# The Market for Substitute Classroom Teachers in South West Pennsylvania in 2001-2 

## A Research Report to The Pittsburgh Foundation

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## Executive Summary

When a public school teacher is absent from class, the Pennsylvania School Code requires that the children of the absent teacher be supervised and taught by another properly certified teacher.

Teacher absenteeism can be divided into short-term [typically unforeseen] and long-term [typically foreseen] absences, and divided into paid and unpaid leaves of absence.

Short-term leave is usually due to proclaimed personal illness or proclaimed illness at home. Long-term leave is typically due to pregnancy and child-birth for younger teachers. For older teachers long-term leave may reflect the use of accumulated sick and personal leave, which typically builds up from year to year, or an actual long-term illness or recovery from an injury.

This study of the market for substitute teachers in South West Pennsylvania, commissioned by The Pittsburgh Foundation, provides new evidence on unpaid vs. paid leaves of absence, and the extent to which teachers report that their students were covered while they were absent. It also provides district by district estimates of total teacher absenteeism.

The study found that:

- Fulltime teachers in South West Pennsylvania reported they were absent about 14.1/days per school year in 2001-2. This was composed of an average of about 9.5 days of paid leave for various reasons, and about 4.6 days of un-paid leave. Unpaid leave was thus $32.6 \%$ of total leave. Also, total absences of 14.1 days per 180 contact days implies an overall absence rate of about $7.8 \%$ which is the lower bound on the total teacher absenteeism rate sought by this research project. Thus, over 12 years of public education, a student can expect to be taught a minimum of $9 / 10$ of a year by a substitute teacher.
- Pennsylvania Department of Education (PDE) statistics on paid personal leaves of absence and paid professional days of absence over the past seven years indicate that median paid absenteeism has been about $8.1 \%$ of student classroom days. If we add to the $8.1 \%$ absenteeism rate the estimated unpaid leaves from the teacher survey, we find a median total leave rate of $10.74 \%$. Sabbatical leaves, which are typically paid but not counted by PDE, have been averaging an additional $1.6 \%$ of teachers statewide and in South West Pennsylvania.

Thus, state data on teacher absenteeism, obtained from superintendents and adjusted for unpaid leaves and sabbaticals, suggests a median total teacher absenteeism rate in SW Pennsylvania of $12.3 \%$. This implies an upper bound estimate of 1.48 years of 12 years of school that SW Pennsylvania students are being taught by a substitute teacher.

- Unpublished summer 2001, Pennsylvania School Board Association (PSBA) district level survey data, when combined with data used in this project, find absenteeism rates, on the order of at least $8.5 \%$ to $9 \%$.
- Teacher absenteeism seems to be increasing over time. Both the 2001-2 absenteeism rates in this study and those derived from the 2000-1 PSBA study are higher than 1977-8 absenteeism rates and 1990-1 absenteeism rates contained in two earlier PSBA studies that focused on just short-term absenteeism. Examination of the PDE data between 19978 and 2001-2 on paid personal leaves and paid development days also indicate some increase in the rate of paid leaves between 1997 and 2001.
- Original data collected for this study and earlier PSBA and PDE data indicate that the rate of teacher absence, however measured, is somewhat higher (from . 2 to .5\%) in South West Pennsylvania than in the rest of Pennsylvania.
- Districts claimed on average they covered $80 \%$ to $85 \%$ of teacher absences in 2001-2; teachers reported to an online survey in this study that on average only $65 \%$ of their absences were covered by substitutes, other full time teachers or school administrators.
- Substitute teachers in South West Pennsylvania, who reported to an online survey in this study, stated that they on average worked about 100 days in school year 2001-2 in about 2 districts, and earned on average between $\$ 77$ and $\$ 94 /$ day. Average income from substitute teaching was $\$ 7,600 / \mathrm{year}$; $42 \%$ of the substitute teachers, who responded to the online survey, also reported working at a part-time time job 1.4 days/week. They also reported a morning commute of about $3 / 4$ of an hour; substitutes thus spent about $80 \%$ more than the average morning commute time in SW Pennsylvania. About $30 \%$ went without health insurance coverage in 2001-2, and about $25 \%$ purchased health insurance themselves.
- Substitute teachers in South West Pennsylvania reported on average teaching outside their areas of certification $25 \%$ of the time, and were far less experienced than their fulltime counterparts.
- Using the adjusted PDE district by district reported data on paid teacher absenteeism, and averaging it across 1997-2001 for each district, at least 1,6,37 substitute teachers were needed on a daily basis out of about 21,300 classroom teachers employed in the 6 county area of SW Pennsylvania. .
- If long-term sabbaticals and unpaid leaves of absence are also accounted for in projecting daily substitute teaching needs in South West Pennsylvania, the daily demand for substitutes rises from 1,637 substitutes/day to 2,777 substitutes/day.
- Substantial care needs to be taken when planning to systematically meet substitute teacher needs. Average substitute teacher demand, based on earlier PSBA studies, shows considerable variation in needs by month and by day of the week. September was $50 \%$ lower than the annual average, and December was $36 \%$ higher than the annual average. Fridays were $21 \%$ higher than the annual average, and Mondays were $10 \%$ lower.


## Preface

This Research Report to The Pittsburgh Foundation reflects better than a year of planning, data collection, analysis and writing. The author wishes to express his gratitude to Dr. Patricia Grey, Senior Program Officer in Education at the Foundation, for her encouragement and patience in this undertaking. More than others, Dr. Grey appreciates the realities of classroom education, and the importance of making sure that not only must children be safe in order to better learn each day, they deserve an enthusiastic and knowledgeable teacher to educate and guide them each day as well. Unfortunately, as this research documented and those administrators in public education know, teacher attendance and its mirror, teacher absenteeism, is an important education issue. Moreover, the problem of teacher absenteeism is not limited to inner city schools, but is endemic, as empirically described below, throughout our metropolitan area.

The author wishes to thank a number of individuals for their helpful comments and observations about teacher absenteeism and the market for substitute teachers in South West Pennsylvania: Dr. Jerry Longo and Ms. Betsy Kasnik of Quaker Valley School District, Dr. Deborah Kolanay of Penn-Trafford School District; Mr. Sherman Shrager of the Pittsburgh Federation of Teachers; Mr. Robert Baldis and Edward Christy of the Pennsylvania State Education Association; Dr. Dwight Mosley and Mrs. Sharon Ward of the Pittsburgh Public Schools; Dr. David Davare of the Pennsylvania School Boards Association; Dr. Mary Ann Marchi, of Seneca Valley School District; Craig Van Behren of Shaler School District; Professor Ronald G. Ehrenberg of Cornell University and Mr. Geoffrey Smith of the Utah State Substitute Teacher Institute; and Ms. Debbie Baldwin of Kelly Educational Staffing. Each was generous with his time and advice to me during this long, complex project. However, as is customary, responsibility for this Report rests solely with the author.

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### 1.0 Introduction

In the Spring of 2002, The Pittsburgh Foundation approached the author about performing a study of the market for substitute teachers in South West Pennsylvania. The Foundation's interest derived from concerns that some urban school districts in the region, both large and small, increasingly were having difficulty in meeting their daily needs for substitute teachers. Recently, the Utah State Substitute Teacher's Institute reported that there is growing evidence that about $10 \%$ of a public school student's class time is taught by a substitute rather than full time teacher. As is well understood, interruptions in classroom education, due to teacher absences, can interrupt in turn student learning, and undermine their interest and motivation to achieve. Finding and employing substitute teachers also involve additional administrative and personnel expenses.

The Foundation entertained the possibility that a multi-district non-profit agency might be better able to identify, screen, train, and supply substitutes to the region's school districts than the uncoordinated efforts of individual districts in the region, but needed an empirical study of the market for substitute teachers to ascertain the possible scale of such an organization prior to organizing an effort to address this emerging education policy problem.

The purpose of this study is to measure the demand for substitute teachers in the region, through original research and data collection, to identify, both from existing literature and new data, the salient characteristics of the existing demand for substitute teachers, and to analyze the problems and prospects of addressing these needs in new ways. This study builds on earlier independent research by the author with administrative records about Pennsylvania's system of public education. ${ }^{1}$

### 1.1 Teacher Absenteeism and the Demand for Temporary Teachers

In order to understand the market for substitute school teachers, it is necessary first to examine the circumstances under which they are typically hired. As a practical matter, the demand or hiring of a substitute classroom teacher is a derived demand determined by the

[^0]absence of a full-time classroom teacher on a short or long-term basis. The absence of a classroom teacher creates a vacancy that must be filled under state law.

As many of us recall from our days attending elementary and secondary school, the absence of a classroom teacher creates an immediate problem for the school, because unattended, a classroom of children of any age can become unruly, posing health or safety risks to each student in the classroom, and can potentially interfere with the education of other students within the school.

Contrast this temporary employee absence in the workplace with, say, an employee's absence from an insurance office. In the insurance office, the absence of office staff merely slows down the processing of claims for a period of time, delays the answering of phone enquiries and development of outgoing correspondence, and may detract from the prompt enrolling of new clients. While the insurance office employee is absent, his work may be continued by others, however, at a somewhat reduced pace. Understaffing can ultimately affect the efficacy of the office, and undermine profitability. But in the short-run, many for profit organizations have enough organizational slack to cover an absent employee. In the case of a classroom teacher, however, if an absent teacher is not replaced by another person (with authority), adverse effects will, by contrast, be immediate.

While many consider teacher absenteeism to be an important education policy issue, official national, state and regional statistics on school teacher absenteeism are not routinely collected in the United States. What we do know about absenteeism in the US economy, as measured by statistical agencies, is somewhat misleading viz. a viz. the absenteeism rates for classroom teachers. As we shall see below in the body of this report, public classroom teacher absenteeism rates are much higher than general employee absenteeism rates in the private sector.

### 1.2 General US and Canadian Absenteeism Rates

General employee absence from the work place due to illness or injury has been federally measured for some time. The US Bureau of Labor Statistics reports that over the period 19922001, median days away from work because of illness or injury were between 5 and 6 days per work year. ${ }^{2}$ Given there are 260 workdays in a fulltime work-year ( 5 days/week x 52 weeks/year), this implies an annual employee absenteeism rate of between $1.9 \%$ and $2.3 \%$. If we presume a 50 week work-year, e.g. two weeks of vacation are usually provided to full-time employees, then the implied annual employee absenteeism rate in the US economy was slightly higher during 1992-2001 at 2.0 to $2.4 \%$.

Overall, female employees appear to display the same general pattern of absenteeism, as BLS reports that over the same period the median days away from work for full-time female employees was 5 days per work-year. ${ }^{3}$ Employees in service, managerial, technical, sales and administrative occupations display the same or somewhat lower absenteeism rates, while employees in US manufacturing were away 5 to 7 days/work-year, and employees in mining

[^1]were away from work, depending on the year in question, between 12 to 25 days/work-year. This implies an annual absenteeism rate of between $4.6 \%$ and $9.6 \%$ in mining. ${ }^{4}$

Statistics Canada, the national Canadian statistical agency, measures a somewhat broader concept of worker absenteeism. It compiles data on days away from work due to illness, disability and personal or family responsibility. Full time workers in Canada over the period 1998-2001 averaged between 7.8 and 8.5 days of such absences per work-year; this translates into absenteeism rates of about $2 \%$ to $3.5 \%$ using various measures of the work year. ${ }^{5}$ Canadian absenteeism varies widely by industry, as in the US, with the health care industry displaying the highest number of days absent per year---12.5 to 12.8 days/year over the period 1998-2001, and public administration displaying the second highest number of days absent per year --- 9.3 to 10.1 days/year. ${ }^{6}$

Statistics Canada reports further that in 1998-2001 full time workers in the educational services industry, including primary, secondary, and higher education, lost 7.6 to 8.5 days/year due to illness, disability and personal or family responsibility. ${ }^{7}$ Female full time employees in the educational services industry reported somewhat higher days lost for the same reasons and period at 8.6 to 9.3 days/year. These figures imply female absenteeism rates in the Canadian educational services industry of between $3.3 \%$ and $3.7 \%$ using 260 days of employment as the denominator in the calculation. If we assume that a female Canadian k-12 school teacher has 180 student contact days, as her US counterpart typically does, then her absenteeism rate was considerably higher than her Canadian private sector counterparts at $4.8 \%$ to $5.2 \%$ respectively. However, as we shall see below, absenteeism rates of female Canadian teachers of $4.8 \%$ to $5.2 \%$ are still much lower by almost half than her teacher counterpart in South West Pennsylvania. ${ }^{89}$

US classroom teacher absenteeism, per se, has generally not been measured by the National Center for Educational Statistics; however in conjunction with its Annual Schools and Staffing Survey NCES has asked building principals if teacher absenteeism is a problem in their judgment. In 1993, $13.8 \%$ of a national sample of principals in the NCES Schools and Staffing Survey indicated that teacher absenteeism was a "moderate" problem, while $1.2 \%$ said it was a "serious" problem. ${ }^{10}$

At the state level, with the exception of Pennsylvania's Department of Education whose data on paid leaves is analyzed below, there is little evidence that state educational agencies, both those in charge of dispersing state aid to school districts and those in charge of legislative oversight of local education agencies, state boards of education, are interested in how or the extent to which local districts deal with absent teachers. ${ }^{11}$ Various non-governmental educational

[^2]organizations, e.g. state and the national school boards association on the other hand, have expressed significant interest in teacher absenteeism and the effective use of substitute teachers, as have both national teachers unions.

### 1.3 Research Questions and Organization of Study

This study seeks to answer the following three central research questions:

- What are the sources and scale of the demand for substitute teachers in SW Pa. public school districts?
- How successful are these districts in meeting their substitute teacher needs?
- What are the characteristics and views of substitutes hired by these districts to meet their needs?

The study is organized as follows: Section 2 reviews the general literature on teacher absenteeism and the demand for substitute teachers as well as Pennsylvania specific studies; Section 3 provides an overview of the legal and institutional framework of teacher and substitute hiring in Pennsylvania; Section 4 provides a statistical review of South West Pennsylvania and a review of earlier Pennsylvania specific studies; Section 5 contains major empirical results of the project and summarizes collective bargaining agreements in South West Pennsylvania, the responses by full time teachers and substitute teachers to the respective online surveys, and the responses by school districts in the region; Section 6 provides projections of substitute demand; and Section 7 summarizes the report's findings.

### 2.0 Earlier Research on Teacher Absenteeism.

While there are no systematic official US statistics on teacher absenteeism throughout the US, there has been periodic interest both in the US and around the world in the matters of teacher supply, teacher absenteeism, and the recruitment of temporary teachers to replace absent teachers. As a result, one can find periodic special studies that address these matters. Here, research on substitute teacher issues in the United Kingdom countries is reviewed along with the limited number of US studies that investigate the scale, causes and effects of teacher absenteeism. Findings of several Pennsylvania School Board Association surveys of district experience with teacher absenteeism are reviewed.

### 2.1 Teacher Absenteeism in the United Kingdom

Centralized teacher quality and curriculum reforms in the 1980's in the United Kingdom (the National Curriculum) were accompanied by ambitious professional development programs. These in turn led to predictable difficulties in maintaining staffing as Local Education Authorities provided school-based training, and took regular teachers out of their classrooms in very significant numbers. As a consequence of these pressures that were nationally transmitted to local schools, k-12 public education in the United Kingdom has had to develop a system of "supply" or substitute teachers that increasingly has been based on the private employment agency model. ${ }^{12}$ Both characteristics of those who seek careers as substitute teachers, and the implications of different ways that they are matched to local school needs have been explored in the 1990's, although there are still relatively few statistical investigations of the different causes of teacher absenteeism and the extent to which absent teachers are "covered" by substitute teachers. ${ }^{13}$

UK schools, like their counterparts in the US, have gone through dramatic demographic changes in the size and composition of the student body, that in turn has had significant impacts on the demand for regular or full time teachers, and in turn impacted the supply of new teachers seeking full time teaching positions. In the 1980's there were far more graduates seeking to become full time teachers than positions, and the secondary effect of this excess supply situation was a ready number of willing substitute teachers to begin at least a part-time career in teaching. Changes in birthrates began to impact elementary school enrollments by the mid 1980's with concomitant effects in the market for teachers. Simultaneous with this tightening in the market for full-time teachers, the above mentioned ambitious professional development programs were centrally funded with attending pressures on the demand for substitute teachers. ${ }^{14}$

Decentralization of school financing, that began with the Thatcher administration, gave local administrators more control of their budgets, but also reduced the demand for substitute teachers since they had to be paid out of what was viewed as fixed, local funds that competed with other local education needs. Substitute teachers who had previously been called in for 1-2 days to cover professional development time discovered such engagements were replaced by $1 / 2$ day and even hourly engagements. The greater uncertainty that resulted from such financial

[^3]considerations, limited interest on the part of possible substitutes. Demographic projections of the supply of substitute teachers in the early 1990's were expected to be order of magnitudes (a factor of 4) lower by the close of the decade with dire implications about the ability of local administrators to locate and employ substitutes. ${ }^{15}$

Atkinson, Rick, Morris, and Williams (1996) estimated that in 1995 substitute or "supply" teachers were about $4 \%$ of the total number of teachers in UK public schools. Of these, fully $70 \%$ of the substitute teachers in Inner London schools and $42 \%$ outside were from private, for profit teacher employment agencies.

Decentralization and increased reliance on the private sector to match LEA short-term teaching needs with those willing to work through a for-profit placement agency has not meant, however, that those brought into the classroom are unregulated. National policy requires identity check, permission to work, qualifications, health, references and check against national police lists. ${ }^{16}$ As in the US, the legal status of substitute teachers, their pay, and whether or not they are covered by national teacher pay legislation are continuing matters of concern to UK teachers unions. Short-term pay rates are negotiated through agencies; those teachers who work directly with LEA's do so at individual rates or at a pay schedules developed by the LEA. Private agencies compete with each other in terms of pay rates when seeking a negotiated relationship with a LEA. UK law and practice permit short-term teachers individually and through agencies to have non-UK licensure.

### 2.2 Scale, Causes and Effects of Teacher Absenteeism in the US

In a series of related papers, Bridges $(1978,1980)$ measured the extent of voluntary absenteeism in elementary schools. He defined voluntary absences as an episode of 1-2 days absence other than sick days. Based on a sample of 36 elementary schools he finds a voluntary absenteeism rate of elementary school teachers of $3.75 \%$; the mean number of such days taken was 3.86 .

In the second investigation, Bridges (1978) examined 57 k-6 elementary schools and their teachers in the San Francisco Bay area and in Wisconsin in 1975 to ascertain if various measures of job satisfaction and organizational scale and cohesion, factors examined in the private sector analysis of worker absenteeism, played a significant role in the attendance patterns of elementary school teachers. Consistent with earlier studies of private workplace absenteeism, he found that the larger the sub-unit of the organization, the greater the teacher absenteeism rate was. On the other hand, greater group cohesion, evidenced by individual teacher attitude responses, reduced absenteeism as did a greater sense of inter-dependence of the individual teacher in her relationship to other teachers in the organization. Also, greater satisfaction with pay was associated with reduced absenteeism.

Winkler(1986) reports that the Dallas, Texas public schools reduced the median days of teacher absence of 6.04 days in 1982-3 to 5.56 in 1983-4 as a consequence of teacher incentive programs that rewarded the top $25 \%$ of the buildings in terms of test scores. Definition and

[^4]measurement was based on recommendations of system-wide teacher committee; incentive payments were in addition to the general compensation system, and the improvements in teacher attendance were system-wide.

In 1986-7, the State of New York State enacted and funded the Excellence in Teaching program to encourage districts to raise starting salaries to the lesser of regional or the statewide mean of salaries, and also to generally raise the salaries of teachers in LEAs. Jacobson (1989) reports that one high salary district, whose teachers had averaged 7 days of absence in 1985-6 used these new monies to create a $\$ 300$ bonus and a pool from which a bonus could be earned. The bonus was devised as a share for each day of absence so that no share would be issued to anyone who took 7 days of leave. Given the size of the teacher force, if only one teacher had 6 absences (e.g. earned 1 share, and the total number of shares earned was 1 ), she could earn $\$ 72,809$ which was the total size of the allocation made by the district. In fact 1,274 shares were earned so that each share was worth $\$ 57.16$, and perfect attendance would earn 7 shares or $\$ 400$. This amounted to $1.08 \%$ of the mean salary in the study district.

Overall, Jacobson (1989) reports teacher level comparisons as a result of the incentive program. The mean days of absence dropped from 7.21 in 1985-6 to 5.34 in 1986-7, while the median days of absence dropped from 6.5 days to 3.25 days. Also, sick days taken dropped from 5.97 to 3.84 while personal leave days taken increased from 1.23 to 1.51 . The total number of teachers with perfect attendance increased fourfold.

Ehrenberg, Ehrenberg, Rees and Ehrenberg (1989) in conjunction with their extensive analysis of teacher absenteeism in New York State note that the influential meta-analysis in Hanushek(1986) does not address possible effects of absenteeism on student achievement. Summers and Raivertz's (1982) study of $4^{\text {th }}$ grade students in Philadelphia found that absenteeism negatively affected reading achievement; Murnane (1976) Summers and Raivetz (1982), and Summers and Wolfe(1977) also found that student absenteeism negatively impacts student achievement.

Ehrenberg, Ehrenberg, Rees and Ehrenberg (1989) analyzed the collective bargaining agreements of over 700 New York State school districts in 1986-7 to ascertain how these negotiated teacher leave policies influence teacher absenteeism, how teacher absenteeism in turn affects student absenteeism, and how both student and teacher absenteeism affect student achievement. This study defined teacher absenteeism broadly to include "sick leave and other leave days (e.g. family leave, personal leave, religious, conference and/or visitation days), and thus conforms to the measure, as noted above, collected by Statistics Canada. ${ }^{17}$ Mean leave days reported by the 381 districts (out of 722 total districts in New York State) was 8.9 leave days per teacher with a standard deviation of 3.3 days; the minimum was 0 and the maximum was 23.34. ${ }^{18}$ Under the assumption of a 180 day school year, this implies overall for New York State a $4.94 \%$ absenteeism rate. Total leave days available under the contract ranged between 9 and 37. The majority of agreements permitted between 180 and 200 unused sick leave days to

[^5]accumulate; over $10 \%$ more than 200 days to accumulate. Over two-thirds of the contracts allowed some or all of the unused sick leave to be cashed in upon retirement at various daily rates.

