Comings and Goings Between the Censuses: Factors Affecting Portland Public School Enrollments

by

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EXECUTIVE SUMMARY

This report analyzes the factors affecting enrollment changes in Portland Public Schools between 1990 and 2000. Portland Public School enrollments grew from 50,698 students in 1990 to 50,950 students in 2000, an increase of 251 students.

Three major demographic processes affected enrollment changes during the 1990's. First, there is a large resident population in the Portland Public School area that is aging-in-place. A large and increasing number of Portland households do not include children. These households include couples who never had children and couples whose children have completed their schooling.

Second, the numbers of births declined in the 1990s throughout the Portland Public School area. Except for modest increases in births in the Lincoln and Marshall high school attendance areas, fewer births have decreased the school-age population over time.

Third, there is a net in-migration of people to the Portland Public Schools attendance area of younger, single persons and younger couples who do not have children. There is a modest out-migration of younger coupes with children. The overall result is that there is a net out-migration of children in the pre-school and school-age years from the Portland Public School area.

These three processes – aging-in-place of couples without children, a lower number of births, and net out-migration of children – combined to reduce the proportion of housing units with children in the Portland Public School area, counterbalancing the effects of other factors, including housing growth, a greater average number of children per household in housing units with children, and an increased proportion of school-age children among all children.

Three specific factors increased enrollments in the 1990s. There was a net gain of 14,884 housing units in the attendance area, increasing enrollments by 4,104 students. There was an increase in the proportion of all children who were in the school-age years, resulting in a gain of 3,091 students. There was a slight increase in the average number of children in housing units with children, rising from 1.90 in 1990 to 1.98 in 2000, and resulting in an increase of 2,206 students. These three factors combined, had no other changes occurred, would have increased enrollments by 9,401.

Enrollments did not increase as much as might have been expected because two specific factors reduced enrollments. First, there were declines in the proportion of housing units with children, dropping from 26.6 percent in 1990 to 22.9 percent in 2000, and decreasing enrollments by 6,931 students. Second, there were modest overall decreases in the proportion of school-age children enrolled in Portland Public Schools, decreasing enrollments by 1,370. Taken together, these two changes would have reduced enrollments in Portland Public Schools by 8,301 students, if not other changes occurred.

BACKGROUND

Many demographic changes occurred in the Portland Public School attendance area from 1990 to 2000. The resident population increased by 26,000, growing from 400,000 in 1990 to 426,000 in 2000. There were 59,000 births in the decade, along with 36,000 marriages, 18,000 divorces, and 38,000 deaths. Considerable migration occurred, with about 280,000 people moving into the area and about 275,000 moving out.

Amidst these demographic comings and goings, enrollments in the Portland Public School (PPS) increased in the first half of the 1990s, declined in the second half of the decade, and ended the decade with October 2000 enrollments at a level close to those of October 1990. There was a net gain of 251 students between 1990 and 2000, but enrollments were steadily dropping after 1996. Although the overall enrollments were similar in 1990 and 2000, there were changes in enrollments by grade and for different school attendance areas within the PPS area. Moreover, there were substantial changes in the housing and population of the PPS area that had important effects on public school enrollments.

This report describes key factors affecting public school enrollments and analyzes 1990 and new 2000 census data to undercover their effects on enrollments. The following section discusses factors affecting overall Portland Public Schools' enrollments. The next section presents a model for analyzing enrollment changes over time. The final section discusses changes in the overall Portland Public School attendance area and in the nine high school attendance areas.

FACTORS AFFECTING PUBLIC SCHOOL ENROLLMENTS

The availability of recent 2000 census data permits analysis of some of the factors that affect public school enrollments in the past decade. The number of children enrolled in the attendance area of the Portland Public Schools results from changes in six factors, including:

- the number of housing units,
- the proportion of housing units that are occupied,
- the proportion of occupied housing units with children,
- the average number of children in each occupied housing unit with children,
- the proportion of children who are in the school-age years, and
- the proportion of school-age children who attend public schools.

The particular set of factors used in the model is based on a logical analysis of how enrollment has changed over the past decade. Each of these factors is a complex subject.

