

Teacher Demand And Supply In The Mid-Atlantic Region

prepared for the

Mid-Atlantic Regional Teachers Project (MARTP)

by

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Executive Summary

- The teaching profession is governed by a complex set of rules and regulations. The governance of the profession hinders the natural forces of demand and supply, leading to an undersupply of teachers and an underpayment of teaching professionals.
- The teaching profession's compensation system emphasizes equity. Teacher compensation is based on education and years of experience. Little consideration is given to performance or productivity. There is no acknowledgement of demand and supply of teachers by geography or subject area.
- Full license reciprocity does not exist between states. This limits the portability of a teacher's skills and experience. Teachers relocating to other states are typically required to take additional courses before being awarded a teacher certificate, and often are granted only partial credit for their years of out-of-state experience.
- The implementation of educational standards by many states is tantamount to expected productivity gains without additional compensation. Moreover, teachers are increasingly asked to teach outside of their field of expertise, which diminishes the effectiveness of their instruction.
- The Mid-Atlantic student population will experience flat growth to 2015. Thereafter, the student population will grow at an accelerated pace. The Caucasian student population will fall over the next twenty-five years. Conversely, the African American student population will steadily grow in number over the period, adding 600,000 students. Other race student population will exhibit the most growth. This group numbered one million in 2000, by 2025 these ranks will have grown by more than three-quarters of a million.
- The Caucasian student population will see its share of the Mid-Atlantic fall from 70% to 63% in the next 15 years. The African American and Other race student populations will both gain in their share of the region's students.

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- The employment rate among college graduates is near 2%. The competition for these workers has heightened during the recent expansion, creating an ‘employee’s market’ for jobs.
 - The average age of Mid-Atlantic teachers falls between 40 and 49 years old: the Baby Boom generation being a significant proportion of the teaching workforce. There is evidence to suggest that fewer workforce entrants are electing to teach.
 - The teaching workforce is predominantly Caucasian, female, and married. Two-thirds of teachers live in dual-income households. This has implications for teacher pay. In dual-income households, the income of one wage earner is less critical than in a single-income household. This affords the dual-income householder the luxury of accepting lower paying employment. For a single-income family, earnings become critical to the employment decision. With single-income families on the rise, the workforce will become more concerned with compensation, to the extent that the teaching profession must ensure that it is offering a wage that is economically viable.
 - Teacher salaries are losing ground relative to private sector employment. Teacher salaries grew 27% during the nineties, compared to 41% for private service producers, and 50% for finance employers. Therefore, the teacher/private sector income gap is widening.
 - The income gap fluctuates depending on a worker’s field. For a math graduate, the income gap between a math teacher and a private sector alternative, e.g. engineer, could be considerable. This is the ‘teaching penalty,’ the cost associated with choosing to teach measured in the wages foregone in the private sector.
 - Based on the current labor force trends, the supply of teachers will fall by four percent over the next fifteen years. This, coupled with flat growth in the student population over the same period, suggests that pressure exerted on the market will come first on the supply side. After 2015, the growth of the student population will begin to accelerate, exacerbating the teacher shortage.

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- The attrition rate among teachers is 50% in the first five years of employment and 20% for all teachers.
 - Reducing some of the regulations that surround the profession may serve to increase supply. Limited reciprocity of licenses and the non-portability of pensions hamper the decision to enter the profession.
 - Raising teacher pay to help close the income gap with private pay could bring more workers into the teaching profession. Other incentives such as student loan forgiveness for teachers entering critical shortage areas, affordable housing, ‘career switcher’ programs, and allowing retired teachers to continue to teach with no loss of benefits, are all actions that potentially can increase teacher supply.

Introduction

The purpose of this paper is to examine the market for teachers from an economic perspective. The study will consider the demand and supply elements of the market for teachers. Teacher demand relates to the size and composition of the student population. Teacher supply relates to the decision of workers to enter (and remain) in the teaching profession.

The motivation for the study is the belief that current hiring and employment practices within the teaching profession are deterring potential teachers. The high turnover rate for teachers is a testament that there are forces driving people away from the classroom. The hiring and retention of quality teaching staff is vital to the health of the education system.

There is a generation of teachers that will reach their retirement age over the next ten years. The number of potential retirees heightens the need to hire and retain teaching staff in greater numbers.

This report is organized in the following manner: first, a background to the economics of markets is presented, followed by a review of the current state of the teaching profession. This leads into a section on the profile of teachers. Second, the report analyses the demand side: the student population projections. Last, the supply side is then discussed, followed by some projections of teacher supply, and some final observations about the study's findings.

Markets

The study of markets is one of the fundamental interests of economics. The behavior of markets explains both what goods and services are produced as well as their prices.

A market is a mechanism that brings together buyers and sellers. It is the interaction of these two agents that determines the price of the product, service, or resource. Usually, we think of ourselves as buyers: buyers of houses, buyers of cars, etc. Here, we are considering the product or service market. As sellers, businesses form the other side of the equation. Sellers strive to receive the highest price for their product or service.

In labor markets, the roles of people and businesses are reversed: people are the suppliers of time, skill and talent, and businesses are the buyers. Businesses compete with each other for employees, and people compete for jobs. This is how a free market works—the relative interaction of demand and supply of labor determines price and quantity - with little regulation or intervention distorting the market.

The market for teachers operates differently from that of a free market in a number of ways. First, the market for teachers is governed by a complex set of rules. These rules and regulations differ by geography as each state governs the teaching profession with its own set of practices.

Second, pay (the price of labor) is not determined by demand and supply. Rather, the teaching profession emphasizes equity over rewarding performance. Teachers' wages are based only on length of service and level of education. Few pay incentives exist for productivity. Moreover, the inception of greater accountability of schools and teachers is tantamount to demanding productivity gains without according compensation.

Third, there are significant barriers to entry into the market for teachers. Each state has its own set of licensure requirements. The result is limited reciprocity among state departments of education, as teachers cannot readily move between states without being

required to take additional courses to qualify for the new state's teaching certificate. This non-transferability of licenses creates a disincentive to enter the profession. Moreover, teacher pensions non-portable between states, which essentially ties a teacher to one particular state if they wish to retain their pension. Compare this to private industry or even higher education where 401(k) or 403(b) plans allow workers to take their pensions with them when changing employers.

Forth, teaching pay and benefits are low compared with other occupations. In private industry, college graduates can significantly out-earn their teaching counterparts. This raises the opportunity cost-- the cost of entering teaching measure in foregone wages of alternative occupations-- and creates a further disincentive to enter the profession. Moreover, the teaching/private income gap varies significantly by field and geography. The demand for science graduates is high in both the private sector and in the teaching profession. However, the teaching professions fails to acknowledge the high demand for these workers vis-à-vis works of other subject areas, and therefore does not offer a competitive wage.

Fifth, the market for teachers is further mired with poor bureaucratic practices. Late budget decisions, and unnecessary slow hiring personnel practices, conspire to turn workers away from the profession.

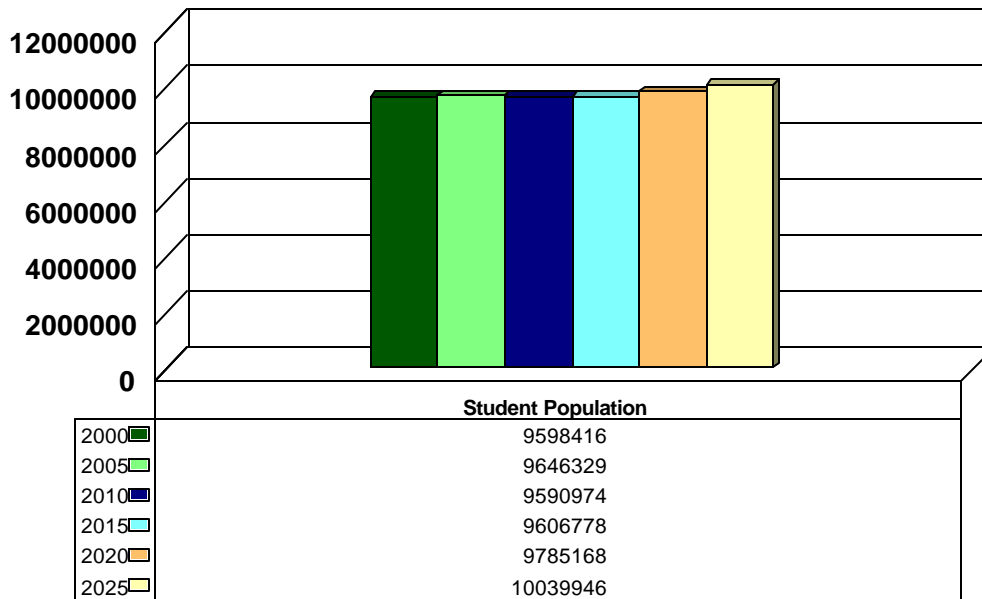
To summarize, there is limited recognition of demand and supply in the market for teachers either by field or geography, and the current practices distort the market for teachers, which hinder the growth of the supply of teachers.

Student Population

This section considers the size and composition of the Mid-Atlantic student population. The student population is the demand component of the teaching market—the more students, the greater the need for teachers.

