

More Trouble Ahead for Public School Finance

The Implications of Generational Change in Pennsylvania

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Pennsylvania's generational transitions will be rockier and more expensive for education finance than is publicly acknowledged. Debates over both the necessity for and the affordability of tax increases already frame state education budget debates. Education policy and planning data, especially at regional and local levels, tend to be isolated from other sector wide and cross-sectoral data. This study explores the examples of tax capacity and workforce quality data and concludes that two issues state, regional, and local education policymakers can't ignore are increased dependency ratios and a smaller workforce with fewer economic opportunities. Aging seniors increase dependency ratios, are less mobile, and enjoy lighter tax burdens, putting greater public responsibilities on the labor force. Younger, educated workers have heavier tax burdens and are more likely to leave for younger states with less heavy tax burdens.

For the last 30 years, education finance policies in Pennsylvania were framed largely in terms of battles over expenditures. This, for the most part, included resources related either to access (inequalities, needs, adequacy, etc.) or to choice (charters, accountability, etc.). In contrast, in more centralized education systems internationally, discussions about education's contributions to provincial and national development and consequent revenue generation were popular. In the much more decentralized United States,

development policy left education largely relegated to the margins. In the Commonwealth, some local school districts were highly engaged in regional workforce development issues, but over the last few decades, state interest in them has been limited. Education policies have focused instead on the contributions of classroom instruction and the structures of its delivery systems.

Why then is regional workforce development so important now? Without sustainable growth in the state's tax capacities, it will be difficult for Pennsylvania to manage its growing problems of aging taxpayers, relatively poor youth, and pension obligations. One well-known concern is the threat to economic growth that may be presented by unprecedented shifts in the shapes of state populations. Florida's population is growing. Pennsylvania's is flatlined. Given the irreversibility of many of these demographic shifts, without offsetting economic growth, these shifts are likely to threaten education's revenue streams. The state's shifts in the internal distributions of its age cohorts are linked to the stability of the education sector's abilities to meet its future obligations.

The impacts of shifts in the state's population shapes on its tax capacities have been more carefully considered in other sectors, such as rural and urban development. The education sector not only needs to integrate other sectors' existing analyses and projections, it also must take greater responsibility for more transparent reporting of its contributions to development beyond the schoolhouse door. The reasons are clear. Growth is essential to offset increasing demands for services. The education sector competes at the state level with other development sectors. Is the growth of populations with limited incomes making the state a more expensive and less competitive place to live? If so, how is education helping to mitigate these problems and promote growth? And how can these issues be more widely incorporated into local or state strategic planning for education and workforce development?

These shifts need more nuanced analyses when considering education finance policy. For example, what are the potential threats to workforce quantity and quality? In terms of quantity, baby-boom retirees have relatively few workers in the taxpaying age cohorts just behind them. In terms of quality, many of today's workers lack job stability, earn low wages, have few benefits, and face limited paths to upward mobility. The connections between education, development, and growth are not easily measured. These relationships are instead both historically messy and wickedly contested. They cannot, however, be ignored.

The state needs to better assist its Department of Education (PDE) in its efforts to provide better access to sector-wide, as well as cross-sector data and analyses. State, regional, higher education institutions (HEIs), and Local Education Agency (LEA) planning can benefit from this improved access.

Prologue

Pennsylvania's generational transitions will be rockier and more expensive for education finance than is publicly acknowledged. Debates over both the necessity for and the affordability of tax increases already frame state education budget debates. State policy's costing, data collection and analysis capabilities, however, have not yet been either well integrated or broadly disseminated for use in strategic planning across the education sector. This includes the PDE, HEIs, and LEAs. In Pennsylvania, LEAs include: career and technical centers, charter schools, intermediate units, school districts, special program jointures, and state juvenile correctional institutions

PDE's data collection and access capacities have greatly improved over the years. The department has come a long way from compliance data tapes sitting in isolated offices to online, multiyear data that are easily downloaded from their website. Education's contribution to revenue generation and development issues (tax capacities, workforce quantity and quality, economic growth, quality of life, etc.) are, however, only marginally referenced.

Currently, PDE has only limited requirements for data related to costing, revenue generation, tax burden, or contributions to community stability, growth, and workforce development in their mandated strategic planning for school districts. Consequently, PDE access to multisector data and analyses in these areas have not yet been made easily available, visible, or deeply integrated within the education sector and across other sectors.

Demographic concerns are central. They can be framed as the problems of growing dependencies. As the state's dependency ratios rise, so do the risks for the state's tax capacities, perhaps especially for the education sector.

Total dependency ratios very roughly compare the economically active and inactive.

Dependency Ratio = 65+ years old + 14 years or younger ÷ Total working age population (15–64).

Young-age and old-age ratios are also popular.

The scale and rate of population aging have been triggering anxieties among policy makers (and the public) about the financial capacity of societies with populations over 65 surpassing the populations under 15 (Beard et al. 2011). Dependency ratios can only be rough measures, as population behaviors are, of course, much more complicated. For example, the intensity of the depen-

dependency is not measured (many 65+ work, many of working age can't, etc.), but these issues can be addressed elsewhere by workforce quality data.

