Freeing the Italian School System[1]

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HIGHLIGHTS

- Why has the Italian school system such a disappointing performance? Lack of funding is not the answer

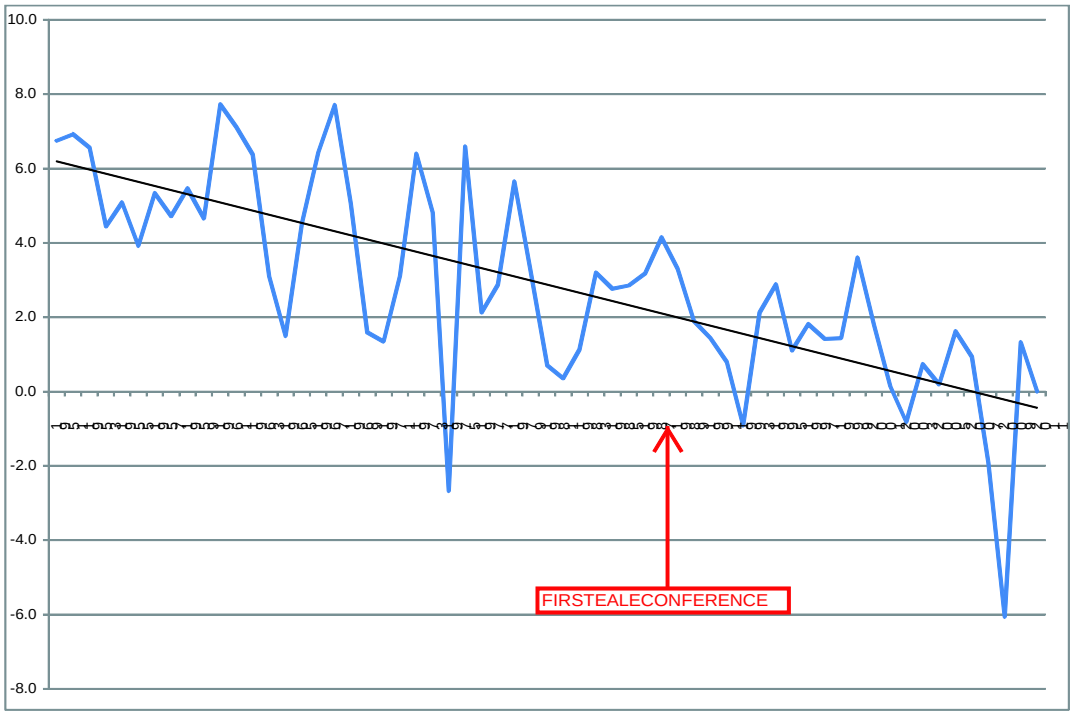
- The Italian school system needs to move in the direction of more autonomy given to individual schools, in the management of teachers and in the curriculum

- The paper discusses a reform proposal that can achieve this goal, while at the same time learning from international experiences.

- Our proposal adapts to the Italian environment a similar reform introduced in the UK in 1988 and the best of the charter schools experiences in the USA.

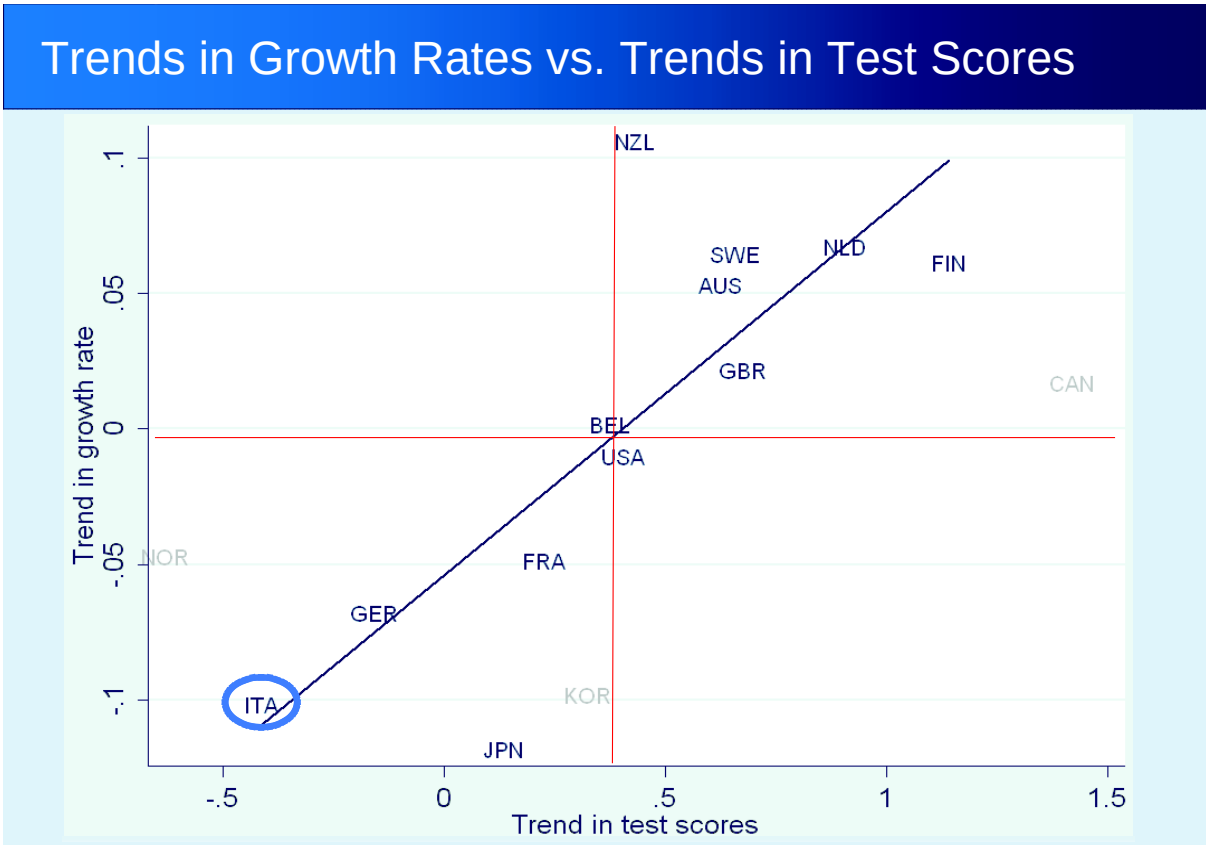
The first conference of the European Association of Labor Economists took place here in Turin 25 years ago. Since then, the Italian growth rate has been declining, without any signs of inversion compared to the similarly declining pattern that had characterized Italy in the previous 25 years (see Figure 1). As Europeans you must be worried about this weak link of the Union. As labor economists, you are probably interested in how much our daily research life helps in suggesting a way out for Italy.

Figure 1- Italian Growth Rate in the Last 50 Years



Indeed, we think that there is something useful to be learnt, also for an international audience, from a discussion of what Italy should do to invert this negative trend. In this paper we focus on the education system, which is one of the most deeply studied topics by labor economists and is widely recognized to be a crucial engine for growth. International data indicate a strong correlation between growth rates and standardized student achievement test scores, both in terms of levels and trends. Moreover, recent works by Hanushek and Woessmann provide evidence in favor of a causal interpretation of this evidence (Hanushek and Woessmann 2008, 2011 and 2012) As Italy comes out quite badly from these international comparisons (see Figure 2), it becomes an interesting case study.

Figure 2 - Growth Rates and Test Scores Trends in Different Countries



Source: Hanushek and Woessmann (2012)

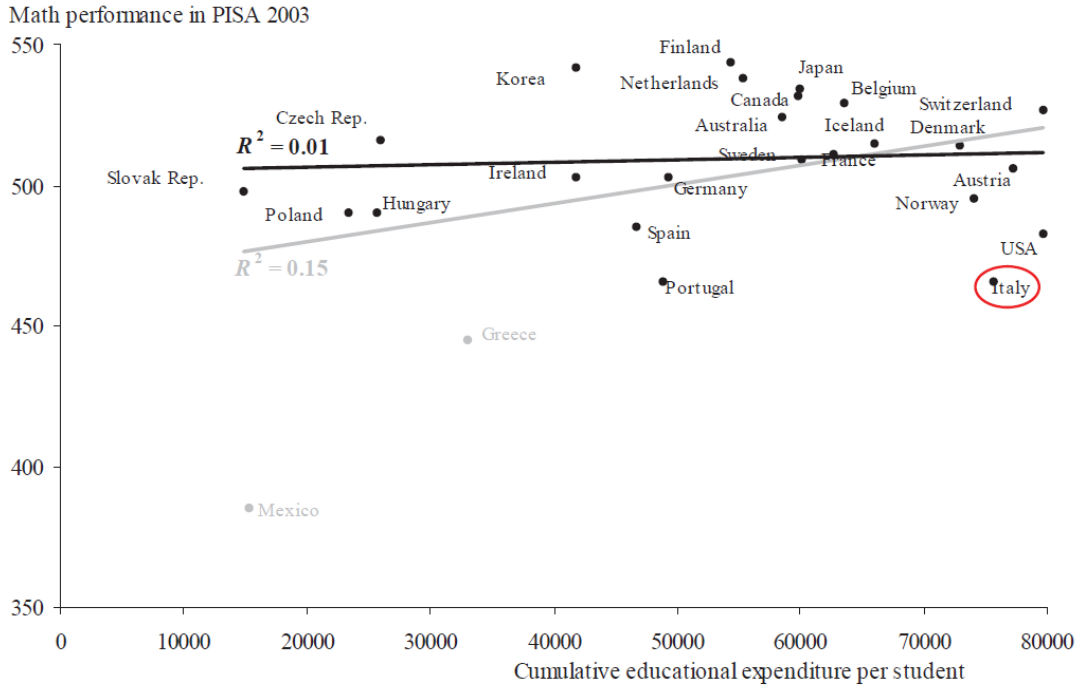
Note: Scatter plot and linear regression line of trend in the growth rate of GDP percapita from 1975 to 2000 against trend in test scores.

Italians are typically told that the only reason of this dismal performance of their school system is a severe lack of funding, an explanation that appears to be consistent with the cuts to educational expenditures that government of all colors have recently implemented. However, the data suggest that this cannot be the primary reason for the bad results of Italian students in international standardized comparisons. Up to a few years ago, expenditure per student in education was greater in Italy than in most other OECD countries (see upper-left panel in Table 1 and Fig 3a), while for more recent years it is close to the average (see upper-right panel in Table 1 and Fig 3b). How can this be given that public expenditure in education has been low relative to GDP and total government spending, as shown in the bottom left and right panels of Table 1? Private spending cannot be the answer, since it is a very small fraction of total expenditure in education (2.2% in 2000 with an increase up to 3.4% in 2010 for primary and secondary instruction, according to OECD, Education at a Glance). The answer is demographics. Fertility has been lower in Italy than in comparable countries (see Table 2): in a country with few children, even if a lower fraction of common resources is devoted to education, expenditure per student can still be higher than in countries with a younger population. The relevant indicator is expenditure per student, not expenditures as a fraction of GDP or public spending. In this

respect, and despite the recent expenditure cuts, resources per student do not seem to be lower in Italy than in comparable countries. The real priority is to improve the *quality of expenditure*, not to increase its *quantity*.