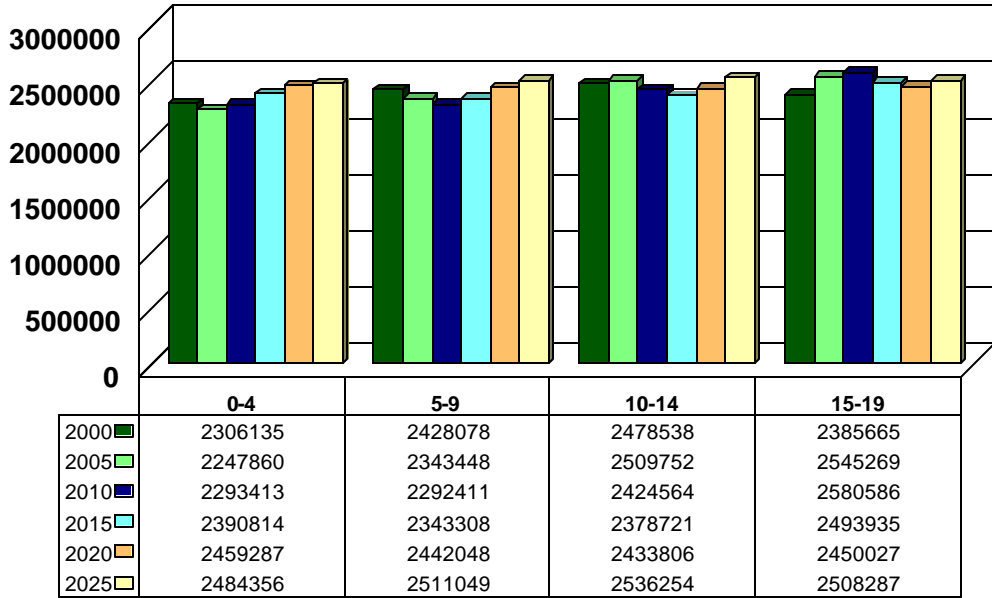
In 2000, there are 9.6 million children aged 19 years or younger in the Mid-Atlantic region. The growth of the total student population will be small over the next fifteen years. Between 2000 and 2005, growth will be an anemic 0.5%, and –0.6% between 2005 and 2010. However, growth will accelerate after 2015. The Mid-Atlantic student population will grow at 1.9% between 2015 and 2020 and 2.6% between 2020 and 2025. By 2025, the number of school age persons will be more than 10 million.

**Figure 1: Mid-Atlantic Student Population
2000-2025**



Source: Center for Applied Demography and Survey Research, University of Delaware

**Figure 2: Mid-Atlantic Student Population
By Age Group, 2000-2025**

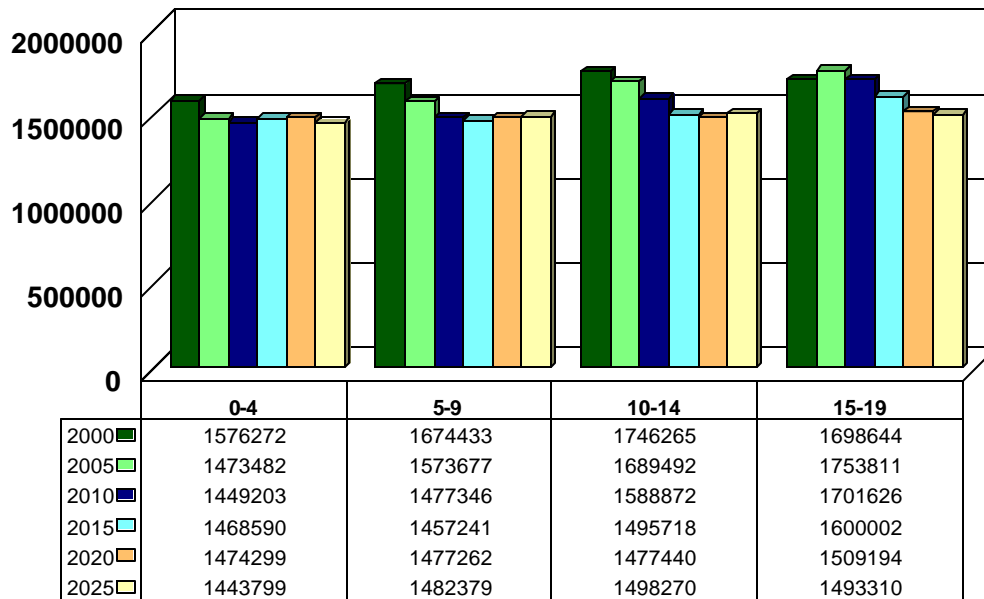


Source: Center for Applied Demography and Survey Research, University of Delaware

Mid-Atlantic student population by age group is presented in figure 2 above. The student population is relatively evenly distributed across the four age groups. And while the absolute number of students will rise between 2000 and 2025, the distribution will not change significantly.

Analyzing the student population by race reveals some distinct and divergent trends that are masked in the aggregate numbers. The Caucasian student population is the single largest race group: one in three students in the Mid-Atlantic is Caucasian.

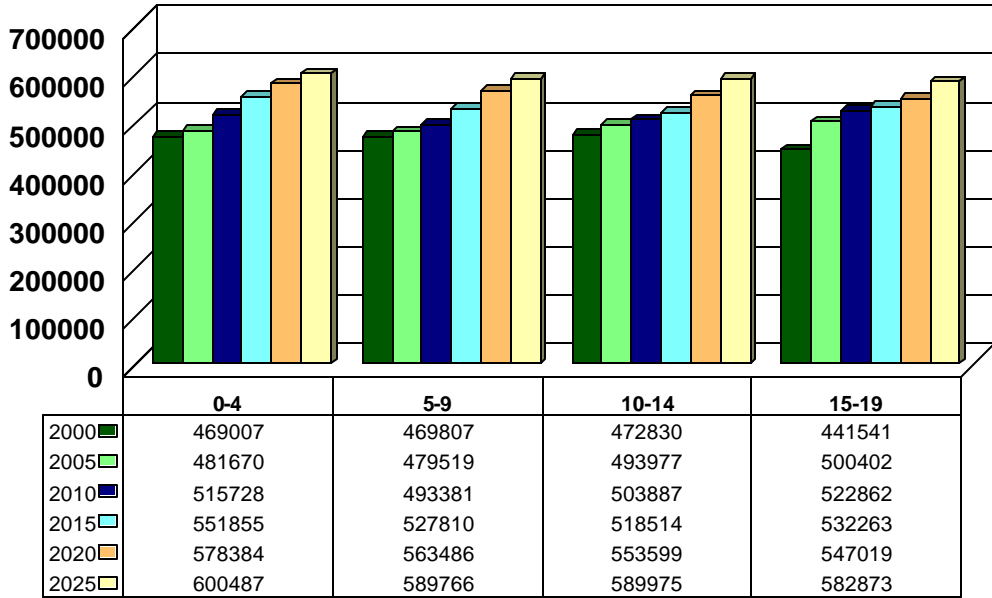
**Figure 3: Mid-Atlantic Student Population of Caucasian Race
By Age Group, 2000-2025**



Source: Center for Applied Demography and Survey Research, University of Delaware

However, the Caucasian student population is falling over time. The Caucasian student population presently numbers 6.7 million. This number will fall steadily over time: there will be 6.5 million Caucasian students by 2005, and fewer than 6 million by 2020.

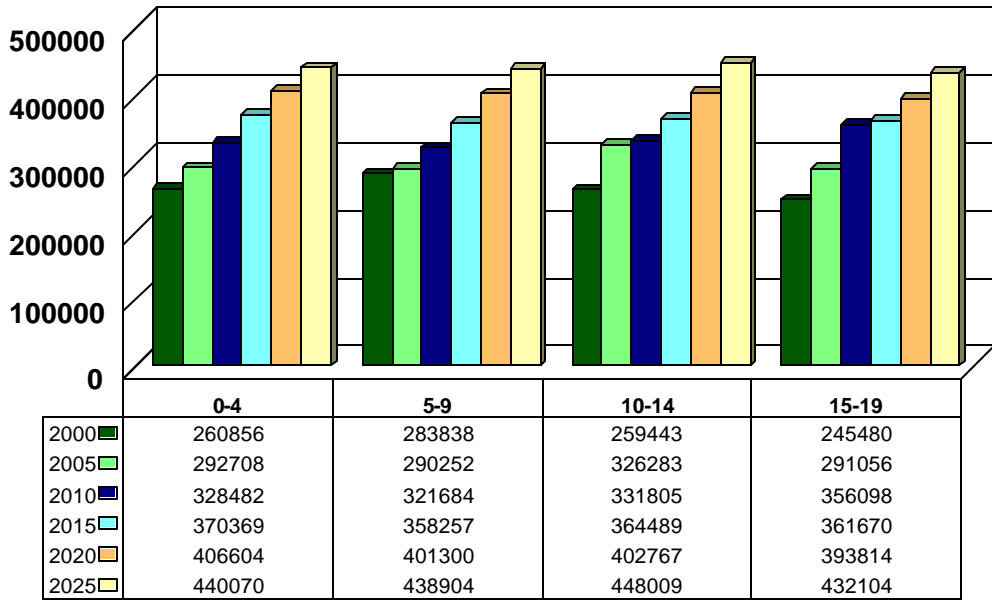
**Figure 4: Mid-Atlantic Student Population of African American Race
By Age Group, 2000-2025**



Source: Center for Applied Demography and Survey Research, University of Delaware

Conversely to the Caucasian trends, the African American student population will grow over time. There are 1.8 million African American students in 2000. This number will grow to 2 million by 2010, and 2.4 million by 2015.

**Figure 5: Mid-Atlantic Student Population of Other Race
By Age Group, 2000-2025**

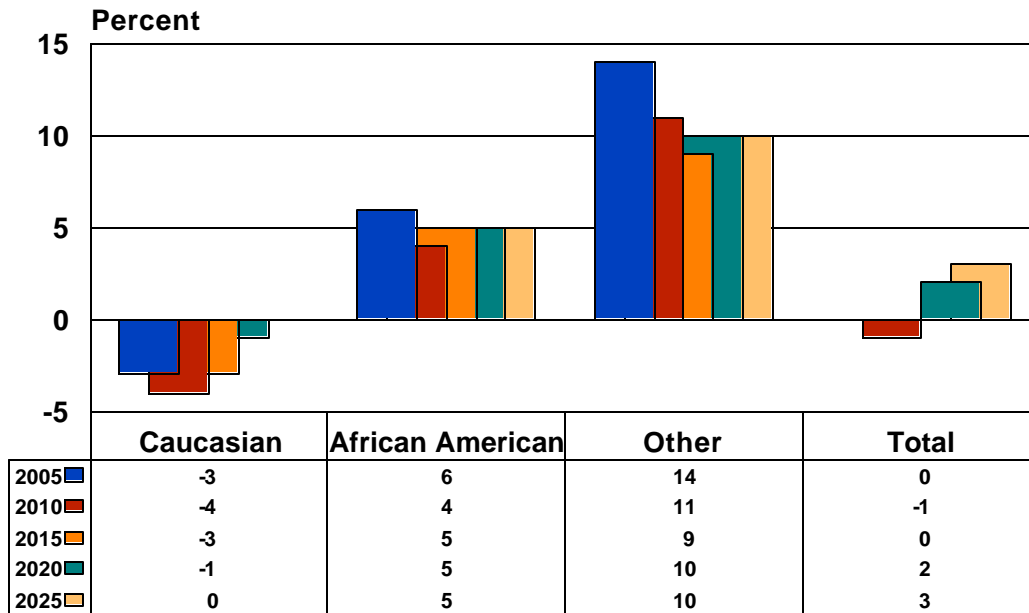


Source: Center for Applied Demography and Survey Research, University of Delaware

The student population of other races is the fastest growing group over the next 25 years. This group will add three quarters of a million students by 2025.