Data are available to help refine dependency ratios and their consequences for shifting tax capacities and workforce development. Given rising costs and riskier returns, the education sector increasingly needs to more visibly justify public investments in it. One way is to demonstrate the sector's connections to Pennsylvania's growth risks, tax, and workforce capacities. To what extent are the state's fewer young families both poorer and less prepared for higher education, and thus educationally more expensive than their parents' generation?

Pennsylvania's major sectors such as education, health, and infrastructure need to make their contributions to state and local development much more visible for two reasons. First, as a direct contributions, education prepares the next generation for the inheritance of civil society. It is essential. Second, as far as indirect contributions, the generational security required for economic growth can often be overlooked. Public education not only grapples with problems of student achievement, it also supports families' and communities' efforts to raise children who can govern civil societies and make their way in changing economies.

These cooperative, generational efforts reach beyond the important needs for standards and accountability. A larger generational question is what ethical roles and responsibilities Pennsylvania has in helping students, families, and communities consider what it means to be a U.S. citizen in an increasingly complex international political economy. A smaller generational question is what are the ethical roles and responsibilities of schools in avoiding misaligned regional and state workforce quality.

Workforce quality, as it is used here, refers to

- levels of employment (full-time, part-time, etc.)
- levels of workforce capital (human, social, and cultural)
- levels of income

As workforce quality shifts and enrollments decline for a while statewide, it cannot be business as usual for education planning and funding policies.

The state's education funding policies and practices need to begin to reflect a more nuanced understanding of the state's taxpayers. While state public policy debates have acknowledged the growing impacts of generational transitions on tax bases, greater support is needed not only for local analysis,

planning, and management, but also for greater public visibility for these critical issues. As the Commonwealth's shifting population reshapes its political economy, it creates problems that are both too difficult to be easily solved and too important to be ignored.

Education: Losing Its Fan Base?

It is already well known that the baby-boom cohort (born about 1946–1964) is leaving the workforce for retirement, placing new fiscal burdens on the state in two ways. First, they visibly place demands on state expenditures. This burden comes primarily in terms of health care and public pension payouts. There are not only more of them; they are living longer. Without sufficient economic growth, the additional payouts needed to cover these retiree costs may threaten education budgets. Second, retirees in Pennsylvania don't pay income taxes on their pensions. This places downward pressure on tax capacities at the very time demands on it are increasing. It also puts pressure on economic growth to offset this downward pressure. Third, the baby-boom generation is creating scale problems because as they leave income tax generating jobs for retirement, they are being replaced by cohorts of fewer people.

In addition, the Generation X cohort (born about 1965–1980) may not generate as much in income taxes, not only because there are fewer of them, but also because many of the jobs held by those retiring, including higher paying ones, are being eliminated (Newhook 2015; Powell 2013).

Younger cohorts, Generation X, millennials (also known as Generation Y or the Echo Generation, born about 1981–1995), and Generation Z (born about 1996–2015), have grown, or are growing into, labor markets more challenging for many than the ones their parents faced when they were young (Carnevale, Hanson, and Gulish 2013; Taylor 2014).

The growing state impacts of generational transitions on tax bases are better known in Harrisburg than in LEAs and HEIs. This means creating more public fora for education and development debates on the consequences of shifting population shapes. For example, it seems unlikely that most school districts have incorporated the Independent Fiscal Office (IFO) reports into their state-mandated strategic plans. Nor have many conducted a nuanced analysis of the tax capacity consequences of changing demographics within their own districts. The Commonwealth's shifting population shapes and rising dependency rates are creating problems for the education sector that are too difficult to respond to in a sector-isolated approach (McClure, Sabina, and Krekanova 2016).

Historically Unique

What is raising the urgency levels for local, regional, and state education policy makers now? Two things: uniqueness and complexity. First, the scale of population shifts in many developed countries is historically unique. The baby boom began in the aftermath of World War II and ended roughly with the widespread availability of reliable birth control measures in the early 1960s. This generational cohort was not only much larger than those before; it was also living longer. A major event such as the baby boom is a “black swan,” meaning it has high historical impact and is without precedent (Taleb 2010). This means approaches to strategic planning designed in the late 20th century no longer hold as well as they did before. For example, a needs-based focus on access to and quality of resource expenditures may overlook a capacity-based analysis of revenue generation projections.

Current population shapes in the United States and other nations are already radically different from more traditional images of population pyramids still present in countries such as Mexico. In comparison, the U.S. population pyramid, has for some time looked a little more like a lumpy rectangle (see Figure 1). The lumps were created by the aging boom and its echo generation. In a larger sense, these problems are only temporary, as the population is