About $2 / 3$ of the contracts specifically accorded professional days with 3-5 days as the most frequent provision; $60 \%$ of the contracts provided sick leave banks which obligate teachers in the local district to contribute specific numbers of sick leave days, in return for which they would be eligible to "draw-down" such insured access to sick leave days. Such banks typically are created to deal with unusual, very long-term illnesses to provide some form of internally funded income security system.

With respect to the inter-relations among teacher absenteeism, student absenteeism and student achievement, Ehrenberg, Ehrenberg, Rees and Ehrenberg (1989) found that teacher absenteeism grows in response to greater numbers of various kinds of leaves negotiated in collective bargaining agreements, and that student achievement goes down as student absenteeism goes up. On the other hand, they find, unlike the above discussed researchers, that higher teacher absenteeism is not associated directly with lower student scores on competency exams. However, since teacher absenteeism is associated with higher student absenteeism, there is an indirect, detrimental effect on achievement when teacher absenteeism rises. Their empirical results also suggest, as Jacobson (1989) found, that the number of leave days taken is sensitive to financial incentives. Increasing the number of leave days that can be "cashed in" at retirement by 30 days would reduce the use of sick leave by one day per teacher per year. ${ }^{19}$

### 2.3 School and Market Responses to Teacher Absenteeism

Since virtually all states require that students attending public schools take classes that are taught by teachers, it follows that every day district administrators and their school administrators deal with the reality that some non-negligible number of teachers do not show up to teach and that substitutes must be found.

Districts have dealt with this reality in a number of ways. First, they may create and maintain a list of those able and willing to substitute teach on short notice. A school or central office person, typically a secretary, upon being notified that a teacher will be absent, then calls the existing list to employ a substitute for a limited period of time. The district may subscribe to software that automates the telephone process. Under an automated system, the teacher who wishes to be absent simply calls a number, enters a pin number, and then provides the information about the forthcoming absence from school. Having been so notified, the system then calls its stored list of substitutes to engage someone who is properly certified to do this. The AESOP system is perhaps the best known of the automated, phone-based systems for notification of an absence and the engagement of a substitute. AESOP is also available as an Internet based system. The full time teacher wishing to be absent simply logs into the District's web site on AESOP, and completes a simple form that then triggers online notification of the stored substitute list that is appropriate to fill the vacancy, and the announces the vacancy to interested substitute teachers. Potential substitutes can reject the offer by phone or Internet simply by not responding to the announced vacancy. Buildings with student discipline problems can thus find

[^6]their full-time teachers avoiding a difficult situation and also find no takers for the temporary employment opportunity. Low rates of daily pay, discussed below, further complicate finding temporary teachers for relatively undesirable, last minute substitute teaching opportunities.

Such intermediation still requires that each school district develop and maintain its own substitute teacher list, and advertise, screen, recruit, and administer the compensation mechanism so that the substitute gets paid. There are a range of state and federal employment and tax issues associated with temporary employees. For example, questions arise about whether or not the temporary employee is an independent contractor, and the employer is, or is not subject to contributions for state unemployment insurance, workmen's compensation, and local, state and federal tax withholding. From the point of view of the substitute teacher, the general absence of health and retirement benefits and low rate of pay affects their willingness to be a substitute.

This staffing problem is, of course, not unique to the public sector. The private, for profit service industry has for decades provided various kinds of temporary staffing to employers to cover for their full-time employees on vacation or otherwise temporarily not at work.

Kelly Services, Inc. entered the market for supplying substitute teachers on a trial basis in 1997, and implemented its commercialization strategy in January, 2000. Beginning with contracts with 30 school districts in 2000, Kelly Educational Staffing now provides substitute teacher services to 1,400 schools in 36 states, and 200 schools in the United Kingdom. In 20023 , it covered 300,000 days of teacher absences with 9,000 substitutes, and achieved better than a $97 \%$ coverage rate. With 2,400 locations throughout the US, Kelly Services is able to offer substitute teacher services to any school that wishes to contract with it. Kelly estimates that districts who hire their own substitutes face anywhere from $27 \%$ to $42 \%$ of additional costs from taxes (Unemployment Insurance, Workmen's Compensation), hiring and training expenses, and related overhead. Kelly absorbs these costs in its independent contractor relationship with the employer, and provides to its employees, the substitutes, a range of benefits that are not generally available to substitutes who relate directly to individual schools.

Its business model follows its traditional placement relationship with a contracted employer. Under its contract for substitute teacher services, Kelly agrees to supply a substitute teacher at the district's standard pay rates, and offers the teacher health benefits, weekly pay, direct deposit, access to a 401 (k) plan, and an attendance bonus each July. Kelly's profit derives from its negotiated markup rate applied to the pay scale. Substitute teachers who Kelly provides are employees of Kelly Educational Services. The contracts may provide for just short-term or daily substitutes or the full range of short and long-term substitutes. About $40 \%$ of districts enter into contractual relationships with Kelly during the school year. Kelly Educational Staffing states that it observes total absenteeism rates much higher than reported in the literature. On the order of $15-20 \%$ of teachers are absent from their classes in a given day. ${ }^{20}$ Kelly provides fully credentialed substitute teachers in accordance with state law, and trains the substitutes on appropriate conduct and demeanor during their period of temporary employment.

[^7]They also provide building principals with managerial training on the use of temporary staff, and provide to the district and building principals a range of information technology tools that allow them to determine their satisfaction with their substitute teachers. Importantly, Kelly provides the employer daily information on the employer's absent teachers, and provides to the substitutes a clear path to an orderly career in substitute teaching. Currently, Kelly Educational provides contractual substitute teacher services to the Morrisville, Chichester and William Penn districts in eastern Pennsylvania. It has a major presence in New York, Connecticut and Delaware. ${ }^{21}$

### 3.0 The Statutory and Regulatory Framework in Pennsylvania for Hiring a Substitute Teacher

To understand how a substitute teacher may be hired in Pennsylvania, it is helpful first to understand how a full-time teacher is hired by a public school. The full-time teacher must be a "professional personnel" under the Pennsylvania School Code which is controlling regardless of the classification or contract extended to the teacher by school board action. ${ }^{22}$

### 3.1 General Statutory Provisions Affecting the Employment of Full Time Teachers in Pennsylvania

Pennsylvania, like most states, closely regulates through state licensure laws and regulations who may initially and permanently teach in a public school. State supervision of the conditions surrounding teachers' employment is also found in various parts of Pennsylvania's labor and collective bargaining statutes that govern general employment as well as public employment, regulations, court decisions and arbitration decisions.

To be initially employed in a Pennsylvania public school, the prospective teacher must have a provisional or permanent teaching certificate issued by the Pennsylvania Department of Education (PDE). A provisional teaching certificate ${ }^{23}$ is obtained by: (1) earning a degree from a PDE approved teacher preparation program, (2) passing standardized examinations set by Educational Testing Service of Princeton, New Jersey, ${ }^{24}$ (3) completing a satisfactory practice teaching internship that is supervised by the approved teacher preparation program, and (4) being recommended for the certificate by the approved teacher preparation program through their letter to the Bureau of Teacher Certification in the Pennsylvania Department of Education. As a practical matter, the prospective teacher must be admitted to an approved teacher preparation program, graduate with a B average, pass the Praxis I and II examinations in her junior or senior year, and do a teaching internship at a local school district for a portion of one semester. As of September, 2001 the prospective teacher must also complete a true college major in a specialty area as well as fulfill the various education course requirements in the approved program of instruction.

[^8]A permanent certificate (Instructional Certificate II now called a Level II Certificate) is obtained after the satisfactory completion of three years of teaching, ${ }^{25}$ completion of 24 credits of post-baccalaureate education, and recommendation by the district superintendent to PDE.

Pennsylvania recognizes provisional and permanent teaching certificates earned in other states through a series of reciprocity agreements. Limited mechanisms also exist under state law for college graduates desiring to enter the teaching profession to do so, but without a college degree at an approved program of teacher preparation, through alternative, non-traditional paths.

### 3.2 Emergency Certification

An emergency permit is issued by the Department upon the request of the employing public school entity when a position has been advertised and no fully qualified and properly certificated applicant is available. The term "fully qualified" is not defined by statute or regulation. The candidate for an emergency permit must have earned a bachelor's degree from a state-approved college or university and must meet all other eligibility requirements related to age, citizenship, mental and physical health and good moral character.

The emergency permit may be requested for an individual to serve in a vacant position or as a long-term or day-to-day substitute teacher. The permit is valid from the first day of the month of issuance until the last day of summer school in that school year and may be reissued in subsequent years upon the submission of the appropriate application to the Department from the public school entity and completion of conditions set by the Department.

### 3.3 Job Classification and Hiring of Permanent, Temporary and Substitute Teachers

School district hiring of teachers, and especially the terms of their employment, is regulated by various parts of the Pennsylvania School Code that deal with the notions of permanent and temporary professional personnel, and substitute teachers. While the legal distinctions among the three classifications of teachers are subtle, they are nonetheless quite important because they materially affect the financial incentives that surround the personnel decision. The discussion below deals exclusively with teachers, and not with other kinds of school employees.

A professional employee is one who has achieved tenure. Viz. a viz. the above-described certification rules, the professional employee is an employed teacher who has successfully completed three years of probationary teaching and has been recommended for a Level II Certificate by the superintendent in which the teacher is employed. A temporary professional employee is one who has not achieved such tenure but who is employed:
"...to perform for a limited time, the duties of a newly created position or of a regular professional employee whose services have been terminated by death, resignation, suspension or removal., ${ }^{26}$

[^9]School districts may hire temporary professional employees on a conditional basis if they are within six months of obtaining their degree and certification.

Pennsylvania's School Code distinguishes a substitute teacher from professional and temporary professional employees as follows:
"The term 'substitute shall mean any individual who has been employed to perform the duties of a regular professional employee during such period of time as the regular professional employee is absent on sabbatical leave or for other legal cause authorized and approved by the board of school directors or to perform the duties of a temporary professional employee who is absent." ${ }^{27}$

The distinction between a substitute teacher and a temporary professional employee is significant, because substitutes are not covered by collective bargaining agreements whereas temporary professional employees are so covered. ${ }^{28}$ This has a variety of implications not only for the pay scale of substitute teachers, but also for other work-related protections and procedures.

There is significant Pennsylvania case law that holds that a teacher cannot be given tenure absent fulfillment of various statutory requirements. Thus, a school district can not accord tenure status to a full time employee who is not certified or whose certification has been revoked. However, in Hawes v. Public School Employes' Retirement System, ${ }^{29}$ a substitute teacher's access to membership in the state teacher's retirement plan was upheld, despite the fact that the teacher's substitute services were through a placement service that maintained a contractual relationship between the placement service and school district.

### 3.4 The Practical Impact of Pennsylvania Supreme Court Rulings in Mifflinberg and Penns Manor ${ }^{30}$

After a school district hires a teacher as a substitute teacher, it is commonplace for the teacher to seek the position on a regular basis. Whether the district hires an experienced substitute teacher, as contrasted with a person with a Level I certificate but no prior experience, has become more complicated as a result of two Pennsylvania Supreme Court decisions.

The decision to further employ on a tenured or provisionally tenured basis such a person who has had temporary or periodic employment in the district is at the discretion of the school district and its school board. However, as a consequence of two related rulings by the Pennsylvania Supreme Court in 1999, the financial terms of the employment decision are governed by the rulings in Mifflingberg and Penns Manor which, in effect, obligate the school district to give

[^10]credit for prior periods of service when placing the former employee in the permanent salary scale that is the subject of local collective bargaining. In the situation in which the teacher worked as a short-term substitute for several years, and then gets hired to be a temporary professional personnel, the district is obligated under Mifflinberg and Penns Manor to place the teacher in the higher negotiated rung of the salary scale as a result of being obligated to count the prior experience. If the teacher has been substituting for a considerable period of time, these decisions could easily add another $\$ 2,000$ to $\$ 3,000$ in starting salary cost to the local district costs, and have the effect of discouraging the hiring of experienced substitutes as temporary or professional personnel as contrasted with certificated, but inexperienced graduates.

### 3.5 Federal and State Law Governing Various Teacher Leaves of Absence

There are several statutes that accord professional personnel various types of paid and unpaid leaves of absence from their employment, and protect such employees during periods of leave in terms of continuation of health and medical insurance, continuity in retirement fund contributions, and orderly return to their prior position.

### 3.5.1 Leave under Federal Employment Law

The Family and Medical Leave Act of 1993, Public Law 103-3, was enacted February 5, 1993, and provides a variety of protections to those employed for a year or more who worked at least 1250 hours during that period, and who seek to take unpaid leave of absence for up to 12 weeks for a variety of family and medical reasons. During the period of leave, the employer must continue to provide health insurance and make contributions into the employee's retirement program, and ensure that the employee's position is there upon his return.

### 3.5.2 State Law According Teachers Paid Leaves of Absence

The Pennsylvania School Code ${ }^{31}$ requires school districts to provide:
10 days of paid personal sick leave ${ }^{32}$
3 days of paid bereavement leave for attending funeral of immediate family member ${ }^{33}$
1 day of paid bereavement leave for attending funeral of near family member ${ }^{34}$
15 days of paid military leave ${ }^{35}$
Districts may collectively bargain with their teachers unions beyond these state mandated number of leave days, as well as for other types of paid leave days. Other types of negotiated leave days include family sick leave, emergency, personal, union, jury, and professional development. ${ }^{36}$

[^11]State law governing the payment of retirement pensions restricts retired teachers who substitute teach to no more than 95 days per school year without reduction in retirement benefits.

### 3.6 Comparison of Pennsylvania to Other States' Substitute Teacher Credentials Requirements ${ }^{37}$

The states vary widely in the credentials they require to enable a person to substitute teach in a public school. Utah requires only a high school education while Pennsylvania requires, as discussed above, a substitute to be certified as a holder of an Instructional I or II certificate, or to have received an Emergency Certification from the Pennsylvania Department of Education. Overall, 15 states $^{38}$ require that a substitute teacher have a BA degree, while another 7 require the degree essentially for secondary substitute activities. (See Table 1). Most states provide for some sort of periodic renewal whereas Pennsylvania accords permanent, lifetime access to a teaching certificate upon attaining a Level II certificate, and engaging in periodic professional development. Overall, Pennsylvania requires rather more in terms of traditional credentials for its substitute teachers than many other states. This has the effect of potentially limiting the market or supply of educated persons interested in participating in the market for substitute teacher services.

Historically, Pennsylvania has graduated and certificated far more teachers than its public school districts and other local education agencies are able to absorb. ${ }^{39}$

Table 1
Degree Requirements to be Substitute Teacher in US

| BA Required? | Number of <br> States | $\boldsymbol{\%}$ |
| :---: | :---: | :--- |
| Yes | 15 | $36.6 \%$ |
| No | 19 | $46.3 \%$ |
| Depends <br> upon Certificate | 7 | $17.1 \%$ |
| Total | 41 | $100.0 \%$ |

Source: Tabulations of Jones, Hawkins, and Smith(2002); see Appendix A.

[^12]
### 4.0 Pennsylvania Statistics and Studies of Teacher Absenteeism

### 4.1 Empirical Characteristics of SW Pennsylvania School Districts

Pennsylvania contains 501 public school districts and enrolled about 1.821 million public school students in 2001-2. For the purposes of this study, South West Pennsylvania is defined as the six county metropolitan area composed of Allegheny, Beaver, Butler, Fayette, Washington, and Westmoreland counties. The region contained about 2.4 million residents in 2000, and 4 of the 6 counties lost population in 2001 compared to 2000. According to the US Bureau of the Census, overall, the population of the region in 2001 was about $1 / 2 \%$ lower than in 2000.

South West Pennsylvania's six counties contain 102 school districts; 43 districts, with half of the region's enrollment, are located in Allegheny County. In school year 2001-2 the 102 districts enrolled about 335,000 students ( $18.4 \%$ of state-wide public school enrollment), and employed about 21,300 classroom teachers. Population density varies dramatically with Allegheny County, the most dense, at about 1,700 persons per square mile, and Fayette County, the least dense, at about 188 persons per square mile. Regional travel time to work was about the same in 2000 according to the Census Bureau as overall in the state. Mean travel time to work among the areas was between 24 to 26 minutes, and 25.3 minutes overall. (See Table 2).

Table 2
County Level Characteristics of South West Pennsylvania' School Districts

| County | US Census Bureau 2000 \& 2001 Data |  |  |  |  | Pennsylvania Department of Education Data |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Land Area Square Miles | 2000 <br> Census <br> Population | Population per Square Mile | 2001 <br> Population <br> \% Change | Mean <br> Travel <br> Time to <br> Work | School <br> Districts | 2001-2 <br> Student <br> Enrollment | 2001-2 <br> Classroom <br> Teachers |
| Allegheny | 730 | 1,281,666 | 1,756 | -0.90\% | 25.3 | 43 | 171,542 | 11,434 |
| Beaver | 434 | 181,412 | 418 | -0.80\% | 24.5 | 15 | 27,733 | 1,768 |
| Butler | 789 | 174,083 | 221 | 1.40\% | 25.3 | 7 | 27,843 | 1,693 |
| Fayette | 790 | 148,644 | 188 | -0.90\% | 26.5 | 6 | 20,909 | 1,259 |
| Washington | 857 | 202,897 | 237 | 0.40\% | 25.6 | 14 | 30,732 | 1,944 |
| Westmoreland | 1,025 | 369,993 | 361 | -0.30\% | 25.4 | 17 | 56,302 | 3,206 |
| South West Pennsylvania | 4,625 | 2,358,695 | 510 | -. $52 \%$ | 25.3 | 102 | 335,061 | 21,304 |

### 4.2 Pennsylvania Department of Education Statistics on Paid Teacher Leaves of Absences and Paid Development Days: PaProfiles

Beginning in the mid 1990's, the Pennsylvania Department of Education undertook an ambitious program of school and district data collection that it placed on its Internet Web site: www.paprofiles.org. Data at the individual school, district and county levels are available on enrollment, attendance, staffing (including paid personal leave and professional development
days), assessments as reflected in the Pennsylvania System of Student Assessment test results, SAT and ACT test results, and some measures of district level finances.

More specifically, each year PDE asks each superintendent to certify the number of paid leaves of absence for various personal reasons ${ }^{40}$, but exclusive of sabbatical leave. PDE also obligates superintendents to certify the number of contractual days in the school year. PDE reports the ratio of such paid leave to such contractual days; however, given the focus in this study on classroom impacts of teacher absenteeism and use of substitute teachers, we shall compare such days of teacher leave to the number of teacher-student contact days which is estimated as:

Teacher Student Contact Days $=180 \times$ Number of Full Time Teachers. ${ }^{41}$
The paid personal leave rate $(\mathrm{P})$ is then the ratio of paid personal leave days reported to the calculated Teacher Student Contact Days; the professional development leave rate (D) is the ratio of the reported days of paid professional leave to the calculated Teacher Student Contact Days:

```
Paid Personal Leave Rate (P) =
    Paid Personal Leave Days / Teacher Student Contact Days
Paid Development Leave Rate (D) = Paid Development Leave Days/Teacher Student Contact Days
```

Finally, we can add (2) and (3) together to obtain the Total Paid Leave Rate (T), e.g.:

Total Paid Leave Rate $(T)=P+D$
Table 3 displays the distribution of these three paid leave rates for Local Education Agencies, including area vocational schools, intermediate units, and charter schools for the period 1997-2001-2. It also displays the distribution for three geographic areas: statewide, the six-county area in South West Pennsylvania, and the rest of Pennsylvania.

Overall (See Panel A of Table 3), paid median leaves were about $7 \%$ to $8 \%$ for the median LEA; paid personal leave was the larger rate of leave: it ranged from $4.4 \%$ to $4.7 \%$ while paid

[^13]development leave ranged from $2.4 \%$ to $2.7 \%$. Note that in any given year the range among districts was greater than changes across time for the total median paid leave, or median paid personal or development leave.

There appear to be, however, regional differences between South West Pennsylvania and the balance of the state in terms of total paid leave and each of its components. Generally, total paid leave rates are a bit higher in South West Pennsylvania than in the balance of the state; however, this results in somewhat higher paid personal leave taken and somewhat lower paid development days accorded by the districts to their teachers.

If we restrict the analysis to just public school districts, and ignore reported paid leaves for area vocational schools, intermediate units, special schools, lab schools, and charter schools, we find the same pattern of results, although the distributions of various leave rates, statewide, in SW Pennsylvania, and the rest of the state are more compact. (See Table 4).

Table 5 examines in terms of class of district the median paid leave rates by year. ${ }^{42}$ Note that Philadelphia had considerably higher paid leave rates than Pittsburgh in each year. Table 6 examines SW Pennsylvania in more detail across 1997/8 through 2001-2. It is evident that Pittsburgh's school district generally had lower rates of leave than others in the region.

Appendix 1 displays by county and school district the total paid, personal and development leave rates for school districts in South West Pennsylvania.

### 4.3 Statewide and Regional Patterns of Sabbatical Leave

Each fall, superintendents are required by the Pennsylvania Department of Education to report on their professional personnel who were employed, those who withdrew, and those who took a sabbatical leave. Statewide, sabbaticals fell from about 3,600 in 1984 out of 119,700 total professional personnel, to about 2,200 in 2001 out of about 139,000 total professional personnel. Sabbaticals were thus statewide about $3 \%$ of the total professional personnel in 1984, and about $1.6 \%$ in 2001. In South West Pennsylvania, total sabbaticals fell from 839in 1984 to 316 in 2001 or about $1.6 \%$ in 2001. (See Table 7 and Figure 1).

These long-term leaves are thus at a rate of about $1.6 \%$ on top of the measured short-term leave rates of 7 to $7.5 \%$ shown in the various PDE statistical series, and suggest total paid absence rates of about $8.5 \%$ to $9 \%$.