The disparate growth rates of the student populations are illustrated below.

**Figure 6: Mid-Atlantic Student Population Growth
2000-2025**



Source: Center for Applied Demography and Survey Research, University of Delaware

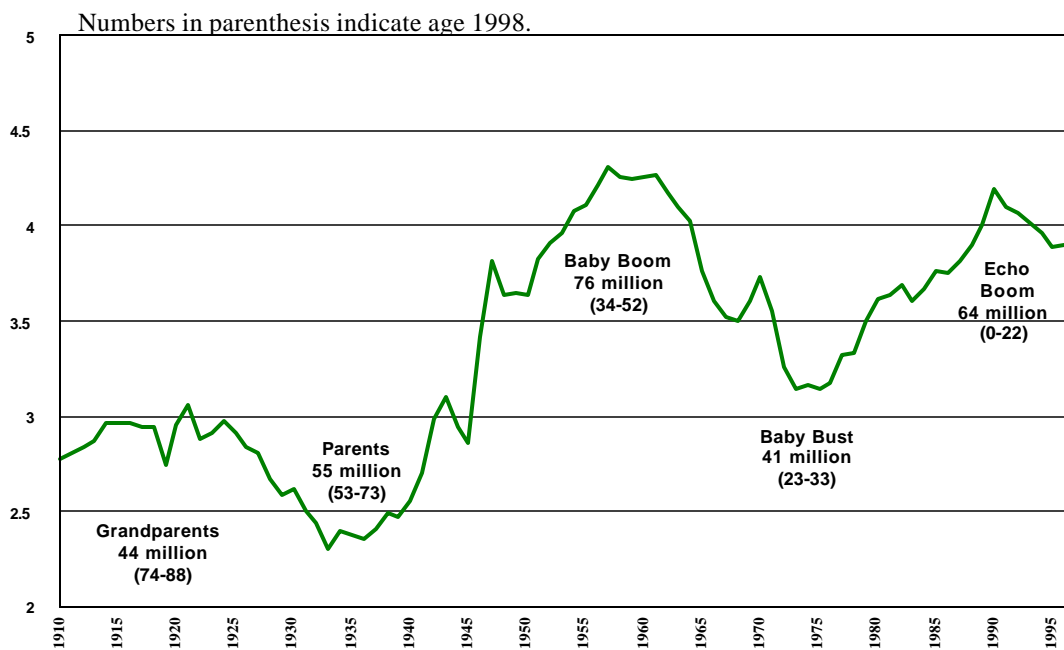
The Caucasian student population is mired in negative growth over the next twenty years. This is a function of declining birth rates amongst this racial group. The African American student population will average five percent growth per five years. The other race group will grow ten percent on average during each of the next five-year intervals. Collectively, the size of the student population will stagnate for the next fifteen years, but will accelerate thereafter.

Profile of Mid-Atlantic Teachers

This section builds a profile of Mid-Atlantic teachers. By understanding which types of workers are or are not teaching, we can better draw inferences about what characteristics make people choose to teach. The decision of workers to enter the teaching profession constitutes the supply side of the market for teachers.

Any discussion of labor markets should start with an overview of the work force trends. Such an overview gives context to the discussion of the individual labor market, in this case the market for teachers, and provides an understanding of what forces are influencing the supply of workers.

Figure 7: U.S. Live Births, 1910-1999



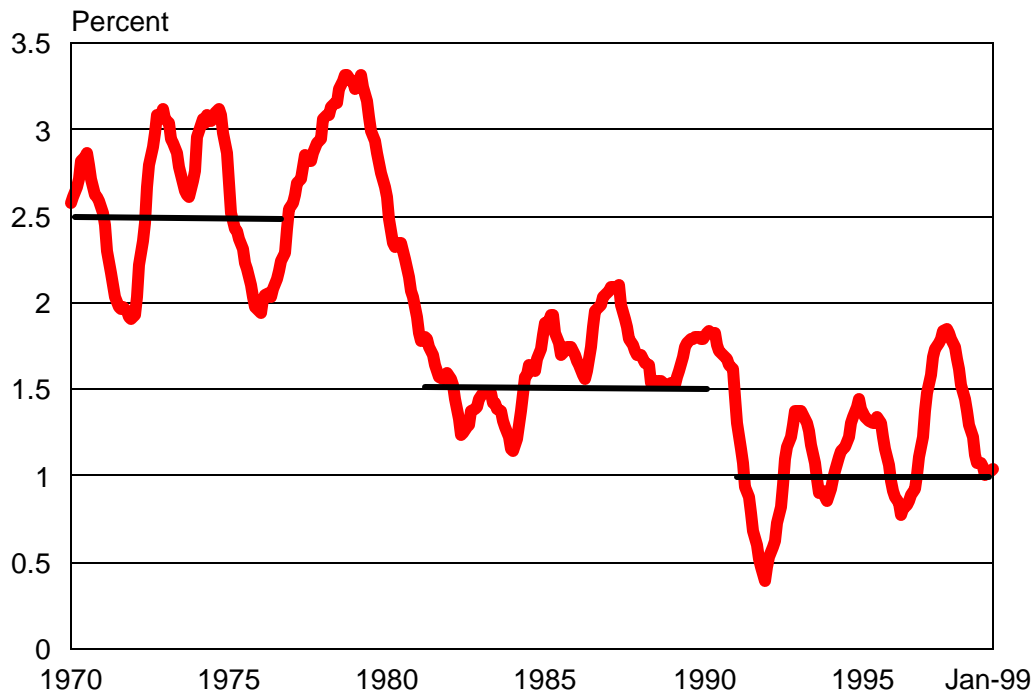
Source: Center for Applied Demography and Survey Research, Bureau of the Census

A significant population group of the last century is the Baby Boomers. Those born between 1945 and 1965 constitute a large segment of the population.

The Baby Boomers came of working age in the seventies, providing a significant growth of the labor force (see figure 8 below). During the seventies, the U.S. labor force growth averaged 2.5% per year, as the Baby Boomers swelled the ranks of the working age population. During the eighties, labor force growth slowed considerably as the transition from Baby Boomers to Baby Busters began: labor force growth slowed to 1.5% per year, and slowed further still during the nineties.

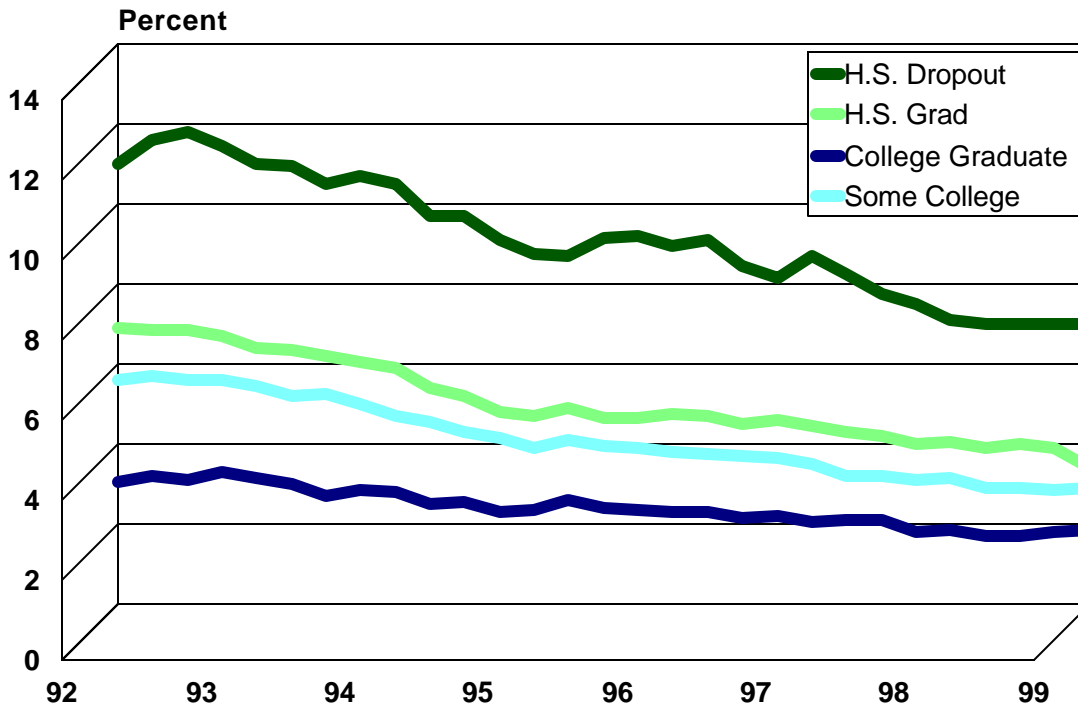
Now that the Baby Busters are of working age, businesses have fewer available workers from which to choose. Therefore, competition for employees has been heightened.

