Peer Reviewed Article

Supply and Demand Data for California Physical Education Teachers

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ABSTRACT

The labor market represents a core issue that professions should strive to understand. In California, the labor market is particularly relevant for those in education as there is discussion around a teacher shortage. Couple that with a profession that has had to endure teacher layoffs stemming from underlying economic issues, such as school district concerns about budget deficits, it highlights the overall complexity of the labor market. For members of the physical education profession, dealing with the dynamical nature of the labor market has been an unfortunate reality. From physical education teachers to physical education teacher education programs, key stakeholders should know the fundamentals regarding the labor market. The purpose of this article is to summarize recent supply and demand data for California physical education teachers. Beyond describing supply and demand data, implications will be discussed regarding how labor market trends impact members of the profession.

Keywords: physical education, supply and demand data.

Introduction

As of 2016, California is home to the world's sixth-largest economy (United States Bureau of Economic Analysis, 2006). In spite of the overall health of the economy, the education sector has experienced its share of setbacks. For physical education, issues, such as teacher layoffs, can be traced back to 2008 and as recently as 2017 (Warth, 2017). Ironically, cuts such as these are occurring in a climate where there is discussion about a statewide teacher shortage (Carver-Thoms & Darling-Hammond, 2017). In what appears to be dueling forces, teacher layoffs and teacher shortages, it begs the question: What is the labor market for physical education teachers in California? More specifically, what is the supply and demand for physical education teachers?

Why is supply and demand a valuable reference point for the physical education profession? Examining supply and demand data provides insight on a variety of factors (Hamermesh, 1986). Data can serve as an indicator on the overall health of the job market. Labor economists also laud the value of supply and demand data as it provides insight on the equilibrium of a market (Gale,1955). For example, to achieve true equilibrium in the physical education labor market, the supply of physical education teachers would match the demand; meaning, no job would go unfilled or candidate would be left jobless. In reality, finding such balance in the labor market can be difficult to achieve.

In the case of teaching, individuals can pursue different pathways to secure a credential (e.g., teacher education, out-of-state, internship program). Year-to-year this can make it difficult to know how many teachers will enter the labor market. Likewise, movement out of the profession can be challenging to forecast as well. Recently, it has become more commonplace for some people to delay retirement and remain in the workforce for

longer periods of time (Dong, Wang, Ringen & Sokas, 2017). The dynamical nature of the labor market further establishes the need to understand specifics of the labor market for physical education teachers. In the corporate world, the term "headwinds" describe factors that prevent growth, and "tailwinds" describe factors that promote growth. For physical education, these terms are also relevant. Case in point, a recent headwind has been the decline and elimination of some physical education teacher education (PETE) programs (Blankenship & Templin, 2016). Conversely, the research and knowledge base supporting physical education continues to grow stronger and stronger. One notable tailwind is evidence affirming the relationship between physical activity and cognitive functioning (Penedo & Dahn, 2005). For physical education professionals it is important to champion the tailwinds and prepare for the headwinds. The purpose of this article is to describe the supply and demand California physical education teachers and its implications for the profession.

Methods

The article is based on a secondary analysis of an existing dataset. Secondary analysis is a tool to explore additional research questions that are generated from data (Heaton, 2008). Two datasets were examined to gain insight on the supply and demand of California physical education teachers. The California Commission on Teacher Credentialing maintains supply data (California Commission, 2016). Demand data was secured through the publicly accessible California Department of Education's database (California Department of Education, 2016). For this article, supply and demand data were retrieved from the years 2011-2016; in addition, the database provides a forecast for demand through 2017-2018. At the time of writing this article, the supply and demand data for 2017-2018 was not available yet. To analyze data, descriptive statistics were used to compare changes in supply and demand over time.

Supply and Demand Data

The supply data consists of individuals classified as possessing physical education single-subject teaching credentials. The providers of the single-subject credential were characterized as the following: teacher education programs, district interns, individuals prepared out of state, and direct applications. On the demand side, it is important to note two things. First, the California Department of Education reports an estimated number of teacher hires. Secondly, the California Department of Education's database for teacher hires lists the subject area as physical education, health, and dance. While not perfect, the database does provide insight on how many teachers have been hired in physical education and closely related content areas. Only for 2015-2016, is it possible to tease out how many teachers were hired explicitly for physical education positions. What follows is a chronological breakdown of supply and demand data, beginning with the 2011-2012 academic year. See Table 1 for a summary of all data.

For the 2011-2012 academic year, there were a total of 672 newly credentialed physical education teachers. The largest proportion of which received credentials from teacher education programs (n = 493). Second to this pathway were people who were prepared to teach physical education out of state (n = 108). On the demand side, it was reported that there were a total of 355 hires for physical education/health/dance. Los Angeles County hired the most teachers (n = 99), while Contra Costa filled the second most positions (n = 41).

In total, there were 573 newly credentialed physical education teachers for the 2012-2013 year. Representing a 14.7% decrease from the prior year. Teacher education programs again constituted the largest producer of physical education teachers (n = 418). Out of state prepared teachers (n = 82) again represented the second largest producer. Demand data showed that there were a total of 540 physical education/health/dance teachers hired. A 52% increase from the prior hiring cycle. Los Angeles County was again the leader in hires (n = 187), with Alameda County coming in second (n = 48).