The reform proposal described in this paper aims precisely at generating the correct incentives for a better use of existing and future resources in a sector that is crucial for growth.

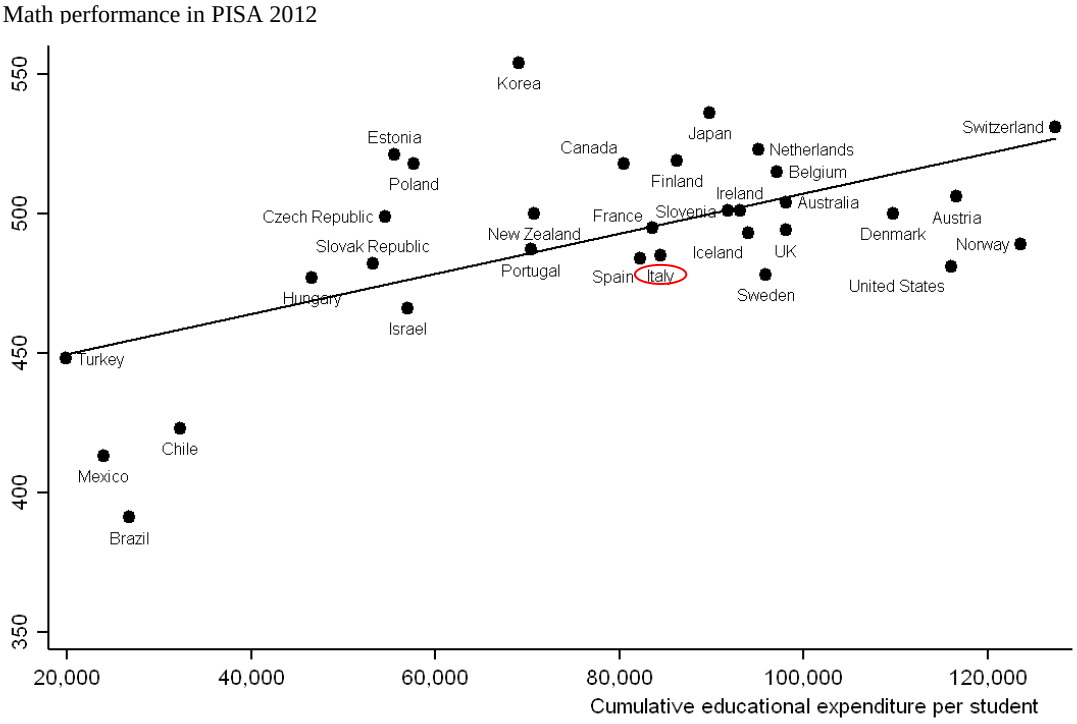
Figure 3a: Expenditure per Student and Student Achievement across Countries in 2003



Notes: Association between average math achievement in PISA 2003 and cumulative expenditure on educational institutions per student between age 6 and 15, in US dollars, converted by purchasing power parities. Dark line: regression line for full sample. Light line: regression line omitting Mexico and Greece.

Source : OECD 2004

Figure 3b: Expenditure per Student and Student Achievement across Countries in 2012



Note: replica of Fig.3a with more recent data
Source: PISA scores in Mathematics for 2012 from OECD, PISA 2012 Database
Cumulative expend in 2010 for students aged 6-15 in US$, PPP converted, from OECD,EaG 2013

Table 1 –Expenditure in Education per Student and in % of GDP

Academic Year	1999/2000				2008/2009			
	Italy	OECD Average	G7	Countries comparable to Italy	Italy	OECD Average	G7	Countries comparable to Italy
Yearly Total Expenditure on Education per Student, in US$, PPP								
Pre-primary school	5.771	4.137	5.060	3.812	7.948	6.670	6.998	6.607
Primary school	5.973	4.381	5.173	4.316	8.669	7.719	8.264	7.449
Secondary school	7.218	5.957	6.212	5.707	9.112	9.312	9.279	9.046
Yearly Public Expenditure on Education								
In % of GDP	4,5%	5,2%	4,7%	5,2%	4,7%	5,8%	5,1%	5,8%
In % of public spending	9,8%	12,6%	11,3%	11,9%	9,0%	13,0%	10,8%	12,3%

Source: OECD, *Education at a Glance* 2003 and 2012.
Note: PPP means Purchase Power Parity, i.e. data are converted in order to take into account the difference in living costs across countries. "Countries comparable to Italy" are the 26 OCED members presenting a 2009's GDP per capita figure within the range of Italy's 2009 GDP per capita plus and minus one standard deviation (calculated with respect to all OECD countries). Data for GDP per head, PPP converted, are from the OCED Database. Unfortunately we do not have access to government expenditure per student in order to make the top and bottom panels of this table consistent. But in Italy private expenditure in primary and secondary education is only 2.2% in year 2000 and 3.4% in year 2010 of total expenditure for the same instruction levels and the number of students enrolled in public schools is approximately 90% of the total (see Table 3). Therefore, government expenditure per student cannot be too different than total expenditure per student.

Table 2 – Demographic Trend of Young Population

Year	1990				2000				2009			
	Italy	OECD Mean	G7	Countries comparable to Italy	Italy	OECD Mean	G7	Countries comparable to Italy	Italy	OECD Mean	G7	Countries comparable to Italy
Fertility Rate	1.36	1.91	1.47	1.80	1.26	1.68	1.38	1.59	1.41	1.74	1.47	1.71
Share of Young Students in Population	m	m	m	m	12.77%	16.73%	15.61%	16.52%	12.40%	15.70%	13.98%	14.50%

Source: OECD *Factbook 2013*: Economic, Environmental and Social Statistics; OECD Database and authors' calculations.
Note: The total fertility rate is the total number of children that would be born to each woman if she were to live to the end of her child-bearing years and give birth to children in agreement with the prevailing age-specific fertility rates. Share of young students in population is the ratio between the number of students enrolled in primary and secondary institutions (in full-time equivalents) over total population. Share of Young Students in Population for 2000 refers to 2002 data. Countries comparable to Italy are the 26 OCED members presenting a 2009's GDP per capita figure within the range of Italy's 2009 GDP per capita plus and minus one standard deviation (calculated with respect to all OECD countries). "m" stands for missing value.

1. How the Problem Should Be Approached

In order to tackle the most urgent needs of the Italian education system, it is of the utmost importance to focus on the long-term design for Italian schools. The approach that has been followed since the 1960s is instead mainly based on marginal, incremental interventions. This is the result of many different ideological preclusions and vetoes towards more overreaching (and usually effective) reform proposals. However, we think this modus operandi is no longer suitable. The resistances that our long-term reform is bound to generate should be overcome. In order to do that, our proposal cannot be imposed to everyone. It therefore entails a voluntary adhesion to the new system during a probationary period. The new configuration will be based on independently managed schools, competing among each other and coexisting with more traditional ones.

The approach that we are suggesting may appear utopian and unrealistic, given the many constraints and hindrances of the current Italian socio-economic situation. However, we think that the way of proceeding we propose here is the only possible alternative to pursue the changes that, in our opinion, the Italian system pressingly requires. Consider for instance one of the most central issues at hand: the recruitment and retribution of better teachers, those who are more prepared, and more willing to undertake the difficult but crucial task of educating new generations. A number of different studies, which are presented in detail throughout this work, clearly shows that teachers' quality is one of the key points for the success of a schooling system.[2] However, in order to make some improvements in this field, one should decide between two broad and contrasting approaches. On the one hand, one could opt for a solution entailing autonomous schools, with the power to freely manage their human resources. On the other hand, there could be configurations based on a single entity, centrally managing the entire system and upon which all teachers depend, vested with the power to even decide who may become a teacher. Similarly, it is important to define the degree of autonomy that should be granted to each school when designing its educational offer. It could be possible to have "*pre-packed menus*", rigidly imposed by a central authority (such as the actual Italian *liceo classico, scientifico,* or *istituto professionale, tecnico,* etc). An alternative design could instead be based on "*menus à la carte"*, with students allowed to personalize their study plans, choosing among the different options offered by their schools.

We decided to tackle the issue of redesigning the school system by adopting a different perspective than the one typical of many traditional documents on the Italian school system. In particular, our analysis begins with a description of the possible problems entailed by a reform with a long-term perspective. We then move into the details of our proposal. Finally, we get back to the major problems we see in the actual Italian school system, discussing how our proposal can help in solving them.

[2] A case in point is the study conducted in Chetty, Friedman e Rockoff (2011).

2 More Competition and Autonomy Are Needed in the Italian School System

What role should the government have in education? In principle, there are three possible roles as in any other public service: regulation, financing, and direct provision. Nowadays, the Italian government acts as a central regulator, defining in a detailed and rather rigid manner the contents of any kind of educational curriculum for all schools. The government is also one of the main players in financing the education system, and at the same time, through public schools, it is also a major service provider. Furthermore, the government funding for education is almost exclusively reserved to public institutions (cf. Table 3), giving rise to a close link between direct provision and public resources.

Table 3 – Share of Public Expenditure in Education and Students Enrolled in Public Institutions

Academic Year	1999/2000				2008/2009			
	Italy	OECD Average	G8	Countries comparable to Italy	Italy	OECD Average	G8	Countries comparable to Italy
Share of Public Expenditure in Education going to Public Institutions								
All Levels of Education	99%	86%	84%	85%	96%	83%	80%	83%
Share of Students Enrolled in Public Institutions								
All Levels of Education	91%	84%	84%	83%	89%	83%	82%	82%

Source: OECD Database.
Note: Countries comparable to Italy are the 26 OCED members presenting a 2009's GDP per capita figure within the range of Italy's 2009 GDP per capita plus and minus one standard deviation (calculated with respect to all OECD countries).

This status quo is the result of a series of historical choices, which have never been questioned. But there are no compelling reasons in favor of this situation. The fact that, to a large extent, the government plays all the three roles is a source of severe distortions. First, the rules of the systems can be stretched in order to favor the government in its provision of the service. An example which is far from being implausible is the one of school evaluations. The government has all the interest in making the most negative results less extreme, or to avoid publishing information which could reveal poor conditions of public institutions (or at least some of them), or that could generate conflicts among schools. In addition, the government can discourage curricular innovations in order to avoid possible organizational issues or problems with trade unions. Secondly, the role as unique funds provider conflicts with the one of service provider. There are instances in which the government can be tempted or forced to save money and, in turn, to provide a lower-quality service, a service worse than the one citizens would be willing to pay for, had they the chance to contribute to school financing.