Figure 8: Annual Change in the U.S. Labor Force, 1970-1999



Source: Center for Applied Demography and Survey Research, University of Delaware

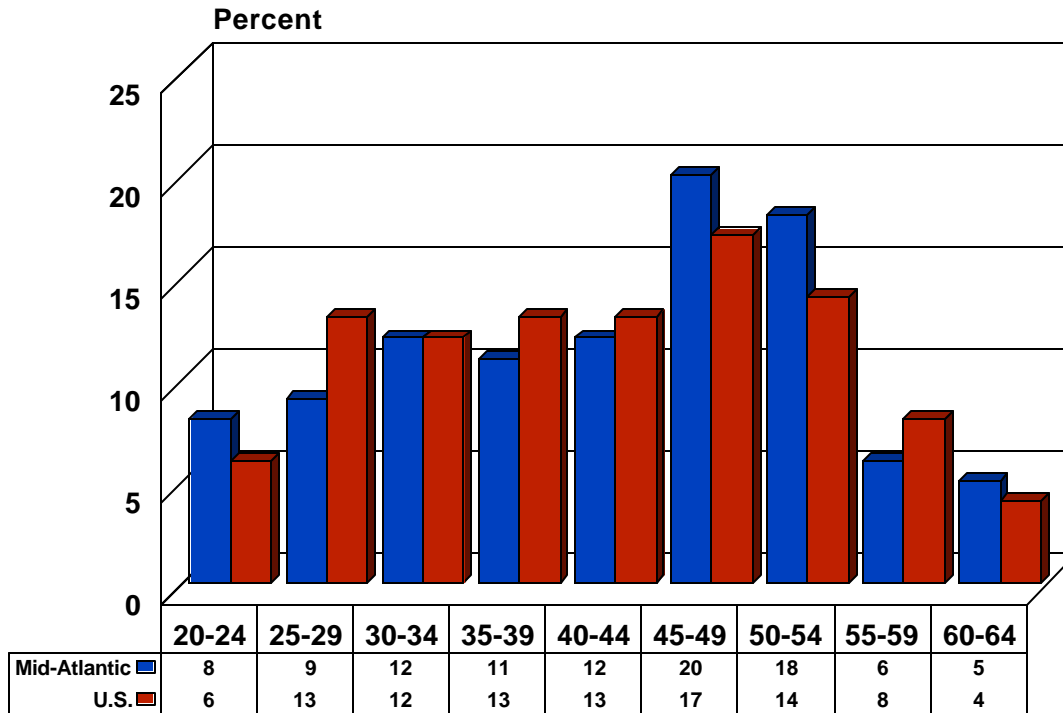
Competition for workers has heightened as the pool of available workers has shrunk. Moreover, the strength of the economy is such that the employment prospects of workers have improved considerably (see figure 9 below).

Figure 9: U.S. Unemployment by Educational Level 1992-1999

Source: Center for Applied Demography & Survey Research, University of Delaware

Unemployment is near its 30-year low at 4.5%. For graduates, the employment situation is better yet. Unemployment among college graduates is 2%. The Bureau of Labor Statistics reports that more than half of the new jobs created in the current expansion require college degrees, and this proportion will continue to rise over the next ten years.

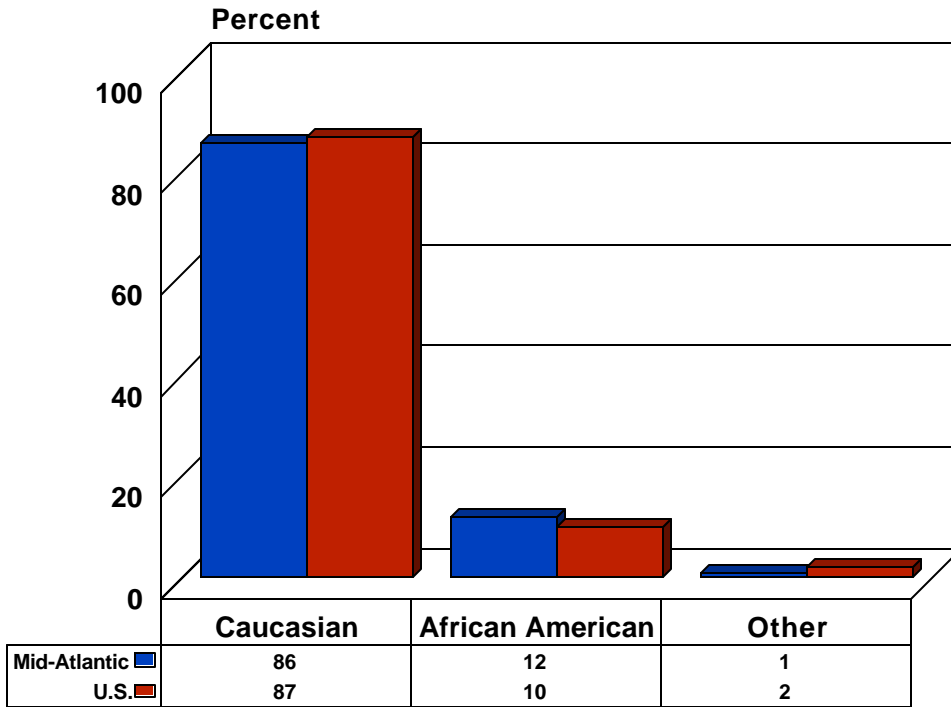
Thus, the job options for college-educated workers are better than ever, and the teaching profession has to be competitive if it is to attract these workers. In essence, it is currently an 'employees' market' and no longer an 'employers market.'

Figure 10: Teachers by Age Group - 2000

Source: Center for Applied Demography & Survey Research, University of Delaware

Figure 10 above illustrates the age distribution of teachers in the Mid-Atlantic and the United States. There is a pronounced spike in the age distribution in the 45-49 and 50-54 age brackets. Thirty eight percent of Mid-Atlantic teachers fall between the age of 45 and 54, compared to 31% nationally. Therefore, Mid-Atlantic teachers are older than the national average. Conversely, only seventeen percent of teachers are in their twenties.

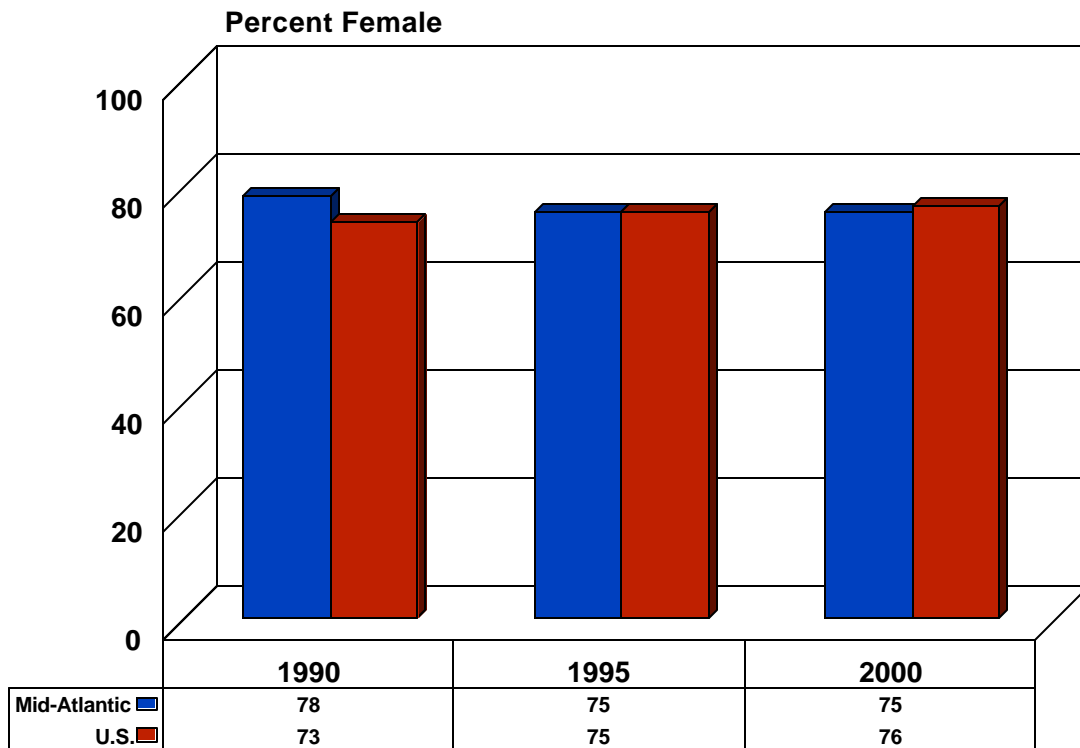
After the age of 54, there is a striking decrease in the percentage of teachers. The explanation for this is that the baby boom generation is becoming eligible for retirement in their fifties. The sharp decline in the age distribution post-54 suggests that teachers are exercising their retirement option after thirty years of service.

Figure 11: Teachers by Race- 2000

Source: Center for Applied Demography & Survey Research, University of Delaware

Primary and secondary education teachers are predominantly Caucasian. Figure 11 above illustrates the strong bias of the teaching profession towards the Caucasian race. One contributing factor to this phenomenon is the entry requirements for the profession. A college degree is required to enter the teaching profession and educational achievement is highest among Caucasians.

Consider the race profile of teachers in the context of a changing student population. Should the teaching profession be more diverse? What can be done to promote the teaching profession to non-Caucasian workers?

