Center for American Progress

The Sheepskin Effect and Student Achievement

De-emphasizing the Role of Master's Degrees in Teacher Compensation

By Raegen Miller and Marguerite Roza July 2012

Beginning this year with its 2012 graduating class, the University of Notre Dame ended its practice of offering diplomas made of sheep's skin, a tradition that has all but disappeared except in some stubborn corners of academia.[1] But the tendency of employers to pay premiums to workers holding certain diplomas is thriving. This tendency, dubbed the sheepskin effect,[2] makes a labor market more efficient if those workers holding the sheepskin are indeed more productive than those without them.

Most certainly, the U.S. teacher labor market could be more efficient. Although teachers with master's degrees generally earn additional salary or stipends—the so-called "master's bump"—they are no more effective, on average, than their counterparts without master's degrees.[3] The more nuanced evidence suggests that master's degrees in math and science do confer an instructional advantage on teachers of those subjects, yet approximately 90 percent of the master's degrees held by teachers come from education programs that tend to be unrelated to or unconcerned with instructional efficacy.[4]

A few years ago we conducted a state-by-state analysis of the nation's investments in master's bumps. In that initial study we found that during the 2003-04 school year, nearly $8.6 billion was tied up nationwide in this form of teacher compensation.[5] Now we've updated our analysis with data from the 2007-08 school year, the most recent data available to support such work. (see Appendix) In just four years the nation's annual outlay for master's bumps surged by 72 percent to $14.8 billion. This increase, which outstripped inflation many times over during the same time period,[6] is music to the ears of those institutions of higher education that cater to teachers and their academic pursuits. But for the nation's primary and secondary schools, this increase strikes a discordant note and underscores the need to uncouple teacher compensation from the earning of advanced degrees.

The Center for American Progress and the Center on Reinventing Public Education have previously pointed out the potential advantages of more complex teacher compensation systems, in which higher pay goes to teachers in shortage subject areas, to effective teachers who support novices or tackle the most challenging assignments, and to teachers with extraordinary instructional impact.[7] This brief dissects the nation's sizeable investment in master's bumps as a means of highlighting policy obstacles to a more smartly differentiated compensation approach. We follow our recommendations with a look at some encouraging developments while at the same time deflating a canard currently misinforming reform debates. First, however, we re-examine conventional wisdom underlying the status quo in teacher compensation.

Outdated traditional teacher compensation

Nearly everything about schools in the United States—from the way they're funded to the way student achievement is measured—is complicated. The big exception is teacher compensation, which is uncomplicated, but not in a good way. Scores of school districts have taken strides toward sensibly differentiating teachers' pay, often with the catalytic support of philanthropies or the Teacher Incentive Fund,[8] a competitive federal program first funded by a 2006 appropriations bill. Yet most of the nation's school districts remain shackled to the traditional, simplistic salary schedule in which just two measures matter: years on the job and advanced degree attainment.

The first of the traditional drivers of teacher pay is longevity or time on the job. This tradition makes sense insofar as novice teachers face a steep learning curve and early-career teachers rising to the challenge should enjoy pay increases recognizing their success just as do their counterparts in other professions.[9] But teachers' performance, as measured by value-added estimates of their impact on student achievement, tends to flatten out after 6 to 10 years.[10] The tradition of experience-based salary increases for veteran teachers is, therefore, indifferent to student achievement.

Post-baccalaureate attainment is the other traditional driver of teacher pay, and stipends or salary differentials tied to master's and other advanced degrees play a prominent role in this context. Master's bumps absorb a much smaller share of compensation than experience-based differentials. This fact alone makes master's bumps the prong of traditional teacher compensation that is most amenable to reform—reform that is more than justified by the extensive literature documenting that master's degrees do not necessarily identify effective teachers.[11]

Yet at first blush it's still more than a bit counterintuitive that teachers holding a master's degree in education tend not to be especially good, relative to teachers without such credentials, at boosting student achievement. But there's no mystery to this consistent

research finding when one considers the substance and standards of many teacher education programs and the general academic skills of the teachers enrolled in those programs.[12]

Instructional efficacy is not the focus of many master's degree programs in education. Approximately 10 percent of the master's degrees held by teachers are geared toward educational administration.[13] Further, some master's programs double as teacher education programs with curricula that are a "confusing patchwork" lacking in rigor and often absent coursework that a reasonable person might imagine fundamental.[14] The National Council on Teacher Quality found, for example, that only 15 percent of the education schools in a representative sample provided prospective teachers with even minimal exposure to the science of reading.[15]