[^14]A Research Report to The Pittsburgh Foundation

## Table 3

PDE Paid Median
Total, Personal, and Development Days as Percent of Student Contact Days
by Year and Region for LEAs (Q1 is $\mathbf{2 5 \prime}$ 'th Percentile Q3 is $\mathbf{7 5}$ 'th Percentile)

| Panel A: All LEAs |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Total Paid <br> Leave Rate |  |  | Paid Personal <br> Leave Rate |  |  | Paid Development <br> Days Rate |  |  |
| Year | LEAs | Q1 | Median | Q3 | Q1 | Median | Q3 | Q1 | Median | Q3 |
| $1997-8$ | 554 | $6.0 \%$ | $7.4 \%$ | $8.9 \%$ | $3.8 \%$ | $4.4 \%$ | $5.3 \%$ | $1.7 \%$ | $2.6 \%$ | $4.0 \%$ |
| $1998-9$ | 571 | $5.9 \%$ | $7.4 \%$ | $9.0 \%$ | $3.7 \%$ | $4.5 \%$ | $5.5 \%$ | $1.4 \%$ | $2.5 \%$ | $4.0 \%$ |
| $1999-0$ | 629 | $5.3 \%$ | $7.0 \%$ | $8.6 \%$ | $3.5 \%$ | $4.4 \%$ | $5.3 \%$ | $1.3 \%$ | $2.4 \%$ | $3.7 \%$ |
| $2000-1$ | 539 | $6.0 \%$ | $7.7 \%$ | $9.3 \%$ | $4.0 \%$ | $4.7 \%$ | $5.5 \%$ | $1.4 \%$ | $2.7 \%$ | $4.1 \%$ |
| $2001-2$ | 550 | $5.8 \%$ | $7.6 \%$ | $9.5 \%$ | $3.7 \%$ | $4.7 \%$ | $5.6 \%$ | $1.5 \%$ | $2.7 \%$ | $4.2 \%$ |

Panel B: LEAs in South West Pennsylvania

|  |  | Total Paid <br> Leave Rate |  |  | Paid Personal <br> Leave Rate |  |  | Paid Development <br> Days Rate |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Year | LEAs | Q1 | Median | Q3 | Q1 | Median | Q3 | Q1 | Median | Q3 |
| $1997-8$ | 107 | $6.2 \%$ | $7.4 \%$ | $9.2 \%$ | $4.1 \%$ | $4.8 \%$ | $5.6 \%$ | $1.7 \%$ | $2.5 \%$ | $4.0 \%$ |
| $1998-9$ | 109 | $6.1 \%$ | $7.3 \%$ | $9.2 \%$ | $4.1 \%$ | $5.0 \%$ | $5.9 \%$ | $1.4 \%$ | $2.2 \%$ | $3.7 \%$ |
| $1999-0$ | 114 | $6.1 \%$ | $7.5 \%$ | $9.3 \%$ | $4.3 \%$ | $4.9 \%$ | $5.9 \%$ | $1.2 \%$ | $2.4 \%$ | $3.8 \%$ |
| $2000-1$ | 94 | $6.6 \%$ | $8.3 \%$ | $10.0 \%$ | $4.3 \%$ | $5.1 \%$ | $6.1 \%$ | $1.7 \%$ | $3.1 \%$ | $4.4 \%$ |
| $2001-2$ | 103 | $6.0 \%$ | $8.0 \%$ | $9.7 \%$ | $3.9 \%$ | $5.0 \%$ | $6.1 \%$ | $1.5 \%$ | $2.7 \%$ | $4.2 \%$ |

Panel C: LEAs in Rest of Pennsylvania

|  |  | Total Paid <br> Leave Rate |  |  | Paid Personal <br> Leave Rate |  |  | Paid Development <br> Days Rate |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Year | LEAs | Q1 | Median | Q3 | Q1 | Median | Q3 | Q1 | Median | Q3 |  |
| $1997-8$ | 447 | $5.9 \%$ | $7.4 \%$ | $8.8 \%$ | $3.7 \%$ | $4.4 \%$ | $5.2 \%$ | $1.7 \%$ | $2.6 \%$ | $4.0 \%$ |  |
| $1998-9$ | 462 | $5.8 \%$ | $7.4 \%$ | $8.9 \%$ | $3.7 \%$ | $4.4 \%$ | $5.3 \%$ | $1.5 \%$ | $2.6 \%$ | $4.1 \%$ |  |
| $1999-0$ | 515 | $5.1 \%$ | $6.9 \%$ | $8.3 \%$ | $3.4 \%$ | $4.3 \%$ | $5.1 \%$ | $1.3 \%$ | $2.4 \%$ | $3.7 \%$ |  |
| $2000-1$ | 445 | $5.8 \%$ | $7.6 \%$ | $9.1 \%$ | $3.9 \%$ | $4.6 \%$ | $5.5 \%$ | $1.4 \%$ | $2.7 \%$ | $4.1 \%$ |  |
| $2001-2$ | 447 | $5.7 \%$ | $7.5 \%$ | $9.4 \%$ | $3.6 \%$ | $4.7 \%$ | $5.5 \%$ | $1.4 \%$ | $2.7 \%$ | $4.3 \%$ |  |

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Table 4
PDE Paid Median Total, Personal Leave and Development Days as Percent of Student Contact Days

## For Public School Districts

By Region

| All School Districts |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Total Paid Leave Rate |  |  | Paid Personal Leave Rate |  |  | Paid Development Days Rate |  |  |
| Year | SDs | Q1 | Median | Q3 | Q1 | Median | Q3 | Q1 | Median | Q3 |
| 1997 | 487 | 6.1\% | 7.4\% | 9.0\% | 3.9\% | 4.5\% | 5.3\% | 1.7\% | 2.6\% | 4.0\% |
| 1998 | 488 | 6.0\% | 7.4\% | 9.0\% | 3.9\% | 4.6\% | 5.5\% | 1.4\% | 2.5\% | 3.9\% |
| 1999 | 484 | 5.8\% | 7.3\% | 8.9\% | 3.9\% | 4.5\% | 5.4\% | 1.3\% | 2.6\% | 3.8\% |
| 2000 | 453 | 6.2\% | 7.8\% | 9.2\% | 4.1\% | 4.8\% | 5.6\% | 1.5\% | 2.7\% | 4.1\% |
| 2001 | 464 | 6.0\% | 7.8\% | 9.6\% | 3.8\% | 4.8\% | 5.7\% | 1.6\% | 2.7\% | 4.3\% |

School Districts in South West Pennsylvania

|  |  | Total Paid <br> Leave Rate |  |  | Paid Personal <br> Leave Rate |  |  | Paid Development <br> Days Rate |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Year | SDs | Q1 | Median | Q3 | Q1 | Median | Q3 | Q1 | Median | Q3 |  |
| 1997 | 96 | $6.3 \%$ | $7.4 \%$ | $9.4 \%$ | $4.1 \%$ | $4.8 \%$ | $5.6 \%$ | $1.8 \%$ | $2.5 \%$ | $4.0 \%$ |  |
| 1998 | 95 | $6.3 \%$ | $7.3 \%$ | $9.2 \%$ | $4.3 \%$ | $5.1 \%$ | $5.9 \%$ | $1.4 \%$ | $2.2 \%$ | $3.7 \%$ |  |
| 1999 | 97 | $6.1 \%$ | $7.5 \%$ | $9.3 \%$ | $4.4 \%$ | $4.9 \%$ | $5.9 \%$ | $1.2 \%$ | $2.4 \%$ | $3.7 \%$ |  |
| 2000 | 81 | $6.6 \%$ | $8.4 \%$ | $9.9 \%$ | $4.6 \%$ | $5.2 \%$ | $6.2 \%$ | $1.8 \%$ | $3.1 \%$ | $4.2 \%$ |  |
| 2001 | 90 | $6.1 \%$ | $8.1 \%$ | $9.7 \%$ | $4.1 \%$ | $5.1 \%$ | $6.1 \%$ | $1.5 \%$ | $2.7 \%$ | $4.3 \%$ |  |

School Districts in Rest of Pennsylvania

|  |  | Total Paid <br> Leave Rate |  |  | Paid Personal <br> Leave Rate |  |  | Paid Development <br> Days Rate |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Year | SDs | Q1 | Median | Q3 | Q1 | Median | Q3 | Q1 | Median | Q3 |  |
| 1997 | 391 | $6.0 \%$ | $7.4 \%$ | $8.9 \%$ | $3.8 \%$ | $4.4 \%$ | $5.2 \%$ | $1.7 \%$ | $2.6 \%$ | $4.1 \%$ |  |
| 1998 | 393 | $5.9 \%$ | $7.5 \%$ | $9.0 \%$ | $3.9 \%$ | $4.6 \%$ | $5.4 \%$ | $1.4 \%$ | $2.5 \%$ | $4.0 \%$ |  |
| 1999 | 436 | $5.3 \%$ | $7.0 \%$ | $8.4 \%$ | $3.5 \%$ | $4.3 \%$ | $5.2 \%$ | $1.3 \%$ | $2.5 \%$ | $3.7 \%$ |  |
| 2000 | 379 | $6.0 \%$ | $7.7 \%$ | $9.0 \%$ | $4.0 \%$ | $4.7 \%$ | $5.4 \%$ | $1.4 \%$ | $2.7 \%$ | $4.1 \%$ |  |
| 2001 | 374 | $5.9 \%$ | $7.8 \%$ | $9.5 \%$ | $3.8 \%$ | $4.8 \%$ | $5.6 \%$ | $1.6 \%$ | $2.7 \%$ | $4.3 \%$ |  |

Table 5
PDE Median Paid Total, Personal, and Development Days as Percent of Student Contact Days by Type of LEA and Year (statewide)

| Class of LEA | 1997/8 |  |  |  | 1998/9 |  |  |  | 1999/2000 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{gathered} \# \\ \text { LEAs } \end{gathered}$ | Median Rate of Paid Leave |  |  | $\begin{gathered} \text { \# } \\ \text { LEAs } \end{gathered}$ | Median Rate of Paid Leave |  |  | $\begin{gathered} \# \\ \text { LEAs } \end{gathered}$ | Median Rate of Paid Leave |  |  |
|  |  | Total $=$ | $\underline{\mathbf{P}}$ | D |  | Total= | $\underline{\mathbf{P}}$ | D |  | Total $=$ | $\underline{\mathbf{P}}$ | D |
| Intermediate Unit |  | . | . | . | 1 | 9.22\% | 2.22\% | 6.99\% | 4 | 5.95\% | 3.37\% | $3.17 \%$ |
| 1: Philadelphia | 1 | 10.10\% | 6.63\% | 3.50\% | 1 | 9.79\% | 6.29\% | 3.50\% | 1 | 10.50\% | 5.97\% | 4.57\% |
| 1A: Pittsburgh | 1 | 5.90\% | 4.75\% | 1.15\% | 1 | 5.18\% | 4.67\% | 0.52\% | 1 | 5.12\% | 4.57\% | 0.55\% |
| 2: 2nd Class District | 69 | 7.50\% | 4.66\% | 2.62\% | 69 | 8.13\% | 4.92\% | 2.80\% | 114 | 6.29\% | 4.22\% | 2.17\% |
| 3: 3rd Class District | 387 | 7.42\% | 4.46\% | 2.65\% | 386 | 7.37\% | 4.57\% | 2.48\% | 384 | 7.35\% | 4.50\% | 2.58\% |
| 4: 4th Class District | 29 | 7.04\% | 4.23\% | 2.22\% | 31 | 6.98\% | 4.58\% | 2.08\% | 33 | 6.08\% | 3.56\% | 2.63\% |
| 7: Vo Tech | 50 | 7.01\% | 3.90\% | 2.22\% | 50 | 7.23\% | 3.79\% | 2.51\% | 49 | 6.92\% | 4.46\% | 2.22\% |
| 8: Lab School | 1 | 6.50\% | 3.44\% | 3.06\% | 1 | 3.83\% | 2.79\% | 1.04\% | 1 | 4.50\% | 3.60\% | 0.90\% |
| 9: Charter | 16 | 6.42\% | 3.68\% | 2.78\% | 31 | 6.82\% | 3.11\% | 3.33\% | 41 | 5.42\% | $3.41 \%$ | 2.37\% |


| Class of LEA | 2000/1 |  |  |  | 2001/2 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{gathered} \text { \# } \\ \text { LEAs } \end{gathered}$ | Median <br> Rate of Leave |  |  | $\begin{gathered} \# \\ \text { LEAs } \end{gathered}$ | Median Rate of Leave |  |  |
|  |  | Total $=$ | P | D |  | Total $=$ | P | D |
| Intermediate Unit | 0 | . | . |  | 1 | 10.20\% | 5.08\% | 5.08\% |
| 1: Philadelphia | 1 | 10.60\% | 6.10\% | 4.46\% | 1 | 10.10\% | 6.22\% | 3.91\% |
| 1A: Pittsburgh | 1 | 5.64\% | 5.11\% | 0.54\% | 1 | 6.31\% | 5.66\% | 0.65\% |
| 2: 2nd Class District | 69 | 7.70\% | 4.75\% | 3.12\% | 64 | 8.20\% | 5.13\% | 2.82\% |
| 3: 3rd Class District | 360 | 7.76\% | 4.78\% | 2.71\% | 370 | 7.82\% | 4.74\% | 2.69\% |
| 4: 4th Class District | 29 | 7.55\% | 4.51\% | 2.42\% | 28 | 6.87\% | 4.01\% | 2.70\% |
| 5: Special School | 1 | 2.22\% | 1.67\% | 0.56\% | 0 |  | . | . |
| 7: VoTech | 40 | 6.97\% | 4.57\% | 2.47\% | 38 | 7.62\% | 4.70\% | 2.27\% |
| 8: Lab School | 1 | 4.16\% | 3.53\% | 0.62\% | 0 |  |  |  |
| 9: Charter | 36 | 7.76\% | 3.37\% | 3.17\% | 47 | 5.47\% | 3.23\% | 2.30\% |

Table 6
PDE Paid Total,
Personal, and Development Days as Percent of Student Contact Days by Class of Local Education Agency in South West Pennsylvania

| Class of LEA | 1997/8 |  |  |  | 1998/9 |  |  |  | 1999/2000 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{gathered} \text { \# } \\ \text { LEAs } \end{gathered}$ | Median Rate of Leave |  |  | $\begin{gathered} \text { \# } \\ \text { LEAs } \end{gathered}$ | Median Rate of Leave |  |  | $\begin{gathered} \# \\ \text { LEAs } \end{gathered}$ | Median Rate of Leave |  |  |
|  |  | Total $=$ | P | D |  | Total $=$ | P | D |  | Total $=$ | P | D |
| Intermediate Unit | 0 | . | . | . | 0 | . | . | . | 1 | 9.97\% | 4.41\% | 5.56\% |
| 1A: Pittsburgh | 1 | 5.90\% | 4.75\% | 1.15\% | 1 | 5.18\% | 4.67\% | 0.52\% | 1 | 5.12\% | 4.57\% | 0.55\% |
| 2: 2nd Class District | 18 | 7.16\% | 4.99\% | 2.10\% | 19 | 8.57\% | 5.05\% | 2.74\% | 19 | 7.12\% | 4.73\% | 2.38\% |
| 3: 3rd Class District | 75 | 7.73\% | 4.82\% | 2.90\% | 73 | 7.25\% | 5.03\% | 2.19\% | 75 | 7.71\% | 4.99\% | 2.41\% |
| 4: 4th Class District | 2 | 7.64\% | 4.70\% | 2.94\% | 2 | 7.33\% | 4.70\% | 2.63\% | 2 | 5.40\% | $3.22 \%$ | 2.19\% |
| 8: Lab School | 8 | 7.01\% | 5.06\% | 1.67\% | 8 | 5.37\% | 3.99\% | 1.66\% | 8 | 10.10\% | 5.46\% | 2.61\% |
| 9: Charter | 3 | 7.50\% | 4.70\% | 2.88\% | 6 | 7.77\% | 4.01\% | 2.27\% | 8 | 7.01\% | 4.04\% | 2.22\% |


| Class of LEA | 2000/1 |  |  |  | 2001/2 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{gathered} \text { \# } \\ \text { LEAs } \end{gathered}$ | Median Rate of Leave |  |  | $\begin{gathered} \text { \# } \\ \text { LEAs } \end{gathered}$ | Median <br> Rate of Leave |  |  |
|  |  | Total $=$ | P | D |  | Total $=$ | P | D |
| 1A: Pittsburgh | 1 | 5.64\% | 5.11\% | 0.54\% | 1 | 6.31\% | 5.66\% | 0.65\% |
| 2: 2nd Class District | 14 | 8.68\% | 5.42\% | 3.21\% | 18 | 8.20\% | 5.06\% | 2.80\% |
| 3: 3rd Class District | 65 | 8.30\% | 5.20\% | 2.83\% | 69 | 8.15\% | 5.03\% | 2.60\% |
| 4: 4th Class District | 1 | 7.55\% | 4.47\% | 3.07\% | 2 | 8.89\% | 5.86\% | 3.03\% |
| 5: Special School | 1 | 2.22\% | 1.67\% | 0.56\% | 0 |  | . | . |
| 7: VoTech | 5 | 8.29\% | 4.97\% | 2.58\% | 6 | 7.33\% | 4.87\% | 1.93\% |
| 9: Charter | 7 | 7.68\% | 4.13\% | 4.77\% | 7 | 6.17\% | 3.17\% | 2.58\% |

Table 7
Number of Sabbaticals in
Pennsylvania School Districts

| Number of <br> Sabbaticals   <br> Year Statewide SW Pa.SW Pa. <br> as \% of <br> State |  |  |  |
| :---: | :---: | :---: | :---: |
| 1984 | 3,588 | 839 | $23.4 \%$ |
| 1985 | 3,932 | 815 | $20.7 \%$ |
| 1986 | 3,478 | 770 | $22.1 \%$ |
| 1987 | 3,265 | 700 | $21.4 \%$ |
| 1988 | 3,892 | 752 | $19.3 \%$ |
| 1989 | 3,213 | 619 | $19.3 \%$ |
| 1990 | 3,171 | 618 | $19.5 \%$ |
| 1991 | 3,218 | 578 | $18.0 \%$ |
| 1992 | 3,005 | 546 | $18.2 \%$ |
| 1993 | 2,419 | 440 | $18.2 \%$ |
| 1994 | 2,697 | 500 | $18.5 \%$ |
| 1995 | 3,090 | 600 | $19.4 \%$ |
| $1996^{*}$ | 2,789 | 548 | $19.6 \%$ |
| 1997 | 2,076 | 374 | $18.0 \%$ |
| 1998 | 2,246 | 366 | $16.3 \%$ |
| 1999 | 2,541 | 285 | $11.2 \%$ |
| 2000 | 2,465 | 313 | $12.7 \%$ |
| 2001 | 2,198 | 316 | $14.4 \%$ |

Source: Tabulations of Pennsylvania Department of Education Professional Personnel Files
Note: Sabbaticals in 102 School Districts in 6 County Area
*In 1996, the General Assembly required that teachers obtaining sabbatical leave pursue coursework related to their areas of teaching.

Figure 1
Number of Teacher Sabbaticals in SW Pennsylvania School Districts: 1984-2001


Source: Tabulations of Pennsylvania Department of Education Professional Personnel Files

### 4.5 Pennsylvania School Boards Association Surveys of Teacher Absenteeism

Over the past 20 years, the Pennsylvania School Boards Association has periodically surveyed its member districts about their experiences with short-term teacher absenteeism and issues surrounding the recruitment substitute teachers in: 1977-8, 1990-1, 2001 and the summer of 2003. ${ }^{43}$ The PSBA 1977-8 and 1990-1 surveys defined short-term teacher absences as those involving 30 or fewer days of absence. In these surveys reported absences measured on a monthly basis by the participating school districts were compared to total contractual days to form annual absenteeism rates. ${ }^{44}$ In 1977-8, PSBA obtained responses from 135 of 501 districts,

[^15]in 1990-1 it obtained responses from 136 of 501 districts, and in 2001 it obtained responses from 303 of 501 districts.

Overall, PSBA found in 1977-8 that on average a teacher was absent 8.2 days in the school year while in 1990-1, PSBA found on average that a teacher was absent 10.8 days in the school year, and that absenteeism rose from Monday to Friday in each week. The rate of absenteeism on Friday was $44 \%$ greater than on Monday for men. (See Figure 2).

Also, absenteeism rates were found to be higher for elementary teachers than secondary teachers, and higher for female teachers compared to male teachers. Between 1997-8 and 1990-1, mean days absent rose from 8.3 to 11.1 days/school year for elementary teachers (a $33 \%$ increase), and rose from 8.1days/school year to 10.5 days/school year for secondary teachers (a $29 \%$ increase). Female teachers were absent 8.9 days/school year in 1977-8 and 11.3 days/school year in 1990-1 compared to 7.2 days/school year in 1997-8 and 10.0 days/school year in 1990-1 for male teachers. ${ }^{45}$

In addition, PSBA found: ${ }^{46}$ teacher absence rates increased steadily from September to December, decreased in January, and then rose at a significant rate throughout the remaining the school year. (See Figure 3). The 1990-1 year-end absence rate was $5.857 \%$. Small districts with under 200 professional employees had higher ( $6.015 \%$ ) mean absence rates than larger districts (5.723\%). Personal sick leave accounted for half of all professional staff absences while professional leave was the second highest reason for absences ( $24 \%$ ), and use of personal days was the third most frequent reason teachers were absent. Personal days were most frequently used during May.