In light of these remarks, it is not surprising that many countries in recent years have tried to design a different role for the public sector in education. In every country the government plays a prominent role in the regulation of the school system. However, the Italian case is quite peculiar, especially with respect to the intrusive public intervention in the definition of school curricula content and structure. It is also rather common for a government to provide a large share of funds to

educational institutions, though there is a large heterogeneity around the world in the way this is carried out. Direct provision has lost importance in many countries, as suggested by the international experiences that we will describe below in Section 4. Even where the government retains a role in this respect, there has been a tendency towards configurations inducing some form of competition among schools, which are often vested with a large degree of autonomy.

There are good reasons to favor this evolution. It is reasonable to expect that autonomous institutions competing with each other would be more prone to improving the quality of services they offer. Providing schools with autonomy in their action would greatly enhance their possibility to operate according to more accurate information on the specific community they serve. It would also allow for a quick and flexible adjustment of decisions previously taken when local conditions were different. This is always something particularly complex to be accomplished by a central planner, which is often far from and unaware of local situations in which schools operate. In this respect, the Italian case is a clear example of how the central government can let the education system gradually deteriorate under the constraints imposed by the difficulty in adapting to a changing environment, as well as by political and administrative rigidities. Competition is also greatly beneficial for the system, inasmuch as it induces schools not to take their "customer base" for granted, and as it generates incentives for schools to continuously improve their offer.

In light of the examples presented in Section 4, we believe that autonomous schools competing with each other should in principle be more able to choose the best teachers and to motivate them, quickly adapting their number and characteristics according to the needs of local communities and of school's specific activities. At the same time, these schools would be more prone to flexibly designing their educational offer in relation to the particular demand they face, and to equip themselves with the best structures and facilities to realize their goals.

It is worth noticing that the autonomous schools we have in mind are neither necessarily private, nor, a fortiori, for-profit private institutions. Under an adequate legislative framework, the organizational independence that we advocate can be compatible also with public schools, even when this autonomy concerns managerial decisions, for instance with regards to teachers and staff.

To the aforementioned efficiency-based arguments, one can also add another equity-based advantage of a system with autonomous and diversified schools over a fully centralized one. Paradoxically, a school designed to be equal for everybody comes at the detriment of the poor, when attempting to close their gap of opportunities towards the rich. As a matter of fact, it is true that a centralized system will offer the same service to everyone, with the result of homogenizing cultural students' traits and skills (though it would always be impossible to completely eliminate the differences in the social and familiar background students present when entering the school system). Nonetheless, homogeneous schools do not prevent better-off families to complement the educational experience of their children with extra resources purchased outside the canonical system. The possibility to better learn multiple foreign languages or to access extra tutoring activities can only

exacerbate the opportunity gap between rich and poor. A system based on autonomous schools could instead provide the less well-off but deserving students with a diversified educational offer, intentionally designed to help them overcome their initial disadvantage.

Finally, a fully centralized system entails a paternalistic trust in a government which is thought to be more able to understand people's needs than single institutions do. This belief is hard to maintain when there is the impression that public schools reflect the ideological preferences and political constraints of governments who designed them, rather than then the needs of the communities they serve.

3 Why Do People Fear More Autonomy and Competition in the School System?

Autonomy and competition can also give rise to problems in a school system, especially if introduced without the required care. To better evaluate potential risks and advantages of a reform, it can be useful to consider three broad configurations among the many possible ones, which can be of course combined.

- Autonomous schools competing with each other, financed by tuitions and fees determined by the market;
- Autonomous schools competing with each other, financed by the government based on a centralized evaluation of their performances;
- Autonomous schools competing with each other, financed by the government with funds that follow students' choices.

In this section, we consider the characteristics and possible effects of these three configurations. Our guiding hypothesis is that, in any of the three instances, the government retains the power to determine minimal standards for the educational offer, to examine students according to these standards, and to intervene in case of unsatisfactory performances of institutions, even by closing the school. Therefore, the government continues to play a fundamental regulatory role in all the three configurations, though in a way which is different from the actual one. In particular, it allows single institutions to enjoy much more independence in the design of their educational offer. Under the first scenario, the government is exclusively a regulator. In the other two, it also funds the education system, though with different allocation criteria. Finally, in none of the three instances the government is also a direct provider of the service.

Autonomous Schools Competing with Each Other, Financed by Tuitions and Fees Determined by the Market

This configuration is potentially the one able to achieve the best results. However, this can be the case only if schools and families possess all required financial resources and complete and perfect information. In particular, under this scenario, educational institutions are induced to provide their best possible offer, and families are led to choose the school that better fits their preferences. As in all well-functioning markets, families will reach the maximum possible level of satisfaction, given the best offer that schools can provide them with at equilibrium tuition fees, and vice versa.

However, this configuration remains problematic, even under the assumption of perfect and complete information (for instance in terms of kinds of diploma for which demand will be higher in the future, or in relation to the easiness of different educational curricula). Even if all this information

were collected and made publicly available by the government, still not every family would be able to afford the costs of their children's education. Moreover, ability is not equally distributed across students.[3] In this situation, children of the wealthiest families could enroll in the best schools, regardless of their ability. Poor families could instead afford to pay for the best schools just for children showing more proclivities towards studying, and perhaps not even for them, in case they are particularly financially constrained. This is why it would be important to provide them with external funds (scholarships or loans), so as to allow families to invest in their children's education, which is expected to pay-off at a subsequent stage.

The possible financial hindrances faced by poor families can be in principle solved relying on an adequate redistributive scheme. For instance, students from disadvantaged families could receive scholarships (positive vouchers) allowing them to attend even the most expensive schools. This form of aid could be financed by tuition fees paid by wealthier students (negative vouchers). However, this scheme would still not incentivize better schools to admit just the best students, i.e. the more able ones, thus those more prone to investing in education, no matter whether rich or poor. The former would be ready to pay with their own resources, while the latter would rely upon scholarships. In any case, better students would end up in better schools, while worse students would tend to be concentrated in worse institutions.

Segregation according to students' ability could perhaps be acceptable, from the viewpoint of equal opportunities, only if combined with the possibility to measure students' ability independently from their family income. However, given how difficult it is to disentangle the pure student ability from the learning opportunities that the family could offer, a segregation according to ability would likely result in a division based on family income, violating the principle of equal opportunities.

Even assuming that the problem of poor people's access to the best schools could be solved, a distribution of students across high and low quality schools purely based on students' ability could not necessarily be desirable. For instance, excellent engineers need to work with high-skill workers and staff (in relation to their qualification) in order to exploit and enhance each one's ability.[4] Under this hypothesis, an integration of students with different abilities and ambitions would be beneficial, and surely more desirable than a rigid segregation.

Furthermore, it has been widely shown that the social benefits of education exceed private returns, especially at early stages of students' academic paths. Hence, it is socially optimal that people receive more education than the one they would probably opt for if they considered just their private costs and benefits. In economic jargon, education generates positive externalities that single individuals could not be able to internalize. Therefore, the human capital stock of a country could be sub-optimally low without an adequate public intervention.

[3] See for instance Epple and Romano (1998).
[4] See Benabou (1996).

For all of these reasons, we believe that, generally speaking, it is not desirable to design a system entirely based on autonomous schools competing among each other, and financed by tuitions and fees determined by the market. In its "pure version", this configuration could work reasonably well at the university level, but it would hardly be optimal at the primary and secondary education level.

Autonomous Schools Competing with Each Other, Financed by the Government Based on a Centralized Evaluation of Their Performances

A system with school-valuation-based public funding is an alternative option to a privately financed one relying on market-based tuition fees. Under this scenario, educational institutions continue to be autonomous in managing their resources and in designing their offer, but they receive money from the government (for instance through an ad hoc public agency) according to their performances.

This solution, rather straightforward at first glance, actually presents considerable practical implementation issues. First of all, it requires a school evaluation system which is cheap, transparent, objective, shared, and accepted by all players. But which must be the pillars of these evaluations? On the one hand, any quantitative indicator (such as results of standardized achievement tests) is usually not well received by teachers. According to them, it just gives a partial view of the overall value of a school, and of its educational offer. On the other hand, any qualitative and discretional evaluation (provided for instance by a special pool of inspectors) presents its own problems, not least related to the impartiality and trustworthiness of evaluators. Moreover, in relation to both quantitative and qualitative measures, it is crucial to "de-contextualize" the results. This means that one has to abstract the assessments from the socio-economic context in which the school operates. Indeed, it is easy for a school to achieve higher standardized test scores if its students mainly come from wealthy and well-educated families rather than from disadvantaged ones. Similarly, it is easy to offer stimulating and interactive classes (which can positively impress evaluators) when pupils are interested and enthusiastic. The situation is completely different when even being able to simply keep a bit of order and silence in a classroom would amount to a big success.

In any case, even assuming that a series of reliable qualitative and quantitative measures could be found, this configuration would also require a "rule" that would automatically connect public funds to performances. This association may appear immediate and easy to specify, but it actually presents substantial problems in its definition. Consider for simplicity the case in which schools are required to reach two objectives: to reduce the drop-out rate and to improve its students' success in accessing higher-level courses (or in finding a job). Now, assume that these school performances are evaluated relying on two quantitative measures: the share of students who drop out before obtaining a degree and the share of students admitted to higher-level, high-quality institutions or who find a job which can be considered satisfying in relation to their qualification. These two objectives are clearly in contrast between each other: to reach the first goal, the school should avoid that students fail exams, or

better, it should induce students to keep on studying by any means, regardless of their ability; to pursue the second objective, the school should instead get rid of the worst students, concentrating its resources just on the most able ones. In this multitasking situation, with multiple and contrasting goals, if the funds get allocated with different weights for the achievement of the two quantitative objectives, then the school inevitably would concentrate just on the heavier-weighted one, disregarding the other. It would then become particularly difficult to calibrate the weights of the two criteria in order to reach the optimal mix. And the problem is of course exponentially exacerbated when objectives are more than two, as it actually happens.[5]

Even assuming that the specified objectives are limited and not conflicting, it is likely that the indicators used to measure them are just "rough and imprecise" measures of what the society really desires. In a very influential work in the human resources literature, Steven Kerr wrote: "*On the folly of paying for A while hoping for B*".[6] In other words, it is possible that the ultimate goal that the government has in mind for a school differs from the performance that could be measured. As a result, there is the risk that a school concentrates its efforts in obtaining the best possible results in indicators which are subject to evaluation, even if these are not what the collectivity really desires. A case in point is the phenomenon of teaching to the test. If a school receives funds according to its students' results in a standardized test, it will likely devote its resources in teaching the pupils how to improve their test scores, without paying attention to many other potentially important aspects of students' education. Indeed, if tests were a complete and accurate measure of what a school is expected to provide to its students, than the "teaching to the test" occurrence would not be detrimental. However, it is likely that things are not so well-defined in reality, and it is hard to avoid rewarding something which is potentially rather different from what is socially optimal.

All the aforementioned problems are exacerbated by the fact that the goals of an education system rapidly evolve over time, because they have to adapt to the ever-changing contemporary world. In order to avoid erroneous choices, the funds allocation mechanism should therefore be periodically revised, and it should vary according to the local context. Needless to say, this implementation would be extremely hard to be realized.