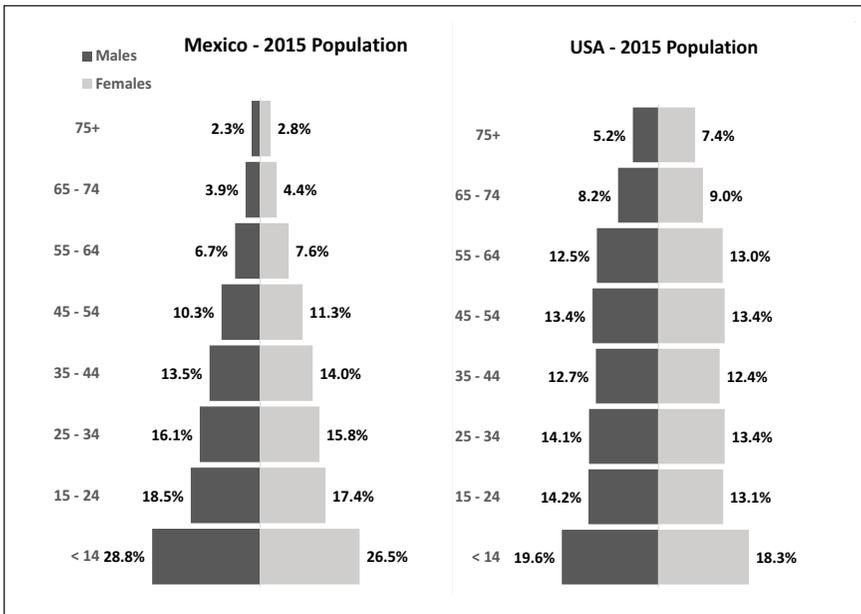


Figure 1. Population Pyramids. (Data Source: U.S. Census Bureau, 2015.)

already shifting again. Temporary, however, as it is used here, is measured in decades. These shifts have significant consequences for both educational revenues and expenditures and will last for some time. This is not news. Neither is its absence from education sector planning.

Pennsylvania today is wealthier in data than in strategy. The state has already aged. Aging means rising interest in sectors other than education. It also means there are large numbers of taxpayers and voters who are currently leaving the labor force and perhaps leaving behind a degree of interest in voting for and ability to pay for increased taxes for education.

More Limited Pathways for the Young

As boomers retire, many jobs are either disappearing or will not be filled because of a “skills gap” some young people face as they are unprepared for high skill, high wage jobs (Schleicher 2013; Symonds, Schwartz, and Ferguson 2011). In the past, young workers with limited educations could informally develop skills through experience on the shop floor. This allowed them to work their way up from a working-class existence to a more stable middle-class life. Today, however, there are fewer shop floors to create the informal education paths needed for upward mobility. There are instead many more dead-end, low-skill, low-wage jobs with limited access to paths leading to middle-skill, middle-wage jobs (Center for Workforce Information and Analysis 2015).

Can Pennsylvania Eschew Perverse Incentives?

Today’s younger citizens are poorer, needier, and may be more likely to be thought of as “other,” not us. For example, more than 40% (approximately 362,000) of Pennsylvania’s young children live in low-income families.¹ Despite sincere efforts to legislate better access to better education, the consequences of large inequalities remain to be overcome. How will elected officials balance investments in the young, who are less likely to vote, against seniors, who are more likely to show up at the polls? Will teachers’ unions be able to offset senior voters? The voting rates among 25 to 44 year olds are below 50%, but almost 70% among those over age 65 (File 2014).

Pennsylvania continues to focus its investments on K–12 classroom instruction under an assumption that it will translate into a future functioning labor market. This may or may not be true. Largely absent is attention to tax base stability. Where are the critical public and private investments needed both for labor market access and for the continuous, active workforce “up-skilling” to meet the demands of a 21st-century

political economy (and state budgets) (Carnevale, Hanson, and Gulish 2013; Mérette 2007)?

Unfortunately, by the time problems created by weak education-sector investments in local and state growth and development rise to critical visibility, it may be too late to mitigate the damage created. Too often the more complex the problem, the more likely policymakers are to mandate policies with visible, accountable short-term returns, even when longer-term investments in development and economic sustainability may be more valuable (Levin et al. 2009). As a state with rapid aging and limited growth, the education sector in Pennsylvania has to help generate growth and development that can be highly competitive not only in attracting and starting businesses but also in competing to attract and keep highly mobile young families with middle- to high-skilled labor.

As we begin to look at Pennsylvania's population dynamics, we can only scratch the surface. The provision of public education to ensure opportunity for the next generation is part of our social contract. The private sector can do its part and make critical contributions, but it cannot take responsibility for the security of generational transitions. The next decades will test our social contract. The education sector can no longer simply contend over expenditures on the basis of need. It also has to show the current generation's resources are being invested well in the next. We need to batten down the hatches so the state can better weather this passing storm.

Generational Threat to Revenue Stability

How big is the problem? In Pennsylvania, never before did the number of older people surpass the share of population below the age of 15. Today, however, the cohorts of 65 and over, and 0–14 are almost equal (see Figure 2). In five years, the share of older people will outweigh the share of children by 2.4

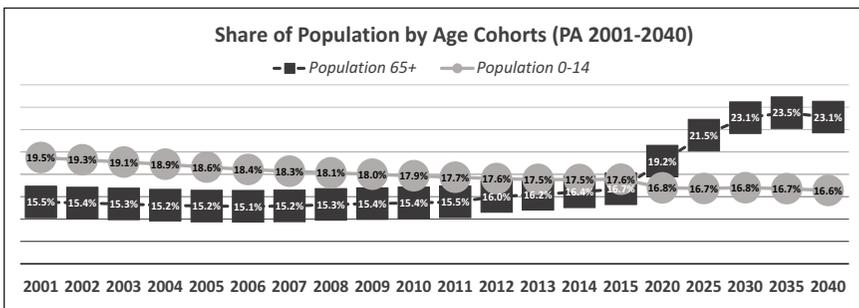


Figure 2. Aging Trend. (Data Source: U.S. Census Bureau, 2015; Pennsylvania State Data Center/Center for Rural Pennsylvania, 2015.)

percentage points. In 10 years the difference grows to 4.8 percentage points, and in 20 years the gap grows to 6.8.