[^16]Figure 2
PSBA 1990-1 Study
Teacher Absenteeism by Day of Week and Gender


A Research Report to The Pittsburgh Foundation

Figure 3
PSBA Studies of Absenteeism Rates
by Month for
1977-8 vs. 1990-1


In May of 2001, the Pennsylvania School Boards Association conducted a 10 question survey to its member districts to identify whether or not districts were having difficulty locating substitute teachers. They also enquired about which areas of certification were most difficult to recruit, and enquired about the average number of substitute teachers recruited. In addition, the survey collected information about pay rates, starting salaries, and the effects of raising per diem rates on starting salaries. Of Pennsylvania's 501 school districts, 302 responded. Fully 95\% of the responding districts indicated they had difficulty in recruiting substitutes. Better than $60 \%$ of the districts indicated difficulties in finding daily or short-term substitutes (as contrasted with difficulties in finding long-term substitutes), and better than $30 \%$ indicated difficulties in finding both short and long-term substitutes.

Table 8 lists in decreasing order of difficulty the certification areas that districts had problems locating. Science and mathematics were by far the most frequently mentioned problem areas, in line with what other surveys have found.

Table 9 summarizes the range of short-term, long-term, and starting salaries on a daily basis that were paid among the 303 responding districts. It is evident that the daily substitute rate was
often $1 / 2$ or less of the starting daily salary rate. Table 10 puts these daily rates on an hourly basis under the assumption of a 7.5 hour workday. It is evident that districts paid very low hourly rates, on the order of $\$ 6.33 /$ hour for short-term substitutes and as little as $\$ 8 /$ hour for long-term substitutes. These rates were $1 / 2$ of the implied hourly rate of full time teachers at entry level salaries. It is easy to understand why other service jobs, available on a full-time basis that would include health benefits, might be more attractive than working as a substitute teacher.

Table 8
Hard to Locate Substitute Certification Areas Mentioned by at least 29 School Districts in 2001

| Certification Area | \% of Districts <br> Mentioning <br> Certification <br> Area |
| :--- | :---: |
| Science | $38.9 \%$ |
| Math | $37.3 \%$ |
| Special Education | $27.1 \%$ |
| Foreign Language | $25.7 \%$ |
| Secondary | $21.1 \%$ |
| Vo-tech | $14.9 \%$ |
| All | $12.5 \%$ |
| Technical Education | $12.5 \%$ |
| Music | $9.6 \%$ |

Source: PSBA May, 2001 Survey of Substitute Needs
Table 9
2001 Short and Long-Term Substitute Daily Rates for 303 Pennsylvania School Districts

|  | Daily Rate |  |  |
| :--- | :---: | :---: | :---: |
|  | Short <br> Term <br> Substitute | Long <br> Term <br> Substitute | Starting <br> Salary <br> Entry Level <br> Teacher |
| Mean | $\$ 73$ | $\$ 144$ | $\$ 159$ |
| Maximum | $\$ 105$ | $\$ 266$ | $\$ 215$ |
| Median | $\$ 70$ | $\$ 154$ | $\$ 162$ |
| Minimum | $\$ 50$ | $\$ 60$ | $\$ 93$ |

Source: Author's calculations with unpublished PSBA 2001 survey results.

Table 10
Daily Pay Rates
Converted to Hourly Rates
Assuming 7.5 Hours/Day

|  | Daily Hourly Rate |  |  |
| :--- | :---: | :---: | :---: |
| Measure | Short <br> Term <br> Substitute | Long <br> Term <br> Substitute | Starting <br> Salary of Entry <br> Level Teacher |
| Mean | $\$ 9.73$ | $\$ 19.20$ | $\$ 21.20$ |
| Maximum | $\$ 14.00$ | $\$ 35.47$ | $\$ 28.67$ |
| Median | $\$ 9.33$ | $\$ 20.53$ | $\$ 21.60$ |
| Minimum | $\$ 6.67$ | $\$ 8.00$ | $\$ 12.40$ |

Source: Author's calculations from unpublished 2001 PSBA survey.

Table 11
PSBA May 2001 Survey
Substitute Teaching Needs as
Percent of Full Time Teachers

|  | Lower Bound <br> \# of <br> Class of District <br> SDs | Higher Bound <br> Estimate |  |  |  |  |  |  |
| :--- | ---: | ---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Qecond Class Districts |  | $5.3 \%$ | $6.8 \%$ | $8.9 \%$ | $5.3 \%$ | $7.3 \%$ | $11.2 \%$ |  |
| Third Class Districts |  | $4.9 \%$ | $6.5 \%$ | $8.9 \%$ | $5.3 \%$ | $7.0 \%$ | $10.0 \%$ |  |
| Fourth Class Districts | 15 | $5.5 \%$ | $6.3 \%$ | $7.3 \%$ | $5.7 \%$ | $6.4 \%$ | $7.3 \%$ |  |
| Total with Data | 268 | $5.0 \%$ | $6.5 \%$ | $8.8 \%$ | $5.4 \%$ | $6.9 \%$ | $10.0 \%$ |  |

## 4. 4 New Sources of Data on Pennsylvania Teachers' Absences and Substitute Employment

As the project began in the Spring, 2002, it became evident that most of the extant empirical US research has focused on teacher absenteeism viz. a viz. collective bargaining agreements and their implied incentives for attendance, or the characteristics of absent teachers. If one begins the enquiry about the implications for the children in the classroom, then ascertaining the total amount of teacher absenteeism becomes the first research enquiry. This in turn raises an initial question as to how much paid and unpaid leave is taken by classroom teachers. That is, from the point of view of devising mechanisms to supply substitutes to fill all vacancies, it is crucial to know at the outset what the total absenteeism rate is. However, as noted above, state data only reflects paid leaves of absence, and ignores sabbatical leaves. Further, in terms of ascertaining
what certificates substitutes would need to adequately meet extant demand for such teachers, original data collection from the districts and/or the substitute teaching corps was necessary.

To ensure that this study would provide relevant data for planning a new substitute market clearing mechanism, some preliminary field interviews were conducted with representatives of the Pennsylvania Federation of Teachers, Pennsylvania State Education Association, and Pennsylvania School Board's Association, along with several school superintendents, personnel directors, and substitute teachers in the region. The purpose of the field interviews was to validate the research questions and evolving draft questionnaires and develop an understanding of what data districts routinely maintain. Also, preliminary literature reviews and phone discussions were conducted with Mr. Geoffrey Smith of the Utah State Substitute Teacher's Institute regarding their recent studies and ongoing projects with the practitioner community. Professor Ronald G. Ehrenberg of Cornell University's School of Industrial and Labor Relations, who had conducted an in depth analysis of New York State's school districts experience with teacher absenteeism in the late 1980 's, ${ }^{47}$ was also contacted to understand the complexities of studying collective bargaining agreements and collecting original data on teacher absenteeism. Given the realities of 21,000 teachers, several thousand likely substitute teachers, and a limited research budget, several different data collection strategies were entertained.

Vendors and service providers of human resources software to the 102 districts were contacted, and a variety of strategies reviewed that would take advantage of the fact that relatively few human resources vendors sell and maintain information reporting systems to the 102 districts. Unfortunately, none of the vendors was optimistic about their ability to extract the same information from very heterogeneous implementations of their standardized software, as each district had over time kept track of its absent teachers in different ways. Independent methods of contacting school district teachers and substitutes to measure their experience were considered; however, none appeared practical or cost-effective.

After further extensive field discussions, it was decided to contact each superintendent through a postal mail survey, and in conjunction with requesting their participation in the district survey of teacher absenteeism and substitute recruitment, provide materials that would allow each participating district to disseminate brief instructions and passwords to their substitute teachers and full-time teachers. This mechanism would allow districts to disseminate access to the surveys, but guarantee the privacy of survey responses, since only the author would be able to retrieve actual data submitted to the web site. In June, 2002, a commercial internet provider, OnTV.net of Pittsburgh, Pennsylvania, was engaged by the project to provide an online environment. Remark Web Survey was purchased, and utilized to create the three online web surveys. ${ }^{48}$ On July 22, 2002, a package of materials was mailed to each of the 102 school superintendents in South West Pennsylvania. Included in each package was an endorsement letter signed by the supporters of the project. The archives of collective bargaining agreements maintained by PSBA in Harrisburg, Pennsylvania and PSEA in their regional offices were made available to the project, and each contract was thoroughly reviewed in conjunction with categorizing and measuring the relevant leave policies.

[^17]Various follow-up strategies in 2002 and 2003 were pursued to ensure adequate survey responses. Ultimately, 42 of the 102 school districts responded to the survey via either the paper version of the district survey or via the online version; 183 substitute teachers responded to the online substitute survey; and 234 full time teachers responded to the online teacher survey. ${ }^{49}$

The three online surveys (district, full-time teachers, and substitutes) were devised in a manner that would triangulate or independently confirm key parameters of the market for substitute teachers. The district survey was designed to collect from personnel records the number of teacher absences and the level, primary, middle/junior high school, and high school, at which the absences occurred.

Characteristics of substitute teachers, their financial experiences in substitute teaching, and their attitudes towards substitute teaching were collected, as were characteristics, experiences and attitudes of full-time teachers.

[^18]
### 5.0 Empirical Results: The Market for Substitute Teachers in Pennsylvania

In this section, the major empirical findings from the three original surveys are presented.

### 5.1 Characteristics of Collective Bargaining Agreements in South West Pennsylvania

Table 12 displays the results of analyzing the 102 collective bargaining agreements in the six county area. On average, districts provided 13 days of paid sick, personal and emergency leave per school year. The range was 10 (the state minimum) and 16 . Anywhere from 3 to 9 days of such personal leave can accumulate across years of service for either subsequent utilization, and/or at time of retirement 'cash in.'. Thus a teacher with a perfect attendance record could accumulate over a 25 year teaching career anywhere from 75 to 225 days, or a bit less than $1 / 2$ to more than a full year of teaching. Teachers desiring to take personal leave had to, under the extant collective bargaining agreement, notify the district anywhere from 1 hour to 7 days; on average the provision was 2.7 days. Paid bereavement days varied anywhere from the state mandated minimum of 3 days in the case of a close relative to 9 days, and from 1 to 6 days in the case of a near relative, and from 1 to 2 days for a more distant relative (or friend in some cases).

In addition, the districts often provide various forms of long-term leave. Paid disability leave, which is typically interpreted to include recovery after childbirth, varied anywhere from 1 paid day to as many as 730 . The average number of paid disability was 210.8 days or better than one entire school year. Unpaid disability leave, also interpreted to include recovery after childbirth, and unpaid maternity/child-rearing leave, also displayed very large variations: from 183 to 1095 days in the case of unpaid disability pay, to a range of 42 to 953 days in the case of unpaid disability pay. In one district, a teacher could leave the district for three years, and expect to return to their job at the end of the unpaid disability period. During these various paid and unpaid leaves of absence, the districts are required to continue to make contributions to the teacher's retirement program, and typically continue to support the costs of their health care program.

## Table 12 <br> Major Types of Contractual Leave Specifically Provided for in 102 South West Pennsylvania School District Collective Bargaining Agreements

| Type of Contractual Leave | Mean <br> (Days) | Standard <br> Deviation <br> (Days) | Minimum <br> (Days) | Maximum <br> (Days) |
| :--- | :---: | :---: | :---: | :---: |
| Days of Sick, Personal, Emergency Leave <br> per teacher per year | 13.0 | 1.2 | 10 | 16 |
| Days of Personal Leave Days that <br> Accumulate to Next Year | 4.9 | 1.3 | 3 | 9 |
| Days of Consecutive Sick Leave w/o Doctor Certificate | 4.2 | 1.0 | 3 | 6 |
| Days in advance teacher must notify/request <br> Personal Leave | 2.7 | 1.6 | $0.04167^{*}$ | 7 |
| Disability Leave Unpaid: <br> Total Number of Days of Unpaid Disability Leave | 437.8 | 188.4 | 183 | 1095 |
| Disability Leave Paid: <br> Total Number of Days of Paid Disability Leave | 210.8 | 240.3 | 1 | 730 |
| Maternity/Child-Rearing Leave Unpaid: <br> Days of Unpaid Leave ** | 414.7 | 159.3 | 42 | 953 |
| Bereavement A: <br> Number of school days for closest relative loss | 4.6 | 1.1 | 3 | 9 |
| Bereavement B: <br> Number of school days for 2nd closest relative loss | 2.0 | 1.0 | 1 | 6 |
| Bereavement C: <br> Number of school days for 3rd closest relative loss | 1.1 | 0.3 | 1 | 2 |

Source: Author's analysis of 102 2002-3 Collective Bargaining Agreements;

* 1 Hour notice ${ }^{* *}$ Maternity leave is covered under state and federal law.


### 5.2 Online Surveys of Fulltime and Substitute Teachers in Pennsylvania

### 5.2.1 Comparison of Full Time Teacher Responses to Universe Characteristics

While there was a relatively small response to the online teacher survey, with about 235 respondents per survey question, there is sufficient data to draw inferences as long as the respondents are representative of the underlying universe. Table 13 compares various characteristics of the class room teacher universe, obtained from PDE's professional personnel files under non-disclosure agreements, with characteristics of the on line survey respondents. Beginning with the age of the teachers from the two data sources, we find very small differences between the mean age of the two groups ---compare a mean of 42.8 years of age in the universe with a mean of 42.9 years of age in the respondent sample. Even the standard deviations are remarkably similar. District years of experience in the universe and sample also display very close similarities. We note that there were about $7 \%$ fewer elementary school teacher responses than in the universe, and a bit greater response in Math, English, and Chemistry. When we compare the type of district, we find that there were considerably more respondents from the $1^{\text {st }}$ class district in the region than there are overall, relatively fewer respondents from $2^{\text {nd }}$ class
districts than there are overall, and about the same relative number of respondents from $3^{\text {rd }}$ class districts than there are overall.

When we compare the respondent substitute teachers (See Table 14) to the respondent fulltime teachers, we find that substitutes tend to be far more likely to be single than married than their full time counterparts, and more likely to be female. Importantly, about $25 \%$ of the substitute teacher respondents had emergency certification compared to less than $4 \%$ of their full time counterparts, and far less likely to have permanent certification.

Table 13
Comparison of Universe of Teachers in SW Pennsylvania to Online Teacher Responses

| Characteristic | Universe | Online <br> Teachers |
| :---: | :---: | :---: |
| Age (mean) | 42.8 | 42.9 |
| Age (standard deviation) | 10.8 | 11.3 |
| District Years of Experience (mean) | 15.8 | 14.5 |
| District Years of Experience (standard deviation) | 11.5 | 11.3 |
|  | $\begin{gathered} \text { Universe* } \\ \% \\ \hline \end{gathered}$ | Online <br> Teacher \% |
| Sex: (\% Female) | 68.2\% | 75.2\% |
| Educational Attainment |  |  |
| $<\mathrm{BA}$ | 0.1\% | 0.8\% |
| BA | 56.1\% | 47.2\% |
| MA | 43.1\% | 51.5\% |
| PhD | 0.6\% | 0.5\% |
| Major Teaching Assignment of Classroom Teachers | $\begin{gathered} \text { Universe * } \\ \% \end{gathered}$ | Online <br> Teacher \% |
| Elementary | 48.8\% | 41.84\% |
| Math | 6.2\% | 8.2\% |
| English | 6.7\% | 8.2\% |
| Biology | 1.7\% | 1.5\% |
| Chemistry | 1.1\% | 2.0\% |
| Special Education | 9.3\% | 4.1\% |
| Social Studies | 4.6\% | 2.4\% |
| District Class: | $\begin{gathered} \text { Universe* } \\ \% \\ \hline \end{gathered}$ | Online <br> Teacher \% |
| $1{ }^{\text {st }}$ | 13.1\% | 38.5\% |
| $2^{\text {nd }}$ | 30.2\% | 4.5\% |
| $3{ }^{\text {rd }}$ | 56.0\% | 57.1\% |
| $4^{\text {th }}$ | 0.7\% | 0.0\% |

## Table 14

## Comparison of Demographics and Certifications of Substitute and Full Time Teachers

| Teacher Characteristics | Substitute <br> Teachers | Full Time <br> Teachers |
| :---: | :---: | :---: |
| Demographics |  |  |
| Marital Status: Single | $46.9 \%$ | $27.10 \%$ |
| Gender: Female | $83.3 \%$ | $75.20 \%$ |
| Emergency Certification | $24.7 \%$ | $3.6 \%$ |
| Instructional I (Provisional) | $55.3 \%$ | $31.1 \%$ |
| Instructional II (Permanent) | $20.0 \%$ | $65.3 \%$ |

Source: Tabulations of Online Substitute and Teacher Surveys

### 5.3 Teacher Absenteeism in 2001-2

### 5.3.1 Evidence from Online Teacher Survey

Table 15 and 16 display the extent of absenteeism reported by full time teachers in 2001-2. On average, a full time teacher in South West Pennsylvania was absent from school 14.1 days in the school year. Of these absences, 9.5 days/school year represented paid leaves of absence, and 4.6 days/school year were unpaid leaves of absence. ${ }^{50}$ Thus, full-time teachers reported that $4.6 / 14.1=32.6 \%$ of their absences were unpaid.

Note that overall, the full time teachers reported that their absences were covered only $65 \%$ of the time by either a substitute teacher, other teacher or administrator in the school. It is unclear who is supervising the students the remainder of the time. It is possible they are put in combined classes, sent to the library or study hall. If we disaggregate the absenteeism results in Table 15 by just analyzing short-term leaves of absence, we see similar patterns. (See Table 16) Now, paid and unpaid short-term leaves of absence number on average about 10.3 days per school year; 7.4 days of the 10.3 are for paid short-term leaves of absence and the balance are for unpaid leaves of absence. Finally, we see again that $35 \%$ of the absences remain uncovered by a substitute, other teacher or administrator in the school.

Table 17 disaggregates the leaves of absence into the various reasons for leave of absence, and indicates that sick leave, personal or emergency leave, and professional development are the major reasons that teachers were absent from their classroom.

We can turn the mean number of days of absence, 14.1, into a total absenteeism rate by dividing by 180 , and obtain an estimate of the mean absenteeism rate of $7.3 \%$.

[^19]Table 15
Online Teacher Reported Leaves of Absence in 2001-2
$\left.\begin{array}{|l|c|c|}\hline & \begin{array}{c}\text { Measure of Teacher } \\ \text { Leave of Absence } \\ \text { (All Leaves of Absence) }\end{array} & \begin{array}{c}\text { Mean } \\ \text { Days } \\ \text { Per } \\ \text { Teacher }\end{array}\end{array} \begin{array}{c}\text { STD } \\ \text { Days } \\ \text { Per }\end{array}\right\}$

Source: Tabulation of Online Teacher Survey
Table 16
Online Teacher Reported Short Term* Leaves of Absence in 2001-2

| Measure of Teacher <br> Leave of Absence <br> (Leaves of Absence < 90 Days) | Mean <br> Days <br> Per <br> Teacher | STD <br> Days <br> Pearher |
| :--- | :---: | :---: |
| Total Leaves of Absence in 2001-2 | 10.3 | 8.7 |
| Total Paid Leaves of Absences | 7.4 | 6.0 |
| Unpaid Leaves of Absence | 3.0 | 4 |
| Substitute Teacher Covered Leaves of Absence | 6.0 | 5.9 |
| Teacher/Administrator Covered Leaves of Absence | 0.9 | 1.5 |
| Uncovered Leaves of Absence | 3.9 | 4.0 |
| Uncovered \% | $34.7 \%$ | $22.9 \%$ |

Source: Tabulation of Online Teacher Survey. Note: "Short-term" means under 90 days.

## Table 17 <br> Mean Number of Leave Days in 2001-2 Reported by Teachers on Online Survey

| Type of Leave Days | Mean | Std Dev | Maximum |
| :--- | :---: | :---: | :---: |
| Paid Sick Leave Used in 2001-2? | 5.186 | 9.157 | 85 |
| Un-Paid Sick Leave Used in 2001-2? | 0.278 | 2.573 | 30 |
| Paid Personal/Emergency Leaves Used in 2001-2? | 1.497 | 1.243 | 10 |
| Unpaid Personal/Emergency Leaves Used in 2001-2? | 0.127 | 0.921 | 10 |
| Paid Court Leave Days Used in 2001-2? | 0.182 | 0.662 | 5 |
| Unpaid Court Leave Days Used in 2001-2? | 0.019 | 0.137 | 1 |
| Paid Military Leave Days Used in 2001-2? | 0.017 | 0.226 | 3 |
| Unpaid Military Leave Days Used in 2001-2? | 0.000 | 0.000 | 0 |
| Paid Prof Development Leave Days Used in 2001-2? | 1.475 | 2.518 | 15 |
| Unpaid Prof Development Leave Days Used in 2001-2? | 0.027 | 0.230 | 2 |
| Paid Bereavement Leave Days Used in 2001-2? | 0.311 | 0.906 | 6 |
| Unpaid Bereavement Leave Days Used in 2001-2? | 0.015 | 0.214 | 3 |
| Paid Maternity/Child-Care/Adoption Leave Days Used in 2001-2? | 0.795 | 4.899 | 40 |
| Unpaid Maternity/Child-Care/Adoption Leave Days Used in 2001-2? | 0.316 | 2.860 | 30 |
| Paid Disability/Assault Leave Days Used in 2001-2? | 0.006 | 0.075 | 1 |
| Paid Sabbatical Leave Days Used in 2001-2? | 0.511 | 6.784 | 90 |

Source: Tabulations of online teacher survey.

### 5.3.2 Evidence on Teacher Absenteeism from the District Survey

A somewhat different picture of teacher absenteeism in South West Pennsylvania school districts emerges from surveys of the school districts themselves. District administrators were asked to indicate their overall average daily substitute needs, and such needs by general school level. If these average needs are divided by the number of full time teachers, one can calculate the average absenteeism rates. In order to ensure comparability in this calculation across districts, the number of full time teachers reported to PDE on its professional personnel files was used as the denominator. Table 18 indicates that the districts reported an overall mean absenteeism rate of $8.9 \%$, and a median rate of $8.5 \%$.

Districts estimated overall that they covered $80 \%$ of their absent teachers, which contrasts markedly with the teachers' estimate of $65 \%$ coverage. Note that the districts report declining coverage rates, with elementary teachers' absences easiest to cover (only $17 \%$ are uncovered), and high school teachers' absences most difficult to cover ( $30 \%$ are uncovered).