The supply of credentialed physical education teachers for 2013-2014 totaled 552. A 3.7% decrease in the amount of credentialed physical education teachers from the prior academic year. Similar to other years the two largest producers of credentialed teachers were teacher education programs (n = 373) and out of state teachers (n = 179). Demand for physical education teachers also decreased from the previous year, a total of 510 physical education/health/dance teachers were hired. Los Angeles County again assumed the top spot by hiring a total of 135 teachers. Alameda County hired the second most teachers (n = 80).

The 2014-2015 academic year saw an increase in the number of newly credentialed physical education teachers (N = 611), representing a 10.7% jump from the previous year. Teacher education programs led the way by producing 415 credentialed physical education teachers, which represented an 11% increase. Out of state teachers also increased from the prior year to 131. The increase trend extended to demand data as well. In total, the state hired 625 physical education/health/dance teachers. A 23% increase in the number of teachers who received teaching positions. Los Angeles County (n = 149) and Alameda County (n = 87) were again the leaders for new hires. Santa Clara County and San Diego County also hired close to 50 teachers.

The supply of physical education teachers for the 2015-2016 academic year was 611. In-state PETE programs produced 415, while 159 were individuals were from out of state. Both numbers were increases from the previous year. Of note, a category that saw a steady increase in the number of credentialed teachers is termed direct applications by the California Commission on Teacher Credentialing. Specifically, direct applications increased from 52 credentialed physical education teachers in 2011 to 76 in 2015, equaling a 46% increase. As previously mentioned, 2015-2016 is the only year where it was possible to separate physical education from health and dance. In total, there were 575 people hired to fill physical education positions in the state. Los Angeles County hired 120 physical education teachers. Alameda County hired 81 teachers and San Diego County hired 60 teachers.

The California Department of Education provides projections for teacher hires. For the 2016-2017 hiring cycle, it was projected that physical education/health/dance would hire a total of 834 teachers. Going into 2017-2018, the anticipated number of hires increases to 913 teachers. Dating back to the number of hires in 2011 (n = 355), the 913 projected hires represent a 157% increase.

Looking at the supply data as a whole. A clear trend emerges, in-state PETE programs are the biggest producers of physical education teachers. Between 2011 and 2015, PETE programs produced a total of 2,149 credentialed physical education teachers. At 2,149, PETE programs have produced 69% of the credentialed physical education teachers from 2011-2015. On average, PETE programs yielded 430 physical education teachers each year during the time span. In 2011, PETE programs graduated 493 teachers, with lowest being 373 during 2013. Following 2013 the number of credentialed teachers has steadily increased to 450 in 2015.

The number of people pursuing alternative pathways to a teaching credential has also increased. Notably, since 2011 a total 588 out of state physical education teachers have been issued a teaching credential. At 588, out of state physical education teachers represent close to 19% of the credentialed teachers between 2011-2015. The single highest year was 2015, with 159 out of state teachers moving into the state. Individuals who submitted direct applications represent the third highest proportion of credentialed teachers. In total, 320 direct applicants were issued credentials between 2011 and 2015, or about 10% of the total.

The demand side can also be characterized as possessing two trends. First, the demand for physical education teachers has increased from 2011 (N = 355). Underscoring the positive trend is the 52% jump going into the 2012 hiring cycle (N = 540). The promising trend is further substantiated as the

California Department of Education projects hires to increase from 834 in 2016-2017 to 913 in 2017-2018.

The second demand trend highlights that densely populated counties and school districts hire a majority of physical education teachers (see Figure 1). For example, in 2015-2016 Los Angeles County hired 120 physical education teachers, representing 21% of the total teachers hired. Factoring in Alameda Country (14%) and San Diego County (10%), these counties were responsible for hiring 45% (i.e., 261 out of 575) of all physical education teachers hired in the state of California for 2015-2016. Similar trends were present from 2011-2015; meaning, year-to-year densely populated counties are where most of the jobs are available (see Figure 1). For perspective, Los Angeles County has hired 690 physical education/health/dance teachers between 2011-2015, or about 26% of the total (N = 2,605). It is again important to note that the demand data from 2011 – 2014 aggregates physical education/health/dance teacher hires. Hopefully, going forward this is a matter that the California Department of Education rectifies.

The total supply of physical education teachers between 2011-2015 was 3,104. Comparatively, the demand for physical education teachers during that same time frame was 2,605. Consequently, there was a surplus of 499 credentialed physical education teachers. On the surface, the surplus issue raises some questions and concerns. It is important to note that PETE programs produced 2,149 physical education teachers. From this perspective, the traditional pathway to teaching, the in-state PETE program, would have not produced enough teachers. Specifically, in-state PETE programs would have been at a deficit of 456. The implication being that California appears to be reliant on alternative pathways to fill teacher vacancies (e.g., out of state, internship programs, direct applications). Unfortunately, it appears that when all the different pathways, both traditional and non-traditional, combine it has created a surplus of physical education teachers in the job market.

