201	228
Molise	119	46	2	16	1	54	71
Campania	1717	243	398	76	2	998	1076
Basilicata	166	3	7	33	2	121	156
Apulia	847	52	79	41	4	671	716
Calabria	515	35	63	34	1	382	417
Sicily	1254	178	167	55	3	851	909
Sardinia	404	22	41	66	1	274	341
Total	13040	1814	2137	**653**	**33**	**8311**	**8997**

Table A.2 – Schools by different stages in bonus distribution – school year 2015-16

	unable to appoint a committee	committee created		number of schools	unable to appoint a committee	committee created		Total
		bonus not distributed	bonus distributed			bonus not distributed	bonus distributed	
Piedmont	81	52	495	628	12.9%	8.3%	78.8%	100.0 %
Liguria	15	30	155	200	7.5%	15.0%	77.5%	100.0 %
Lombardy	79	94	1012	1185	6.7%	7.9%	85.4%	100.0 %
Veneto	49	68	510	627	7.8%	10.8%	81.3%	100.0

								%
Friuli V.G.	16	35	129	180	8.9%	19.4%	71.7%	100.0 %
Emilia Romagna	33	34	494	561	5.9%	6.1%	88.1%	100.0 %
Tuscany	52	52	407	511	10.2%	10.2%	79.6%	100.0 %
Marche	18	22	213	253	7.1%	8.7%	84.2%	100.0 %
Umbria	25	20	113	158	15.8%	12.7%	71.5%	100.0 %
Lazio	84	55	641	780	10.8%	7.1%	82.2%	100.0 %
Abruzzo	36	10	182	228	15.8%	4.4%	79.8%	100.0 %
Molise	17	6	48	71	23.9%	8.5%	67.6%	100.0 %
Campania	106	48	922	1076	9.9%	4.5%	85.7%	100.0 %
Basilicata	36	4	116	156	23.1%	2.6%	74.4%	100.0 %
Apulia	60	41	615	716	8.4%	5.7%	85.9%	100.0 %
Calabria	41	18	358	417	9.8%	4.3%	85.9%	100.0

								%
Sicily	79	43	787	909	8.7%	4.7%	86.6%	100.0 %
Sardinia	75	50	216	341	22.0%	14.7%	63.3%	100.0 %
Total	**902**	**682**	**7413**	**8997**	**10.0%**	**7.6%**	**82.4%**	**100.0 %**

Table A.3 – Distribution of schools by fraction of teachers receiving a bonus and level of teaching – school year 2015-16

school level	0-28% restricted	28-36% rather restrictive	36-50% rather generous	50-100% generous	Total	number of schools
just primary	23.11	25.15	26.18	25.56	100	489
just lower secondary	19.61	21.08	25.00	34.31	100	204
primary+lower secondary (*Ist.comprensivo*)	26.52	23.53	25.66	24.29	100	4170
just upper secondary	22.83	21.07	27.10	29.00	100	2221
among which only high school	*23.32*	*18.81*	*25.26*	*32.60*	*100*	*776*
among which high+technical school	*21.12*	*28.38*	*26.73*	*23.76*	*100*	*303*
among which high+vocational school	*25.33*	*21.33*	*28.00*	*25.33*	*100*	*75*
among which high+technical+vocational school	*25.26*	*21.13*	*25.77*	*27.84*	*100*	*194*
among which only technical school	*21.53*	*19.17*	*28.61*	*30.68*	*100*	*339*
among which technical+vocational school	*24.37*	*20.57*	*29.43*	*25.63*	*100*	*316*
among which only vocational school	*20.18*	*22.48*	*29.36*	*27.98*	*100*	*218*
information not available	*23.86*	*18.78*	*24.87*	*32.49*	*100*	*197*

Total	**24.90**	**22.69**	**26.10**	**26.32**	**100**	**7281**

Table A.4 – Bonus distribution by composition of the assessment committee

	bonus have been distributed ?			% teachers obtaining bonus
members of the merit assessment committee:	% no	% yes	number of schools	
external teachers not selected by teachers in the school	30.00	70.00	20	42.74
teachers selected by the teacher assembly (*collegio docent*)	11.06	88.94	8067	41.69
teachers selected by the school board (*consiglio d'istituto*)	11.00	89.00	8051	41.68
student parents	10.97	89.03	7958	41.59
students (only upper secondary)	12.77	87.23	2701	43.27
external member: officer form the Ministry (*dirigente tecnico*)	16.67	83.33	96	39.10
external member: principal from another school	11.12	88.88	6088	42.23
external member: teacher from another school	10.72	89.28	1921	40.12
Total	11.09	88.91	8105	41.49