Finally, this configuration eliminates the redistributive problem related to family income inequality. However, if schools retain the power to choose the students to be admitted, ability segregation of students would still be an issue. To tackle it, students could be allocated to schools according to a random lottery, which is something that families are not likely to easily accept.

[5] This issue is known in the economic literature as an incentive problem in a situation of multitasking. See Holmstrom and Milgrom (1991).

[6] See Kerr (1995).

Autonomous Schools Competing with Each Other, Financed by the Government with Funds that Follow Students' Choices

A third possibility offers a solution to many of the problems that arise in the previous two configurations. This consists in a system where schools still retain autonomy in the management of their resources and in the design of their educational offer, but where the public funds they receive are linked to the number of students they are able to attract. In particular, the government pays each school a fixed amount per student. Therefore, families remain the ultimate evaluators of school performances and the amount of funds that each institution receives depends on family choices.

This system could work well, however, only if a sufficient amount of information is made available to families. In particular, they must be able to understand the consequences of their choices in order to better select the most suitable school for their children. The government, in this setup, is neither a direct service provider nor a direct funds provider, but it must play the fundamental role of collecting and making detailed information on schools publicly available to families. Given the heterogeneity of families in the ability to process information, it is particularly important that those with greater difficulties receive more and specific help.

Compared to the previous configurations, where educational institutions are financed according to the results of a centralized evaluation of their performances, this solution still presents issues related to the cost of collecting all the information that has to be made public. However, if the information provided to families is complete and exhaustive on all the relevant indicators, the students and their parents would decide which school characteristics should be rewarded given their preferences. In this way, the government would not have to link funding to the results of school evaluations and the problems related to multitasking and to imperfect measurability of objectives would be reduced.

It is worth highlighting that the success of this configuration crucially hinges upon the ability of the government (or perhaps also of society as a whole, for instance through Internet) to provide families with all the details they need to make an informed decision concerning their children's school. They need to thoroughly understand the real quality of each school, of its teachers, and of the educational offer it provides, with all the opportunities and risks that the latter entails. A problem would arise under this scenario if, despite a detailed and complete information, some low-quality schools continued for some reasons to be appreciated and chosen by families. The government should then decide whether to intervene, eventually running against the free choices of individuals. In principle, if there were no externalities and the agents had all the information and financial resources they need, then a liberal government should let families freely decide the school of their children according to their preferences. However, there are two possible issues about it.

Firstly, as we already noticed, in case of positive externalities from education, there exists a collective interest to reach a level and quality of education which is higher than the one individuals would choose basing just on their private evaluations. If these externalities were relevant, free choices

of families (or part of them) resulting in a sub-optimal quality or quantity of education for young generations should be discouraged. This could be achieved essentially by setting some minimal quality criteria that schools have to conform with, and a minimum limit to the number of compulsory education years, which are in line with what is perceived as socially optimal.

Secondly, one has to consider that individuals making decisions upon school matters are usually parents, not directly their children (especially at the earliest stages). And children do not choose their parents. Therefore, one cannot take for granted that parents will always choose the best option for their kids. This suggests another possible useful intervention of the government in relation to the choices of the families. In particular, schools should be asked to take into account not only parents' preferences, but also children's potential ability, in the interest of the latter.

In our view, those two are the only justifiable public interventions which could restrict family choices. However, note that we do not propose them under a paternalistic perspective, assuming that the government is better than single individuals at determining what is right and wrong. Instead, they depend on the existence of a misalignment between collective and individual interests (due to externalities), and on some market failures, especially in relation to the risk of taking into account only parents' school preferences in the decision process, overlooking children's potential ability and inclinations.

Another critique that often arises against a system of autonomous schools competing with each other is that it takes time for damages provoked by a low-quality education to become evident. Therefore, there is a risk that the harm caused to students could become particularly severe before it becomes apparent. This is a real risk, but it is not obvious that it would be exacerbated by a system of autonomous schools compared to a centrally managed one. Indeed, in order for the latter to be preferred to the former, the government should be able to quickly become aware of problems, and to intervene to correct them. The experience suggests that, at least in Italy, the Public Administration is typically not particularly timely in understanding schools quality-related issues, if it ever becomes aware of them. In addition, even when problems are identified, it is often unable to intervene to solve them. We think therefore that the pressure coming from competition would allow to get rid of inefficient schools more quickly, compared to a centralized public system such as the current one.

The Best Solution Is Not the Same at All Educational Levels, and It Needs to Be Empirically Tested

It seems reasonable to claim that the choice among the three previously described configurations has to be different across educational levels. Autonomous schools funded by tuition fees determined by the market are probably more suitable for higher education (especially for colleges and universities), where private returns are more relevant than the social ones. Moreover, redistributive problems are less severe at these late stages, and the issue of identifying high-ability but financially constrained students in order to directly subsidize their education should hopefully be already solved at earlier

stages. On the contrary, autonomous schools not collecting tuition fees from private individuals and not allowed to select their student body should be preferred at the primary and secondary level.

In any case, the choice of either of the three alternatives (or a combination of them) has to be based on the evidence coming from an adequate and gradual experimental phase, inspired by the best international practices. Therefore, in the next section, we briefly present some of the most relevant international reforms, before detailing our proposal. This is build paying particular attention to errors and successes of other countries which have tried to increase autonomy and competition in their school system in the past.

4 Useful International Experiences

Among the many possible alternatives, we now describe three international experiences, which we deem particularly interesting to be considered in relation to our proposal:

- the Swedish reform of 1992, operating a profound liberalization of the school system and allowing the entrance of for-profit institutions;
- the English reform of 1988, introducing the *Grant Maintained Schools*, then replaced by *School Academies* in a subsequent reform;
- the *Charter Schools* experience, developed in the US in the early 1990s.

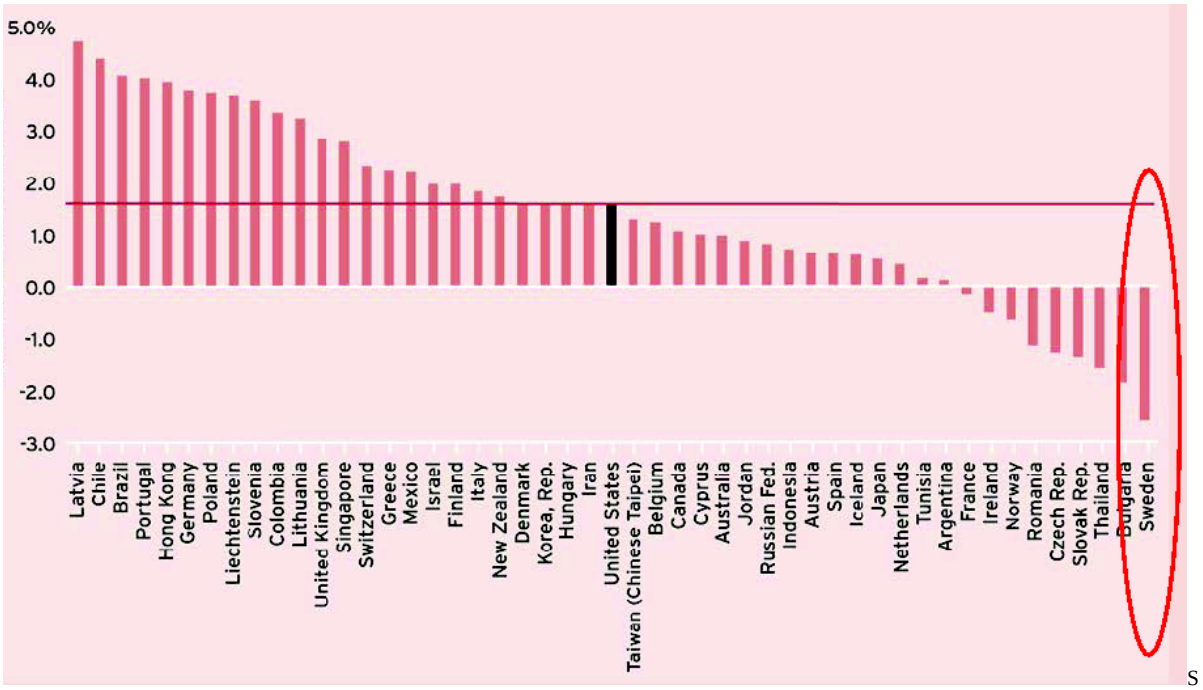
A Solution with Lights and Shadows: the Swedish Reform of 1992

In 1992, the Swedish conservative government deeply reformed the public school system inherited from the social democrats. Before the reform, schools were free for everyone, and they operated under the strict public control of a central educational minister, which also had the power to choose and certify teachers. In a marked clash with the past, the reform introduced a complete decentralization of school control, now under local authorities' jurisdiction. At the same time, each school had the possibility to start operating autonomously, in terms of managing its human resources and in designing its educational offer. Public funds began to be allocated to schools according to the number of their students (as in the third configuration described above). Therefore, educational institutions started to compete with each other in order to attract the largest number of students and, in turn, of funds. However, the most radical innovation of this reform was possibly the complete liberalization of the education market. Even for profit institutions could open and manage new schools, for instance with resources coming from private equity funds.

What is striking in this reform is that little attention was paid to the provision of the necessary information to families concerning the quality of different schools. Analogously, no mechanism was designed to limit the risk of family choices that could be privately optimal but socially inefficient. In particular, neither standardized achievement tests nor any forms of school

evaluation other than the local (and therefore highly heterogeneous) ones were introduced together with the reform.

Figure 4 – Improvement in Standardized Tests between 1995 and 2009



Source: Hanushek, Peterson and Woessman (2012)
Note: Vertical bars represent the overall annual improvement rate of students in Mathematics, Reading, and Science, expressed as percentage of a standard deviation. Authors calculations based on data from the National Assessment of Educational Progress

A few studies tried to evaluate the impact of the reform.[7] In general, this turned out to be less satisfying than expected. Especially the results of new for-profit institutions were particularly disappointing. This was possibly due to the fact that, because of the lack of any kind of evaluation and publicly available information, an undesirable equilibrium arose, with schools cutting costs and decreasing the quality of their offer in order to maximize profits. This situation has been fostered by many parents interested in "buying" a degree for their children, allowing them to have access to higher school levels, but at the same time without a real investment in a thorough education.

These disappointing results clearly emerge from Figure 4, which shows that Sweden is the country with the largest drop in standardized tests scores within the sample considered.

An Inspiring Solution: English Grant Maintained Schools and School Academies

In 1988, the conservative English government of Margaret Thatcher allowed primary and secondary schools to opt-out of the control of Local Education Authorities (LEA), assuming the status

[7] See for instance Björklund, Clark, Edin, Fredriksson and Krueger (2005).

of autonomous *Grant Maintained* schools (GM schools). These schools operated in a context of complete liberalization and competition for students. They were financed by an ad hoc government agency and managed by a council of 10/15 people, including the school headmaster, plus students' and parents' representatives. The law vested these councils with the power to decide how to allocate their resources and how to organize their educational activity. They were also autonomous in their students' admission standards, teacher selection criteria, contracts management, and administration of all their properties and premises.