Figure 12: Teachers by Gender 1990-2000

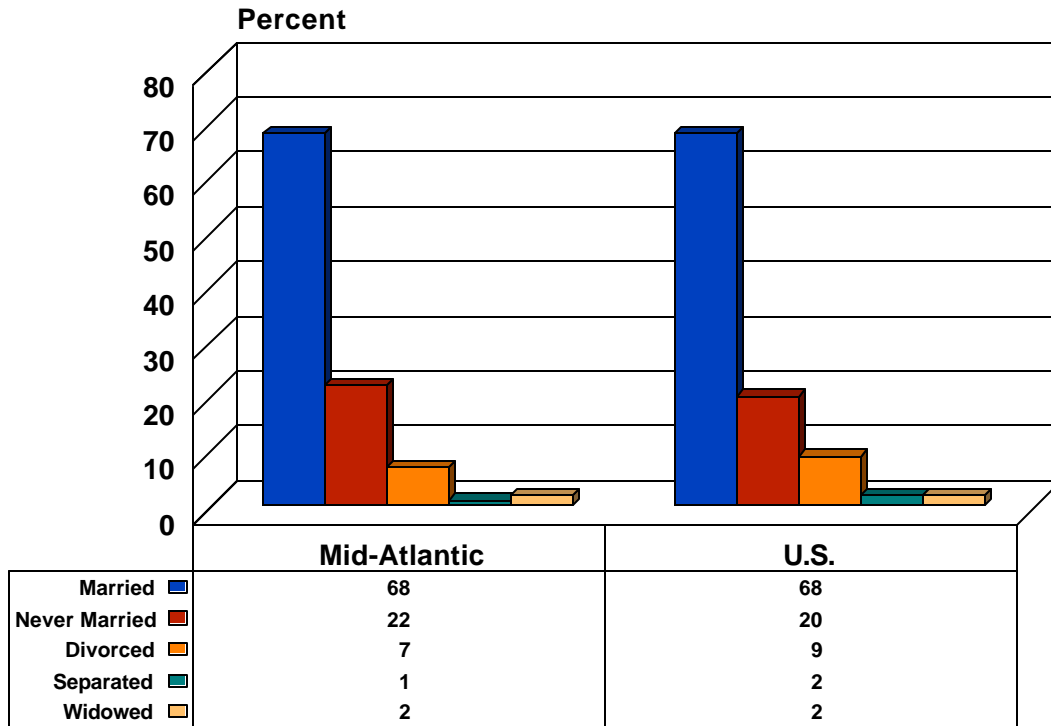
Source: Center for Applied Demography & Survey Research, University of Delaware

Teaching positions in primary and secondary education teaching positions are predominantly filled by women. There has been little change in this ratio over the past ten years. In 1990, 78% of teachers in the Mid-Atlantic were women, and 73% nationally. By 2000, three of every four teachers in the Mid-Atlantic were women.

Part of the reason for this female dominance in the profession is the legacy of women's roles in the workforce. For the baby boom generation of women, the traditional career options were teaching or nursing. Hence, the heavy skewing of the profession toward women.

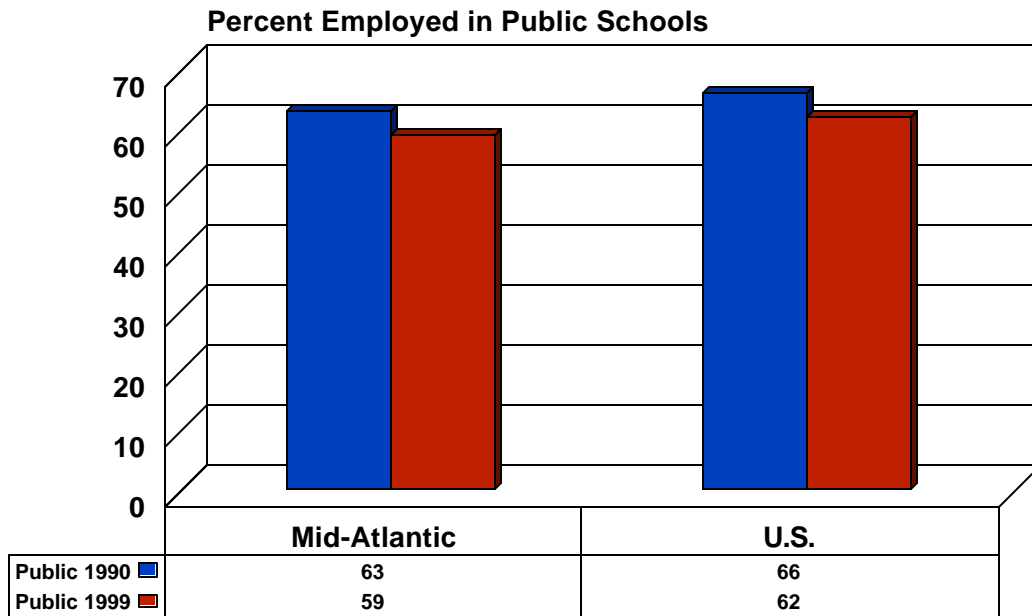
Even though occupational opportunities for women have expanded significantly since the seventies, current trends suggest that women are still more likely to become teachers than men. This begs the question, what can be done to attract men to teaching?

Figure 13: Teachers by Marital Status - 2000



Source: Center for Applied Demography & Survey Research, University of Delaware

An overwhelming proportion of teachers in the Mid-Atlantic region are married (68 percent). This is indicative of the older generation of teachers. The marriage rate among Baby Boomers is higher than their Baby Buster counterparts. Approximately one-fifth of Mid-Atlantic teachers are single (never married).

Figure 14: Teachers by Employer Type 1990-1999

Source: Center for Applied Demography and Survey Research, University of Delaware

Evidence is emerging that teachers are opting for employment in the private schools in greater numbers. In 1999, 58% of Mid-Atlantic teachers were employed in public schools, down from 63% in 1990.

The nation's teacher's employment is experiencing a similar shift away from public schools; falling from 66% to 62% over the ten-year period.

It is worth noting that the Mid-Atlantic has a higher proportion of teachers in private schools than the national average. Higher per-capita incomes in the region relative to the nation may explain, in part, this phenomenon.

The following summarizes the profile of teachers in the Mid-Atlantic region:

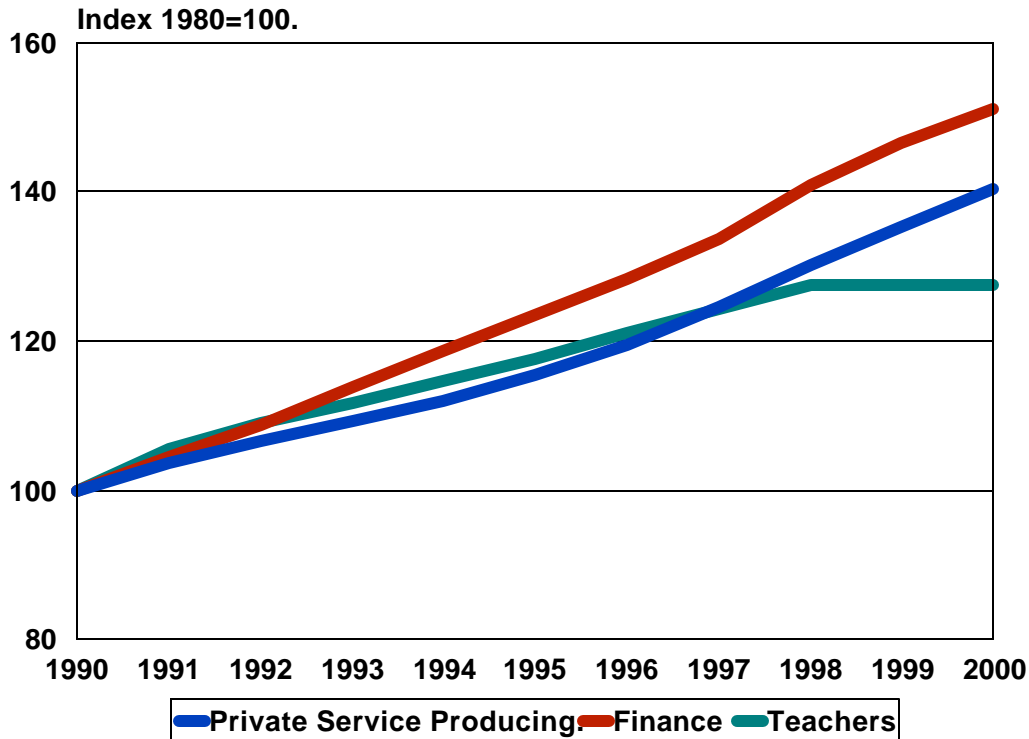
- Average age is 40-49 years old.
- 86% are Caucasian.
- 75% are female.
- 68% are married.
- Two-thirds live in a dual income family.

The final statistic is telling. The present demographic trend of teachers being married women, lends itself to teachers living in dual income families. In this situation the marginal contribution of the teacher pay is less than that for a single-income family.

This can have implications for the pay requirements of teachers. If the teacher is the sole breadwinner in the household, pay becomes a critical issue. If the teacher lives in a dual income family, the pay is relatively less important.

The changing demographics of the nation are working against the teaching profession. Census 2000 data reveals that family households are declining. Married couples comprised 52% of households in 2000, down from 55% in 1990. Nuclear families (a married couple with its own children under 18 years old) account for fewer than one in every four families for the first time on record. Simultaneously, female householders with no husband are on the rise, as are householders living alone.

In summary, female headed households and single headed households are a growing proportion of the nation's households. For these households, pay is a more critical consideration than for dual income households; this begs the question, are teacher salaries sufficient for these workers?