Aging and its impact on education finance is not only an issue of a rapid increase in the number of older people; there are also amplifying trends with complex economic, political, and social implications for families and communities. As more and more older people continue to live longer, as in the rest of the United States, Pennsylvanians' lifespans are becoming extended by an entire extra generation. Consequently, family composition, housing arrangements, and lifestyles now need to change to accommodate a four-generation society with an unprecedented number of middle-aged adults with living parents (Findsen and Formosa 2011; Taylor 2014).

Pennsylvania as Canary: Already Older

Pennsylvania already ranks 4th in the United States for the percentage of those 65 and over (U.S. Census Bureau 2014). Indeed, all age cohorts over 45 are significantly larger in Pennsylvania than in the rest of the nation (see Figure 3). The 80–84 cohort is 23% larger than the national average, and the 85+ cohort is 34% larger.

To compound the problem, younger cohorts, for the time being, are smaller in Pennsylvania than in the rest of the United States. The state's highest gap is among those 0–5. The 0–5 cohort is 10%, and the 5–10 cohort is 9%, smaller than the national benchmark. The entire older half of Pennsylvania's population (> 45 years old) is larger (by 9%), and the entire younger half (< 45 years old) is smaller (by 7%), than the same groups on the national level. This substantial 16% gap leaves the state with fewer people to carry heavier demographic burdens than those in other states.

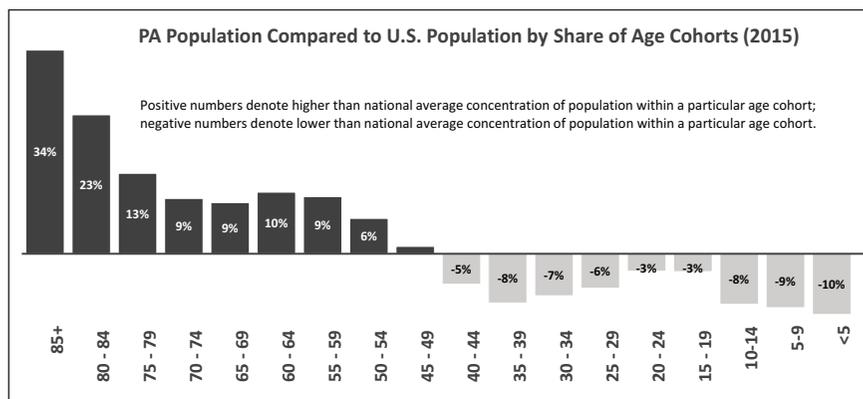


Figure 3. Pennsylvania Population Deficit. (Data Source: U.S. Census Bureau, 2015.)

This demographic deficit problem is even more urgent when we consider troubling high school and college dropout rates, persistent child poverty rates, and youth unemployment. All of these shrink the size of the workforce available to support growing dependency ratios. Thus policymakers need to start addressing outmigration issues now by planning how to attract and keep younger cohorts.

Those who are most able, however, are also often the most mobile. They can take their families and leave for less expensive states with more job opportunities, younger populations, and lighter tax burdens. Better assessments of this potential problem and other disruptive possibilities and their consequences for the education sector are needed. Developments in big data analytics may now allow for superior multisectoral analyses to better inform decision support and planning across a wide range of related issues.

Population Shifts and the Hiccup Problem

Pennsylvania’s future is now (see Figure 4). In 2001, the population over 45 was already estimated to be 39%. In 2015, the estimate had grown to 45%. In contrast, the under-25 cohort accounted for only 33% in 2001, and by 2015, even less, 31%.

What about the core of working-age adults in the middle? Over the last 15 years, the core of Pennsylvania’s population shifted from a 35–54 cohort to a 45–64 cohort. During this time the youngest cohort shrank noticeably. These shifts are likely to have consequences for the state’s tax base.

Today’s population pyramids look significantly different than 15 years ago and they continue to morph. In 2040, about the time many children born

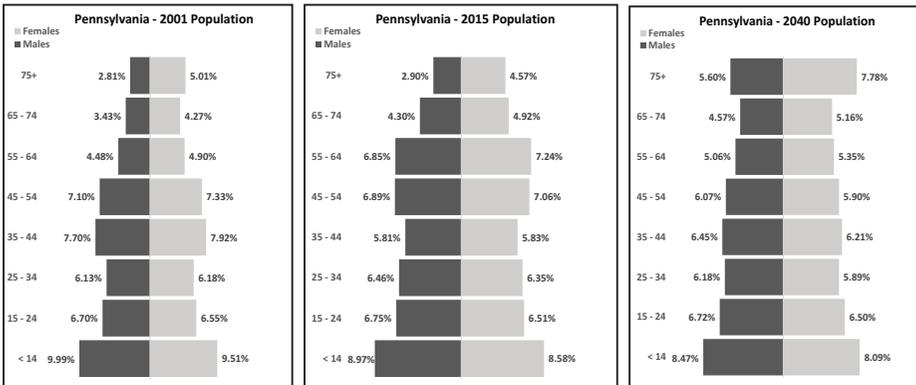


Figure 4. Pennsylvania Population Pyramids. (Data Source: U.S. Census Bureau, 2015; Pennsylvania State Data Center/Center for Rural Pennsylvania, 2015.)

today will have graduated from college and will be getting married, starting families, and buying homes, significant changes to the Pennsylvania population composition will have occurred. In terms of relative size, there will be a much narrower difference between the age cohorts (see Figure 4). The 65+ population will have grown 71% from 1.9 million to 3.3 million. Within this group, those 85+ will have grown 152%, from 242,000 in 2001 to about 610,000. Meanwhile, the population of children aged 0–14 is expected to decline about 2% from 2.4 million to 2.34 million. Additionally, over 40% of these children are likely to be raised in low-income families, communities, and school districts. Many of these children are not likely to be well prepared for higher education success.