In fairness, this finding pertains mainly to the undergraduate education programs that prepare approximately 70 percent of the country's elementary school teachers.[16] Yet this fact highlights another explanation for the impotency of master's degrees in education. The undergraduate education major is a consciously unselective course of study,[17] a reality reflected in the low bars set by state licensure examinations.[18] And while aspiring secondary teachers have SAT scores that are around average for college seniors and recent graduates, the test scores of newly minted elementary teachers' lag by nearly 100 points.[19] Perhaps most importantly, given teaching's difficulty and gravity, only 23 percent of teachers come from the top third of their graduating class.[20]

Poor rate of return on master's bumps

Not only does the annual outlay for master's bumps inflate demand for master's degrees, it understates the full financial and social cost of this traditional facet of teacher compensation in the following three ways:

- First, the extra cost is a lost opportunity. The billions of dollars tied up in master's bumps are not available for compensation vehicles better aligned with a school district's strategic goals such as improving student achievement.

- Second, some school districts offer tuition reimbursement to teachers pursuing a master's degree.[21]

- Third, many teachers leave the classroom years before earning enough additional compensation by way of master's bumps to pay down loans or defray other expenses associated with their efforts to earn a master's degree.

At this point it seems both fair and important to investigate ways to mitigate the costs of master's bumps, falling as they do on students, school districts, and teachers. A state-by-state breakdown of the main cost—the master's bumps themselves—helps point the way.

Table 1 shows by individual state and the District of Columbia the average master's bump during the 2007-08 school year, total of current expenditures devoted to this form of compensation, and what these expenditures mean on a per-pupil basis. These dollar amounts allow officials and policymakers from a given state to gauge their investment in master's bumps relative to the state's other spending figures—in education or for other public services—for the 2007-08 school year.

States' and the District of Columbia's average "master's bump" teacher pay increase, total expenditures on such compensation, and expenditure per pupil linked to the "master's bump" for the 2007-08 school year in dollars

State	Average master's bump in dollars	Total funds tied up in master's bump in dollars	Expenditures per pupil tied up in bump in dollars
Alabama	6,030	178,895,561	240
Alaska	4,840	17,152,272	131
Arizona	3,040	102,929,789	95
Arkansas	3,970	58,803,479	123
California	5,890	863,154,237	136
Colorado	8,010	229,226,490	286
Connecticut	5,906	239,265,948	419
Delaware	6,230	31,866,301	260
District of Columbia	11,280	29,101,443	371
Florida	2,850	197,352,532	74
Georgia	6,880	513,017,279	311
Hawaii	4,524	30,702,812	171
Idaho	3,730	20,530,723	75
Illinois	11,910	941,356,284	446
Indiana	3,830	164,031,621	157
Iowa	4,160	66,297,572	137
Kansas	5,520	97,691,014	209
Kentucky	4,570	160,628,861	241
Louisiana	4,810	64,975,475	95
Maine	2,940	23,865,079	122
Maryland	2,080	71,460,647	84
Massachusetts	4,890	272,796,897	283
Michigan	7,600	468,845,456	277
Minnesota	10,090	377,087,017	450
Mississippi	4,800	73,938,605	150
Missouri	6,180	239,221,776	261
Montana	7,340	34,688,217	243
Nebraska	3,290	35,750,582	123
Nevada	5,810	80,444,533	187
New Hampshire	4,890	43,110,192	215

New Jersey	5,090	280,318,122	203
New Mexico	4,590	48,960,564	149
New York	7,426	1,493,627,786	540
North Carolina	5,020	170,569,896	115
North Dakota	8,550	24,270,562	255
Ohio	8,760	801,281,161	439
Oklahoma	2,460	38,277,952	60
Oregon	2,450	48,922,436	86
Pennsylvania	7,220	540,618,348	300
Rhode Island	8,500	62,244,776	422
South Carolina	5,320	154,187,168	216
South Dakota	5,250	18,483,967	152
Tennessee	2,720	100,583,796	104
Texas	3,390	345,557,328	74
Utah	2,010	21,295,794	37
Vermont	6,440	37,813,798	402
Virginia	3,290	131,950,610	107
Washington	5,000	199,381,622	194
West Virginia	3,050	42,269,732	150
Wisconsin	5,990	231,837,898	265
Wyoming	5,050	17,645,951	204
Total			**$14,820,002,451**

Source: Authors' computations using data from: National Center for Education Statistics, *2007-08 Schools and Staffing Survey* (Department of Education, 2009).