Number of Housing Units

Other things being equal, an increase in the number of housing units should produce an increase in the number of students. Data from the 1990 and 2000 decennial censuses shows that housing increased by 14,884 units from 1990 to 2000. The type of housing built can have a varied effect on enrollment growth. As shown the last row in Table 1, based on 1990 census data for the District, renter occupied single-family housing units on the average housed one school-age child for every 1.6 housing units (or .631 child per household) whereas multifamily housing with over 10 units typically only contained one school-age child for each 10 housing units (or .101 child per household). Thus the average rental single family housing in the District had over six times as many students as an average apartment units in a large complex.

Table 1. Numbers of School Age Children by Housing Type and Tenure, from School District Data Book, based on 1990 Census

	Single Family		All Multi-Family		All Mobile	
	Own	Rent	2-9 Units	10 + Units	Homes	Total
Households	85,045	25,871	24,566	34,370	2,846	172,698
HH with Kids	17,945	7,365	2,882	2,102	298	30,592
No of Kids	35,802	16,332	4,978	3,468	542	61,122
Prop HH with Kids	0.211	0.285	0.117	0.061	0.105	0.177
Kids / HHWK	1.995	2.218	1.727	1.650	1.819	1.998
Kids/HH	0.421	0.631	0.203	0.101	0.190	0.354

The District's housing stock has increased the proportion of multifamily units over time. In 1990, 34 percent of housing units were multifamily. By contrast, in 1960, about twenty percent of the housing in the District consisted of multifamily units. Analysis of building permit data for the District for the 1990-1999 period shows that about sixty percent of the housing units built in the District were multifamily units. Because of the large proportion of multifamily units built during the 1990's and because multifamily units house relatively few children, the effect of housing construction on enrollments was limited, except for particular areas of the District.

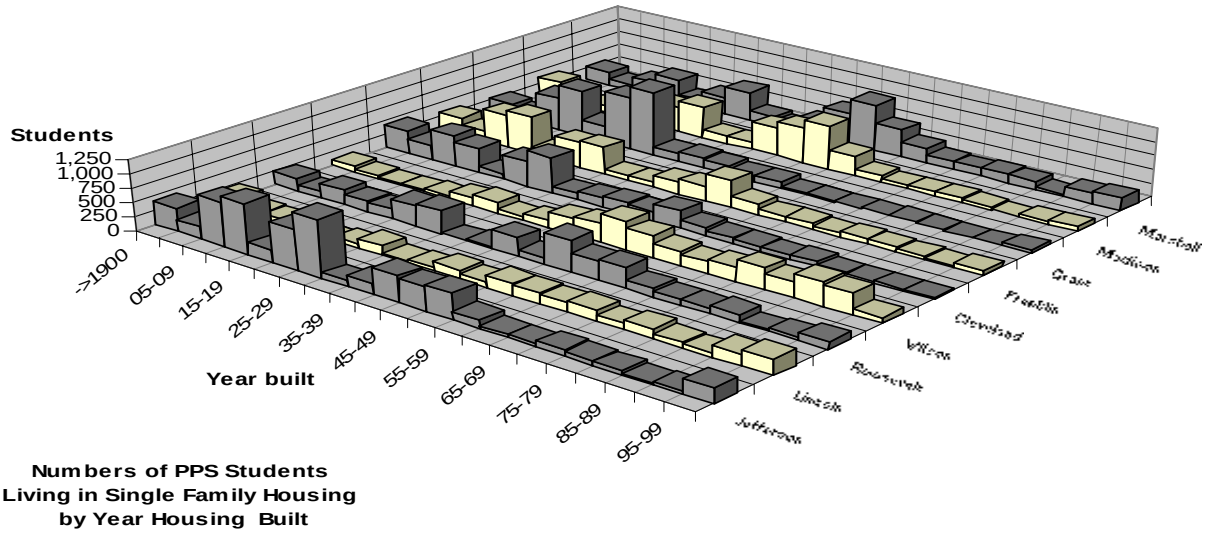
The construction of new single-family housing during the 1990's was generally concentrated on the peripheral areas of the District (Wilson and Lincoln on the West and Marshall and Madison on the East). In the inner core most of the housing built was multi-family with a modest growth of in-fill single-family units (especially in Jefferson and Roosevelt). Table 2 shows the numbers of PPS students residing in single-family and other housing in the District. Over eighty percent of the students live in single-family units in most attendance areas. Only in the Lincoln area do more than ten percent of the students reside in single family housing built during the 1990's, with most of the attendance areas showing less than 5 percent of the students living in housing built during the past decade. The small amount of housing growth during the 1990's generally was insufficient to overcome the declining share of households with school age children.