Growing Risks for Education Policy: Generational Dependency Issues

Also, perhaps because these problems have little historical context, they lack a policy infrastructure to manage them. There are few lobbyists either for the development contributions of the education sector or for a generational interest in successful transitions.

In Pennsylvania, the current overall dependency ratio is 34.2%. This is slightly lower than the 35% in 2001.² Even small, one tenth of a point shifts, however, can be significant. This decrease, however, is only temporary. By 2020, this dependency ratio is estimated to be 35.9% and by 2040, 39.7% (Tucker 2012). Aging will drive all of the increases in dependency ratios (see Figure 5). These rapidly growing old-age dependency ratios are signaling major issues for public policies that include education (Rudawska 2010).

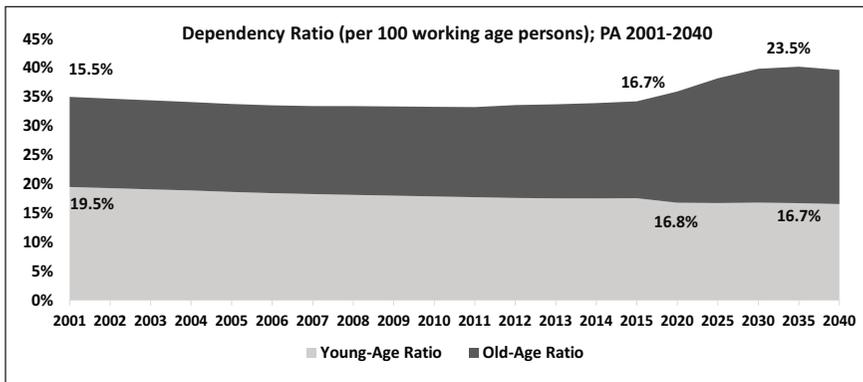


Figure 5. Dependency Ratio. (Data Source: U.S. Census Bureau, 2015; Pennsylvania State Data Center/Center for Rural Pennsylvania, 2015.)

Pensions: Who Will Be Able to Pay in the Future?

Very visible in the media is the state's chronic issue of public pensions. How can Pennsylvania meet its constitutional obligations without compromising the quality of life of the rest of its citizens (Beard et al. 2011)? It may already be too late to avoid problems. Voters from the private sector with fewer retirement benefits are likely to be both reluctant and unable to pay increasingly higher taxes to fund public pensioners, even though they are currently obligated to do so by the state constitution as it has been interpreted by the courts.

Some state and LEA policymakers claim limited future problems because the marginal increases in local pension contributions start to decline in a couple of years. In 2001, however, there was one pensioner for every four workers in Pennsylvania. Soon there will be only three. Without major in-migration, within a generation only 2.5 Pennsylvanian workers will be available to support one pensioner. Those 2.5 workers will also be likely to be caring for their families, worrying about housing costs and health care, and/or paying off college loans (Tucker 2012). With over 40% of these 2.5 workers now growing up under low-income conditions, what will be their opportunities? What kind of education investment do they need today, and what kind of jobs will they need tomorrow so they can manage these future complex fiscal responsibilities?

Generational Security and a Fraying Social Contract

Generational security is a slowly growing issue. For many decades, there was the assumption of a social contract that justified transfers of public funds to the young and elderly on the basis of solidarity among the generations (Samorodov 1999; Taylor 2014). A generational solidarity principle anticipated that those participating in the labor market would contribute a share of their gross salary toward the income of retirees in exchange for a promise that the next generation would do the same. Today's changing demographics raise the potential for political conflict among current generations who find themselves in very different predicaments in the solidarity arrangement.

The large cohort of older workers who dutifully contributed to the pensions of the previous generation is becoming dependent on the contributions of a much smaller younger, poorer, and less well-educated generation. For example, since 2000, the earnings of Pennsylvania's youngest cohorts grew by about 30%. In contrast, the earnings of the state's oldest cohorts grew by more than 50% over the same period, also starting from a larger base. Some but not all of the following is to be expected because of experience. The current average earnings of those 25–34 are 34% smaller than the earnings of those

35–44, and 41% smaller than the earnings of those 45–54. This of course may shift with age, but in the meantime, it may crimp spending on large ticket items such as housing.

Disparate Economic Power within and across Groups

In addition to the political economy tensions across generational cohorts, there is also the issue of disparate economic power both within and across groups. For example, dependency ratios are based solely on age. Age cohorts are assumed to be monolithic consumers of public services. First, they assume both similar levels of needs within and across dependent groups (children and the elderly). Second, they assume similar earning abilities within the working age population. These cohort numbers generally don't incorporate other mitigating factors such as gender, disabilities, and poverty.