At the same time, however, GM schools were required to make public their admission criteria, in order to avoid ability-based segregation of students. Furthermore, they were prevented from collecting any tuition fees. They were financed by public funds according to the number of students, with possible additional resources coming from private sponsors, which could be represented by up to four members in the school council. In addition, GM schools received an extra amount of money equal to 15 percent of their budgets. This was considered to be approximately the value of LEA's services they had no longer access to. A lively debate has spurred around those extra funds.[8] On the one hand, there are people arguing that this has been the key allowing schools receiving that extra money to outperform traditional schools. On the other hand, some experts believe that those funds really matched the value of LEA's administrative services and support to schools. Nonetheless, GM schools, thanks to a smart use of their autonomy, were able to get the most out of those extra resources, devoting at least a fraction of them to other relevant activities.

Another interesting aspect of this reform could be worth replicating also in the Italian case: the voluntary nature of schools' decisions to leave the traditional, centralized system. As a matter of fact, the decision was made based on referenda held in each school presenting among its community a sufficient interest in switching to the new regime. Anecdotal evidence suggests that referenda were usually called by school managers. However, independently from the reasons behind the choice, about one third of eligible schools asked parents to express their opinion with a formal consultation. And in two thirds of referenda, the majority was in favor of the transition to the GM status. Political preferences of families of course significantly influenced the final result, because usually Conservatives were in favor of the transition, while Labors were against it.

Differently from the aforementioned Swedish case, GM schools were introduced in England together with a centralized school evaluation mechanism, with results publicly available to families and with a great attention from the media. The so called "League Tables", i.e. the rankings of results of standardized learning tests and of inspections by the Ofsted (the Office for Standard in Education, a governmental agency), constituted the qualified, reliable, and easily available information allowing to control and manage GM schools' autonomy.

[8] See for instance Clark (2009); Machin e Silva (2013); Fitz, Halpin e Power (1993).

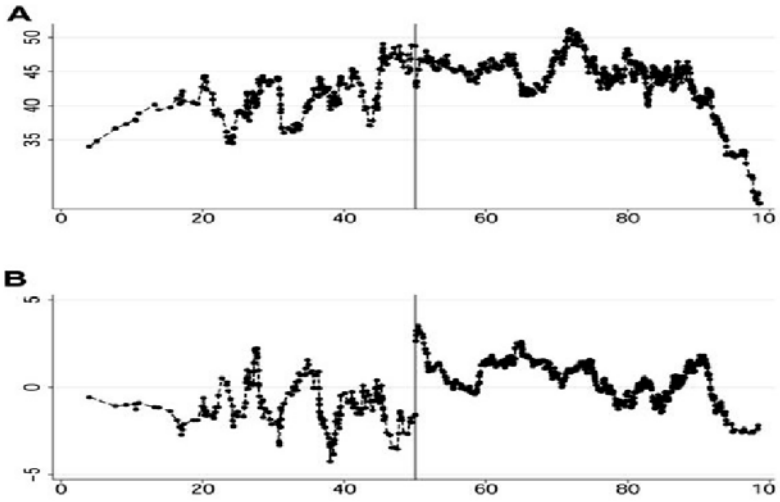
Given the lively debate about the desirability and efficacy of those schools, the Labor government decided to end the experiment in 1998. Starting from that year, schools were no longer allowed to change their status, a possibility involving about 1200 schools (especially secondary) in the previous ten years. GM schools continued to operate, gradually converging to the Academy model introduced by the Labor government in 2000 and which is still very popular today.

Academies are schools, both primary and secondary, which preserve a public status and are directly financed by the central government, together with private sponsors. However, they are independent from local authorities. In particular, even though they have to conform to the National Curriculum in Mathematics, English, and Science, they are autonomous in designing their educational offer and time schedule. They are also independent as far as human resources are concerned, provided that all the teachers they hire possess the national qualification (Qts). They are also free to decide wages and working conditions according to school-specific needs. As in the case of GM schools, Academies are subject to limitations in their student admission criteria, though in a slightly different way. The criteria can be related to students' ability for no more than 10% of each year's new entrants. The Ofsted constantly monitors Academies, verifying compliance with minimum standards and publishing their evaluations together with results of standardized tests.

Even if Academies have less autonomy than GM schools, this model is still subject to lively discussions. There are some educators and politicians speaking firmly against this configuration, and hoping for the closure of Academies. In spite of this, differently from the case of GM schools, all three main English political parties are generally in favor of this system, given that it was introduced by a Labor government but reflects principles well in line with Liberals' and Conservatives' ideas.

In other international experiences, it is usually difficult to identify and estimate causal effects of the introduction of more autonomy and competition in the school system, disentangling it from any confounding effects. The GM schools case is instead very close to a setting that allows this kind of causal analysis. Ideally, as in clinical trials, one would like to perform a natural experiment comparing the results of two statistically identical groups of schools before and after the treatment (i.e. the introduction of autonomy and competition), with just one of the two exposed to the treatment. This approach is widely accepted in medicine, but it is not that common in social sciences, though it could be extremely useful in guiding reform decisions.

Figure 5 – Effects of the Introduction of GM Schools on the Base-Year Final Exam Pass Rate (A) and Two Years Later (B)



Source: Clark (2009).
Note: Panel A, plots pass rates in the base year: smoothed (running mean) base pass rates. Means are calculated separately above and below the 50 percent threshold using bandwidth 0.1. The sample includes all schools in the main GM sample. *N* p 742. Panel B shows the impact of a GM vote win on pass rates 2 years after the vote: smoothed (running mean) regression-adjusted pass rates 2 years after the vote. Means are calculated separately above and below the 50 percent threshold using bandwidth 0.1. Regression adjustment is made for base pass rates, school type, and vote year-term. The sample includes all schools in the main GM sample with relevant pass rate data. *N* p 726.

However, using data on the GM schools transition referenda, Clark was able to get around the problem relying on a "quasi-experimental" approach. He focused on schools with referendum results very close to 50%. Among them, it is reasonable to assume that the actual final decision is, to a large extent, driven by chance. This implies that the consultation result could be considered as generating a quasi-controlled experiment with random assignment to treatment. Therefore, effects estimated comparing schools immediately above or below the 50% vote's threshold, can be interpreted as causal.

Results by Clark are particularly clear-cut and convincing:

- GM school students' success in national standardized tests increased by a quarter of a standard deviation (an economically and statistically significant amount). This result appears clearly in Figure 5. Panel A shows that, before the transition, around the 50% vote threshold, schools that later became GM were similar to the others. Instead, Panel B shows that, after two years, GM school performance (on the right of the threshold) was substantially better;
- Positive results were not only a short term effect of the novelty. They persisted over time for the eight years considered by Clark;
- An increase was observed in GM schools enrollment, together with an improvement in the average student quality at entrance, as measured by standardized tests taken at earlier stages of the students' career. However, this cream-skimming phenomenon seems to explain just about half of GM students' success in tests taken at the end of their GM school career.

- It is not easy to precisely pin down the causes of the other half of the positive effect. However, in GM schools Clark observed: "[…] *a shake-up of teaching staff that involves increased separations, increased hiring, and a net increase in the number of teachers employed at the school*." This observation seems to suggest that at least part of the effect was due to an improvement in teachers' quality in GM schools, given that those institutions were able to get rid of the worst educators.

However, Clark did not observe positive spillovers on neighboring schools originating from GM schools with a tight transition referendum result. This suggests that GM schools were able to exploit their autonomy to improve their performances, but the increased competition did not have an impact (neither positive nor negative) on schools remaining anchored to the traditional system. There are many possible reasons for the lack of improvements in the neighboring traditional schools. From the viewpoint of our proposal, however, what is relevant is that the GM schools were able to improve, even if the rest of the system was not affected by this.

Another Promising Example: Charter Schools *in the US*

Charter Schools are a managing model for primary and secondary schools. They started in 1991 in Minnesota (Bluffview Montessori school), and nowadays are widespread in all the US. These are public educational institutions funded by public resources and private donations. They are not allowed to collect tuition fees, given that they remain within the public system, and they are guided by the following two principles:

- *Autonomy*: Charter Schools do not have to comply with much of the regulation of traditional schools. Therefore, they have more organizational flexibility. For instance, some schools specialize in offering particular courses, e.g. focused on arts or music, while others respond to particular needs of their local communities;
- *Responsibility*: Charter Schools assume full responsibility of their students' performances and pursue the objectives specified in the charter contract they are based upon, which regulates their functioning. This contract is an agreement between a school board (which can be made of teachers, parents, or third parties) and a sponsor. The latter can be a public authority (for instance the local educational agency) or a university. The sponsor is in charge of evaluating whether the school reaches the objectives specified in the charter contract, and intervenes when this is not the case. In extreme situations, it could even require the closure of the school.

There is a substantial heterogeneity in the degree of real autonomy across states. Charter Schools usually obtain a fixed amount of public funds per student, which is typically less than what analogous public schools receive, though with some exceptions.

The choice between enrolling in Charter or traditional schools remains a personal one and it is not uncommon that this leads to an excess demand for Charter Schools. In some cases, this problem has

been tackled by randomly allocating applicants. This is for instance the situation considered by Angrist and his coauthors, allowing them to provide some causal evidence on the performance of Charter Schools.[9] In particular, they compared results of Massachusetts students randomly admitted to Charter institutions with the results of individuals attending traditional schools, because students randomly assigned to Charter Schools can be considered ex ante statistically identical to all others. This study showed that attending Charter Schools seems to have a positive effect on standardized test scores, especially among people living in urban areas and belonging to ethnic minorities. Employing a similar method, Hoxby and Muraka too found positive effects of Charter Schools for students in the state of New York.[10] It should be noted, however, that Betts and Atkinson (2012) criticize these findings because oversubscribed schools in which a random lottery is necessary are not a random sample of all schools. Similarly critical on the role of Charter Schools is a 2009 publication of the Center for Research on Education Outcomes claiming that these schools have performances equal or worse than analogous traditional public schools; but this conclusion in not completely reliable, given that its causal claims are not founded on a rigorous quasi-experimental approach.

5 Our Proposal

Our reform proposal is based on the experiences of English GM Schools and of US Charter Schools. Specifically, it consists in:

- the possibility of existing schools to voluntarily decide to leave the public system and adopt a new autonomous status;
- within a carefully monitored experimental framework.

In more detail, our proposal entails the following defined aspects:

(1) the typology of schools that have access to this proposal;
(2) the aspects of a school activity interested by the increased autonomy;
(3) the way in which schools can decide to switch their status;
(4) the governance of autonomous schools;
(5) the financing scheme of autonomous schools;
(6) the methods to publicly evaluate the performances of autonomous schools;
(7) the ways to make information on schools and their evaluations publicly available;
(8) the process that schools can follow to revert to the traditional system at the end of the experimental period, if they want to.