Table 18

## Teacher Absenteeism Rates and Substitute Coverage Rates from District Surveys

| Teacher Absenteeism Rates and Coverage Measures | $\begin{array}{\|c} 1^{\text {st }} \\ \text { Quartile } \\ \% \\ \hline \end{array}$ | $\begin{gathered} \text { Median } \\ \% \\ \hline \end{gathered}$ | $\begin{gathered} \text { Mean } \\ \% \\ \hline \end{gathered}$ | $\begin{gathered} 3^{\text {rd }} \\ \text { Quartile } \\ \% \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: |
| Absenteeism Rate: Total Substitutes Needed/Total Classroom Teachers* | 6.1\% | 8.5\% | 8.9\% | 10.4\% |
| Absenteeism Rate: <br> Elementary Sub Teachers Needed/Elementary Classroom Teachers** | 5.0\% | 6.8\% | 7.4\% | 10.3\% |
| Absenteeism Rate: <br> JHS Sub Teachers Needed/JHS Classroom Teachers** | 4.7\% | 8.1\% | 8.5\% | 11.7\% |
| Absenteeism Rate: <br> HS Sub Teachers Needed/HS Classroom Teachers** | 4.7\% | 6.8\% | 8.5\% | 11.2\% |
| \% of Total Substitute Needs Not Covered** | 1.4\% | 16.4\% | 20.8\% | 26.3\% |
| \% of Elementary Substitute Needs Not Covered** | 0.0\% | 6.1\% | 17.1\% | 31.0\% |
| \% of JHS Substitute Needs Not Covered** | 0.0\% | 16.9\% | 23.4\% | 41.7\% |
| \% of HS Substitute Needs Not Covered ** | 1.6\% | 25.0\% | 30.2\% | 50.0\% |

Source: tabulations of District Surveys. * Note: measure of total classroom teachers from 2001-2 Professional Personnel File. ${ }^{* *}$ Note: measure of total classroom teachers from District Survey.

### 5.3.3 PSBA 2001 District Survey of Substitute Needs and South West Pennsylvania

Section 4.5 above reviewed the May, 2001 PSBA district survey of substitute teacher needs. As 303 districts responded statewide, a considerable number (56 of 102) in South West Pennsylvania responded as well. By combining this PSBA data with counts of full time teachers per school district in 2000-1, this data can be turned into estimates of absenteeism rates. The survey asked for a range of daily needs, and we re-interpret the data in terms of the resulting lower bound of an estimated absenteeism rate based on the lower bound of the range of daily substitute needs, and an upper bound estimate of the rate based on the upper bound of the range of daily substitute needs.

Table 19 shows the results of these calculations with the 2001 PSBA survey results, and compares the overall results to those from South West Pennsylvania districts. The range of mean PSBA absentee rates, overall, is between $8.49 \%$ and $9.02 \%$, while the median range is between $6.51 \%$ and $7 \%$; this indicates that there are some districts with rather large absenteeism rates. Absenteeism rates for South West Pennsylvania are consistently about . $3 \%$ higher than overall respondents. These differentials are remarkably consistent with the differentials observed in the PDE data (See Table 4 above).

### 5.3.4 Comparison and Synthesis of Teacher Absenteeism Rates

Table 20 combines the estimated teacher absenteeism rates for the $25^{\text {th }}$ and $75^{\text {th }}$ percentiles, mean and median from various sources. With the exception of the online teachers, all other data sources show a mean absenteeism rate in excess of $8 \%$ for 2001.

The finding in Section 5.3.2 that $32.6 \%$ of total teacher absences were unpaid allows us now to reinterpret the earlier PDE paid teacher absences rates to obtain an overall or total rate of teacher absence. Recall that 2001 Median total Paid Leave Rate (See Table 4 above) for school districts statewide was reported by PDE as $7.8 \%$, and for school districts in SW Pennsylvania, it was $8.1 \%$. (See Table 20) We can adjust this $8.1 \%$ absence rate for SW Pennsylvania school districts upwards by the unmeasured unpaid leaves by multiplying $8.1 \% * 1.326=10.74 \%$. This gives an estimate of the total leave or total absence rate. The total teacher leave rate (or absence rate), exclusive of sabbaticals in South West Pennsylvania was $10.74 \%$. If we add $1.6 \%$ to reflect the overall rate of sabbatical leaves, we obtain a corrected median total leave rate, based on data reported by districts to PDE of $12.34 \%$. The mean total absenteeism rate is also quite high at $12.23 \%$. (See row 2 of Table 20).

Table 19
Pennsylvania School Board Association's
2001 Substitute Survey
Implied Teacher Absenteeism Rates

| Calculated PSBA Absenteeism Rates | $\mathbf{1}^{\text {st }}$ <br> Quartile <br> $\%$ | Median | Mean | $\mathbf{3}^{\text {rd }}$ <br> Quartile <br> $\%$ |
| :---: | :---: | :---: | :---: | :---: |
| Absenteeism Rate Low Estimate - <br> 303 Districts | $5.02 \%$ | $6.51 \%$ | $8.49 \%$ | $8.77 \%$ |
| Absenteeism Rate High Estimate - <br> 303 Districts | $5.37 \%$ | $6.91 \%$ | $9.02 \%$ | $10.00 \%$ |
| Absenteeism Rate Low Estimate - <br> SW PA. Match of 56 Districts | $5.55 \%$ | $7.18 \%$ | $8.71 \%$ | $9.82 \%$ |
| Absenteeism Rate High Estimate - <br> SW PA. Match of 56 Districts | $5.95 \%$ | $7.34 \%$ | $9.28 \%$ | $10.29 \%$ |

Source: unpublished PSBA district by district substitute survey results; Pa. Department of Education Professional Personnel File for 2001-2; author's calculations.

Table 20
Comparison of Estimated Absenteeism Rates PDE, PSBA, Study-Districts, Study, Teachers

| Source | Estimated Teacher Absenteeism Rate |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
|  | 25’th <br> Percentile | Median | Mean | P5'th <br> Percentile |
| PDE-SWPA (Paid <br> Absence <br> Days/(Fulltime <br> Teachers * 180) | $6.10 \%$ | $8.10 \%$ | $8.02 \%$ | $9.70 \%$ |
| PDE-SWPA <br> Paid \& Unpaid Rate + <br> Sabbatical Rate | $9.69 \%$ | $12.34 \%$ | $12.23 \%$ | $14.46 \%$ |
| PSBA-Low | $5.55 \%$ | $7.18 \%$ | $8.71 \%$ | $9.82 \%$ |
| PSBA-High | $5.95 \%$ | $7.34 \%$ | $9.28 \%$ | $10.29 \%$ |
| Study Online-Teachers <br> Paid and Unpaid <br> Absences/180 | $2.22 \%$ | $5.63 \%$ | $7.83 \%$ | $7.78 \%$ |
| Study District Surveys <br> (Average Daily |  |  |  |  |
| Substitutes Needed / <br> Full-time Teachers) | $6.10 \%$ | $8.50 \%$ | $8.90 \%$ | $10.40 \%$ |

Sources: author's calculations from data sources, see text for discussion.

### 5.4 Substitute Teacher Activity and Characteristics in South Pennsylvania in 2001-2

Far less is known about who substitute teaches than who is absent from the classroom. As temporary and at-will employees, they are not obligated to register or report centrally to the state about their activities. Whether or not they are properly certified is a responsibility of their employer. The online survey of substitute teachers administered through the districts in late 2002 provides some new insights into what it means to be a substitute teacher.

On average, substitute teachers taught in about 2 districts in 2001-2, for a total of 103.5 days, and about $1 / 4$ of their substitute teaching days were outside their area of certification. (See Table 21). Finally, the substitute teachers were far less experienced on average than their full-time counterparts. Over $1 / 3$ of the substitutes reported that they had no more than 2 years of teaching experience in Pennsylvania's Public Schools. This was true for only $16 \%$ of the full-time
teaching staff. Undoubtedly such inexperienced teachers face greater challenges in maintaining orderly classrooms than their full-time counterparts.

Table 21
Substitute Online Teaching Activity in 2001-2

|  | Mean <br> Per <br> Substitute <br> Response | Standard Deviation <br> (Days) <br> Per <br> Substitute <br> Response |
| :---: | :---: | :---: |
| Districts Taught in 2001-2? | 1.9 | 1.5 |
| Number of Days <br> Taught in 1 ${ }^{\text {st }}$ District? | 80.2 | 59.8 |
| Number of Days <br> Taught in 2nd <br> District? | 23.3 | 28.5 |
| \% of Substitute Days Outside <br> Certification? (Mean \%) | $25.0 \%$ | $51.9 \%$ |

Source: Tabulation of Online Substitute Survey

Table 22

## Comparison of Professional Experience of

Substitutes and Full Time Teachers

| Years of Experience in Pa. Public Schools? | Substitutes |  | Full Time Teachers |  |
| :---: | :---: | :---: | :---: | :---: |
|  | \% | $\begin{gathered} \text { Cumulative } \\ \% \end{gathered}$ | \% | $\begin{gathered} \text { Cumulative } \\ \% \end{gathered}$ |
| 1 | 17.4\% | 17.4\% | 8.8\% | 8.8\% |
| 2 | 17.4\% | 34.8\% | 7.3\% | 16.1\% |
| 3 | 2.9\% | 37.7\% | 5.8\% | 21.9\% |
| 4 | 10.1\% | 47.8\% | 11.0\% | 32.9\% |
| 5 | 4.4\% | 52.2\% | 5.8\% | 38.7\% |
| 6 | 2.9\% | 55.1\% | 4.4\% | 43.1\% |
| 7 | 1.5\% | 56.5\% | 3.7\% | 46.7\% |
| 8 | 1.5\% | 58.0\% | 5.1\% | 51.8\% |
| 9 | 1.5\% | 59.4\% | 2.9\% | 54.8\% |
| 10 | 5.8\% | 65.2\% | 0.7\% | 55.5\% |

Source: Tabulation of Online Substitute and Teacher Surveys

### 5.5 Substitute Compensation and Benefits

Substitute teachers in South West Pennsylvania did not work, on average, a full work-week. They report they worked 3.6 days/week. Remarkably, $44 \%$ of the substitute teachers reported that they worked part-time at other jobs. Those with part-time jobs worked 1.4 days/week, and averaged 2.2 hours/day. Substitute teachers in South West Pennsylvania were not well compensated. Average gross income from substitute teaching of $\$ 7,640 /$ year was actually below the federal poverty line $\$ 9,039 .{ }^{51}$ Substitutes in South West Pennsylvania reported their total combined earnings from substitute teaching and other activities was only $\$ 12,509$, or just above the federal poverty line. Of course, those married enjoyed higher household incomes; however, as noted earlier, about $47 \%$ of substitute teachers were single. ${ }^{52}$ Average daily rates varied from $\$ 77 /$ day (or about $\$ 10.27 /$ hour) to $\$ 94 /$ day (or about $\$ 12.53 /$ hour) for longer-term substitute teaching engagements.

Table 23
Financial Aspects of Substitute

## Teaching in 2001-2

Reported via Online Substitute Teacher Survey

|  | Mean | Standard <br> Deviation |
| :--- | :---: | :---: |
| Days/Week Substitute Taught | 3.6 | 1.3 |
| Days/Week Worked at Part-Time Job | 1.4 | 2.0 |
| Hours/Day of Part-Time Job | 2.2 | 2.9 |
| Gross Income from Substitute Teaching | $\$ 7,640$ | $\$ 5,602$ |
| Gross Income from Part-time Job | $\$ 1,863$ | $\$ 5,932$ |
| Total Earnings in 2001-2 | $\$ 12,509$ | $\$ 9,051$ |
| Lowest Daily Substitute Rate | $\$ 77$ | $\$ 15$ |
| Highest Daily Substitute Rate | $\$ 94$ | $\$ 24$ |

Source: Tabulation of Online Substitute Survey

As temporary employees, substitutes are generally not eligible for employer provided health insurance. About $25 \%$ of substitute teachers in SW Pennsylvania reported buying health insurance themselves in the private health insurance market. It is not atypical for such plans from Blue-Cross Blue-Shield to cost $\$ 2,400 /$ year which means that disposable income was considerably lower than $\$ 12,509$ year shown above in Table 23 . Particularly troubling is the finding that about $30 \%$ of the substitute teachers in South West Pennsylvania went without health insurance in 2001-2. (See Table 24).

[^20]Table 24

Health Coverage of Substitute Teachers in 2001-2

| Source of Health Insurance | Fall | Spring |
| :--- | :---: | :---: |
| $\mathbf{2 0 0 1}$ | $\mathbf{2 0 0 2}$ |  |
| Purchased by substitute | $24.7 \%$ | $24.7 \%$ |
| Through a spouse | $32.9 \%$ | $34.5 \%$ |
| Through a parent | $3.2 \%$ | $2.5 \%$ |
| Provided by District | $1.3 \%$ | $1.9 \%$ |
| Other | $8.2 \%$ | $7.0 \%$ |
| None | $29.8 \%$ | $30.4 \%$ |

Source: Tabulation of Online Substitute Survey

According to the Census, South West Pennsylvanians spent about 25 minutes commuting to work in the morning. Substitute teachers in the region spent about 45 minutes commuting or $80 \%$ longer each morning. Travel time was greatest for substitutes living in Washington and Westmoreland counties, and shortest for those living in Beaver. (See Table 25).

Table 25
Morning Commute
to Most Frequent
Substitute Position

| County of <br> Residence | Mean <br> Travel <br> Time <br> (Hours) | Standard <br> Deviation <br> (Hours) | Median <br> Travel <br> Time <br> (Hours) | Mean <br> Travel <br> Distance <br> (Miles) | Standard <br> Deviation <br> (Miles) | Median <br> Travel Distance <br> (Miles) |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Allegheny | 0.78 | 0.3 | 1 | 13.5 | 7.9 | 10 |
| Beaver | 0.5 | 0 | 0.5 | 16.7 | 7.6 | 15 |
| Butler | 0.58 | 0.2 | 0.5 | 15 | 7.1 | 15 |
| Washington | 0.9 | 0.5 | 0.5 | 29 | 11.4 | 25 |
| Westmoreland | 0.7 | 0.2 | 0.5 | 14.1 | 6.4 | 15 |
| Overall | 0.75 | 1 | 0.5 | 14.4 | 8.2 | 10 |

Source: Tabulations on online substitute survey. Insufficient responses in Fayette County to report.

The district surveys provide related insights into the compensation packages facing substitute teachers, and help confirm the reliability of the substitute teachers' online responses. The district surveys confirm the initial daily rate of $\$ 75 /$ day (See Table 26).

Table 26
Substitute Pay Structure
From District Survey

| Substitute Pay Structure | 25'th <br> Percentile |  | Median | Mean |
| :--- | :---: | :---: | :---: | :---: | | $\mathbf{7 5}$ 'th |
| :---: |
| Percentile |$|$| Daily Rate | $\$ 75$ | $\$ 75$ |
| :--- | :---: | :--- |
| Days to Get to Higher Rate? | 20.0 | 35.0 |
| 20.2 | 450 |  |
| 2nd Tier Daily Rate | $\$ 80$ | $\$ 85$ |
| Days to Get to Long Term Rate? | 45.0 | 90.0 |
| Long-Term Substitute Rate | $\$ 91$ | $\$ 143$ |

Source: Tabulations of District Surveys

### 5.6 Substitute Attitudes towards Substitute Teaching

The online substitute survey sought to ascertain their attitudes towards substitute teaching in two ways. First, they were asked to rate an extensive list of job characteristics. The scale varied from Unimportant to Very important. Second, they were asked to list the 5 most important job characteristics to them. Table 27 and 28-32 tabulate their responses and indicate that school discipline, safety, daily pay, and attitudes of the full time professional staff towards them were by far the most important considerations to them. Table 27 ranks the job characteristic by the fraction who mentioned the characteristic as "Very Important." Fully 83.5\% stated school discipline was "Very Important" to them. Thus, while financial considerations (pay, health benefits) were important to substitute teachers, school discipline and safety, ultimately responsibilities of the full time administrators and teachers, were as important in the minds of those who work in them on a temporary basis.

Much of the practitioner literature on substitute teaching remarks on the lack of thought often associated with substitute teachers. The online substitute survey afforded each respondent an opportunity to indicate if there was "...anything you did not like about substitute teaching?." Appendix D displays the majority of respondents. In order to maintain the confidentiality of the respondents, names of districts or schools was eliminated. The reader will find a wide range of concerns expressed that are entirely consistent with the general results in Tables 27-32. Much related to thoughtlessness on the part of the fulltime administrative and teaching staff in their dealings with substitute teachers.

Table 27
Substitute Teacher Attitudes
towards
Characteristics of Substitute Position
(in descending order)

| Importance of: | Very <br> Important | Somewhat <br> Important |
| :--- | :---: | :---: |
| School Discipline? | $83.5 \%$ | $15.2 \%$ |
| Safety in School? | $82.7 \%$ | $16.0 \%$ |
| Daily Pay?' | $82.4 \%$ | $16.4 \%$ |
| Attitudes of Professional Staff? | $80.4 \%$ | $17.1 \%$ |
| Advance Professional Career? | $69.6 \%$ | $17.7 \%$ |
| Opportunity to Continue Learning? | $68.8 \%$ | $22.9 \%$ |
| Expectations Set by Absent Teacher? | $68.2 \%$ | $29.9 \%$ |
| Support Resources at School? | $66.0 \%$ | $30.1 \%$ |
| Lesson Plan in School? | $63.9 \%$ | $31.0 \%$ |
| Safety of Area near School? | $62.7 \%$ | $31.0 \%$ |
| Stability of Position? | $58.2 \%$ | $29.8 \%$ |
| Interactions with Prof. Staff? | $56.1 \%$ | $34.4 \%$ |
| Health Benefits? | $51.6 \%$ | $22.6 \%$ |
| Student Enthusiasm? | $49.1 \%$ | $40.3 \%$ |
| Flexibility? | $48.1 \%$ | $43.0 \%$ |
| Academic Preparation of Students? | $46.8 \%$ | $41.0 \%$ |
| Travel time from Home? | $43.0 \%$ | $46.2 \%$ |
| Parking at School?' | $38.1 \%$ | $35.5 \%$ |
| Same District Kids Attend? | $9.1 \%$ | $11.7 \%$ |

Table 28

## Top Five Most Important Characteristics <br> Ranked by Substitute Teachers $1^{\text {st }}$ Most Important Characteristic?

| st <br> Most Important Characteristic <br> of Substitute Teaching? | Ranked <br> Most <br> Important <br> $\boldsymbol{\%}$ |
| :--- | :---: |
| Daily Pay | $39.7 \%$ |
| Advance Professional Career | $15.4 \%$ |
| Discipline in School | $9.6 \%$ |
| Safety of School | $7.1 \%$ |
| Availability of Health Benefits | $5.8 \%$ |

Table 29

## Top Five Most Important Characteristics

Ranked by Substitute Teachers
$2^{\text {nd }}$ Most Important Characteristic

| nd <br> Most Important Characteristic <br> of Substitute Teaching? | Ranked <br> Most <br> Important <br> $\%$ |
| :--- | :---: |
| Discipline in School | $22.4 \%$ |
| Availability of Health Benefits | $16.7 \%$ |
| Daily Pay | $12.2 \%$ |
| Expectations Constructively Set by Absent Teacher | $6.4 \%$ |
| Proximity to Residence | $5.8 \%$ |

Table 30

## Top Five Most Important Characteristics

Ranked by Substitute Teachers
$3^{\text {rd }}$ Most Important Characteristic

| $\mathbf{3}^{\text {rd }}$Most Important Characteristic <br> of Substitute Teaching?Ranked <br> Most <br> Important <br> $\%$ |  |
| :--- | :---: |
| Lesson Plan Availability from School | $15.4 \%$ |
| Daily Pay | $14.1 \%$ |
| Attitude of Professional Staff | $12.8 \%$ |
| Proximity to Residence | $10.9 \%$ |
| Expectations Constructively Set by Absent Teacher | $7.05 \%$ |

Table 31

## Top Five Most Important Characteristics

Ranked by Substitute Teachers
$4^{\text {th }}$ Most Important Characteristic

| $\mathbf{4}^{\text {th }}$ Most Important Characteristic <br> of Substitute Teaching? | Ranked <br> Most <br> Important <br> $\mathbf{\%}$ |
| :--- | :---: |
| Lesson Plan Availability from School | $16.7 \%$ |
| Discipline in School | $13.5 \%$ |
| Expectations Constructively Set by Absent Teacher | $9.6 \%$ |
| Enthusiasm of Students | $8.3 \%$ |
| Proximity to Residence | $6.4 \%$ |

Table 32

## Top Five Most Important Characteristics

Ranked by Substitute Teachers
$5{ }^{\text {th }}$ Most Important Characteristic

| th <br> Most Important Characteristic <br> of Substitute Teaching? | Ranked <br> Most <br> Important <br> $\boldsymbol{\%}$ |
| :--- | :---: |
| Attitude of Professional Staff | $13.5 \%$ |
| Daily Pay | $9.6 \%$ |
| Enthusiasm of Students | $9.0 \%$ |
| Discipline in School | $8.9 \%$ |
| Proximity to Residence | $7.7 \%$ |

### 6.0 Projections of Demand for Substitute Teachers in South West Pennsylvania

The above statistical analysis now allows us to make projections of the daily demand for substitute teachers in South West Pennsylvania. The simplest prediction would be to presume that the overall absenteeism rate implied by Table 20 is $8 \%$ and apply this to the count of full time teachers in the region. Given about 21,300 classroom teachers in the region according to PDE's professional personnel file ${ }^{53}$, this implies a daily demand for substitutes of $8 \% \mathrm{x}$ $20,300=1,704$ substitute teachers. However, this sort of arithmetic ignores variation among districts in the extent to which they have actually experienced absenteeism.

A more sophisticated analysis of the demand for substitutes can be performed by simulating demand that takes advantage of the district by district data on total paid absences that the superintendents report to PDE each year, and adjust these data for unpaid leaves and sabbaticals reported above. Three different models of substitute demand are simulated below.