To understand the more complex tax capacity risks created by the shifting demographics of Pennsylvania, it is important to consider additional variables such as gender in the policy mix. For example, the number of females in Pennsylvania surpasses the number of males in every age category above 35. Among the population of 85+, there are more than twice as many women as men. Women also account for 60% of the 80–84 cohort, and 56% of the 75–79 cohort. This trend and its effects on revenue generation is likely to become more pronounced the older the population grows.

Women not only live longer, they tend to have less financial security due to a lifetime of unequal and inadequate access to education and economic participation (Beard et al. 2011). This compounding effect may reduce tax capacities while increasing demands and costs for services. For example, many want to stay in their homes longer but lack resources for property tax increases to support schools. So they vote to keep school taxes down.

Education Can't Ignore Workforce Quality

Dependency ratio growth, therefore, has significant consequences for education, both for the competition for expenditures and the stability of tax capacities. It is important to consider not only the size of dependencies but also the quality of workforces. Dependency ratios alone can't account for workforce quality. How many people may have full-time jobs with little pay? How many are discouraged, disabled, or stay at home by choice? While a range of descriptive data is widely available (Independent Fiscal Office 2016; Pennsylvania State Data Center/Center for Rural Pennsylvania 2015), their use in state, regional, HEI, and LEA education policy and planning remains limited.

Workforce Quality: Employed, Unemployed, Discouraged, and Not in the Labor Force (Voluntary and Involuntary)

Workforce quality indicators are often overlooked as a measure of return to public investments in education, despite their availability. For example, as of December 2015, there were approximately 6,140,000 employed and 306,000 (4.8%) unemployed adults in Pennsylvania (Center for Workforce Information and Analysis 2015). The current labor force participation rate in Pennsylvania is only 62.5%, about the same as in the United States generally (Bureau of Labor Statistics 2016; Center for Workforce Information and Analysis 2015).

The four largest sectors employed about one half of available jobs: Health Care and Social Assistance sector (17%), Government (12%), Retail Trade (11%), and Manufacturing (10%). It is important that the pipeline of younger workers under 25 is only about one-half of the size of those 55+ (Center for Workforce Information and Analysis 2015). Almost 47% of Pennsylvania's employed workforce is now 45 or older, a significant increase from 37% in 2001 (see Figure 6). The 25–44 cohort of employed workers accounted for only 40%, and only 13% were under 24. In only the last 15 years the share of the state's active workforce who are 65+ almost doubled, while the size of the three youngest cohorts each decreased by 2%. Traditional assumptions of generational replacement simply no longer hold. These dynamic changes have consequences for revenue generation.

In August 2015 Pennsylvania ranked 31st in national unemployment at 5.4% (Center for Workforce Information and Analysis 2015). Unemployment was higher for males (5.7%) than females (4.6%). The youngest workers experienced the highest unemployment rates—11.8% for those 16–19 and 10.5% for

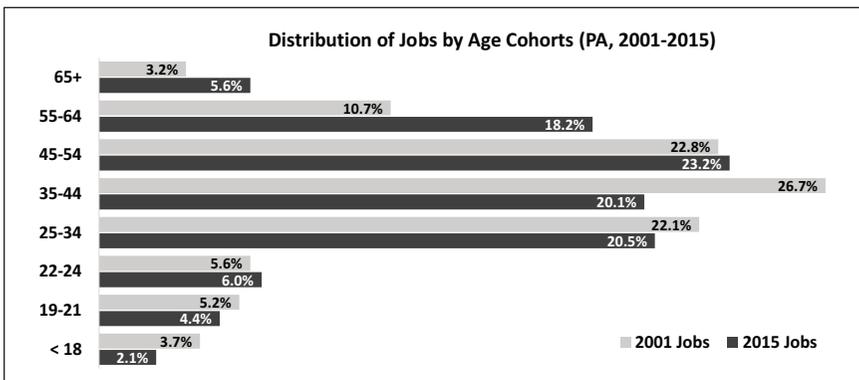


Figure 6. Age and Jobs. (Data Source: U.S. Bureau of Labor Statistics, *Quarterly Census of Employment and Wages*; EMSI, 2015.)

those 20–24. In contrast, the unemployment rate of workers 55 and over was only 3.7%. The average length of unemployment among all dislocated workers was 31 weeks. One-third of the unemployed, approximately 107,000, were considered long-term unemployed (they had been out of work for more than 26 weeks) (Center for Workforce Information and Analysis 2015).

Discouraged Workers. Employment and unemployment are not the only two variables, as there are many people who do not participate in the current labor force. Discouraged workers, for example, are those who both want and are available for work but haven't found it. They have looked for work during the past year, but not in the last four weeks. There are approximately 28,000 discouraged workers in Pennsylvania, or about twice the 2007 prerecession level. Almost 60% of the discouraged workers are males, and 40% are between the ages of 25–54 (Center for Workforce Information and Analysis 2015).

Not in the Labor Force: People with Disabilities. Those who are voluntarily not in the labor force include those under 65 who are retired, stay-at-home parents, caregivers, etc. Those who are involuntarily not in the labor force include the disabled, as well as those who are institutionalized.³

Approximately 820,000 working age Pennsylvanians (11.2%) are classified as having one or more disabilities. The employment rate of people with disabilities in Pennsylvania is only 33.6% and only about 20% of them are working full-time. An additional 11% of people with disabilities are actively looking for work (Erickson, Lee, and Von Schrader 2014).