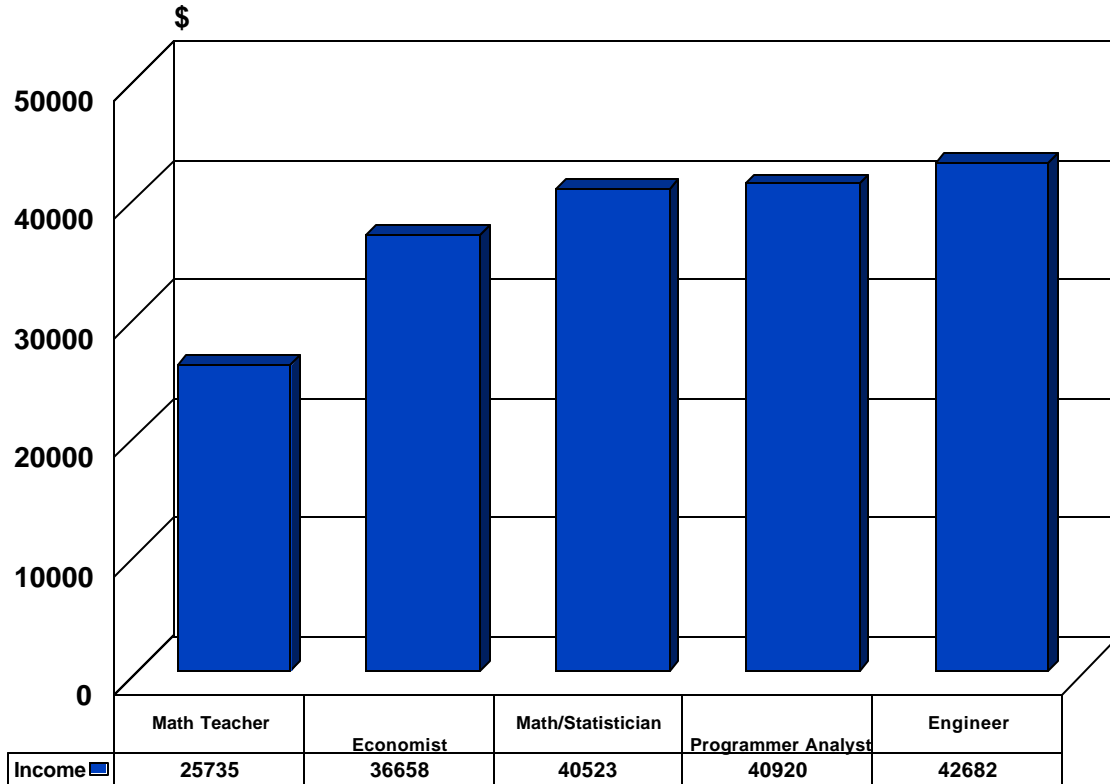
Figure 15: Income Growth for Selected Occupations, by Year 1990-2000

Source: Center for Applied Demography and Survey Research, University of Delaware

There is public perception that teacher pay has not increased. The reality is that teacher pay is increasing, but that it is not keeping pace with private industry pay. As the figure 15 above illustrates, the teacher pay increased approximately 25% between 1990 and 2000. Simultaneously, private service producing incomes have grown 40%, and finance incomes, over 50%.

Therefore, the income gap, the gap between teacher incomes and private service incomes, is widening. The implication for teachers, both current and potential, is that the opportunity cost (the income foregone by choosing one profession over another) is rising.

Figure 16: Sample Professional Incomes, 2001



Source: Center for Applied Demography & Survey Research, University of Delaware

Not only is the income gap widening overall, it is worse for different subject areas. The above figure provides sample professional incomes for a math/science graduate¹. Clearly, a math teacher can earn a far higher salary in the private sector; this creates a virtual ‘teaching penalty’ in choosing to teach over the alternatives.

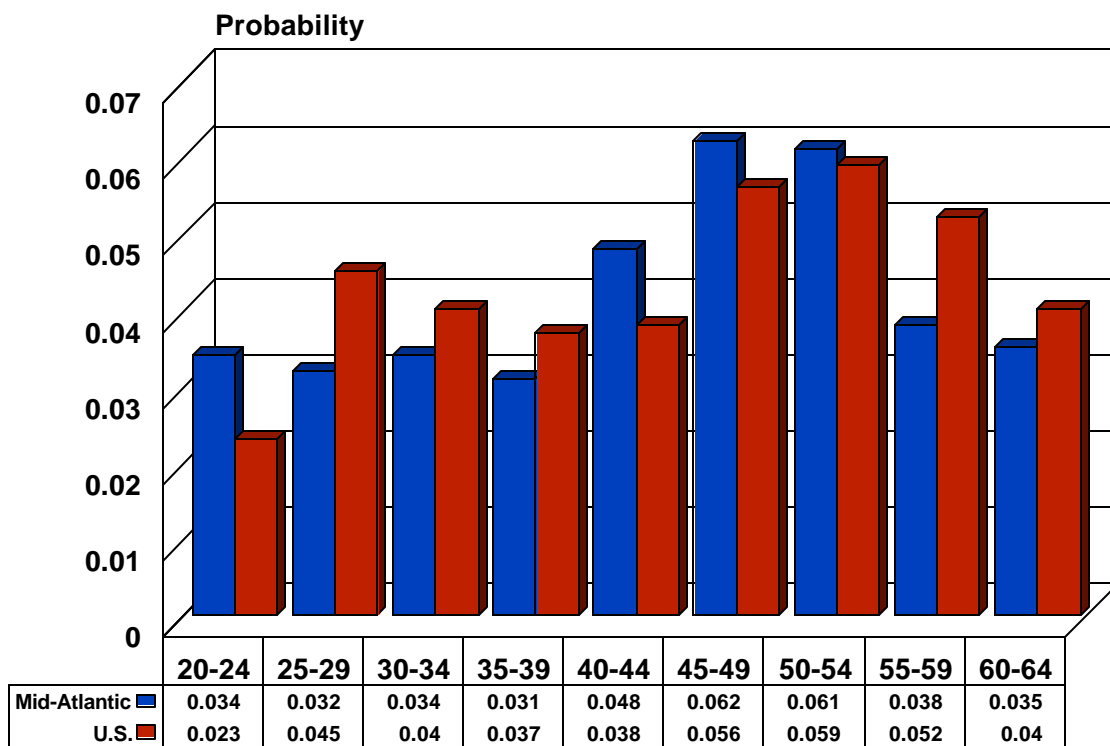
¹ Source: Harrington, “Attracting New Teachers Requires Changing Old Rules,” College Board Review, Jan/Feb 2001.

Decision To Teach

The demographic information available for the teaching profession in the Mid-Atlantic and U.S. can be used to estimate the probability that a worker will decide to teach, given their age and future work force demographics.

The probability of a worker choosing to teach is presented below.

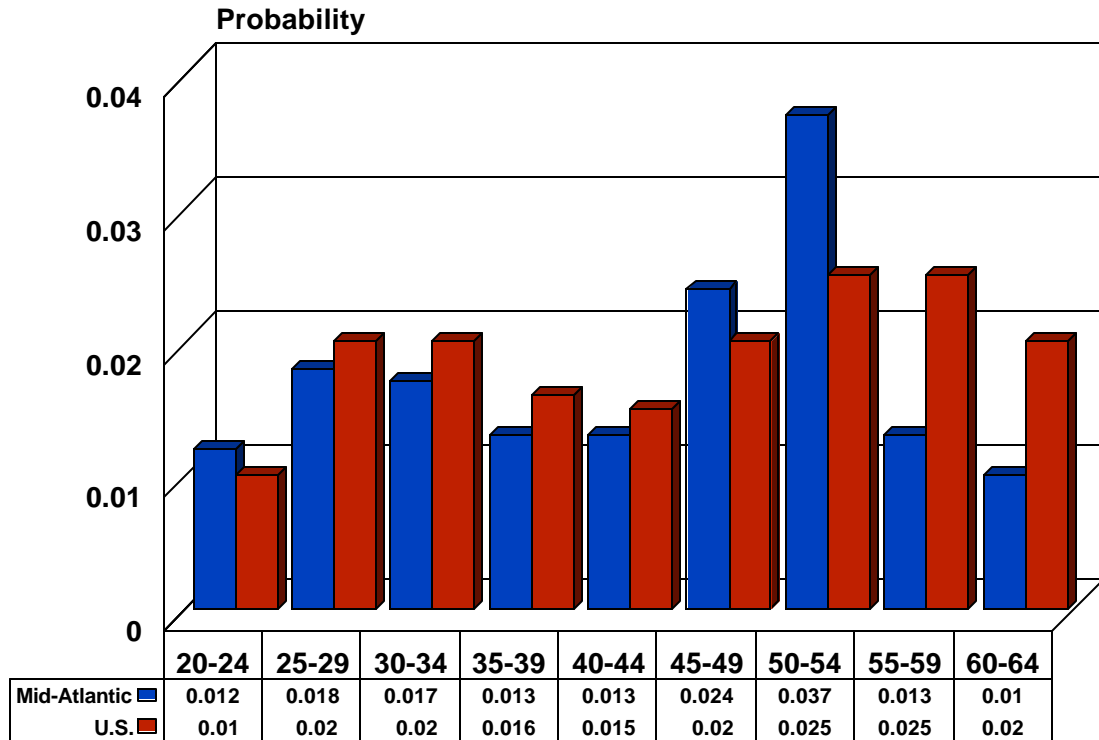
Figure 17: Probability of a Worker Choosing to Teach, by Area - 2000



Source: Center for Applied Demography & Survey Research, University of Delaware

The probability that workers choose to teach rises with age. Only three percent of 20-24 year olds are teachers. This figure is doubled for teachers in the 45-49 age bracket. Therefore, fewer young people are choosing to teach than their older counterparts.

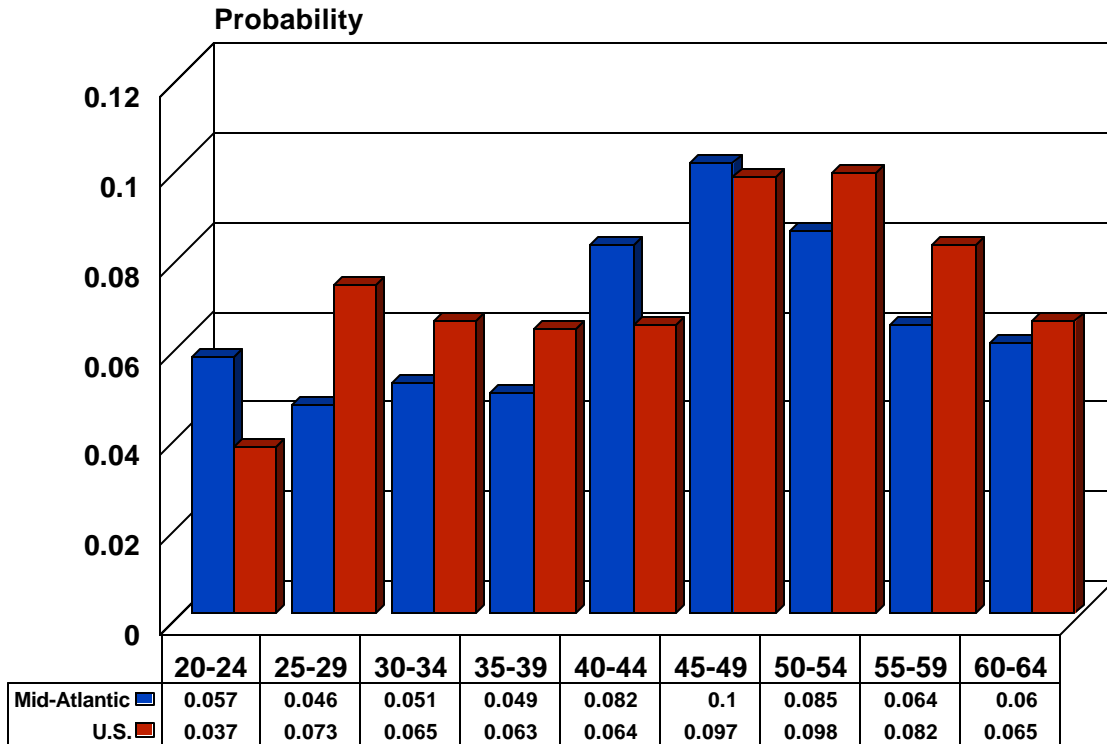
Figure 18: Probability of a Male Worker Choosing to Teach, by Area - 2000