Table 2. Students by Housing Type and Year Built. Table based on geo-coded student data linked to tax lot database.

High School Attendance Area	PPS Students Residing in District	Reside in Single Family Units (SFU)	Reside in Other Types of Units	Percent Reside in SFU	Reside in SFU Built 1990-99	Percent Reside in SFU Built 1990-99
Jefferson	7,520	6,597	923	87.7	292	3.9
Lincoln	3,817	2,788	1,029	73.0	480	12.6
Roosevelt	5,446	4,216	1,230	77.4	183	3.4
Wilson	5,296	4,566	730	86.2	478	9.0
Cleveland	5,118	4,469	649	87.3	64	1.3
Franklin	5,407	4,901	506	90.6	134	2.5
Grant	5,697	5,257	440	92.3	73	1.3
Madison	5,991	5,139	852	85.8	143	2.4
Marshall	6,499	5,895	604	90.7	406	6.2
PPS Total	50,791	43,828	6,963	86.3	2,253	4.4

Figure 1 presents this same information in graphic form. This figure also is based on the numbers of students living in single family housing units built during various periods of time. Except for the Wilson area, most of the District's students live in single-family housing built prior to WWII or during the housing boom immediately following WWII. Except for the Wilson area, few students live in housing built during the 1980's since the metropolitan Portland area was in recession for much of the 1980's. During the 1990 to 1999 period, there was modest new housing construction with the largest numbers in Lincoln, Marshall, and Jefferson areas, and for the first half of the decade in the Wilson area.

Figure 1. Year Housing Built for Students Residing in Single Family Housing, by High School Attendance area.



Numbers of PPS Students Living in Single Family Housing by Year Housing Built

Over the past decade there has been significant conversion of single-family units from renter to owner-occupied status. This may be expected to have a downward effect on

enrollments. Rental single-family units usually house more school-age population than owner-occupied units. Based on 1990 census data, there was one school-age child in every 1.6 rental single-family unit compared to one in every 2.4 owner occupied single-family unit.

Housing Occupancy

Changes in occupancy rates for housing did not have a major effect on enrollment during the 1990's. Occupancy rates declined by 0.1 percentage points from 1990 to 2000 (see Table 3). There was a significant increase in the Inner Northeast area, principally the Jefferson High School attendance area, where there was a three percentage point increase in housing occupancy rates.

Table 3. Housing Occupancy and Tenure 1990 and 2000

	Number of units					Pct. of units	
	Units	Occ	Vac	Own	Rent	Occ	Own
1990	182,372	171,999	10,373	89,962	82,037	94.31	52.30
2000	197,256	185,826	11,430	101,860	83,966	94.21	54.81
2000-1990	14,884	13,827	1,057	11,898	1,929	-0.11	2.51

Proportion of Units with Children

The declining proportion of households with children is one of the key factors reducing school enrollments. Table 4 shows that the number of households with children at home declined from 46,923 in 1990 to 46,877 in 2000. The decline in the proportion of households with school-age children was more dramatic, dropping from 27.3 percent in 1990 to 25.2 percent in 2000. Were it not for the increase in the Lincoln area, where there was substantial new housing construction, the decline would have been considerably greater. The declines were greatest in the inner core of high school areas including Cleveland, Franklin, Grant, and Jefferson. There is considerable variation in the proportion of households with children in 2000, ranging from 13 percent in the Lincoln area to 36 percent in the Roosevelt area.