[9] See Angrist et al. (2012).
[10] Hoxby and Muraka (2009).

In this section we describe our preferred "baseline scenario" for the aforementioned parameters. In the following section, we instead turn to a discussion of possible alternatives, in light of likely costs and benefits of each parameter configuration.

We do believe that an initial experimental phase is desirable. This should allow an easy reversal to the traditional system with the minimum possible long-term impact. The new configuration would become definitive just after a confirmation of positive results. We will return to the pros and cons of this choice in the following section.

The Typology of Schools Affected by the Reform

In order to better evaluate the effects of the reform, the largest possible number of schools from any level and geographic region should be offered the possibility to change their status. Only a widespread adoption of the reform, involving schools from different contexts, could provide the data required to empirically measure the costs and benefits of the proposal, and to make an informed decision about the contexts in which this is worth continuing and expanding.

For instance, it would be crucial to understand the different effects of the reform on primary, and secondary schools.[11] It would also be important to evaluate the geographical difference in school performances, in order to understand if the new configuration seems to improve the particularly disappointing results of schools in Southern Italy. Moreover, private schools should also have the possibility to take part in the experiment, provided that they accept all the conditions imposed.

For all of these reasons, we think that it would be ideal to carry out the reform at the national level, with schools of all grades.

The Various Stages of the Reform

The initial experimental stage of the reform should last approximately five years, during which it will be possible to switch back to the previous status without any major permanent effect. During this period, schools opting for the autonomous regime will operate entirely according to the reform guidelines. However, the institutional context and contractual decisions will be such that no definitive and irreversible choice is made at this stage.

If the reform appears to yield positive results after the first five years, then autonomous schools would continue to operate as in the experimental period, but now in a context where permanent, binding decisions would be adopted.

[11] In Italy, primary school is attended by children in age 6 to 10; secondary school is divided in junior high school for children in age 11 to 13 and in high school that goes from age 14 to age 18.

Which Aspects of a School's Activity Will Be Interested by the Increased Autonomy

After the experimental stage, schools that switched regime will be allowed to exercise their autonomy over any aspects of their activity, and in particular over:

- The definition of new private labor contracts for all the staff, including teachers;
- HR decisions concerning hiring, firing, and teachers' compensation. In particular, teachers should not be required to hold any particular certification in order to be hired, given that international empirical evidence suggests almost unanimously that there is no correlation between teachers' certifications and their results;[12]
- The educational offer, school curriculum, teaching methodologies and time schedule;
- The management of infrastructures and physical capital, including purchases and sales of school buildings.

During the experimental stage, schools adopting the new regime will benefit from the full autonomy described above, with the following limitations. First of all, the staff previously employed in a newly autonomous school will be placed on hold in his/her status as public employee. Those required by the new autonomous school will be employed under a new temporary contract; those who are not will be instead absorbed by the public sector. The same will happen to those initially retained by the autonomous school, but then considered to be superfluous for the school activity at a later stage (still within the initial experimental). Therefore, during the experimental period, the government would guarantee that every public employee laid off by autonomous schools will continue to work at the same conditions within the public school system, in practice avoiding almost any negative effects for them.

Analogously, newly autonomous school will be able to hire new personnel if they deem this necessary. However, new contracts will necessarily be temporary during the initial period, with the possibility to become permanent depending on the decision to move from the experimental to the final, definitive stage. In this way the experimental phase should not have any permanent effect on employment. [13]

It would instead be hard to avoid lasting consequences of decisions concerning school infrastructures, in case autonomous schools decided to invest or disinvest in this respect. In order to reduce as much as possible any effects, during the experimental period schools will not be allowed to sell buildings and to take out loans.

[12] Empirical effects of certifications on teachers' performances are generally not significant in the literature. For instance, Kane, Rockoff and Staiger (2006), based on data from schools in New York city, found that students' results are only marginally (or even not) statistically different comparing classes with a teacher holding or not holding a certification. In another study considering US data, Angrist and Guryan (2008) estimated that state-level teacher entrance tests increased on average teacher salaries, but they had no significant effects on students' performances.

[13] There is however an issue of external validity of the experiment: the newly hired teachers could have exceptionally strong incentives to perform well, in order to increase the likelihood that the school remains in the new system and the reform is not reversed.

Pros and cons of this particular feature of our proposal are discussed in more details in the following section, where an alternative non experimental configuration is also presented.

Rules for Autonomous Schools

Students in autonomous school will be required to sit the same national examinations and take standardized tests as in any other traditional school. However, this could be problematic under the current format of the Italian high school final examination. Currently, this is designed in order to strictly adhere to the specific subjects and topics taught in each educational curriculum, which are decided by the central Ministry of Education and identical for all Italian schools of the same typology. For instance, the final exam for the *liceo classico* (high school with a focus on humanities, classical studies, Greek and Latin) is peculiar to this type of school, and only students attending this kind of institution acquire the notions required to pass it. The same happens for all the other school typologies (artistic high school, scientific high school, etc.). The current exam format would be unsuitable for students of autonomous schools offering specific and personalized curricula, for instance combining classical studies with art courses or with scientific or socio-economic aspects.

To address this issue, it would be necessary to change the current structure of the final national high school examination. An option could be the British format. Specifically, this would consist in a number of tests in different subjects, among which each student would choose those that he/she prefers (with a certain specified minimum number of required tests and some compulsory subjects, e.g. Italian, math etc.). In this way, the same subject test could be taken by students with different backgrounds, who would in any case be evaluated over the same set of competences and contents. For example, the math test would be the same for students of all schools, whose performance in the test would then be presumably distributed over a wide range of levels. This kind of exam would not be "pass or fail"; it would instead measure the level of competence and knowledge in each subject. Note that this format would have the advantage of naturally integrating the test results with the university admission system. Tertiary education institutions could specify the subjects and grades of high school final tests required to access their degree courses and the minimum acceptable performance in the test. Math departments could for instance ask to pass the Math and Physics tests with a score above 95 out of 100 (plus possibly other subject tests), while perhaps the threshold in the math test could be a bit lower for a curriculum in Economics (which at the same time could require different additional tests beyond math).

As far as criteria for the admission to autonomous schools are concerned, we believe that the proposal should distinguish among different education levels, as already highlighted in Section 3. Primary and secondary schools should not be allowed to collect tuition fees, and, in case of exceeding demand, admissions should be based on a random lottery.

The mechanism should be different for high schools, where we propose a method analogous to the one studied by Gale and Shapley, and already well established in several countries.[14] This is based on ordered preferences expressed by students with respect to all the schools they are interested in. At the same time, schools decide how many students they want to admit, and the criteria they use to screen and select potential students, according to the ability of the latter. The matching algorithm proposed by Gale and Shapley (2012 Nobel prizes in Economics) makes it possible to reach an allocation of students in the various institutions with many desirable properties for both individuals and schools, as well as for the society in general.[15]

Transition Period and Governance

As for the English GM schools, the decision to switch to the autonomous status should be the result of referenda in which the majority of voters decides in favor of the change. In the "baseline scenario" of the proposal, eligible voters are parents and students of each school, though in Section 5 we consider possible alternatives.

It is then important to decide which schools are allowed to hold a referendum. Our idea is that it should take place in every school where a group of parents, teachers, or any other interested individuals prepares a "Charter". This should be similar to the contracts of the US Charter schools. However, while in the US the Charter contract has to be accepted by the sponsor (e.g. the local authority); in our proposal it should be subject of a referendum involving the entire school's electoral body. Voters can be also asked to choose among different Charter proposals. In the baseline scenario, any management programs could be presented to voters, excluding of course illegal ones. Alternative and more conservative options on this issue are presented in Section 5, where some possible red tapes for boards aspiring to manage autonomous schools are discussed.

Once admissible Charters are decided, any voter could express his/her opinion on each of them. The change of status would take place in schools in which the majority of eligible voters is in favor of a transition governed by a specific Charter. In this way, it is implicitly assumed that people not casting their vote are de-facto voting against every proposal, i.e. expressing in favor of the status quo.

In case the required majority is reached for a specific Charter, the corresponding school will become autonomous and it will start to be managed by the designed board, as specified in the Charter. In this way, also the governance and the rules guiding the school functioning will not be imposed from outside. They will instead be decided (and eventually flexibly modified) by people directly involved in the school activity, according to the guidelines specified in the Charter.

[14] See Gale and Shapley (1962).

[15] In particular, Gale and Shapley's algorithm resulting allocation is Pareto-efficient, stable, fair, rational from an individual perspective, and robust to strategic behaviors.

Initial Funding of Autonomous Schools

With the transition to the new autonomous status, schools will acquire the property of all infrastructures and equipment that come with them. They will also receive an amount of money equal to the average public expenditure for that specific institution during the previous five years (including the outlays for teacher salaries and buildings maintenance). In addition, schools will also be granted some extra funds compensating them for the impossibility to access some public services, such as the management of staff and financial resources. Some supplementary assessment of the real value of the public services that autonomous schools will give up is therefore needed.

Schools will be also allowed to collect additional private resources, for instance from students' parents. However, we propose to allocate 20% of those extra resources to a common redistributive "Solidarity Fund" that all autonomous schools operating in financially disadvantaged districts could access in order to compensate their difficulty in obtaining additional private funds.

Public Funding Conveyed by Students after the First Year

After the first year, each autonomous school will receive public funds according to the number of enrolling and enrolled students. Each pupil will bring along a voucher, equal to the initial average cost per student (corrected for inflation), estimated with respect to a cluster of similar schools.

The Ministry of Education will be able to increase the student voucher at a later stage, in case of justifiable reasons coming from the school board. Those discretionary increments could be subject to school results, but automatic mechanisms of performance-based voucher growth should be avoided for the reasons detailed in Section 2.

The student voucher might be increased also for those schools facing some difficulties and not presenting particularly brilliant performances. However, the increment in those instances will be possible only after a revision of the Management Program, which will have to be approved by the same commission that the educational authority sets up to assess the acceptability of the programs before the referenda.

School Evaluation and Information to Families

Evaluation data will be collected by an ad hoc Agency that will also be in charge of correctly informing the families about the results. In particular, for each autonomous institution a cluster of similar schools will be identified in order to compare the former with the cluster in terms of:

- students' pass rate in the final comprehensive public examinations;
- students' results in standardized achievement tests;
- students' history after graduation;
- results of discretionary inspections (subject to the allocation of the funds for inspections);

- users' evaluations.

By construction, this evaluation system will allow to compare each autonomous school with institutions (either new or traditional) operating in analogous contexts. Furthermore, the assessment will not be based just on the level of the aforementioned indicators, but also on their change over time.

The commission will also decide the most effective way to make the collected information publicly available. This information has to reach every potentially interested family, and it has to be clear and easy to understand. Particular attention must be paid to providing counseling for disadvantaged families, in particular those who might have greater difficulties in processing the relevant information. As highlighted in Section 2, this dissemination process is crucial for an informed decision based on each family's preferences. The autonomy granted to schools will generate benefits only if this information channel will work correctly.