Source: Center for Applied Demography & Survey Research, University of Delaware

The probability of choosing to teach varies dramatically by gender. The figure 18 above illustrates the probability of male workers choosing to teach. For a male worker in his twenties, the probability of choosing to teach is approximately 2 in 100. The probability of teaching remains largely unchanged for age groups up to 45-49, where it rises sharply, peaking at the 50-54 age group at almost 4 in 100. Therefore, the probability that a male in his twenties will choose to teach upon entering the work force is lower than previous generations.

Figure 19: Probability of a Female Worker Choosing to Teach, by Area - 2000

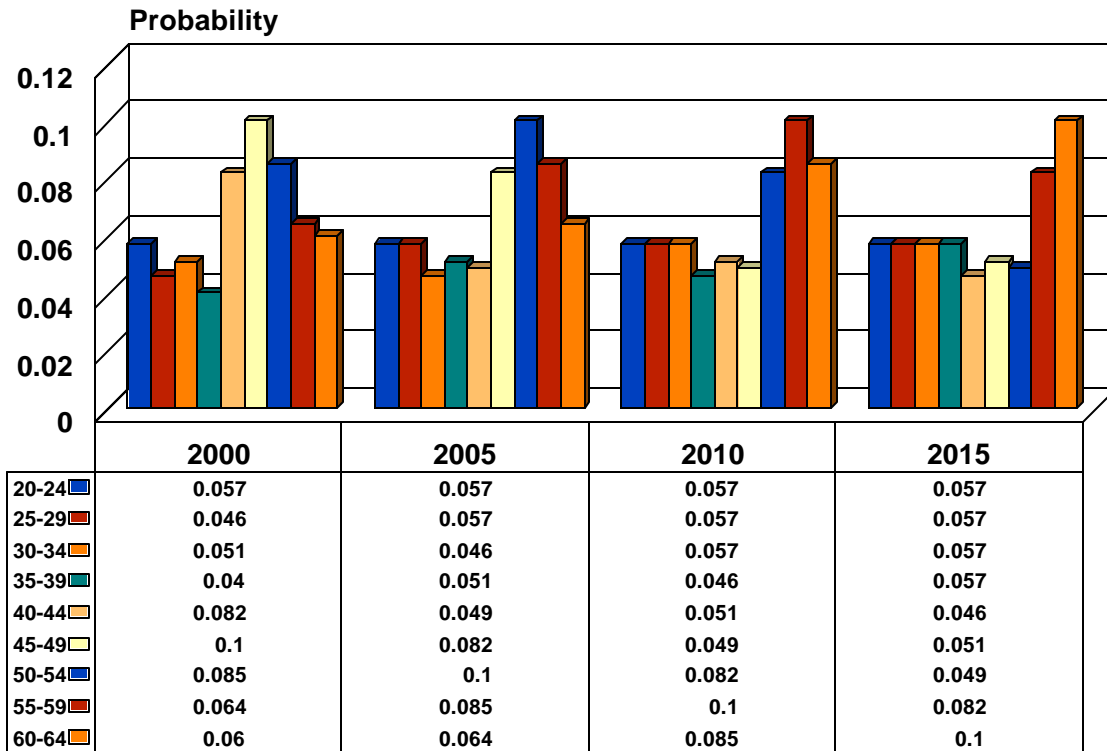


Source: Center for Applied Demography & Survey Research, University of Delaware

The probability of a female member of the work force choosing to teach is far greater across all age groups than for males. For a female worker in her twenties, the probability of choosing to teach is 5% for the Mid-Atlantic, and approximately 7% nationally. This probability rises to 1 in 10 female workers in their late forties.

Few people entering the job market are choosing to teach. Given these propensities for choosing teaching, what are the implications moving forward?

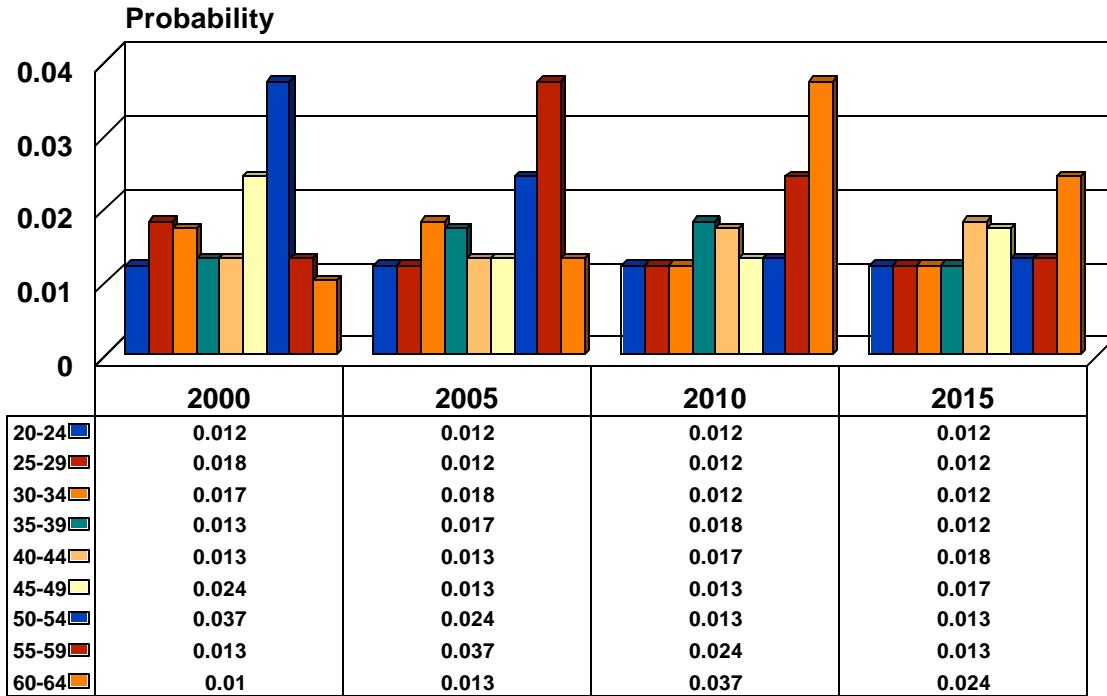
Figure 20: Probability of a Female Worker Choosing to Teach, by Age 2000-2015



Source: Center for Applied Demography & Survey Research, University of Delaware

Figure 20 above shows the probability of choosing to teach by five-year age groups between 2000 and 2015. As we move into the future, the older generations, who have a greater probability of teaching, become aged and leave the workforce. They move off the end of the scale, replaced by people less likely to choose teaching: i.e. a lower propensity to teach. If current trends persist, the net result will be fewer teachers.

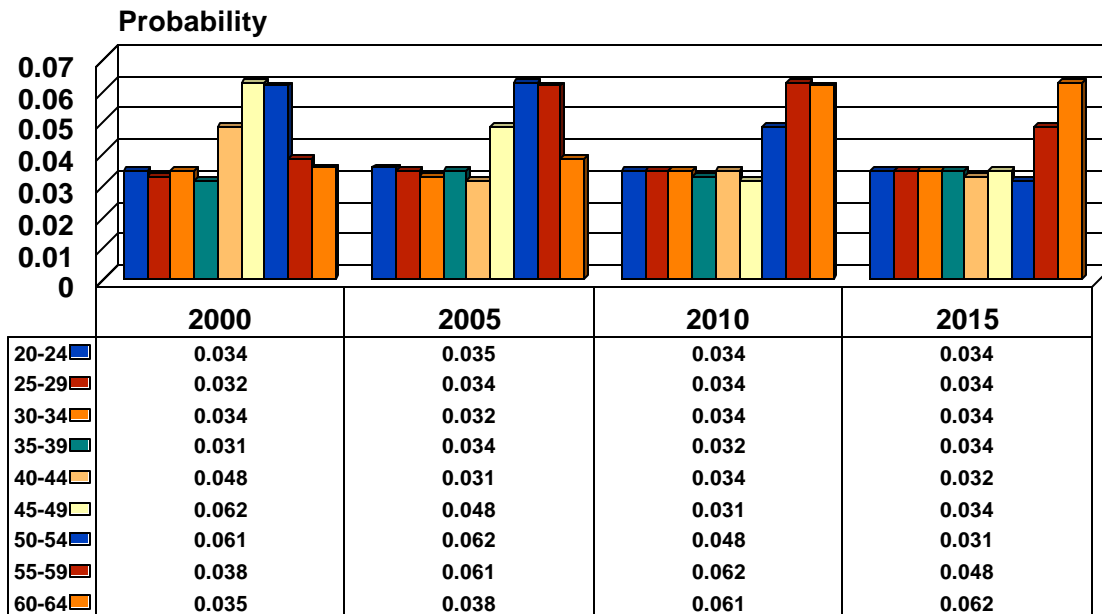
Figure 21: Probability of a Male Worker Choosing to Teach, by Age 2000-2015



Source: Center for Applied Demography & Survey Research, University of Delaware

For males, the change is very pronounced. The generation of males in their twenties and thirties is half as likely to choose to teach as those in their early fifties. Moving forward to 2015, there is a generation of male teachers that will pass into retirement by 2015, and not be replaced.