Table 4. Households with School Age Children, 1990 and 2000

	2000						1990					
	Number			Prop	Kids/	Kids/	Number			Prop	Kids/	Kids/
	HHLDS	HHWK	KIDS	HHWK	HHWK	HH	HHLDS	HHWK	KIDS	HHWK	HHWK	HH
Cleveland	26,978	5,287	8,682	0.196	1.642	0.322	25,198	5,725	9,973	0.227	1.742	0.396
Franklin	21,771	5,237	8,964	0.241	1.712	0.412	21,209	5,990	10,899	0.282	1.820	0.514
Grant	19,364	5,310	9,225	0.274	1.737	0.476	18,789	5,798	10,708	0.309	1.847	0.570
Jefferson	19,520	6,118	11,835	0.313	1.934	0.606	17,863	6,231	12,757	0.349	2.047	0.714
Lincoln	31,578	4,098	6,852	0.130	1.672	0.217	26,320	3,215	5,334	0.122	1.659	0.203
Madison	17,072	5,401	10,114	0.316	1.873	0.592	16,637	5,419	10,259	0.326	1.893	0.617
Marshall	15,216	5,258	10,148	0.346	1.930	0.667	14,536	5,043	9,504	0.347	1.885	0.654
Roosevelt	12,022	4,375	8,735	0.364	1.997	0.727	11,281	4,134	8,203	0.366	1.984	0.727
Wilson	22,305	5,793	9,810	0.260	1.693	0.440	20,166	5,368	9,129	0.266	1.701	0.453
Total PPS	185,826	46,877	84,365	0.252	1.800	0.454	171,999	46,923	86,766	0.273	1.849	0.504
Outside PPS	383,635	143,271	269,702	0.373	1.882	0.703	292,668	109,958	204,972	0.376	1.864	0.700
3 County	569,461	190,148	354,067	0.334	1.862	0.622	464,667	156,881	291,738	0.338	1.860	0.628

	Change 1990 - 2000					
	Number			Prop	Kids/	Kids/
	HHLDS	HHWK	KIDS	HHWK	HHWK	HH
Cleveland	1,780	-438	-1,291	-0.031	-0.100	-0.074
Franklin	562	-753	-1,935	-0.042	-0.108	-0.102
Grant	575	-488	-1,483	-0.034	-0.110	-0.094
Jefferson	1,657	-113	-922	-0.035	-0.113	-0.108
Lincoln	5,258	883	1,518	0.008	0.013	0.014
Madison	435	-18	-145	-0.009	-0.021	-0.024
Marshall	680	215	644	-0.001	0.045	0.013
Roosevelt	741	241	532	-0.003	0.012	-0.001
Wilson	2,139	425	681	-0.006	-0.007	-0.013
Total PPS	13,827	-46	-2,401	-0.021	-0.049	-0.050
Outside PPS	90,967	33,313	64,730	-0.002	0.018	0.003
3 County	104,794	33,267	62,329	-0.004	0.002	-0.006

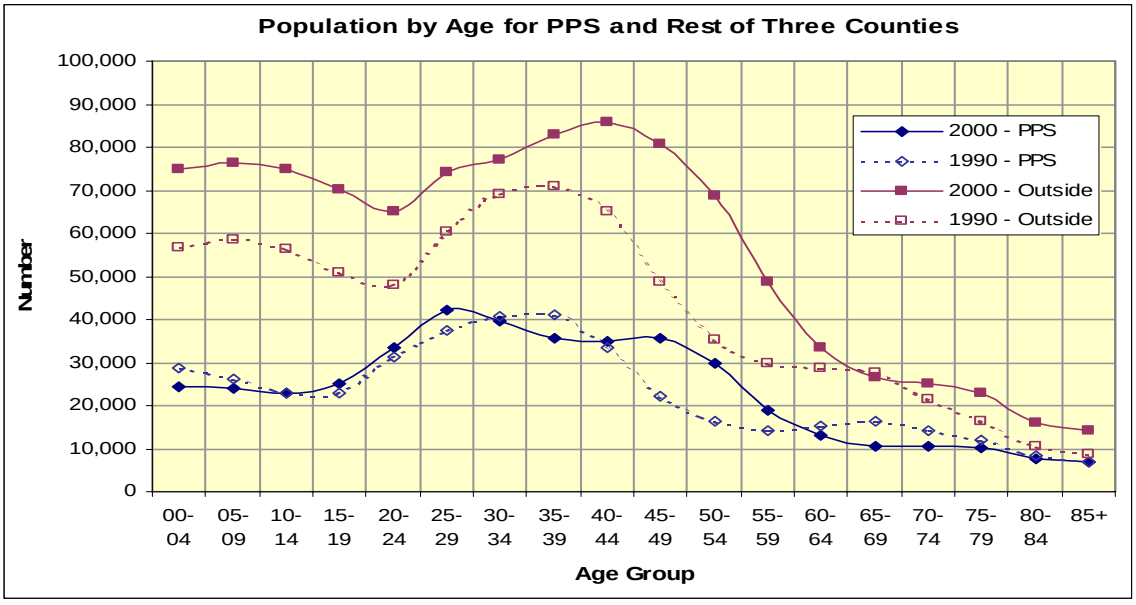
This table may appear somewhat complicated but it is important for the understanding of the decomposition model. Two of the variables utilized in the model are shown in this table: (1) the proportion of households with school age children, ***Prop HHWK***, and (2) the average number of school age children in each household with children, Kids/HHWK. The product of the two variables is the average number of school age children per household, ***Kids/HH***. We use the two variables in order to better present the effects of changing household types.