The figures in Table 1 are not suitable for comparison between states or for assessing statistical relationships among them because the costs of providing public education, especially prevailing wages, vary substantially.

Table 2 shows the average master's bump and the statewide per-pupil expenditure in terms of cost-adjusted dollars. The remaining measures, inherently comparable, include the percentage of total education expenditures devoted to additional compensation for master's degrees, and the percentage of teachers holding a master's degree or higher.

Cost-adjusted dollar amounts and percentages characterizing states' devotion to master's degrees for teachers

State	Average master's bump in cost-adjusted dollars*	Per-pupil expenditure for master's bumps in cost-adjusted dollars*	Percentage of total education expenditures devoted to master's bumps	Percentage of teachers with master's or above
Alabama	6,591	263	2.6	56
Alaska	4,959	134	0.9	44
Arizona	3,150	98	1.2	51
Arkansas	4,543	140	1.4	41
California	5,130	119	1.4	47
Colorado	8,112	290	3.1	57
Connecticut	5,285	375	2.9	81
Delaware	5,853	244	2.1	62
District of Columbia	8,793	289	2.3	59
Florida	2,945	76	0.8	39
Georgia	6,729	304	3.2	61
Hawaii	4,579	173	1.4	53
Idaho	4,321	87	1.1	34
Illinois	10,859	406	4.3	55
Indiana	4,180	171	1.8	63
Iowa	4,757	156	1.5	40
Kansas	6,320	239	2.1	47
Kentucky	5,019	265	2.8	79
Louisiana	5,199	103	1.0	28
Maine	3,368	139	1.0	46
Maryland	1,816	74	0.6	57
Massachusetts	4,359	253	2.1	69
Michigan	7,691	280	2.7	63
Minnesota	10,144	453	4.5	58
Mississippi	5,399	168	1.9	43
Missouri	6,610	279	2.8	53
Montana	9,161	303	2.5	37
Nebraska	3,820	143	1.2	47
Nevada	5,555	179	2.3	59
New Hampshire	5,054	222	1.8	51
New Jersey	4,348	173	1.2	44
New Mexico	4,950	160	1.6	47
New York	6,352	462	3.2	88
North Carolina	5,148	117	1.5	35
North Dakota	10,077	301	2.7	32
Ohio	8,855	443	4.2	68
Oklahoma	2,835	69	0.8	33
Oregon	2,585	91	0.9	63

Pennsylvania	7,151	297	2.6	55
Rhode Island	8,133	403	2.9	55
South Carolina	5,695	232	2.4	59
South Dakota	6,537	189	1.8	33
Tennessee	2,864	110	1.3	55
Texas	3,300	72	0.9	30
Utah	2,110	39	0.6	39
Vermont	7,223	451	2.8	57
Virginia	2,913	95	1.0	43
Washington	4,649	180	2.1	69
West Virginia	3,435	168	1.5	61
Wisconsin	6,146	272	2.5	55
Wyoming	5,730	232	1.5	44

* Cost adjustment made using 2008 state version of the Comparable Wage Index, or CWI, created by Lori Taylor, Bush School of Government and Public Service, Texas A&M University. The 2008 Comparable Wage Index is neither published nor endorsed by the National Center for Education Statistics, but the methodology underlying it is that of the 1997–2004 versions of the Comparable Wage Index that were published by the National Center for Education Statistics.[21]

Source: Authors' computations using data from: National Center for Education Statistics, *2007-08 Schools and Staffing Survey* (Department of Education, 2009).

So what do we make of all this? First, there is a strong relationship between the average master's bump and the share of expenditures directed toward them.[23] This relationship is no surprise because master's stipends and salary differentials are fundamental cost drivers at the district level—one would need master's bump information to predict expenditures. Yet the share of expenditures tied to master's degrees is almost never the starting point or even on the table during conversations about altering compensation systems. In an era of especially scarce resources, it is certainly a discussion worth having.

The per-pupil expenditure figures represent another potent, though still exotic, way of portraying states' compensation priorities. Moreover, the tremendous range in values—$39 per pupil tied to the master's bump in Utah to $462 in New York—offers a gauge of the differences between states' teacher labor markets. In particular, the expenditure-per-pupil range reflects the drastically different probabilities of Louisiana and New York students being taught by a teacher with a master's degree.