Figure 22: Probability of a Worker Choosing to Teach, by Age, all Genders, 2000-2015



Source: Center for Applied Demography & Survey Research, University of Delaware

This table summarizes the preceding figures for both genders. Again, the difference is striking between the propensity to teach of the in-coming generation and the Baby Boomer Generation. Therefore, holding current trends constant, there will be fewer teachers over the next 15 years.

Figure 23: Predicted Teacher Supply

	2000	2015
Teachers	631386	607078
% Growth		-4
Students	9598416	9606778
% Growth		0.1

Source: Center for Applied Demography and Survey Research, University of Delaware

Since future work force demographics are known, the probability of a worker choosing to teach can be applied to future labor force statistics to produce an estimate of teacher supply. Predicted teacher supply figures are presented in figure 23 above. Over the next fifteen years, the number of teachers in the Mid-Atlantic, currently 630,000, will narrow to 607,000. Simultaneously, the student population will remain constant.

Therefore, the pressures on public school staffing will come first from an undersupply of teachers rather than an increase in demand.

After 2015, increases in the student population will place additional strain on public schools as the demand for teachers rises while the supply is still falling.

A further factor that would create great additional demand for teachers is the reduction of class size. This raises the number of teachers necessary in order need to instruct the student population.

Teacher Supply

There are a number of key decisions made by workers that determine the supply of teachers:

- **Entry Decision**
- **Retention Decision**
- **Retirement Decision**

Each of these decisions is influenced by a set of factors that promote or inhibit a worker's decision to be a teacher. These factors are not mutually exclusive, which suggests that if they are addressed they will affect a multitude of teachers.

Possible Reason For Non-Entry Into Teaching

- **Non-portability of skills. Certification required if move between states.**
- **Non-portability of pension.**
- **Inferior pay relative to alternatives.**
- **Pay insufficient to support family.**
- **Negative perception of teaching.**

This list is not exhaustive, but it provides a possible list of factors that might dissuade potential teachers from joining the profession.

This first issue is the non-portability of skills. Unlike private industry, where the skill sets learned are often readily transferable between companies, there is no full reciprocity of teacher certificates for interstate movers. Each state has its own requirements for certification with often only partial recognition of the teaching performed in another state. This creates a barrier to entry for potential teachers, as they may feel 'trapped' in the state in which they initially taught.

The issue of non-portability of pensions between states presents a further disincentive for the teaching profession. Over the past decade workers have come to view their pensions as an integral part of their compensation. With the future of social security less than certain, the expectation of pensions has grown. In private industry, workers have embraced pension schemes such as 401(k) that can be transferred from employer to employer. In the K-12 teaching profession, however, there is no such equivalent scheme. Primary and secondary teachers do receive a pension, but the funds cannot be transferred to other states.

In higher education, pensions are portable. The 403(b) scheme allows teachers to carry their pensions from employer to employer, irrespective of the place of employment. The non-portability of pensions in primary and secondary educators pensions stems from the fact that they are owned and managed by state governments. If these pension funds were to pass into the private sector, TIAA/CREF for example, the portability problem could be alleviated.²

Insufficient pay is perhaps an easier matter to remedy. As detailed earlier, teacher salaries have not kept pace with their private sector counterparts. The result is that there exists a ‘teaching penalty,’ wherein there are costs in choosing to teach. This ‘teaching penalty’ can vary by discipline. It may be larger for a worker trained in the field of science than for a worker trained in the arts. To correct for this widening pay gap between private and public employment, the teaching profession needs to recognize the demand for potential teachers and begin to become more competitive in attracting workers.

Exacerbating the teacher/private professional wage gap is the shifting demographics of the workforce. Past generations of teachers lived in dual income families. This meant that the teacher’s salary was supplemented with a second income, rendering the teacher’s salary less important. However, current demographic trends show that single income

² For a full discussion of this matter, see Greenberg and Traurig, “Removing Pension Barriers To Teacher Mobility in the Mid-Atlantic Region.”

families are on the rise. For these families, pay becomes more critical to the employment decision. For this rising share of the workforce, the decision to enter teaching is made more difficult by the low pay.

Public scrutiny of schools has grown intense over recent years. The media readily reports falling academic standards and rising violence in schools. This is creating a negative impression about the teaching profession, which is yet another deterrent to potential teachers.

Possible Reasons For Leaving Teaching.

- **Inferior pay relative to alternatives.**
- **Pay insufficient to support family.**
- **Expected productivity gains without compensation.**
- **Lack of institutional support.**

There is some overlap between the possible reasons for leaving teaching and the possible reasons for non-entry, which further reinforces the significance of these issues.

Fifty percent of teachers leave the profession within their first five years. Twenty percent is the annual attrition rate for the profession overall. With these turnover rates, the profession is not retaining its new teachers, nor is it retaining its experienced ones.

Teacher pay emphasizes equity. Teachers with identical educations and years of service will earn the same pay, irrespective of their productivity or their field of expertise. The implementation of student standards is tantamount to asking for greater productivity from teachers without due compensation.

Finally, teachers at certain schools lack the support of their institution. Insufficient training and resources can breed discontentment amongst staff. Also, the manner with

which changes in the curriculum and professional standards are introduced may engender a sense of underappreciation of teachers.

These factors are some of the potential negatives for the profession. There is anecdotal evidence to support these factors. Maryland conducts exit interviews with teachers leaving the public school system. The primary reason cited for leaving profession is pay.

Reasons For Retirement.

- **Start a second career. Supplement pension.**
- **Expect productivity gains without compensation.**
- **Lack of institutional support.**

The demographics speak for themselves: after thirty years of service, teachers are become eligible for retirement, and they are exercising their retirement option.

Retiring teachers are the most experienced professionals in the classroom. Retaining this group may help to ease the teaching supply shortage in public schools. In Texas, for instance, retirement-eligible teachers are allowed to continue teaching at full salary while drawing their pension. Some teachers choose to take their pension from one state, and move to teach in another (such is the case with Delaware and Maryland).

How, then, can teacher supply be increased?

How To Influence Teacher Supply.

- 1. Deregulate.**
- 2. Improve pay.**
- 3. Use hiring and retention tools of industry.**
- 4. Encourage eligible retirees to continue working.**
- 5. Attract people to teaching as a second career.**

First, reduce the barriers to entry into the profession. These distort the market for teachers and can discourage potential entrants as well as driving existing teachers into other professions. Full reciprocity across regions or the nation has yet to be achieved.

Second, make pay more competitive. Make it economically viable for people to teach.

Third, use incentives to get people to teach. Loan forgiveness, and mortgage assistance should be available to encourage people to relocate. Affordable housing is being constructed in Silicon Valley to attract teachers to this high-cost area.

Fourth, try to retain older teachers in order to utilize their experience. Older teachers represent the most experienced, and probably most effective, teachers. If they can be retained for any length of time, this will help relieve the teacher supply shortage, albeit temporarily. Several states³ now permit 'double dipping,' that is, they allow retired teachers to continue to teach with no loss of pension or benefits. While this may be viewed as a 'band aid' on the problem of teacher supply, it does manage to retain the most experienced teaching professionals.

Lastly, try to bring teachers in from outside industries. Career switchers programs are in operation in a number of states including New Jersey and Virginia. These programs offer workers the opportunity to try the teaching profession for a limited period with the possibility of applying for full certification in the future. Career switchers are given an intensive training during the summer preceding their first teaching assignment in the following fall. The preliminary results of these programs have been positive. Career switchers have been successfully recruited, test high compared to traditional teachers, and have a low attrition rate. These programs may provide the opportunity to capitalize on the sizeable, aging work force who are in the mid- and late- careers and would consider alternative work.

³ These states include South Carolina, Texas, Kentucky, and Tennessee. The hiring of retired teachers without a loss of benefits is contingent upon them working in a critical shortage area, e.g. a poverty stricken area.

Observations

This research represents a step toward analyzing the current practices of the teaching profession from an economic perspective. The research reveals a multitude of regulations that may serve to restrict the supply of teachers by deterring people to enter or remain in the profession.

An attempt is made to estimate the supply of teachers based upon currently observed labor force patterns. Even though this effort is only the beginning, there are a number of findings that are worth reiterating.

- The supply of teachers to the Mid-Atlantic regions will fall if current demographic trends persist. By 2015, the supply of teachers will fall by 4%. Simultaneously, the demand for teachers will remain static, at least in a macro view.
- After 2015, the size of the student population will grow, which will exacerbate the teacher shortage.
- The composition of the student population is changing. Caucasian students will account for a shrinking proportion of students, as African American and other race groups grow in size. The result will be a more diverse student body, which may have implications for the teaching profession.
- The teaching population of the Mid-Atlantic is aging. The average teacher age in the Mid-Atlantic region is 40-49. The Baby Boom generation accounts for almost 40% of teachers in the region. The consequence of this is that in the next ten years, this significant group will become eligible for retirement, which will cause a sharp decline in the supply of teachers.
- Current demographics are working against the teaching profession. The employment prospects for college graduates are exceptional. Thus, the competition for these workers has intensified among employers- both private and public. Exacerbating this situation is the slowing growth of the workforce, which is reducing the pool of available workers for the teaching profession.
- The growth of teacher pay is not keeping pace with private salaries. Thus, the private/teacher pay gap is widening, making the teaching profession less competitive.

When taken together, these findings suggest that a critical shortage of teachers is on the horizon. Understaffed schools will likely cause a decline in academic standards at a time when states are trying to raise them. Creating a more demand and supply driven approach to the market for teachers may attract and retain more workers for the profession. The enactment of more incentives will make the profession more competitive vis-à-vis the private sector.

Improvements can be made to the estimates presented here. Additional research into the demand and supply by subject area and by geography would garner an understanding of the local markets for teachers, but will require more data than is currently available.