Hypothetical Return into the Public System at the End of the Experimental Period

A new referendum to decide whether to revert to the previous status could be held between two and five years after the school regime switch. This referendum has to be claimed by more than a third of the interested parents. Eligible voters would be identified according to same criteria used for the initial referendum. The reversal of status will take place if more than 50% of the electoral body votes in favor.

When a school returns to the traditional system all the staff on leave re-acquires its full status as public employee, with the same conditions before the transition. Any new contract stipulated by the autonomous school will be terminated. In this way, the experimental phase will have no permanent effect on school employment.

In case the school instead preserves its new, autonomous status (either because no referendum is held, or because people vote against the status reversal), then the effects stemmed from the acquired autonomy will become permanent. This will be effective for all aspects of the school's activity, including its HR decisions.

6 Possible Alternatives to Our Proposal

In this section we present some alternatives to our baseline configuration, in light of costs and benefits of some of the most relevant parameters described above.

Reform Implementation Limited to High Schools and Shortening of the Education Period

As already highlighted in Section 2, it is reasonable to imagine that the increased degree of autonomy is likely to yield more positive results in schools for older students. First of all, this is because the risk

of student segregation in schools of different quality can entail for primary and secondary institutions costs larger than benefits. Secondly, people's mobility plays a crucial role in our reform proposal. Students are expected to choose the best schools according to their preferences, and, in turn, those decisions will have an impact on the amount of public funds that each school receives. These choices are likely to imply some forms of geographical movement, at least within a sustainable commuting distance from home, which seems more feasible for older students.

In light of these remarks, it could be sensible to limit our proposal only to high schools. This would have the additional advantage of a positive integration with a reform of educational cycles. In particular, it could be possible to move from the current three-cycle status to a new one with just two 6-year cycles, thus reducing by one year the total length of studies, in line with the standard in many countries around the world. Those 12 years of education could be split into 10 years of compulsory school (the 6 years of the primary cycle, and the first 4 years of the secondary one) and the last 2 as a preparation for university studies. In this setup, it could be possible to let only secondary cycle schools have the possibility to opt-out from the traditional system and switch to the autonomous status. Moreover, shortening the study period by one year could free up resources for the entire education system.

Opportunity of an Initial Experimental Phase

In the baseline configuration, we propose to introduce the reform through an initial experimental phase during which permanent effects of a hypothetical reversal to the previous regime would be minimized. This choice would present evident advantages: in this way, it would be possible to evaluate the short term effects of the reform before a full-scale implementation and also to calibrate some parameters in response to the first results obtained.

On the other hand, uncertainty about the final outcome of the experimentation could shape people's behaviors in the initial stage, providing a somewhat distorted picture with respect to the situation under a permanent switch. Moreover, it can be too optimistic to expect that the new personnel hired during the experimental phase would accept to be laid off without opposition in case of a reversal to the previous status. It is likely that there will be a substantial pressure towards substituting the temporary contracts of the experimental phase into permanent ones, with a resulting unjustified increase in the costs of the reform for the public sector. If this happens, then also the experimental phase would have long-lasting employment effects.

The option of immediately implementing the reform in its full and definitive configuration should therefore be carefully evaluated. If that was the case, then autonomous schools would instantaneously gain possession of buildings and equipment, and they would have full management power over their human resources. Thus, the personnel of autonomous school would cease to be part of civil servants

right from the start (though their contractual conditions could be initially preserved), and the staff considered in excess by the new management would be immediately laid off.

School Managers Instead of Management Boards

In the baseline configuration, any group of parents, teachers and/or school managers, and no-profit entities external to the school could form the new management board of autonomous schools. In order to avoid that a managerial position in a school could be assumed by confessional, extremist, or in general strongly politically or ideologically oriented groups, it could be specified that public funds could only be granted to non-denominational and ideologically/politically independent schools. However, it would still be possible that controls are imperfect, and thus public resources would be used to finance very peculiar cultural scopes. Under this scenario, student segmentation across schools would not be based on ability and on school quality, but instead on political preferences, religion, or ideology, which could have detrimental effects for social cohesion.

Note that those effects would not be avoided by imposing some minimal learning requirements. These would guarantee some homogeneity in teaching and contents of school offer, but it would not be enough to foster political and/or religious pluralism, social cohesion, and respect for diversity. Furthermore, the extension of minimum requirements imposed by the government to avoid those risks would not be easy to design in practice.

A solution to those problems could be to restrict the competition for apical positions in autonomous schools to school managers previously selected by the government. This hypothesis is not as straightforward as it seems, given the many concerns about how to instruct and promote teachers to school managerial roles. However, it seems reasonable to imagine that only the best school managers (those with the highest chance to success) will run for elections in autonomous schools. Therefore, the potential inadequacy of some of the current school managers could be overcome. In any case, the problem of selecting the best school managers for future appointments would remain.

Even under this alternative, school managers who win an election with their program should be allowed to take advantage of the full autonomy granted to schools under the baseline scenario. In particular, they should be able to decide the school governance scheme, the educational offer, and to manage the school human resources in terms of personnel selection, salaries, and dismissals. In case this does not happen, then the effects of the reform would be substantially impaired.

In its attempt of avoiding an excessive cultural heterogeneity financed by public money, however this alternative entails an important downside: namely a constraint on market mechanisms in determining the best school management solutions. Governing a school is not an easy job. Today, very few school managers have developed the required administrative ability. Moreover, it is not clear what would be the best governance configuration. Perhaps each school is better administered in isolation, or perhaps there are economies of scale, making the possibility of aggregating multiple institutions under

the same managerial umbrella more attractive. In fact, it is likely that there is not a unique optimal solution, but the best option depends on each school and on context characteristics. An important positive by-product of the aforementioned English reform of GM schools has been the fostering of the endogenous emergence of a new class of professional school administrators. In addition, English schools assumed a great variety of dimensions and managerial configurations over time, sometimes quite different from the ones adopted right after the reform.

In conclusion, the option to allow access to apical positions just to today's school managers, excluding other possibly interested subjects, would entail the cost of a substantial restriction of the potential autonomy that schools could have when deciding to switch regime.

Electoral Body, Required Majorities for Transition, and Potential Role of Teachers in the Decision

Regardless of the choice of the individuals who can guide autonomous schools (either only current schools manager, or also boards of people internal or external to the school), there are other important alternatives to the baseline configuration. One of these is the definition of the eligible voters, and the majority required to switch to the regime of autonomy.

The baseline hypothesis of restricting the right to vote only to parents of actual students in the school may not be optimal. Consider for instance parents of students in their last year and those of children attending the last year of the previous educational cycle. On the one hand, it may well be that the latter are more interested than the former in the future choices of the school. On the other hand, the experience gained by the former could potentially make parents of students who have already been in the school for a long time more informed than parents of those who have yet to attend. Therefore, an extension of voting right to parents of future students should be assessed with great caution, given the clear tradeoff arising between the knowledge they have of the school and their real interest in its future activity. In light of this, it could make sense to allow all parents living in the community where a school operates to be registered as eligible voters, regardless of the fact that their children are enrolled in that particular school. The decision of external parents to register for the referendum will constitute a signal of their interest in the school, while parents of current students will be automatically entitled to cast their vote.

Under this alternative, the majority required to proceed with the transition should amount to at least half of the entitled voters, i.e. the registered parents (considering that parents of current students are automatically registered). Therefore, a possible external group interested in managing the school in opposition to current parents should be able to register a number of external parents larger than the pool of potentially opposing "internal" parents. This feature of the system gives internal parents some advantages, which seem to constitute a desirable situation.

It would instead be more complicated to design a system where teachers can also take part in the referendum. On the one hand, it could be desirable to have them voting, because any transition would

ultimately be successful only if a good number of teachers in the school is willing to accept the changes that the regime switch entails, and to contribute to the good functioning of the school under the new regime. Otherwise, new school managers would be required to dismiss a very large number of teachers, who potentially could oppose the reform and resist the change. On the other hand, it would not be desirable to have a group of low quality teachers blocking a transition that would likely lead to their exclusion from the school, implying a potential damage to them, but possibly a greater potential benefit to the school, and to students in particular.

A compromise between these possibly contrasting instances could be for teachers to be allowed to cast their vote on the various proposed Charters before the parents do. The result of this consultation would not be binding. It would just imply that the various groups of candidates for the administration of the autonomous school (either management boards or current school managers) should address teachers' concerns and explain during the campaign how they intend to deal with the possible opposition to the transition of (a part of) the school teaching staff. These clarifications from the candidate management would constitute an additional, important piece of information to guide the choice of parents in their ultimate decision in favor or against the transition.

An Alternative to Referenda in Particularly Disadvantaged Contexts

It could happen that families living in particularly disadvantaged areas would not have the interest in or the possibility of being adequately informed about the pros and cons of a transition to the new regime. This might happen especially during the initial implementation period of the reform, potentially preventing the adoption of the new managerial configuration in those situations where it could be more beneficial.

In those instances, it could perhaps be more desirable to abandon the "voting-based" scheme of GM schools in favor of the "contract-based" one of Charter schools. In particular, this would mean that whenever a committee or a school manager proposes a convincing Charter, but there exist reasonable doubts about parents not being interested in the regime switch or not willing to get informed, the proposal should be directly assessed by the public authority in charge of school evaluation and of parental information. The negotiation would take place directly between the authority and the committee or school manager, without the binding vote of students' parents.

School Monitoring and Financing

Autonomous schools in the baseline configuration of our proposal are initially financed with funds corresponding to their average expenses in the 5 years preceding the transition. Subsequently, funds are linked to the number of enrolled students, who individually provide a voucher to the school they attend. This setting crucially hinges upon the ability of families to select the best school for their children. This trust in family choices could lead to undesirable distortions, in case parents are not

prepared to play their role of ultimate judges of school performance and, in turn, of school funding, especially during the initial phase of the reform. First of all, the school evaluation and family information system (the crucial mechanism allowing parents' informed choices) would probably require some time to work efficiently. Secondly, it is likely that families would need some time to get acquainted with their new key role in the system.

These remarks lead to consider at least initially the option of avoiding the possibility to link autonomous schools financing exclusively to students' decisions. Instead, funding could be based on an assessment of school performance made by the authority in charge of school evaluation and of parental information in the baseline scenario.

Consider for instance a school with an average global annual cost of 100 in the 5 years prior to the transition. In the first year after the switch, the school receives an amount of public funds equal to 100, given that the necessary information on the performance of the newly autonomous school still does not exist. In the second year, instead, the government could transfer to the school just 50. The remaining part of the expenditure would be financed by the students who will choose the school, assuming that enrollment will keep constant with respect to the previous year. Specifically, the individual student voucher would be such that, if the number of student remained the same, the school would receive exactly 50. Clearly, the actual final amount of funds secured by each school would ultimately depend upon the number of students choosing that particular institution. Then, from the third year on, the share of direct public funds related to public performance evaluation could decrease to the desired level.