The problem, therefore, is more complicated than it may appear to be at first. The working age population that is unemployed or unable to sustain participation in the labor market quietly adds to the dependency levels. In other words, it increases the pressure on the state's expenditure and weakens its revenue base. The resulting employment to total population ratio in Pennsylvania is currently 59.2%. For every 10 people who are working there are six who are not (Center for Workforce Information and Analysis 2015). Further, not all of those who are working have good jobs.

Workforce Quality: Compensation

The average annual wage in Pennsylvania in 2015 was \$63,000 (United States was \$72,641), but the median is only \$43,400 (United States was \$53,657).⁴ More than one-half of Pennsylvanians (52%) are employed in industries with average wages below even the \$63,000 benchmark. Without access to manufacturing and other middle-skill, middle-wage jobs, today's younger workers (< 25) are significantly more concentrated in the low-wage indus-

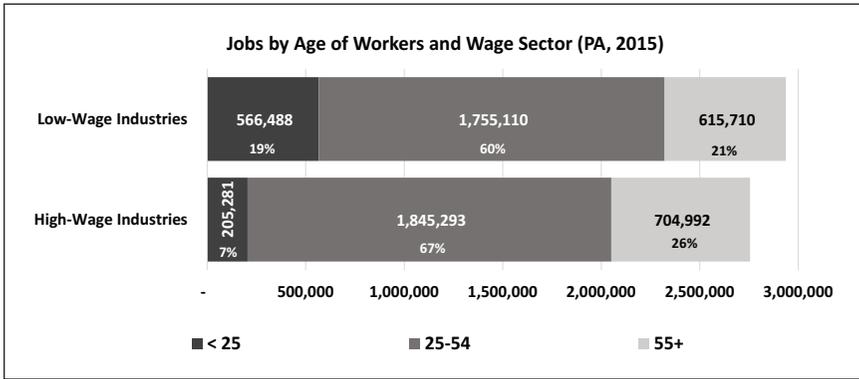


Figure 7. Age and Wage. (Data Source: U.S. Bureau of Labor Statistics, *Quarterly Census of Employment and Wages; EMSI, 2015.*)

try sectors with limited upward mobility, such as accommodation and food services, retail, or arts, entertainment, and recreation. These younger workers are under-represented in the high-wage industry sectors such as utilities, mining, even information. Older workers (55+), on the other hand, are more concentrated in the high-wage industry sectors than in the low-wage sectors (see Figure 7).

Workforce Quality: Part-Time Work

In addition to those who aren't working and those in low paying jobs, approximately 279,000 Pennsylvanians are working part-time for economic reasons. Economic reasons mean they have stated they would prefer full-time work and are working part-time only because full-time jobs are not available. This alone represents between 4.5% and 5% of the employed. Prior to the recession, people working part-time for economic reasons comprised between 2.5% and 3.0% of the state's employed. Women working part-time for economic reasons have historically been about one-half percentage point higher than men (Center for Workforce Information and Analysis 2015). In times of significant shifts at both ends of the population, the labor market opportunities available to the demographic core (active workforce) are critical to both the state's fiscal performance and successful generational transitions.

In sum, the state's tax capacities may be more fragile than the education sector currently assumes. Dependency ratios both identify and mask generational needs and abilities to pay. Moving forward, more attention is required to assess the risks to education's revenue generation sources.

Workforce Transition Problems

Aging in Pennsylvania presents a significant risk to the supply side of labor market dynamics. First, the sheer numbers of older workers significantly surpasses the numbers of younger workers. Second, the current pipeline of younger workers cannot easily substitute for the human and social capital skills of aging workers (Dychtwald, Erickson, and Morison 2004). In addition to poorly matched work experiences and skills, there are significant differences in preferences for sectors and occupations between the two age groups.

For example, in Pennsylvania the highest concentration of older workers (age 55+) is in teaching and training, management, and office and administrative occupations. The highest concentration of adult workers 25–54 is in computer, legal, and construction occupations. And the highest concentration of the youngest workers (< 25) is in food preparation and serving, sales, and personal care occupations. Younger workers may be working their way through school, or may not yet have landed a job for which they are qualified. Nevertheless, these jobs are often less likely to build toward careers and upward mobility. When these low-wage jobs become low-wage occupations, they generate weak career trajectories. As a consequence, this can result in weak competition for jobs across cohorts because of differences in knowledge, skills, and experiences. Consequently, there is a limited substitutability between them (Eichhorst et al. 2013; Samorodov 1999).

Education Policy for Pennsylvania's Population Scale and Shift Problems

The problems created by the sheer scale of population shape-shifting lack precedent. Paying attention to dependency ratios and workforce quality is important in education policy because they influence revenue generation issues such as total tax burden and tax effort willingness. Too often in the past, school taxes have been treated as independent factors rather than as interdependent with other sectors of local and state taxation and development. Taxpayers experience their sum of taxes more than their individual parts. Dependency ratios can affect a district's or a state's willingness to tax across the public sector, making education a development competitor with health, transportation, and other areas.