These probabilities, represented by the percentage of teachers with a master's or above, cut close to policies shaping traditional teacher compensation. Casual economic thinking might lead one to imagine a strong statistical relationship between the size of the typical master's bump in a state and the percentage of teachers being compensated in this way. This is not the case as the following examples illustrate.[24]

The top five states in terms of the percentage of teachers holding master's degrees are New York (88 percent), Connecticut (81 percent), Kentucky (79 percent), Massachusetts (69 percent), and Washington (69 percent), yet their average master's bumps fall between $4,649 and $6,352, in the middle of the pack. Meanwhile, Montana and North Dakota have two of the lowest percentages of teachers holding advanced

degrees (37 percent and 32 percent, respectively) while boasting master's bumps among the highest five in the country—$9,161 for Montana and $10,077 for North Dakota.

State policies that matter

Two state-level policies have more to do with the percentage of teachers holding a master's degree than does the average pay differential tied to the degree. Eight states make holding an advanced degree a condition for receiving a professional license, as opposed to a probationary or provisional one, and 16 states require employers to pay teachers more if they hold advanced degrees.

Table 3 showcases the states espousing either of these policies, in descending order by the percentage of teachers with advanced degrees. Among these states, the average percentage of teachers with an advanced degree is 57 percent; among those with neither policy, it's 48 percent.

States with policies that promote teachers' acquisition of master's degrees

State	Require extra pay for advanced degree	Require advanced degree for full professional license	Percentage of teachers with advanced degree
New York		✓	88
Connecticut		✓	81
Kentucky	✓	✓	79
Washington	✓		69
Ohio	✓		68
Oregon		✓	63
Michigan		✓	63
Delaware	✓		62
Georgia	✓		61
West Virginia	✓		61
South Carolina	✓		59
Maryland		✓	57
Alabama	✓		56
Tennessee	✓		55
Illinois	✓		55
Hawaii	✓		53
Mississippi	✓	✓	43
Arkansas	✓		41
Montana		✓	37
North Carolina	✓		35
Oklahoma	✓		33
Louisiana	✓		28
Total	**16**	**8**	

Source: National Council on Teacher Quality, "2011 State Teacher Policy Yearbook" (2012), available at http://www.nctq.org/stpy11Home.do.

The policy perspective certainly makes it easier to understand why teachers in states such as Maryland and Tennessee have advanced degrees more often than not despite their states' relatively low spending for master's bumps. At the microeconomic level, where individual teachers weigh their options, the magnitude of financial incentives tied to a master's degree clearly matters, but these state policies matter too. This brings us to our policy recommendations.

Make master's programs compete on merit

Certainly it is true that prospective teachers with a bachelor's degree need some additional specific preparation for teaching. Likewise, those experienced teachers remaining in the profession need feedback on their performance and opportunities to improve their practice. And arguably, master's degrees may have a role to play in those instances, but state policymakers should dispense with policies that mandate differential pay for teachers with advanced degrees or that make advanced degrees a requirement for remaining in the profession. These policies heed a conventional wisdom that's oblivious to strategic concerns around bolstering the quality of the teacher workforce, improving student outcomes overall, and closing achievement gaps between groups of students defined by ethnicity or economic status.

These changes alone may not have a huge or immediate impact on teacher compensation systems, but they will enable local policymakers to begin de-emphasizing a traditional driver of teacher compensation—the advanced degree. The master's bump in many school districts takes the form of an annual stipend sitting on top of a teacher's salary. Rather than increasing such stipends in conjunction with cost of living increases to salary, which is a common practice, districts could and should avoid directing new resources toward them.

In other districts the master's bump has penetrated the salary schedule. Merging the salary columns for teachers with and without master's degrees in some type of buyout approach would likely be cost prohibitive or simply imprudent. It may be possible, however, for districts to create different salary schedules for new teaching hires that are neutral with respect to master's degrees while grandfathering the master's bumps of existing teachers.

Undoubtedly, moves to de-emphasize the role of master's degrees in teacher compensation will run into opposition. A hollow but fashionable argument in support of master's degrees arises from international comparisons used to inform current debates about education reform. Let's turn to this argument now.

"Finland-topia"

All teachers in Finland have a master's degree, and they get extraordinary results from their students. If we want better results in U.S. schools, then, we should require teachers to have a master's degree, so the argument goes.

But this argument has two fatal flaws. First, teachers in Finland hail from the top 10 percent of their graduating class.[25] This selectivity is woven into a set of policies that Linda Darling-Hammond, a professor at Stanford University, has astutely described as a "teaching and learning system."[26] The Finnish system could scarcely be more different than our domestic grab bag of policies arising from approximately 15,000 separate school districts carrying out their responsibility to provide public education, variously conceived by the diverse states of a country with an unmatched tolerance, at least among wealthy industrialized nations, for inequity in school funding and facilities.