## Model 1 Assumptions:

Substitute demand for each LEA in South West Pennsylvania can be estimated by the mean, total paid leave rate from 1997-2001 for each LEA reported to the Pennsylvania Department of Education $x$ the number of full time teachers in 2001-2;

## Model 2 Assumptions:

The substitute demand is the same as under Model $1+$ the sabbatical rate of $1.6 \%$;

## Model 3 Assumptions:

The substitute demand is the same as under Model $2+32.6 \%$ of unpaid leaves reported by full-time teachers.

Table 34 indicates by class of district that the different models predict a total, regional average daily demand for substitute teachers that ranges from 1,637 to 2,777 . Note that the area vocational schools are predicted to need from 33 to 46 substitutes each day; these likely will be highly specialized. About $1 / 2$ of the substitute demand is to be found in Allegheny County (see Table 35); the fewest substitutes are predicted to be needed in Fayette County. Appendix C displays the LEA by LEA projections under each of the three substitute demand models.

[^21]
# Table 33 <br> Projections of Daily Demand for Substitute Teachers by Class of District in South West Pennsylvania 

| SD Class | Model 1 | Model 2 | Model 3 |
| :--- | :---: | :---: | :---: |
| Pittsburgh | 157 | 199 | 278 |
| 2nd Class | 519 | 615 | 873 |
| 3rd Class | 911 | 1,090 | 1543 |
| 4th Class | 11 | 14 | 19 |
| VoTech | 33 | 38 | 54 |
| Charter | 6 | 8 | 11 |
| Total | 1,637 | 1,964 | 2,777 |

Table 34

## Projections of Daily Demand for Substitute Teachers by County in South West Pennsylvania

| County | Model 1 | Model 2 | Model 3 |
| :--- | :---: | :---: | :---: |
| Allegheny | 874 | 1,048 | 1,482 |
| Beaver | 142 | 169 | 240 |
| Butler | 126 | 152 | 215 |
| Fayette | 95 | 115 | 161 |
| Washington | 153 | 182 | 258 |
| Westmoreland | 248 | 298 | 421 |
| SW PATotal | 1,638 | 1,964 | 2,777 |

While the predicted daily substitutes needed varies from 1,638 to 2,777 we also know from the 1992 PSBA study that absenteeism varies considerably by time of the week, and month of the year. Table 36 takes the average daily predictions from Table 35, and restates them on either a daily or monthly basis to assist in peak load planning. If monthly substitutes needs today are similar to those observed in 1990-1, then considerable care will need to be taken to make sure that December needs can be systematically met. From a planning perspective this can be difficult, because substitutes are typically recruited and screened in the summer before the start of the school year. If a regional planning agency simply seeks to obtain 1,637 substitutes plus a few more for the purpose of redundancy, then it is obvious from Table 35 that by November, this supply will be inadequate. Also, given the evident leap in substitute demands for Fridays, it is clear that simply having 1,700 substitutes available in the region will not be adequate to meet the
demands for Friday substitutes. At 1,983 , this is $21 \%$ higher than the projected average daily number needed. Figure 4 and 5 makes these points graphically. ${ }^{54}$

## Table 35 <br> Monthly and Daily Patterns of Projected Substitute Needs

| Month | Model 1 | Model 2 | Model 3 |
| :---: | :---: | :---: | :---: |
| September | 867 | 1,040 | 1,471 |
| October | 1,546 | 1,855 | 2,622 |
| November | 1,735 | 2,081 | 2,943 |
| December | 1,940 | 2,328 | 3,291 |
| January | 1,444 | 1,733 | 2,450 |
| February | 1,751 | 2,101 | 2,971 |
| March | 1,913 | 2,295 | 3245 |
| April | 2,065 | 2,477 | 3,503 |
| May | 2,009 | 2,411 | 3,409 |
| June | 1,100 | 1,319 | 1,865 |
| Monthly Average | 1,637 | 1,964 | 2,777 |
| Day | Model 1 | Model 2 | Model 3 |
| Monday | 1,487 | 1,784 | 2,522 |
| Tuesday | 1,539 | 1,847 | 2,611 |
| Wednesday | 1,555 | 1,865 | 2,638 |
| Thursday | 1,622 | 1,946 | 2,751 |
| Friday | 1,983 | 2,379 | 3,363 |
| Daily Average | 1,637 | 1,964 | 2,777 |

Source: author's calculations based on Table 34 and PSBA (1992) Data underlying Figure 2 and 3 above.

[^22]Figure 4
Monthly Pattern of Projected Substitute Needs: Models 1-3


Figure 5
Daily Pattern of Projected Substitute Needs: Models 1-3


### 8.0 Summary and Conclusions

The purpose of this study was to measure the demand for substitute teachers in South West Pennsylvania. Pennsylvania-specific studies of teacher absenteeism indicate that the rate of absenteeism has risen gradually over time, and varies across districts. Absenteeism on Friday is much higher than on Monday, and absenteeism is much higher in December than in the previous September. Compared to the rest of the state, teacher absenteeism is a bit higher in South West Pennsylvania. Philadelphia had the highest observed rate of paid absenteeism (excluding sabbaticals and excluding unpaid leaves), among major districts --- in excess of $10 \%$ and Pittsburgh was much lower at about $5.6 \%$.

On line surveys of individual teachers conducted by this research found absenteeism of about 14.1 days/school year or about $7.3 \%$ overall. Importantly, unpaid leaves of absence, which are rarely measured in other states was $32.6 \%$ of median total days of absence. Sabbaticals have been about $1.6 \%$ of total full time teacher employment in SW Pennsylvania. If one combines the daily paid leave data that superintendents certify to the Pennsylvania Department of Education with the finding that $32.6 \%$ of leave is unpaid, and the rate of sabbaticals, one finds teacher absence rates in SW Pennsylvania on the order of $12 \%$ in 2001-2. This is the same order of magnitude, or slightly higher, than the national $10 \%$ absenteeism rate reported by the Utah State Substitute Teacher Institute.

Substitute teachers in South West Pennsylvania are working about 100 days out of the possible 180 in a school year, and are by and large doing so at pay rates barely above the poverty level. Fully $30 \%$ do not buy health insurance, presumably because they can not afford it. More troubling is the finding that $44 \%$ have to take on an additional job to make ends meet financially.

There is a significant disparity between what full time teachers say, and what districts say about how well teacher absences are "covered" by temporary substitutes or others in the schools who give up a preparation time or lunch time to cover for an absent teacher. Full time teachers say that nobody covers $35 \%$ of the time they are absent, while districts say that nobody covers $15 \%$ of the absent teachers. Presumably classes without a teacher are combined or students are sent to study halls or the library to maintain some sort of semblance of order during the teacher's absence. Nonetheless, a $12 \%$ absenteeism rate indicates that 1.4 years out of a 12 years public education for each student is not taught by a full time classroom teacher. It is easy to imagine that this sort of phenomena is discouraging to students, and reduces morale among other teachers with strong attendance records.

Since much of teacher absenteeism reflects last minute events, it follows that there needs to be systems in place that are flexible and themselves reliable. The six county region of SW Pennsylvania reasonably needs between 1,640 and 2,777 substitutes on average; however, each of these projections internally vary due to day of the week and month of the year effects.

Implementing a regional substitute service or agency will likely create expenses beyond those already being realized by local districts. However, providing reasonably compensated and well qualified teachers may well come at a time when stability and quality of the teacher force will be necessary in order to respond to the challenges created by recent federal legislation.

## Appendix A

## State by State Review of Titles and Requirements for Substitute Teachers

## Utah State Substitute Teacher Institute Utah State University

| $\stackrel{y}{\leftrightarrows}$ | 苞 | 萢 |  |  | $\begin{aligned} & \text { む } \\ & \text { تِ } \end{aligned}$ |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AL | Substitute license | No | No | No | District request Criminal Background check | 5 years | No， must re－ apply | 5 years | － |
| AK | － | No | No | No | By district ＊over 20 days must have valid teaching license | 20 days | Yes | 20 days | － |
| AZ | Substitute certificate | Yes | No | BA | Finger print | 6 years | Yes | 6 years | Submit renewal form |
| AR | － | No | No | No | By district | － | － | － | － |
| CA＊ | － | Yes | No | BA | C－best | － | － | － | － |
| CO | 3 yr and 5 yr | Yes | No | BA | By district （some have 1 yr cert） | 3 yr or 5yr | No－ <br> must <br> re－ <br> apply | 3 yr or 5yr | － |
| CT | － | Yes | No | No | Over 40 days－ must apply via district | － | － | － | － |
| DE | Substitute teaching card | No | No | No | Criminal Background check | No exp． date | － | － | － |
| D．C． | Substitute license －or－ <br> Limited <br> substitute license | Yes <br> No | No | BA $60 \mathrm{hrs}$ | Background check required <br> Background check required | 2 years <br> 2 years | Yes <br> Yes | 2 years | Submit renewal form |
| FL | － | No | No | No | By district－state issues no subs | － | － | － | － |
| GA |  | No | No | No | By district | － | － | － | － |
| HI | Substitute teacher certificate | Yes | No | 12 hrs in Dept of Ed | Substitutes must take 4 hour training course， Fingerprinting， Employee Background Check | 5 years | Yes （each year） | 5 years | None，if you continue to sub－ otherwise must retake course |
| ID | － | No | No | No | By district Fingerprinted | － | － | － | － |
| IL | Substitute certificate | No | No | No | Std．Cert－or－ BA－or－ 2 years exp． | 4 years | Yes | 4 years | － |
| IN | Substitute teaching certificate | No | No | No | By district Criminal check | 2 yrs | － | － | － |
| IA | Substitute | Yes | No | Regular | No | 5 years | Yes | 5 years | － |

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## Appendix B

## Pennsylvania Department of Education Paid Total (T), Personal (P) and Development (D) and Mean Absence Rates for LEAs in South West Pennsylvania

(1997-8, 2001-2)

|  | T_97 | P_97 | D_97 | T_01 | P_01 | D_01 | Mean T | Mean P | Mean D |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Allegheny County |  |  |  |  |  |  |  |  |  |
| A W Beattie AVTS | 9.2\% | 4.8\% | 4.4\% | 2.7\% | 1.1\% | 1.6\% | 5.9\% | 2.7\% | 3.0\% |
| Allegheny Valley SD | 7.7\% | 4.4\% | 3.3\% |  |  |  | 7.7\% | 5.0\% | 2.5\% |
| Avonworth SD | 6.0\% | 3.7\% | 2.2\% | 5.4\% | 5.3\% | 0.1\% | 5.7\% | 4.2\% | 0.9\% |
| Baldwin-Whitehall SD | 7.1\% | 5.1\% | 2.0\% | 11.4\% | 6.6\% | 4.8\% | 9.2\% | 6.1\% | 3.9\% |
| Bethel Park | 12.4\% | 8.2\% | 4.2\% | 10.9\% | 5.6\% | 5.2\% | 11.6\% | 6.5\% | 3.8\% |
| Brentwood Borough SD | 8.4\% | 3.7\% | 4.7\% | $11.3 \%$ | 5.2\% | 6.2\% | 9.9\% | 4.7\% | 4.6\% |
| Career Connections CHS |  |  | . | 2.9\% | 2.6\% | 0.3\% | 2.9\% | 1.9\% | 0.5\% |
| Carlynton SD | 11.6\% | 7.0\% | 4.6\% | 11.7\% | 7.5\% | 4.2\% | 11.7\% | 6.4\% | 4.2\% |
| Chartiers Valley SD | 9.3\% | 6.5\% | 2.9\% | $14.4 \%$ | 6.1\% | 8.3\% | 11.9\% | 5.8\% | 7.0\% |
| Clairton City SD | 8.8\% | 5.8\% | 3.0\% | 2.7\% | 2.6\% | 0.0\% | 5.8\% | 5.8\% | 2.8\% |
| Cornell SD | 10.1\% | 4.7\% | 5.4\% | 6.9\% | 5.1\% | 1.8\% | 8.5\% | 5.9\% | 2.4\% |
| Deer Lakes SD | 6.3\% | 5.2\% | 1.1\% |  |  |  | 6.3\% | 5.3\% | 2.1\% |
| Duquesne City SD | 5.0\% | 4.9\% | 0.1\% |  |  |  | 5.0\% | 5.8\% | 1.3\% |
| East Allegheny SD | 10.1\% | 6.4\% | 3.6\% | 8.1\% | 4.2\% | 4.0\% | 9.1\% | 5.2\% | 3.8\% |
| Elizabeth Forward SD |  | . | . | 9.0\% | 5.6\% | 3.5\% | 9.0\% | 5.4\% | 2.2\% |
| Forbes Road Car \& Tch Ctr | 7.0\% | 5.8\% | 1.2\% |  |  |  | 7.0\% | 5.0\% | 5.1\% |
| Fox Chapel Area SD | 5.9\% | 4.0\% | 1.8\% | 15.8\% | 6.3\% | 9.5\% | 10.9\% | 4.9\% | 5.5\% |
| Gateway SD | 7.4\% | 5.7\% | 1.7\% | 6.0\% | 5.0\% | 1.0\% | 6.7\% | 4.8\% | 1.3\% |
| Hampton Township SD | 6.0\% | 4.7\% | 1.3\% | 9.1\% | 4.7\% | 4.3\% | 7.5\% | 4.0\% | 2.1\% |
| Highlands SD | 4.6\% | 4.4\% | 0.2\% | 7.4\% | 6.0\% | 1.4\% | 6.0\% | 4.9\% | 2.1\% |
| Keystone Oaks SD |  |  |  | 0.7\% | 0.7\% | $0.1 \%$ | 0.7\% | 3.5\% | 1.0\% |
| McKeesport AVTS |  |  |  | 2.5\% | 1.9\% | 0.6\% | 2.5\% | 4.1\% | 4.3\% |
| McKeesport Area SD | 8.0\% | 4.5\% | 3.5\% | 9.6\% | 6.1\% | 3.5\% | 8.8\% | 5.0\% | 3.4\% |
| Montour SD | 11.1\% | 4.7\% | 6.4\% | 10.5\% | 7.5\% | 3.0\% | 10.8\% | 5.7\% | 3.9\% |
| Moon Area SD | 6.6\% | 4.6\% | 2.0\% | 6.6\% | 5.0\% | 1.5\% | 6.6\% | 5.6\% | 1.8\% |
| Mt Lebanon SD | 6.0\% | 4.8\% | 1.2\% | 6.1\% | 3.5\% | 2.5\% | 6.0\% | 5.4\% | 1.9\% |
| North Allegheny SD | 6.0\% | 4.0\% | 2.0\% |  |  |  | 6.0\% | 4.2\% | 4.7\% |
| North Hills SD | 6.6\% | 4.4\% | 2.3\% | 7.9\% | 5.1\% | 2.8\% | 7.3\% | 5.0\% | 2.3\% |
| Northgate SD | 7.9\% | 4.0\% | 3.9\% | 8.5\% | 3.6\% | 4.9\% | 8.2\% | 4.6\% | 4.9\% |
| Northside Urban Pathway CS |  |  | . | 15.2\% | 5.0\% | 10.2\% | 15.2\% | 4.3\% | 8.9\% |
| Parkway West AVTS | 16.0\% | 9.1\% | 6.9\% | 7.3\% | 5.0\% | 2.3\% | 11.6\% | 21.9\% | 21.4\% |
| Penn Hills SD | 8.2\% | 5.0\% | 3.2\% | 5.0\% | 3.5\% | 1.5\% | 6.6\% | 4.4\% | 1.4\% |
| Pine-Richland SD | 6.1\% | 4.0\% | 2.1\% | 6.4\% | 5.3\% | 1.1\% | 6.3\% | 4.3\% | 1.6\% |
| Pittsburgh SD | 5.9\% | 4.8\% | 1.1\% | 6.3\% | 5.7\% | 0.7\% | 6.1\% | 5.0\% | 0.7\% |

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|  | T_97 | P_97 | D_97 | T_01 | P_01 | D_ 01 | Mean T | Mean P | Mean D |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Plum Borough SD | 5.3\% | 3.9\% | 1.4\% | 5.1\% | 4.1\% | 1.0\% | 5.2\% | 4.7\% | 1.7\% |
| Quaker Valley SD | 7.4\% | 4.2\% | 3.2\% | 8.7\% | 3.0\% | 5.7\% | 8.0\% | 3.9\% | 3.8\% |
| Riverview SD | 4.0\% | 3.3\% | 0.7\% |  | . |  | 4.0\% | 3.7\% | 1.0\% |
| Shaler Area SD | 6.2\% | 4.7\% | 1.5\% | 8.6\% | 7.4\% | 1.2\% | 7.4\% | 5.6\% | 2.5\% |
| South Allegheny SD | 8.1\% | 5.1\% | 3.1\% | 4.2\% | 2.2\% | 2.0\% | 6.2\% | 4.4\% | 1.9\% |
| South Fayette Township SD | 9.5\% | 3.9\% | 5.6\% | 7.7\% | 3.4\% | 4.3\% | 8.6\% | 4.0\% | 4.8\% |
| South Park SD | 4.3\% | 2.5\% | 1.7\% | 5.7\% | 2.9\% | 2.9\% | 5.0\% | 2.9\% | 2.8\% |
| Spectrum CS |  |  |  | 6.2\% | 3.2\% | 3.0\% | 6.2\% | 3.8\% | 4.0\% |
| Steel Center AVTS | 8.1\% | 6.8\% | 1.3\% |  |  |  | 8.1\% | 6.8\% | 1.3\% |
| Steel Valley SD |  |  |  | 10.5\% | 7.9\% | 2.6\% | 10.5\% | 7.6\% | 2.1\% |
| Sto-Rox SD |  | . | . | 7.1\% | 5.4\% | 1.7\% | 7.1\% | 3.9\% | 1.3\% |
| Upper Saint Clair SD | 11.3\% | 5.5\% | 5.8\% | 10.9\% | 5.6\% | 5.4\% | 11.1\% | 5.8\% | 5.5\% |
| West Allegheny SD | 9.2\% | 4.6\% | 4.6\% | 10.9\% | 7.4\% | 3.5\% | 10.0\% | 6.2\% | 3.5\% |
| West Jefferson Hills SD | 9.4\% | 5.8\% | 3.6\% | 12.4\% | 6.8\% | 5.7\% | 10.9\% | 5.2\% | 4.0\% |
| West Mifflin Area SD | 8.2\% | 6.3\% | 1.9\% | 9.5\% | 5.0\% | 4.5\% | 8.8\% | 5.1\% | 3.4\% |
| Woodland Hills SD | 7.2\% | 3.6\% | 3.7\% | 8.5\% | 3.4\% | 5.1\% | 7.9\% | 4.9\% | 3.1\% |
| Beaver County |  |  |  |  |  |  |  |  |  |
| Aliquippa SD | 11.4\% | 5.9\% | 5.5\% | 2.7\% | 2.3\% | 0.3\% | 7.0\% | 5.2\% | 5.3\% |
| Ambridge Area SD | 10.2\% | 4.9\% | 5.3\% |  | . |  | 10.2\% | 6.7\% | 4.7\% |
| Beaver Area SD | 5.6\% | $3.3 \%$ | 2.3\% | 8.8\% | 5.6\% | 3.2\% | 7.2\% | 4.0\% | 3.7\% |
| Beaver Co AVTS | 6.1\% | 4.1\% | 2.0\% | 11.4\% | 8.3\% | 3.0\% | 8.7\% | 6.1\% | 2.5\% |
| Big Beaver Falls Area SD | 7.7\% | 4.7\% | 3.0\% | 8.4\% | 4.3\% | 4.0\% | 8.0\% | 4.5\% | 4.1\% |
| Blackhawk SD | 2.2\% | 1.8\% | 0.4\% | 4.7\% | 2.6\% | 2.1\% | 3.4\% | 3.3\% | 1.9\% |
| Center Area SD | 5.2\% | 4.1\% | 1.2\% | 9.6\% | 4.7\% | 4.9\% | 7.4\% | 3.9\% | 1.7\% |
| Freedom Area SD | 8.8\% | 4.0\% | 4.8\% | 8.9\% | 3.0\% | 5.9\% | 8.9\% | 3.8\% | 5.4\% |
| Hopewell Area SD | 5.5\% | 4.4\% | 1.1\% | 11.5\% | 6.8\% | 4.7\% | 8.5\% | 5.7\% | 2.5\% |
| Midland Borough SD | 6.0\% | 3.4\% | 2.6\% | 8.4\% | 5.3\% | 3.1\% | 7.2\% | 5.2\% | 2.2\% |
| Monaca SD | 5.3\% | 2.9\% | 2.4\% | 4.8\% | 3.8\% | 0.9\% | 5.0\% | 3.5\% | 1.8\% |
| New Brighton Area SD | 6.8\% | 4.6\% | 2.3\% | 8.1\% | 5.8\% | 2.3\% | 7.5\% | 5.2\% | 2.8\% |
| Riverside Beaver County SD | 8.5\% | 5.1\% | 3.4\% | 7.3\% | 4.4\% | 2.9\% | 7.9\% | 4.7\% | 2.9\% |
| Rochester Area SD | 6.6\% | 4.9\% | 1.8\% | 5.8\% | 1.5\% | 4.3\% | 6.2\% | 4.4\% | 1.2\% |
| South Side Area SD | 8.2\% | 4.0\% | 4.3\% | 7.4\% | 4.1\% | 3.3\% | 7.8\% | 4.1\% | 3.5\% |
| Western Beaver County SD | 9.2\% | 4.5\% | 4.7\% | 3.0\% | 1.9\% | 1.1\% | 6.1\% | 3.3\% | 2.7\% |
| Butler County |  |  |  |  |  |  |  |  |  |
| Butler Area SD | 6.3\% | 3.8\% | 2.5\% | 6.8\% | 4.0\% | 2.8\% | 6.6\% | 4.2\% | 2.8\% |
| Butler County AVTS | 7.0\% | 5.4\% | 1.7\% | 7.4\% | 4.7\% | 2.7\% | 7.2\% | 5.1\% | 2.0\% |
| Karns City Area SD | 4.1\% | 0.8\% | 3.4\% | 6.0\% | 3.4\% | 2.7\% | 5.1\% | 3.3\% | 2.0\% |
| Mars Area SD | 10.6\% | 5.0\% | 5.6\% |  |  |  | 10.6\% | 5.0\% | 2.6\% |
| Moniteau SD | 9.0\% | 5.5\% | 3.5\% | 8.0\% | 6.1\% | 1.9\% | 8.5\% | 5.3\% | 2.3\% |
| Seneca Valley SD | 10.5\% | 6.3\% | 4.2\% | 9.9\% | 4.6\% | 5.3\% | 10.2\% | 5.3\% | 4.0\% |
| Slippery Rock Area SD | 10.4\% | 5.7\% | 4.7\% | 5.9\% | 4.6\% | 1.3\% | 8.2\% | 4.3\% | 1.7\% |
| South Butler County SD | 4.8\% | 4.0\% | 0.7\% | 5.1\% | 3.9\% | 1.2\% | 4.9\% | 4.0\% | 1.4\% |
| Fayette County |  |  |  |  |  |  |  |  |  |
| Albert Gallatin Area SD | 7.3\% | 5.6\% | 1.7\% | 5.9\% | 4.4\% | 1.5\% | 6.6\% | 5.4\% | 1.5\% |