However, this alternative requires to specify the criteria for the evaluation of school performance, in order to determine (part of) the public funds. As we already discussed in Section 2, this link is difficult to be designed and calibrated because of the presence of likely contrasting objectives. For instance, if one considers the potential tradeoff between a reduction in the drop-out rate and an improvement of students' success in subsequent educational stages or in their professional career, then, an easily implementable option is the one followed by US Charter schools. Specifically, the school management (board or school manager) determines together with the relevant public agency the evaluation criteria to link the funds to. In this way, it is possible to perfectly align objectives for school managers with school characteristics and needs.

This alternative scenario, entailing a decreasing portion of funds directly related to a centralized evaluation of schools based on agreed criteria, presents a second important drawback. That is, a "time inconsistency" from the government perspective. Indeed, the government should be firm in gradually reducing its support to autonomous schools, even if they face difficulties related to the drop of the number of enrolled students. The more complex and gradual is the transition, the less credible is the government in its commitment to cutback funds not related to the number of enrolled students. A more straightforward scenario in which the financing mechanism changes once and for all after the transition would be substantially less exposed to this risk.

7 Why Our Proposal Can Help Improving the Situation of Italian Schools

Comparing Italian and international data, it is clear that only a radical reform of the school system can build the human capital that Italy desperately needs.

We are not claiming that our proposal would be a silver bullet that will solve this epochal problem. However, we think that the gradual and voluntary approach of our reform has many benefits. Indeed, the discretion it provides to individual schools in their decision of whether to adhere or not to the experimental reform could be the key to overcome the many different vetoes that are likely to be casted against a more general reform affecting indiscriminately the entire system. Irresolvable contrasts and endless confrontations have been preventing any major reforms of the Italian school system. This has led to the decline of the Italian school system. Only marginal and useless reforms were implemented (ranging from the introduction of school uniforms to the replacement of numerical scores with wordy assessments and vice versa). These have been coupled with interventions aiming at pleasing the most powerful lobbies, i.e. school trade unions, which are mainly interested in preserving their privileges and in increasing the number of teachers, without paying much attention to their quality (see for instance the recent experience of the *Tirocini formativi attivi speciali*).[16] Therefore, we believe that our proposal, based on a voluntary adoption of the reform and entailing a substantial degree of autonomy, could be the only way to introduce an experimental solution potentially able to block the decline of the Italian school system.

It is often said that most of the problems of the Italian education system could be miraculously solved with an increase in the budget devoted to schools. This solution is both unfeasible, given Italian public finance constraints, and ineffective.[17] What is really needed is a better allocation of current resources. Indeed, one of the main points of our proposal is precisely to try to spend public funds allotted to schools differently from the past, whatever their actual amount.

We believe that autonomous schools may attract, select, and reward higher quality teachers. Educators' human capital is the key ingredient in the success of any school system, as widely demonstrated in the empirical literature (see Section 2). Works by Chetty and others confirm this finding. In a 2011's paper,[18] they analyzed data on 2.5 billion of US children attending primary and lower secondary schools, following them up until their adulthood, and collecting information on their income once they started to work. In particular, they measured the added value of every teacher who got in contact with them, in terms of improvements in standardized test scores. After verifying that the teacher-student matching in the available sample could indeed be considered random on a series of many observable characteristics, the authors then show that students exposed to better teachers have higher probability of enrolling in better secondary schools, of going to college, of earning more once

[16] See Ichino (2013).
[17] See for instance Idee per la Crescita (2013), Chapter 2.5.
[18] Chetty, Friedman and Rockoff (2011).

they found a job, of living in areas with higher socio-economic status, and of saving more to pay for their pensions. In a second 2011's work, Chetty and other coauthors found similar effects for 11,571 children randomly matched with teachers within the Tennessee Project STAR experiment.

What has been done in Italy to improve teachers' quality? Nothing at all! The Italian school system lost its ability to attract the best graduates to the teaching profession many years ago, especially for scientific disciplines. Job market conditions changed, especially for women, who in the past were an important source of high quality graduates for Italian schools. In addition, there is no reward for the merit and great effort of those teachers who keep schools up and running, so their frustration grows as time goes by.

The strategy followed by the Italian government has been to offer low pays to a large number of teachers. Table 4 clearly shows how the student-teacher ratio in Italy is particularly low compared to the OECD average. This was true in 1999-2000, but also in 2009-2010.[19] Instruction time of students is also above the OECD average (see lower panel in Table 4). Nonetheless, results of Italian pupils in learning tests are worse than those of students in many other countries, as we already mentioned. Looking at this evidence, it seems natural to infer that among the very large pool of Italian teachers there are many whose quality, ability, and commitment is not as high as our country and students deserve.

Table 4 – Number of Teachers and Instruction Time[20]

Academic Year	**1999/2000**		**2009/2010**	
	Italy	**OECD Average**	**Italy**	**OECD Average**
Ratio of Students to Teaching Staff				
Pre-primary education	13	15.5	11.8	11.4
Primary education	11	17.7	11.3	15.8
Secondary education	10.3	14.3	12	13.8
Hours of Compulsory Education				
7-8 years old	*m*	*m*	891	774
9-11 years old	1 020	839	924	821
12-14 years old	1 020	935	1 023	899

Source: OECD *Education at a Glance* (2012).

Note: The number of teachers reported by our source (OECD, Education at a Glance) excludes special teachers for disabled students while it includes the ones teaching Catholic Religion (see footnote 19). Teaching ours in 2000 refer to public institutions only. "m" stands for missing value.

[19] Note that special teachers for disabled children are excluded from the calculation in Table 4 total, while Catholic Religion teachers are included. The former were about 11% of the total in 2010, and 8% in 2001. The latter were approximately 3% of the total both in 2010 and 2001 (data from the Italian Ministry (MIUR) publication "La Scuola in Cifre 2009-2010"). Therefore, even if one excludes Religion teachers and includes special education ones, the Italian ratio of students to teachers remains relatively low.

[20].

This is not surprising if one considers the data displayed in Table 5. They clearly attest that Italian teachers are paid substantially less than the OECD average (relative to per capita GDP). It is therefore unlikely that the best graduates would be attracted by those expected salaries, unless they are really motivated towards teaching regardless of pecuniary returns (luckily enough, there still are people of this kind).

Table 5 – Compensation and Working Hours of Italian Teachers

Academic Year	1999/2000		2009/2010	
	Italy	**Oecd Average**	**Italy**	**Oecd Average**
Yearly Earnings as a Ratio of per Capita GDP				
Primary School Teachers	1.02	1.23	1.09	1.23
Lower Secondary School Teachers	1.11	1.29	1.18	1.26
Upper Secondary School Teachers	1.15	1.34	1.22	1.33
Annual Working Hours per Teacher				
Primary School	748	792	770	782
Lower Secondary School	612	720	630	704
Upper Secondary School	612	648	630	658

Source: OECD, *Education at a Glance* (2012).

In fact, public competition for teacher positions (*Concorsi*) always draws a pool of candidates much larger than the number of available positions. And this happens despite the fact that, in order to become a teacher in Italy, one has to overcome a number of hindrances that go beyond the unattractive earning perspectives. Young teachers are expected to undergo a long initial period of temporary employment during which patience and endurance are more important than ability and merit, given that tenure positions are acquired thanks to seniority and not merit. In spite of this, there are always many young people willing to go through these hardships in order to become teachers in Italian schools. This may sound surprising, but it is in any case easy to imagine that those who are willing to do it are probably not the best Italian graduates on the job market.

As a matter of fact, it is likely that the worst graduates are attracted by a low-paying job, which, to tell the truth, does not actually require a substantial amount of effort. For instance, the lower panel in Table 5 shows that the number of annual teaching hours in Italy is lower than the corresponding OECD average for all levels of instruction. Therefore, analyzing all these data, one gets the impression that being a teacher in Italian schools is a job that, apart from low salaries and the initial temporary employment period, is perfect for anybody looking for a low-effort, risk-free job, guaranteeing a secure income for the entire working life of an individual.

It is of the uttermost importance to quickly change this unfair situation, in which teachers' efforts are penalized, while instructors who see their job as a source of easy rent are rewarded. The Italian

government has already clearly showed its inability to intervene in this respect. The aforementioned recent and regrettable experiences of the *Tirocini formativi attivi ordinari* and *Tirocini formativi attivi speciali* clearly attest it. Even under one of the best government in recent years, the centralized Italian teacher selection system proved to be too slow, complicated, and unsuitable to meet schools needs. In addition, selection continues to be based more on seniority of temporary contracts than on merit. The current system seems to be conceived more as a tool to create jobs influenced by trade unions, than as an instrument to improve the quality of the education offered to students.

Indeed, those bearing the highest cost of this malfunctioning are the children of disadvantaged families. They are more affected by low quality teachers because wealthy parents can easily find alternative ways to compensate their children's poor education, received at school. To be precise: the most macroscopic failure of the Italian school system is therefore its inability to provide the "equality of opportunity" which represents one of its declared Constitutional objectives, but which remains far from being reached in practice. Even if Checchi and his coauthors documented a secular increase in social intergenerational mobility, they concluded that: "*the relative disadvantage of children from poorer background has remained stable*". [21]

Given that the government has substantially failed to manage the Italian school system so far, it is time to allow other interested subjects willing to pursue this objective by following new and different ways.

8 Conclusions

Thanks to its experimental and voluntary nature, our proposal could overcome the resistance of people prejudicially against any increase of schools' autonomy. Its main objective is to give decision-making power to people with the best information and the best incentives to exercise it. In particular, these are the teachers, who will have to design educational offers that are attractive and valuable for the communities they serve, and the students with their families, who have needs that are far more diversified than the ones the Italian school is currently able to satisfy.

At the same time, this goal has to be reached without overlooking the need to preserve a role of control and funding for the public sector where this is necessary, especially as far as equity is concerned. Nonetheless, it is imperative to allow for a more effective and less distorted use of public resources.

Finally, we would like to mention two open issues that this paper did not address. First of all, evidence on GM and Charter schools experience seems to suggest that these kinds of schools yield better results in disadvantaged contexts, thus precisely where the largest margin of improvement is observed. This makes the increase of autonomy advocated by our proposal even more attractive.

[21] Checchi, Fiorio, and Leonardi (2012).

However, only an adequate initial experimental period will show whether our reform can produce positive effects going beyond the ones expected for schools and students in greater difficulty.

The second issue is related to the choice of adequate methods to attract the best graduates and to help them developing the teaching skills required in a school. In this respect, one could look at the English *Teachfirst* program. Its aim is well summarized by the following words: "*We train and support people with leadership potential to become inspirational teachers in schools in low income communities across the UK. These teachers change lives. They help young people believe in themselves, and empower them to build a future they may not have believed possible*." We consider this experience very instructive, and potentially worth considering also within the framework of our reform.

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