Conclusion

In this article, we attempted to examine trends in the California labor market for physical education teachers. Supply and demand data contributes four valuable lessons to concerned stakeholders. First, on average the demand for physical education teachers is increasing. Notably, the demand for physical education/health/dance teachers has steadily risen from 2011 to 2015, further strengthened when factoring in the projections for the coming years. All together there has been a 19% increase in the demand for teachers in these content areas. Second, demand for physical education teachers can largely be attributed to densely populated counties and school districts. Third, the in-state PETE program is still the lifeline for the physical education profession, as it is by far the biggest producer of credentialed teachers. Fourth, the supply of credentialed physical education teachers exceeding the demand has been an issue. For example, the height of the surplus occurred during the 2011-2012 academic year. During this year the supply (N = 672) exceeded the demand (N = 355) by 293. Collectively, the key takeaways dovetail well with headwinds and tailwinds analogy. The physical education profession has certainly encountered dueling forces within the labor market. Examination of supply and demand data offers important lessons for key stakeholders. One lesson is that PETE programs must prepare graduates for the reality of the labor market. Most jobs are going to be situated in densely populated counties and school districts. Exposing pre-service teachers to these environments during the preparation years may be key. A second lesson, based on data from the California Department of Education, demand for the profession appears to be increasing in coming years. Knowledge of this projection may be a useful advocacy tool for PETE programs to promote to potential students.

Supply and demand trends also create more questions. One prominent question deals with

movement within the labor market. During years where there is a surplus, what happens to those freshly minted credentialed physical education teachers who do not get a job? Clearly, there is a range of possibilities for these people to pursue, from substitute teaching to graduate school. We believe insight on these individuals offers the potential to move the profession forward. Specifically, physical education can ill afford to allow promising graduates to leave the profession in the event they are unable to secure a position upon graduation. A closely related question deals with who is getting hired for vacant physical education positions? Are new positions being filled by substitute teachers, in state PETE program graduates, out of state, or all of the above? A deeper understanding on the background characteristics of new hires offers useful knowledge for key stakeholders, particularly the PETE program whose job it is to train future California educators. Predictably, supply and demand data revealed a combination of headwinds and tailwinds in the labor market. The nature of the labor market makes it challenging to fully understand and predict. Underlying economics, people within the profession, changing politics, and other matters show that there are a lot of moving parts. We believe to approach an understanding of the labor market rests with data. Most importantly, a key message of the article is that data provides knowledge, which by extension can inform action. For those key stakeholders, the PETE professors, physical education teachers, and school administrators, there lies great potential in possessing a clear understanding of the labor market. The more we know about the labor market, the more decisions and policies can be informed.

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Table 1

Summary of Supply and Demand Data for Physical Education Teachers

	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	Total
Supply	672	573	552	611	696	3,104
Demand	355	540	510	625	575	2,605

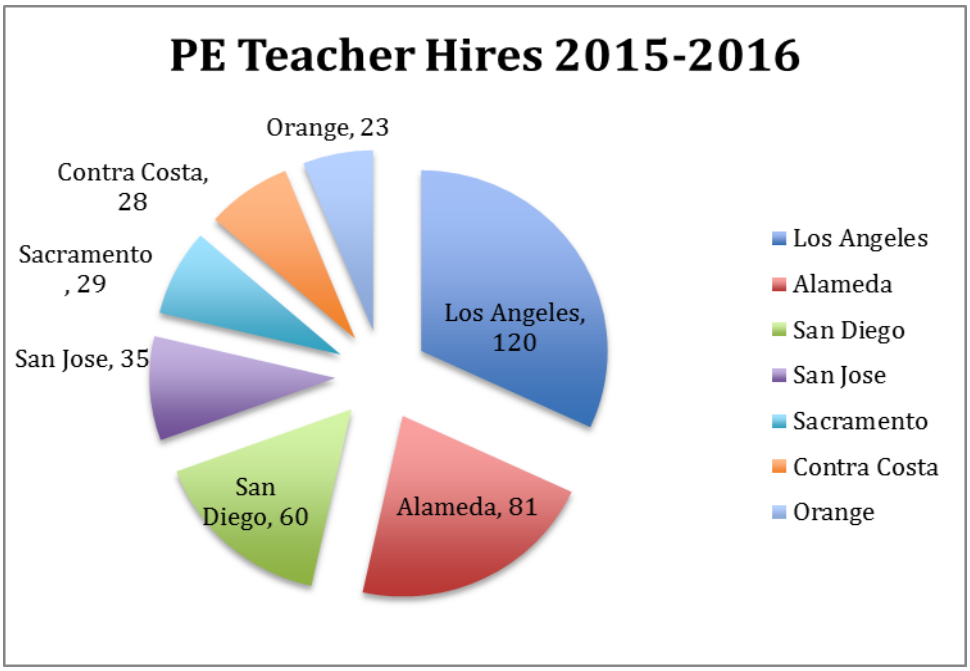

Figure 1. Summary of demand data for physical education teachers in 2015-2016.