Secondly, Finnish teachers hold master's degrees that augment their knowledge and skills in a way that's deliberately connected to their instructional challenges. Secondary teachers earn a master's in the subject of instruction, and the master's degree required of elementary teachers equips them with specialized knowledge and skills often found only among special education teachers and school psychologists in U.S. schools. Thus, holding master's degrees means Finnish teachers either have a serious grasp on academic content or are well equipped to problem solve around the individual learning needs of their students.

The typical master's degree held by a U.S. teacher and the associated skills attached pale in comparison. Moreover, it's unlikely to move in this direction barring a tectonic shift in the higher-education landscape. Institutions of higher education, of course, won't be at the vanguard of efforts to repeal legislation that inflates demand for one of their most lucrative products—master's degrees in education. In addition, it bears mentioning, for example, that Connecticut's requirement that teachers seeking a professional license hold a master's degree was unscathed by recent reform-conscious legislation in that state.

Hopeful signs

Schools of education, many reeling from the effects of the economic recession, can proactively begin tuning themselves up to compete for the tuition dollars of teachers and would-be teachers. This would certainly be smart business, particularly if the writing is indeed on the wall for licensure rules and traditional compensation that favor master's degrees irrespective of their strategic merit.

The confluence of two movements shows that many schools of education are at least taking note. The first movement revolves around the idea of performance assessment.[27] Consortia of education schools have begun taking stock of their master's candidates' actual performance with respect to standards describing effective teaching practice. Performance assessment schemes at some schools may not pay quite enough attention to student achievement for some tastes, but the Relay Graduate School of Education in New York City is pushing the performance assessment envelope.[28] Those teachers earning a master's degree from Relay must demonstrate at least a year's worth of academic growth in their students where this can be measured using test scores or in 70 percent mastery of academic standards, in other cases.[29]

The second movement is the overhaul of school districts' practices around performance evaluation of their largest employee group—teachers. This movement, propelled by competitive federal grant programs such as Race to the Top, faces all manner of implementation challenges, but states and districts should wind up with useful data systems and much improved practices around teacher evaluation. Of course, they couldn't do worse than the infamous status quo in which 99 percent of teachers receive satisfactory marks.[30]

Those teachers seeking master's degrees should have access to appropriately aggregated information about performance assessment results of past candidates and performance evaluation results of graduates. Such information would enable teachers and prospective teachers to select programs to optimize their chances of securing pay differentials tied to performance or the difficulty of their assignments. Louisiana remains in the lead among states in developing a system of accountability for teacher preparation programs[31]—a promising policy vehicle for creating a marketplace for information about program efficacy.

A broad imperative for master's bump divestment

An independent taskforce report published recently by the Council on Foreign Relations warns, "Educational failure puts the United States' future economic prosperity, global position, and physical safety at risk."[32] Failure in the form of inadequate student achievement and achievement gaps, of course, has many causes, but traditional teacher compensation systems are undeniably part of the problem. Teachers are the most important school-based resource affecting student achievement,[33] and the lion's share of school spending goes toward the financial compensation for teachers.[34]

Policymakers wishing to take steps toward smartly differentiated compensation for teachers have to start somewhere. Divesting in master's bumps by following the discrete recommendations we've offered may be one of the easier places to start. The disconnect between the goal of improving student achievement and the tradition of paying teachers extra simply for holding post-baccalaureate sheepskin certainly makes doing so strategically defensible.

Appendix

This analysis used data from the 2007-08 Schools and Staffing Survey from the National Center for Education Statistics that provided state-by-state figures for both the percentage of teachers with master's degrees and the average salary of teachers at each degree level (bachelor's or below, master's, etc.) for given years of longevity. This analysis used these data to compute the average percentage salary increase awarded for education credits earned beyond a bachelor's degree. The analysis then applied the percentage increases to the more recent state-by-state average salary figures and total number of teachers from the National Educators Association's 2008-09 Salary Survey in order to compute the dollar value of the master's bump in each state.

As reported here, the dollar increase on the salary for a master's degree is the average difference between the salary for a teacher with a bachelor's degree (with no extra credits) and the salary for a teacher with a master's degree for a given experience level. In other words, this bump includes all salary increments for credits earned for any level of education beyond the bachelor's degree. Finally, these salary bumps do not include any amounts districts spent on subsidizing teachers' costs for earning higher degrees.

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Endnotes

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