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|  | T_97 | P_97 | D_97 | T_01 | P_01 | D_ 01 | Mean T | Mean P | Mean D |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Brownsville Area SD | 9.4\% | 5.4\% | 4.0\% | 10.9\% | 9.7\% | 1.2\% | 10.1\% | 7.0\% | $3.1 \%$ |
| Connellsville Area SD | 7.5\% | 5.4\% | 2.1\% | 7.3\% | 4.9\% | 2.4\% | 7.4\% | 5.2\% | 2.2\% |
| Fayette County AVTS | 5.0\% | 3.4\% | 1.7\% | 7.7\% | 6.4\% | 1.3\% | 6.4\% | 4.9\% | 1.4\% |
| Frazier SD | 11.9\% | 7.2\% | 4.7\% | 9.1\% | 7.3\% | 1.7\% | 10.5\% | 6.8\% | 4.0\% |
| Laurel Highlands SD | 6.5\% | 5.1\% | 1.4\% |  |  |  | 6.5\% | 5.1\% | 1.4\% |
| Uniontown Area SD | 7.1\% | 4.6\% | 2.5\% | 5.2\% | 3.9\% | 1.4\% | 6.2\% | 4.9\% | 1.4\% |
| Washington County |  |  |  |  |  |  |  |  |  |
| Avella Area SD | 7.0\% | 5.4\% | 1.6\% | 10.4\% | 7.6\% | 2.8\% | 8.7\% | 5.2\% | 1.7\% |
| Bentworth SD | 6.7\% | 4.4\% | 2.3\% | 2.6\% | 2.2\% | 0.4\% | 4.7\% | 4.8\% | 1.2\% |
| Bethlehem-Center SD | 17.7\% | 9.7\% | 7.9\% | 9.4\% | 7.9\% | 1.6\% | 13.6\% | 9.1\% | 3.0\% |
| Burgettstown Area SD | 8.0\% | 6.2\% | 1.8\% | 8.1\% | 6.4\% | 1.7\% | 8.1\% | 7.0\% | 1.7\% |
| California Area SD | 6.6\% | 6.0\% | 0.6\% | 9.9\% | 7.1\% | 2.8\% | 8.2\% | 5.4\% | 2.2\% |
| Canon-McMillan SD | 6.9\% | 5.0\% | 1.9\% | 8.0\% | 5.6\% | 2.4\% | 7.4\% | 5.0\% | 2.4\% |
| Charleroi Area SD | 10.1\% | 7.7\% | 2.4\% | 9.8\% | 8.2\% | 1.6\% | 10.0\% | 6.7\% | 1.9\% |
| Chartiers-Houston SD | 11.4\% | 6.7\% | 4.7\% | 8.7\% | 7.1\% | 1.6\% | 10.0\% | 5.8\% | 2.7\% |
| Fort Cherry SD | 11.5\% | 6.1\% | 5.4\% | 5.7\% | 4.3\% | 1.3\% | 8.6\% | 5.6\% | 3.0\% |
| McGuffey SD | 9.4\% | 6.5\% | 2.9\% | 6.8\% | 4.3\% | 2.5\% | 8.1\% | 5.4\% | 2.2\% |
| Peters Township SD | 6.6\% | 4.6\% | 2.0\% |  |  |  | 6.6\% | 4.6\% | 1.2\% |
| Ringgold SD | 6.9\% | 5.0\% | 1.9\% | 8.7\% | 5.8\% | 2.9\% | 7.8\% | 5.2\% | 2.2\% |
| Trinity Area SD | 6.0\% | 4.8\% | 1.2\% | 9.1\% | 5.7\% | 3.5\% | 7.6\% | 5.7\% | 2.4\% |
| Washington SD | 8.1\% | 4.1\% | 4.0\% | 7.1\% | 3.9\% | 3.3\% | 7.6\% | 4.3\% | 3.4\% |
| Western Area CTC | 7.5\% | 4.7\% | 2.8\% | 12.2\% | 7.9\% | 4.2\% | 9.8\% | 5.5\% | 3.1\% |
| Westmoreland County |  |  |  |  |  |  |  |  |  |
| Belle Vernon Area SD | 10.4\% | 5.6\% | 4.8\% |  |  |  | 10.4\% | 5.7\% | 4.7\% |
| Burrell SD | 8.0\% | 4.3\% | 3.7\% | 10.0\% | 5.1\% | 4.9\% | 9.0\% | 5.5\% | 5.0\% |
| Central Westmoreland CTC | 7.7\% | 4.7\% | 3.0\% | 7.9\% | 6.0\% | 1.9\% | 7.8\% | 5.5\% | 1.9\% |
| Derry Area SD | 5.3\% | 2.7\% | 2.6\% | 14.7\% | 4.7\% | 10.0\% | 10.0\% | 3.9\% | 3.3\% |
| Eastern Westmoreland CTC | 5.6\% | 2.7\% | 2.9\% | 4.9\% | 2.3\% | 2.6\% | 5.3\% | 3.2\% | 4.8\% |
| Franklin Regional SD | 7.0\% | 4.3\% | 2.7\% | 5.8\% | 4.4\% | 1.4\% | 6.4\% | 4.6\% | 2.6\% |
| Greater Latrobe SD | 7.7\% | 5.6\% | 2.1\% | 7.1\% | 4.4\% | 2.7\% | 7.4\% | 5.3\% | 3.2\% |
| Greensburg Salem SD | 10.1\% | 5.2\% | 4.9\% | 10.5\% | 6.0\% | 4.5\% | 10.3\% | 5.0\% | 4.0\% |
| Hempfield Area SD | 8.4\% | 5.4\% | 3.0\% | 7.2\% | 4.5\% | 2.7\% | 7.8\% | 5.0\% | 2.7\% |
| Jeannette City SD | 5.9\% | 5.1\% | 0.9\% | 8.2\% | 5.3\% | 2.9\% | 7.0\% | 5.0\% | 1.8\% |
| Ligonier Valley SD | 6.5\% | 4.1\% | 2.4\% | 8.8\% | 4.5\% | 4.3\% | 7.6\% | 4.2\% | 4.0\% |
| Monessen City SD | 7.5\% | 5.1\% | 2.4\% | 8.3\% | 6.9\% | 1.4\% | 7.9\% | 6.6\% | 2.3\% |
| Mount Pleasant Area SD | 6.7\% | 5.4\% | 1.2\% | 5.2\% | 4.9\% | 0.3\% | 5.9\% | 6.4\% | 0.9\% |
| New Kensington-Arnol SD | 8.0\% | 5.1\% | 2.9\% | 9.7\% | 5.2\% | 4.5\% | 8.9\% | 4.9\% | 3.6\% |
| Northern Westmoreland | 6.0\% | 4.4\% | 1.7\% |  |  |  | 6.0\% | 3.6\% | 1.5\% |
| Norwin SD | 6.7\% | 5.0\% | 1.7\% | 10.7\% | 6.2\% | 4.5\% | 8.7\% | 5.5\% | 2.9\% |
| Penn-Trafford SD | 6.9\% | 4.6\% | 2.3\% | 6.3\% | 4.5\% | 1.8\% | 6.6\% | 4.5\% | 1.7\% |
| Ridgeview Academy CS |  | . | . | 0.1\% | 0.0\% | 0.1\% | 0.1\% | 1.4\% | 0.1\% |
| Southmoreland SD | 9.6\% | 6.3\% | 3.3\% | 8.4\% | 6.9\% | 1.4\% | 9.0\% | 6.0\% | 2.8\% |
| Yough SD | 12.9\% | 8.8\% | 4.2\% | 9.3\% | 5.8\% | 3.5\% | 11.1\% | 6.2\% | 2.4\% |

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## Appendix C: Projected Daily Substitute Hiring Needs

| Local Education Authority | Model 1 | Model 2 | Model 3 |
| :--- | :---: | :---: | :---: |
| Allegheny County |  |  |  |
| A W Beattie AVTS | 2 | 2 | 3 |
| Allegheny Valley SD | 6 | 7 | 10 |
| Avonworth SD | 4 | 5 | 8 |
| Baldwin-Whitehall SD | 28 | 32 | 46 |
| Bethel Park | 36 | 42 | 60 |
| Brentwood Borough SD | 8 | 10 | 14 |
| Career Connections CHS | 0 | 1 | 1 |
| Carlynton SD | 11 | 13 | 18 |
| Chartiers Valley School District | 29 | 32 | 46 |
| Clairton City SD | 7 | 8 | 12 |
| Cornell SD | 5 | 6 | 8 |
| Deer Lakes SD | 10 | 12 | 17 |
| Duquesne City SD | 6 | 7 | 9 |
| East Allegheny SD | 11 | 13 | 18 |
| Elizabeth Forward SD | 14 | 17 | 24 |
| Forbes Road Career \& Tech Ctr | 3 | 4 | 5 |
| Fox Chapel Area SD | 38 | 43 | 62 |
| GREATER WORKS ACADEMY | 0 | 0 | 0 |
| Gateway SD | 18 | 23 | 32 |
| Hampton Township SD | 12 | 15 | 22 |
| Highlands Schoool District | 14 | 17 | 24 |
| Keystone Oaks SD | 8 | 11 | 15 |
| Manchester Academic CS | 1 | 1 | 2 |
| McKeesport AVTS | 2 | 2 | 3 |
| McKeesport Area SD | 25 | 30 | 42 |
| Montour SD | 19 | 22 | 31 |
| Moon Area SD | 19 | 22 | 32 |
| Mt Lebanon SD | 28 | 34 | 48 |
| North Allegheny SD | 45 | 52 | 75 |
| North Hills SD | 25 | 30 | 42 |
| Northgate SD | 10 | 12 | 17 |
| Northside Urban Pathways CS | 2 | 2 | 3 |
| PA Learners Online Regional Cyber | 0 | 0 | 0 |
| Parkway West AVTS | 13 | 13 | 20 |
| Penn Hills SD | 24 | 30 | 42 |
| Pine-Richland SD | 15 | 19 | 26 |
| Pittsburgh SD | 157 | 199 | 277 |
| Plum Borough SD | 16 | 20 | 28 |
| Quaker Valley SD | 10 | 12 | 17 |
| Riverview SD | 5 | 6 | 9 |
|  |  |  |  |


| Local Education Authority | Model 1 | Model 2 | Model 3 |
| :---: | :---: | :---: | :---: |
| Shaler Area SD | 31 | 36 | 52 |
| South Allegheny SD | 8 | 10 | 14 |
| South Fayette Township SD | 10 | 12 | 16 |
| South Park SD | 7 | 9 | 12 |
| Spectrum CS | 0 | 0 | 1 |
| Steel Center AVTS | 2 | 3 | 4 |
| Steel Valley SD | 13 | 15 | 22 |
| Sto-Rox SD | 6 | 8 | 11 |
| Upper Saint Clair SD | 29 | 33 | 47 |
| Urban League of Pittsburgh CS | 1 | 1 | 2 |
| West Allegheny SD | 20 | 23 | 34 |
| West Jefferson Hills SD | 15 | 18 | 25 |
| West Mifflin Area SD | 15 | 17 | 25 |
| Wilkinsburg Borough SD | 0 | 2 | 2 |
| Woodland Hills SD | 29 | 34 | 48 |
| Allegheny County Subtotal | 874 | 1,048 | 1,482 |
| Beaver County | Model 1 | Model 2 | Model 3 |
| Aliquippa SD | 13 | 14 | 21 |
| Ambridge Area SD | 24 | 27 | 39 |
| Beaver Area SD | 9 | 11 | 16 |
| Beaver Co AVTS | 2 | 2 | 3 |
| Big Beaver Falls Area SD | 12 | 15 | 21 |
| Blackhawk SD | 9 | 11 | 16 |
| Center Area SD | 7 | 9 | 12 |
| Freedom Area SD | 10 | 12 | 16 |
| Hopewell Area SD | 17 | 20 | 28 |
| Midland Borough SD | 2 | 2 | 3 |
| Monaca SD | 3 | 4 | 5 |
| New Brighton Area SD | 10 | 12 | 17 |
| Riverside Beaver County SD | 10 | 11 | 16 |
| Rochester Area SD | 5 | 6 | 8 |
| South Side Area SD | 7 | 9 | 12 |
| Western Beaver County SD | 4 | 5 | 7 |
| Western Pennsylvania Cyber CS | 0 | 0 | 0 |
| Beaver County Subtotal | 142 | 169 | 240 |
| Butler County | Model 1 | Model 2 | Model 3 |
| Butler Area SD | 36 | 43 | 61 |
| Butler County AVTS | 1 | 2 | 2 |
| Karns City Area SD | 6 | 8 | 11 |
| Mars Area SD | 12 | 15 | 21 |
| Moniteau SD | 7 | 8 | 12 |
| Seneca Valley SD | 45 | 52 | 74 |
| Slippery Rock Area SD | 9 | 12 | 16 |


| Local Education Authority | Model 1 | Model 2 | Model 3 |
| :---: | :---: | :---: | :---: |
| South Butler County SD | 9 | 12 | 16 |
| Butler County Subtotal | 221 | 266 | 215 |
| Fayette County | Model 1 | Model 2 | Model 3 |
| Albert Gallatin Area SD | 17 | 21 | 30 |
| Brownsville Area School District | 13 | 15 | 21 |
| Connellsville Area SD | 27 | 32 | 45 |
| Fayette County AVTS | 2 | 2 | 3 |
| Frazier SD | 8 | 10 | 14 |
| Laurel Highlands SD | 14 | 18 | 25 |
| North Fayette County AVTS | 0 | 0 | 0 |
| Uniontown Area SD | 14 | 17 | 24 |
| Fayette County Subtotal | 95 | 115 | 161 |
| Washington County | Model 1 | Model 2 | Model 3 |
| Avella Area SD | 4 | 5 | 7 |
| Bentworth SD | 4 | 5 | 8 |
| Bethlehem-Center SD | 13 | 15 | 21 |
| Burgettstown Area SD | 8 | 10 | 14 |
| California Area SD | 5 | 6 | 8 |
| Canon-McMillan SD | 20 | 23 | 33 |
| Charleroi Area SD | 9 | 10 | 14 |
| Chartiers-Houston SD | 7 | 8 | 11 |
| Fort Cherry SD | 8 | 9 | 13 |
| McGuffey SD | 13 | 16 | 22 |
| Mon Valley CTC | 0 | 0 | 0 |
| Peters Township SD | 12 | 15 | 22 |
| Ringgold SD | 17 | 21 | 29 |
| Trinity Area SD | 20 | 23 | 33 |
| Washington SD | 12 | 14 | 20 |
| Western Area CTC | 2 | 2 | 3 |
| Washington County Subtotal | 153 | 182 | 258 |
| Westomoreland County | Model 1 | Model 2 | Model 3 |
| Belle Vernon Area SD | 16 | 19 | 27 |
| Burrell SD | 14 | 16 | 22 |
| Central Westmoreland CTC | 3 | 4 | 5 |
| Derry Area SD | 13 | 15 | 22 |
| Eastern Westmoreland CTC | 1 | 2 | 2 |
| Franklin Regional SD | 17 | 20 | 29 |
| Greater Latrobe SD | 21 | 24 | 35 |
| Greensburg Salem SD | 18 | 21 | 30 |
| Hempfield Area SD | 32 | 39 | 55 |
| Jeannette City SD | 6 | 7 | 10 |
| Kiski Area SD | 0 | 3 | 4 |

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| Local Education Authority | Model 1 | Model 2 | Model 3 |
| :--- | :---: | :---: | :---: |
| Ligonier Valley SD | 11 | 13 | 18 |
| Monessen City SD | 7 | 8 | 11 |
| Mount Pleasant Area SD | 11 | 13 | 18 |
| New Kensington-Arnold SD | 13 | 16 | 22 |
| Northern Westmoreland Co AVTS | 1 | 1 | 1 |
| Norwin SD | 23 | 27 | 39 |
| Penn-Trafford SD | 15 | 19 | 27 |
| Ridgeview Academy CS | 1 | 2 | 2 |
| Southmoreland SD | 12 | 13 | 21 |
| Yough SD | 13 | 16 | 22 |
| Westmoreland County Subtotal | 248 | 298 | 421 |
| SW PA Total | 1,637 | 1,964 | 2,777 |

## Appendix D: Open Ended Responses to On-line survey by Substitutes

When asked,
"Was there anything you did not like about substitute teaching?"
substitute teachers who participated in the online surveyhad a variety of things to say. Here is a sampling of their responses; district and school names have been eliminated to ensure to protect the anonymity of the respondents and schools:
"Totally dependent upon the school. I had bad experiences at middle schools, especially X. When there was little administrative support, students were rude/disobedient."
"The pay periods. It would take 6 weeks before you received a check for work. Example: October $1^{\text {st }}$ check would arrive November 15th to 30 th."
"The attitude of staff. The unavailable principal to observe your teaching. The students were all superior to teach in every school districts. The staffs were very rude to a Visitor or guest in the building. We subs are given the respect we deserve. The Middle School Teachers were more professional and treated us wth dignity and respect. WHY ARE THE SECERETARIES RUNNING THE SCHOOLS AND THE PRINCIPALS MAKE THE BIG SALARIES? ALSO, THE TEACHERS NEED TO TREAT THEIR PEERS WITH RESPECT. Many of us just observe the teachers' petty ways and their total lack of what is real. They're totally isolated and insulated in their jobs. THEY CAN'T COMPREHEND WHAT IS GOING ON IN THE OUTSIDE WORLD. The new teachers are in the jobs for the money and salary. The older teachers are from the draft dodger generation and are hippies. Very few are in their mid-forties or fifty.
"When you go to certain schools and the principal and staff expect the substitute to know everything about the school, or to have handy lesson plans, even though you are not told what grade are you going to teach.(or level)
"Not having a regular work schedule, I could not plan for anything; students were very disrespectful, some teachers were very cold and treated you like you knew nothing or had no classroom experience just because you were a sub.
"NO key to bathrooms.
"SHORT TERM ASSIGNMENTS THAT CHANGE FROM DAY TO DAY. FOLLOWING
SOMEONE'S 2 X 2 LESSON PLANS THAT DO NOT GIVE ADEQUATE DETAIL. NOT
HAVING PAPER TO COPY CLASS MATERIAL THAT I BRING. SCHOOL'S DISTRICT'S
OVER-RELIANCE ON SUBSTITUTE TEACHERS TO THE EXTENT CALLS ARE
RECEIVED AS LATE AS 10:30 PM. WHY DOESN'T DISTRICT JUST HIRE MORE
TEACHERS? IT IS IMPOSSIBLE TO MEET FINANCIAL OBLIGATIONS AND PAY FOR

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HEALTH INSURANCE AT THE RATE WE ARE PAID. BOUNCING FROM PLACE TO PLACE, YOU DON'T FEEL AS IF YOU ARE TEACHING, JUST MAINTAINING DISCIPLINE AND BABYSITTING. LESSON PLANS ARE NOT DETAILED ENOUGH TO COMMUNICATE WHAT THE ABSENT TEACHER EXPECTS TO BE COVERED.
"I love substitute teaching
"Many things. First, the students thought it was a holiday; tried to get over on the sub, were too lazy to answer to their name during roll call; talked too much after repeated warnings, were disrespectful in some cases, definitely (in all cases) felt they did not owe the same respect to the sub as to the regular teacher, engaged in inappropriate behavior ( sexual language, brading each others hair, wrassling and turning over chairs at X. In addition at X, some team leader teachers refused to make disciplinary referrals to the dean (V.P.) and instead protected the students by placing them in the class next door, where they knew the other teacher and behaved for that teacher. Their infractions were never addressed or punished. Most classrooms were a sweatbox during the summer. Also, I would have liked to know what sanction the VP gave to whoever I sent to them as a disciplinary referral.(lack of feedback).Generally, students were not interested in learning, although this may have been a function of other factors.
"Often little assistance in getting to know a school's policies, routines, etc.. Very often there was no contact with principals in schools and sometimes no plans from a teacher. There are so many schools in the district and no consistent following of policies that are supposed to be district wide.