Challenges to Personal Incomes. Baby boomers aging out of the labor force are destabilizing the state's already delicate balance between active and inactive workers. Increasing numbers of retirees are turning to Social Secu-

rity with limited savings to manage their own retirements and health care. In addition to retirees with limited savings, the state is called upon to support public education pension payouts. These are not insignificant. Where can Pennsylvania turn for additional resources? Not to retirees on limited incomes with limited savings. Not to the high-wage jobs left unfilled by retirees. Not to the young in low-wage jobs. Not to unemployed, discouraged or part-time workers. Not to those voluntarily or involuntarily (disabled) not in the labor force. Will the state's economic growth pull us out? Let us hope.

Challenges to Property Taxes. Personal incomes are not the only revenue policy area that becomes complicated with increasing dependency ratios. Market values may be affected as well. What will be the demand for suburban homes when many baby-boomer retirees are ready to sell and fewer young people are available and/or able to buy? A younger generation of millennials is postponing marriage, childbearing, car and home buying for up to 10 years later than their parents' generation (Taylor 2014). Many face large education debt loads and consequently have less available for mortgage payments. High debt loads are to be expected in a state like Pennsylvania with some of the highest public higher education in-state tuition costs in the United States.⁵ Further complicating these generational transitions are the problems of the market's financial interest rates, which, since the Great Recession, have been held deliberately low as an economic stimulus. This stimulus, however, came in the form of a massive interest rate subsidy. For the older generation it meant lower returns on their savings accounts, CDs, etc. For the younger generation it meant lower interest rates for big-ticket items such as homes and cars. Even with the lower interest rate subsidies, recovery was slow. Why? The young had fewer discretionary resources, making it difficult for them to take advantage of lower interest rates (e.g., school loan debt had higher interest rates than other items). Young people are also paying larger shares of their incomes for housing (Taylor 2014). All of these issues may eventually affect Pennsylvania's market valuations of taxable properties in some school districts.

Is Relief on the Way?

Not likely. Two issues that state, regional, and local education policymakers can't ignore are increased dependency ratios and a smaller workforce with fewer economic opportunities for at least the next decade or so. Together they help make the state less competitive in national and global markets. First, the state can't deport aging seniors who increase dependency ratios, putting greater public responsibilities on the labor force. Raising taxes to meet public demand for services risks making the state less competitive in the marketplace. While

seniors enjoy lighter tax burdens and are likely to be less mobile, younger workers have heavier tax burdens and are more mobile. Younger, more educated people are more likely to leave for younger states with less heavy tax burdens.

Pennsylvania is an aging state with many small school districts that already have relatively few taxpayers. Now many of them are aging out of personal income taxes, buying less, and voting to keep taxes down so they can stay in their homes. Will this contribute to an increasingly lower quality workforce and make the state even less competitive? In the face of these challenges, Pennsylvania needs to better invest in children from low-income families today so they have opportunities to successfully access a civil society and prosperous economy tomorrow (Carnevale, Hanson, and Gulish 2013).

Today, education policy makers and planners need to broaden their views beyond instructional accountability in the classroom and better manage the empirical realities and trajectories that add risk to revenues. The state's demographics and workforce quality data are well known, but these data have not yet been visibly incorporated in the PDE's funding policies or in its directives for regional and local strategic planning. This continues despite growing uncertainty and risk. The longer education policy makers avoid addressing the uncertainty inevitably being created by these shifts, the more difficult responses may be in the future.

Why now? The die is already cast. The players for 2040 are already on the stage. Children born today will only be 25 in 2040. They may still be in the workforce in 2080. The Commonwealth needs to carefully review its social contract for generational succession. Schools may be like businesses in some ways, but markets may not be the only, nor the best framework for managing long-term generational security issues.

So What Is the Road Forward?

Education policy and planning data, especially at regional and local levels, tend to be isolated from other sector wide and cross-sectoral data. Two examples are tax capacity and workforce quality data, even though they are well known and available. The road forward is to support PDE's efforts to include data that focus on education's contribution to development in state funding policies, and support for regional and local workforce planning and policy. Deeper integration of the state's data silos and more visible promotion of accessible finance research reports could help the education sector think beyond classroom tests to its contributions to Pennsylvania's economic and civic development.

The sector's current focus on "the greater need" marginalizes its greater contribution. This includes the mapping of the networks of interdependence

that are created by districts' changing demographics, revenue generation sources, and workforce quantity and quality. How do these contexts fit in institutional budgeting, strategic planning, and collective bargaining contracts?

Of course sector-wide and cross-sectoral issues are messy and are wickedly difficult to model. Ignoring the mess for the tidiness of test scores, however, may land Pennsylvania's education policy makers and planners in the classic dilemma found in the keys and the streetlight story. Someone finds a person looking for keys under a streetlight. Pitching in, neither has any luck. "Where did you lose your keys?" the one inquired. "In the park," the other responded. "Then why look here?" "Because the light is better here." Understanding education's development relationships with tax capacities and workforce quality means working in much dimmer light than more traditional measures of classroom accountability using test scores. It's worth it. The good news is, more than many other states, Pennsylvania has many resources on which to draw.

NOTES

1. National Center for Children in Poverty, http://www.nccp.org/profiles/PA_profile_8.html.
2. Pennsylvania State Data Center/Center for Rural Pennsylvania, http://www.rural.palegislature.us/demographics_population_projections.html.
3. U.S. Bureau of Labor Statistics, 2015.
4. Ibid.
5. *U.S. News*, <http://www.usnews.com/education/best-colleges/the-short-list-college/articles/2014/10/28/10-colleges-where-in-state-students-pay-the-most-tuition>.

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