## "NO PROBLEMS.

"Walking into a school and/or classroom I had never been into and not having even the simplest instructions
"This year I was fortunate and was in one school. I dislike being in different schools constantly, and never knowing how things are done there, or having support, so that I can do my best job for the students.
"Getting the phone call at 6 am, dealing with students trying to get you, low pay, they say they need you, you are essential, but don't treat you as such.
"Unruly children and administrators who did not give me support (for example not stopping by to talk to the children in order to get them to behave).
"Administration engaged in non-discipline. Students sent to office were too often sent back without any action taken.
"No problems.
"I am tired of being told what an excellent teacher I am and then see the full time job go to a relative. Hiring should be based upon seniority and the quality of the teacher. I also feel that if a
district doesn't plan on hiring a substitute for a full time teaching position, they should be honest and stop wasting their precious time. They should also take into consideration that they are dealing with the futures of eager students, exceptional teachers, and the family members of those teachers. I find these problems mentioned above are often found not only in the district that I sub at regularly, but throughout Westmoreland County School Districts. Substitutes often feel trapped. They often do far more than what is required of them and they are often victims of unlawful acts. If the substitute would decide to push the legal aspects of the unlawful acts they know they will have to give up on their teaching dreams. We teach our students to work hard to achieve their goals. If a student works hard and we tell the
"I feel substituting often times is a thankless job. I have taught Music, Gym, Special Ed., and complicated Science units and I rarely got a thank you from anyone or any feedback. I have even taken students and parents on field trips, when the class was extremely new to me. There have been times when there were NO lesson plans and not even a token of concern from a principal who I think might be considerate enough to check on me. I have had to answer phones while the staff attended a Christmas breakfast for the teachers, of which I had been invited to the previous day. The children have been DISRESPECTFUL and worked hard at making a fool out of me, especially at the 5th grade levels, causing me not to accept those positions. It is my feeling that often one is thrust into a sink or swim position. Schools need to VALUE subs! On the positive note, I have loved the hugs from students, and have relished the looks on faces of those who hung on my every word!
"Some of the daily routines were not fully explained - example: pick up (or don't) the student before school, hallway rules, lunch transitions, dismissal procedures...
"Certain schools provided no real support when students became uncooperative or rude. In certain schools the students were basically out of control. Sometimes it is impossible to get through on the substitute help line. Certain job descriptions were misleading, paying for only half a day without that being stated. When an error occurred and I was not paid for certain days it was entirely up to me to track down the problem, a process that once took over 20 phone calls. Too often teachers left me with videos to play. This is the most difficult type of class to handle, in my opinion, since there are always students who are bored with the video and become disruptive, making it impossible for the other students to learn anything and just wasting everyones time. I have been able to get such classes under control, but it's not a pleasant experience.
"I don't like knowing where I'll be teaching from one day to the next. I prefer long-term substitute teaching!
"Not knowing the student's names.
"No issues.
"Not being guaranteed an interview for available positions the following year.
"Not being able to log into the attendance computer. Being left out of daily happemings. Having a feeling of not being trusted with student files. Not knowing physical or mental problems of troubled children.
"Discipline problems in middle schools-lack of support from staff and administration
"I did not like the fact that I would be called in for my certification area, only to be switched upon my arrival. Very little consideration was given to my skills and abilities as an art teacher. Most staff and administration were very insensitive to this as well.
I didn't like the uncertainty of daily work.
"It wasn't really the teaching that I didn't like. It was the district. The district hired me as a fulltime, day to day sub for the end of the year. This made me miss other opportunities at other school districts for full-time employment. Then, the district didn't even bother to call me for an interview for the 6 openings for full-time teachers for the 2002-2003 school year. And this district wonders why they have sub shortage. I think I may have the answer.
"Students received little or no repercussions for behavior toward substitute teachers.
It is difficult to sub because the staff expect you to know the daily routines and seem bothered when you ask questions. There are always teachers that are willing to help out but you have to find those teachers.
"Administration has its own agenda. Skill and dedication not as important as who you know in administration and on school board.
"The way regular teachers treat you like you are a nobody.
"Unruly children and not knowing what the school policy is when I have them!
"Disciplining large classes.
"Some schools were very rough.
"Teachers did not always enter their names in the AESOP system and therefore you would sometimes accept an assignment without knowing who the teacher was ( or what grade/subject). Also, the explanations about subbing in out of area certification were confusing.
"Unruly students and regular teachers not taking steps to control them when they returned. Also it's always nice to have a heads up given about students to look to for some help and others to look out for. Any little tips and hints about the class or school in general are a help.
"Principals did not back-up teachers when it came to discipline problems.
"Aggression and drugs in school---a major problem, especially at inner city schools.
"I didn't like when the recording from the absent teacher would not tell you the classroom grade level.
"It is often taken for granted that a substitute automatically knows the different procedures of each building and there is sometimes a lack of patience on the part of regular staff members. Unless they have been a substitute, they don't know how confusing it can be. I think substitutes should be given benefits, training, and be treated as a regular member of the school community. There should be a pool of substitutes that is trained possibly county-wide. They should be given a beginning teacher's pay, with all the benefits due.
"NO problems.
"The majority of the staff looks at you like you don't know what you are doing and that you are not part of the teaching staff. Meanwhile on that day a substitute teacher is part of the teaching staff.
"I do not like being called at the very last minute, can't plan, shuffled around to cover, low pay, don't feel appreciated by administration.
"If I sub in my subject area I would like that to be known so that I could actually teach instead of babysitting.
"My role was to run supervised study hall during the teacher's absence; rarely was I allowed to teach any subject matter; higher level students (grades 7 and above) frequently misbehave; the pay rate is very low.
"The call at 6 am.
"LOW PAY. THIS SCHOOL DISTRICT DOESN'T HIRE SUBS FOR THEIR DAILY LIST.
"It always feels like the FIRST day of school. Lack of health benefits.
"Working too hard and not even getting an opportunity for an interview at the school districts I have taught at.
"There was not usually a way to know if I had done a good job or not. Also, many teachers don't trust us to do a good job, and just leave busy work, tests or the worst--movies!
"(Besides the incredibly LOW pay), I do not like having such little time to prepare for teaching a class. I always felt I could have done so much better if I had more prep time.
"The whole process... I worked as an assistant manager to a retail store for 40 hours a week and on my days off I would sub the jobs that were not available to obtain full time. I will never sub again. The entire process is annoying, the jobs were always available when I was not, or else when I checked they would be gone in a matter of seconds. It is always a gamble if you are going
to work that is why this year I am working for a temp agency making more money than I would subbing.
"No problems.
"No benefits and low pay.
"While given positive feedback from teachers and staff, I was not granted an interview for any district that I have subbed in within the past two years.
"Last minute, EARLY morning phone calls. Not being paid the substitute rate of pay for subbing for instructional assistants.
"Mostly a glorified babysitter--feeling like I have wasted my time and energy getting my masters in education. I have subbed to get my foot in the door, especially the long-term jobs; get told I do a wonderful job--but then get passed over when the full time job becomes available (THIS IS THE MAJOR REASON THAT THERE IS A SHORTAGE OF SUBSTITUTES-- most individuals that are subbing are hoping for full-time employment and get the door slammed in their faces time and time again, losing out often times because of school politics, the need for a coach, etc. Also, a weekly paycheck is not guaranteed, especially over the holiday periods. In addition, NONE of the daily sub positions pay benefits; and only one of the 4 long term jobs I have had offered any kind of health benefits. Not exactly a lot there to keep you on the daily sub lists unless you are only supplementing a spouse's income.
"I enjoy substitute teaching.
"Seeing lesser qualified candidates with little or no experience being offered permanent positions
"I do not like the pay scale currently in place. It is supposed to reward me for only teaching for District X however, they have cut back my hours and use new subs who earn less per diem. This is forcing me to consider other districts. The situation is also chaotic with communication being nonexistent. Substitutes are left on their own without any orientation or training. The teachers are allowed to call in at the last minute and I am the one who is usually called. I need a more structured system. This district is so badly managed that I do not enjoy teaching here. I stay because I have many wonderful relationships with students and stay for their sakes.
"The principals rarely acknowledged my existence. I felt unwelcome and teachers were always questioning my abilities and acting like they were better than me. I was asked to do busy work such as copies and extra lunch and recess duties. Getting calls at 5 a.m. and going to a different place each day for meager pay is exhausting and humiliating.
Only when papers weren't run off and I had to go and find them to run them off.
"Unorganized plans and materials, rudeness of staff, constant job calling late at night and starting at 5am in the morning, sub-finder calling repeatedly on weekends and holidays. Not knowing where you were going every day.
"Being asked by teachers personally about particular dates and then not being called until the morning of the day. I could write a novel about what I didn't like. Whether you are a good or bad substitute goes unnoticed. Kids often said they learned when I taught them- it was never acknowledged by administration nor did I receive an interview for a position that I knew was available- even when I was one of 2 subs with the required certification. A meeting was held with subs for ideas to make subbing more attractive- nothing came of it- it was almost as if it was just a political move to say they had a meeting of this type. After I had received a job outside of teaching- I informed them I no longer wished to be on the list, yet I still get phone calls and mailings as if I was one!
"The only thing I do not like about substitute teaching is the uncertainty of where and when I will go. At least if I had a full time sub position, that question would be filled. It's very frustrating not knowing if you will be able to pay your bills for the month or not. Subs are treated like 2nd class citizens by everyone in the schools. From students to secretaries to teachers to administration. Secretaries will have you fill in classes during your lunch breaks and tell you that you are just a sub. Teachers won't acknowledge your presence. I don't know how many times I would sit at a table and no one would say hello ought alone eat with you. Subs are looked down on by EVERYONE in the schools. It doesn't make a difference if you have a better education or more experience, you are just a sub. You sub hoping to work towards a fulltime job, yet nepotism prevails. If it is not nepotism, in social studies it is coaching. I actually had a principal tell me that football was his priority and that if I changed my certification he would have a job for me, but in social studies he wanted men. One female was hired for social studies, in that district, a cousin of the superintendent. It wouldn't be so bad if the teachers they hired knew their subject, but I don't know how many times I have seen those who don't.
"It seems there are not many chances of full time employment no matter how good of a reputation I earn even--- after long term position.
"Early morning calls. Prefer knowing the night before if working the next day. Also, I don't like facing a class without a seating chart.
"Sometimes students were unruly because they thought I was new to the system. Not being able to teach a complete lesson or unit and see the results of my efforts.
"I am very tired of being told what a wonderful teacher I am and then seeing the teaching position go to a relative.
"There is no where for me to say this so- District X does have subs who work 5 days a week for part of the year, reporting directly to the HS (or middle, or elementary); I did that several months so that took away the negative early morning phone calls. I got the runaround, no support, no communication as to job openings after numerous calls, did a good job for a long term position, then they gave it to someone else who knew someone on the school board, I am very unhappy about my substitute position.
"Some teachers were very unorganized. Some did not explain minor daily routines that are major to students and would help with the how smooth the day goes.
"Yes. I do not like the morning phone calls, the inconsistency, and the way substitutes are treated in general. (like second class citizens)

## "NOT HAVING LESSONS THAT WERE LONG ENOUGH TO LAST THE PERIOD

"I was not introduced to the principals.
"Students misbehaving in the classroom, no discipline, little or no interest in their lessons. Inconsistency among the schools in the same district and the lack of support from other faculty and administrators. The incredibly low amount of pay for all the duties expected of you. You are treated as an outcast!
"No benefits.
"Discipline (lack of) - administrators did not help with students out of control.
"Substitutes are rarely taken seriously. It is preferable to keep your mouth closed.
"The pay should be considerably higher for the education. I am making $1 / 3$ of what I did before I was laid off. Also when I reported to a school and then had school cancel the engagement, I had no renummeration. I believe that at least some stipend should be awarded when I am at the school and spend my time and gasoline top get here. Regular teachers get paid, don't they?
"As a retired teacher who is limited to the number of days I can substitute I only go to schools where the adults and students are friendly, helpful and cooperative. One of the difficulties is academic teachers who do not leave usable lesson plans. Also it is difficult to locate some of the public schools in District X.
"In my opinion, it leads to nowhere. No promotions, summer jobs and no seniority.
"Yes. No driving directions to the schools. No cut-off days and no paper indicating pay period.
"Showing up for work and there being no record from sub service about the position for the day.
"Unfriendly staff, poor discipline of students, difficult to find materials, low pay.
"Getting calls late in the morning and the pay. I also think there should be some benefits!
"Walking into a school for the first time and receiving little or no greeting/support from administration/staff. No description of classroom reward system or discipline steps if needed.
"Some schools were not friendly and choose to treat anyone not on regular staff like a leper.
"When roads are determined to be too hazardous for students to get to school, why are teachers expected to be at school at regular starting time?
"Not knowing where you are going from day to day.
"By being a substitute, you don't belong anywhere and you are not accepted. The kids also think you are not a teacher and take full advantage of you since you have little recourse.
"Students should be given severe consequences for abusing substitute teachers. Maybe if there were an awareness, like speeding in a work zone, the students behavioral remediation would be doubled -then the time spent with a new teacher would be the positive experience it should be. Most school administrators do not realize how a little input and support from them at the beginning of each substitutes class can help this critical time be productive. Schools like X, and a couple others I have been in have well disciplined students. Others especially Y and some other schools are hell on earth to sub in or to teach in, period. I go into these poorly run schools with an interested curiosity. What will be the key that will mean positive change here? Is the problem in this school because these are African American kids and they are incapable because they get no support at home. Can they actually be told what to do and then do it at school, even though many of them come from perhaps emotionally deprived environments? And suffer from a lack of information and/or support?
"I don't like the fact that I work almost more days than a full time teacher and I don't qualify for benefits.
"Being treated as if I were less than a teacher, not having detailed notes or lesson plans, not being spoken to in the hallway from veteran teachers, losing my prep to cover another class without receiving pay, and receiving no back-up from principals.
"Not knowing what grade I would get until I got there.
"Frequent adjustments from grade to grade and subject to subject. Extreme discipline problems in 5 th $-8^{\text {th }}$ grade.

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[^0]:    ${ }^{1}$ See Robert P. Strauss(1999), "A Reverse Engineering Approach to Improving Teacher Quality: The Hiring Decision and State Laws Governing School Board Conduct and Ethics," Testimony before the Committee on Education and the Workforce Subcommittee on Post-Secondary Education, Training, and Life-Long Learning U.S. House of Representatives May 13, 1999; Robert P. Strauss(1999), "Who Gets Hired to Teach? The Case of Pennsylvania," in Marci Kanstoroom and Chester E. Finn, Jr. [editors]. Better Teachers, Better Schools. Fordham Foundation Press, 1999, 103-130; Robert P. Strauss (1998). Teacher Preparation and Selection in Pennsylvania: Ensuring High Performance Classroom Teachers for the 21st Century. A Research Report to the Pennsylvania State Board of Education. With the assistance of Lori R. Bowes, Mindy S. Marks, and Mark R. Plesko. (Harrisburg, Pennsylvania.: Pennsylvania State Board of Education), June 4, 1998, pp. 245. (ERIC Clearinghouse Number TM029186.); Robert P. Strauss (1996). Public Education in Western Pennsylvania: Students, Teachers and Curricula to 2006. A Background Paper for Vira I. Heinz Foundation, September, 1996; Robert P. Strauss(1993). Who Should Teach in Pennsylvania's Public Schools? August, 1993, Center for Public Financial Management, Carnegie-Mellon University.

[^1]:    ${ }^{2}$ See www. bls.gov.index.html series: CDUDM000073
    ${ }^{3}$ See www. bls.gov.index.html series: CDUDMFXXX7G

[^2]:    ${ }^{4}$ See www. bls.gov.index.html series: CDUDMM10073
    ${ }^{5}$ See Statistics of Canada, CANSIMII, Table 279-0029.
    ${ }^{6}$ See Statistics of Canada, CANSIMII, Table 279-0030.
    ${ }^{7}$ See Statistics of Canada, CANSIMII, Table 279-0029.
    ${ }^{8}$ As we shall see below, these rates are about $1 / 2$ of the absenteeism rates observed in South West Pennsylvania school districts.
    ${ }^{9}$ See Section 4 and Tables 4, 5 and 7 below.
    ${ }^{10}$ See http://nces.ed.gov/surveys/SASS/sassib/article.asp?TxtID=19\&Yr=1993.
    ${ }^{11}$ For example, a review of the 10 US largest states' education agency web sites, other than Pennsylvania, revealed no study of substitute teacher needs in the past 10 years, or any systematic measurement of teacher absenteeism.

[^3]:    ${ }^{12}$ See Morrison (1999).
    ${ }^{13}$ See Galloway and Morrison (1994), Chapter 1.
    ${ }^{14}$ See Buzzing (1994) for an intriguing discussion how one LEA coped with these changing market realities.

[^4]:    ${ }^{15}$ As cited in Buzzing (1994), pp. 133-4.
    ${ }^{16}$ See Morrison(1999), pp. 176-177.

[^5]:    ${ }^{17}$ Ehrenberg, Ehrenberg, Rees and Ehrenberg (1989), p. 79.
    ${ }^{18}$ Ehrenberg, Ehrenberg, Rees and Ehrenberg (1989), p. 103. Note that these 1986-7 counts of mean total leave days in New York are lower than found in Pennsylvania found by this study for 2001-2 (14.1 days), and also lower than found by PSBA (1992) for Pennsylvania.

[^6]:    ${ }^{19}$ Ehrenberg, Ehrenberg, Rees and Ehrenberg (1989), p. 100.

[^7]:    ${ }^{20}$ Whether a $15-20 \%$ absenteeism rate is representative of the US is unclear. It is likely that Kelly is called in only after teacher absenteeism has become epidemic, so that the $15-20 \%$ represents truly worst case situations.

[^8]:    ${ }^{21}$ This discussion is based on a phone interview with Ms. Debbie Baldwin, National Sales Manager, Kelly Educational Staffing, Houston, Texas.
    ${ }^{22}$ See Michael I. Levin (2002), Chapter 2.
    ${ }^{23}$ Instructional Certificate I now called a Level I Certificate
    ${ }^{24}$ ETS Praxis I and Praxis II examinations must be passed at test score levels set by the Pennsylvania Department of Education, and approved by the Pennsylvania State Board of Education.

[^9]:    ${ }^{25}$ Prior to 1996 , the probationary period was 2 years. All teachers who obtained Instructional II certificates with 2 years of probationary service prior to 1996 were unaffected by this change in 1996.
    ${ }^{26} 24$ P.S. § 11-1101 (3) of the Pennsylvania School Code.

[^10]:    ${ }^{27} 24$ P.S. § 11-1101 (2) of the Pennsylvania School Code.
    ${ }^{28}$ See Levin (1999), § 2.11 for a discussion of relevant case law that holds that a substitute can not achieve temporary professional personnel status by not teaching in the specific classroom of an absent professional personnel.
    ${ }_{29} 778$ A,2d 1277 (Pa.Cmwlth.2001).
    ${ }^{30}$ See Pennsylvania School Boards Association (1999).

[^11]:    ${ }^{31}$ See Pennsylvania Code, Chapter 22, § 171.95.
    ${ }_{32}^{32}$ Pennsylvania School Code, § 1154.
    ${ }^{33}$ Pennsylvania School Code, § 1154.
    ${ }^{34}$ Pennsylvania School Code, § 1154.
    ${ }^{35}$ Pennsylvania School Code, § 3301.
    ${ }^{36}$ Access to and utilization of such additional forms of leave are reported in Section 5 below.

[^12]:    ${ }^{37}$ This section is based on Jones, Hawkins and Smith (2002).
    ${ }^{38}$ States requiring BA degrees are: Arizona, California, Colorado, Connecticut, Hawaii, Iowa, Minnesota, North Dakota, New Hampshire, Ohio, Pennsylvania, Rhode Island, Wisconsin, and West Virginia.
    ${ }^{39}$ See Strauss(1993), and Strauss, Bowes, Marks and Plesko (1998) for analyses of the supply and demand for teachers in Pennsylvania.

[^13]:    ${ }^{40}$ The survey asks: "Enter the aggregate number of contractual teacher days of absence for personal reasons (sick, vacation, sick family, jury duty, bereavement, National Guard duty, etc.) for all classroom teachers in this school. Include only fully paid leave. Do not count sabbatical leave."
    ${ }^{41}$ The actual number of days students are required to attend classes in a school year is not collected by PDE; it collects data on average daily student membership and average daily student attendance, and data on the length of the school year. Our review of South West Pennsylvania teacher collective bargaining agreements indicates that the number of student days in the school year was not always stated; however, state law sets 180 days as the minimum number of student contact days. No collective bargaining agreement in South West Pennsylvania that mentioned the number of days indicated more than 183 days of student contact.

[^14]:    ${ }^{42}$ School districts are classified under Pennsylvania statute by the number of residents according to the population counts from the national census. Philadelphia is a district of the First Class; Pittsburgh is a district of the First Class A. Second Class districts have population form 30,00-350,000; Third Class districts have population from 5,000-to 30,000 , and Fourth Class districts have population under 5,000.

[^15]:    ${ }^{43}$ See Pennsylvania School Board Association(1992).
    ${ }^{44}$ These measures differ somewhat from those used in this study in two ways. First, teachers and school districts were asked in this study to report all absences, both short-term (less than 90 days), and long-term (over 90 days), and both paid and unpaid leaves of absence. The 1977-8 and 1990-1 PSBA studies relate only to short-term absences. Second, because this study focuses on the classroom impact of teacher absenteeism, it compares days absent to total student-contact days; these are typically less than the total contractual days a teacher must show up for work. Contractual but non-teaching days typically entail so called Act 47 or days set aside from classroom

[^16]:    teaching for professional development days. Typically such days occur before the start of the school year in August, or after the close of the school year in June.
    ${ }^{45}$ See PSBA(1992), p. 13-15.
    ${ }^{46}$ See PSBA(1992) p. vii, viii.

[^17]:    ${ }^{47}$ See Ehrenberg, Ehrenberg, Rees and Ehrenberg (1989)
    ${ }^{48}$ See www.robertpstrauss.net to access the three web-based surveys.

[^18]:    ${ }^{49}$ See Section 5 for a discussion of the adequacy of survey responses.

[^19]:    ${ }^{50}$ The 9.5 figure compares reasonably well to the 10.8 days of short-term leave reported by PSBA(1992) for 199091. See Section 5.3.4 below for a comparison of SW Pennsylvania absence rates from various sources.

[^20]:    ${ }_{52}^{51}$ See the federal poverty line for single persons at: http://www.census.gov/hhes/poverty/histpov/hstpov1.html ${ }^{52}$ See Table 14.

[^21]:    ${ }^{53}$ See Table 2.

[^22]:    ${ }^{54}$ In addition to planning problems raised by day of the week and monthly variations in substitute teacher needs, there is the additional problem that substitute needs caused by professional development in one large district can dry up the overall supply of substitutes to other, smaller districts. This point came out in discussions with one suburban superintendent who complained about his very large neighboring district causing him short-term staffing problems.