The decline in the proportion of households with children is part of a nationwide trend. Conversely, the proportion (and numbers) of households without children in the District has increased (see Table 5). Households without children include: older couples with no children living at home, young couples who have not yet had children, one person households, elderly, and non-family households. Due in part to the types of housing available in the District, proportionally more of the households without children tend to reside in the District than in suburban locations. Younger persons moving into the District from the suburbs and other areas compete with households with children for housing. The numbers in the younger age groups have increased nationally and in the metropolitan Portland area (see Figure 2). Thus the pool of potential young adult migrants to the District has increased. Some of these households can be seen in the large increase in one-person households in the Lincoln and Wilson areas. Many of these young persons typically migrate from the City of Portland before starting families.

Table 5. Change in Numbers of Households by Type, 1990-2000

	With Kids		Generally no or few kids				
	Married with kids	Single parent	One Person	Married no kids	Other no kids	Non Family	Total
Cleveland	-542	-159	642	94	98	1,647	1,780
Franklin	-823	-245	281	-193	99	1,443	562
Grant	-360	-464	196	218	108	877	575
Jefferson	-358	-477	542	301	514	1,135	1,657
Lincoln	638	135	2,972	709	-57	861	5,258
Madison	-458	36	36	-227	390	658	435
Marshall	-140	-13	115	-82	395	405	680
Roosevelt	-82	-63	167	-43	402	360	741
Wilson	94	151	1,294	-154	153	601	2,139
Total PPS	-2,031	-1,099	6,245	623	2,102	7,987	13,827
Outside	16,335	9,360	25,800	21,354	8,393	9,725	90,967
3 County	14,304	8,261	32,045	21,977	10,495	17,712	104,794

Figure 2. Population by Age for PPS and Rest of Three Counties



Average Number of Children for Households with Children

This factor measures the average number of school-age children in households with children, mainly married couples and single-parent households (see Tables 1 and 4). In 2000, the values for this variable (see Table 4) only range from about 1.6 children for Lincoln to 1.9 for the Roosevelt area whereas the proportion of households with children ranges more widely from 0.13 for Lincoln to 0.36 for Roosevelt, nearly a three-fold variation. For the District, this measure decreased from 1.85 children in 1990 to 1.80 in

2000. The Marshall and Roosevelt High School attendance areas showed a small increase, probably due to the significant increase in Hispanic and other minority populations.

Proportion in the School-Aged Years

The factors measuring children described above refer to the population aged 17 and under. The school-age population is age 5½ to 17½ year. In 2000, 72 percent of children in the District were in the school-age years, an increase from 68 percent in 1990. The main difference between "children" and "school age" is the exclusion of children aged 0 to 5½ years from the school-age population. The main reason that the percent school aged is higher in 2000 than in 1990 is that there was a large decline in the pre-school aged population, caused by a decline in births in the last decade (see Figure 2). There are significant variations in changes in the numbers of children by age for the nine high school areas (see Figure 3). For the Lincoln, Marshall, and Roosevelt areas, the numbers increased for nearly all ages. For the Jefferson, Cleveland, Franklin, and Grant area, the numbers decreased for nearly all grade levels. For the Madison and Wilson areas, the numbers decreased for younger children and increased for older children.

Figure 3. Population Under Age 18 for the District, 1990 and 2000

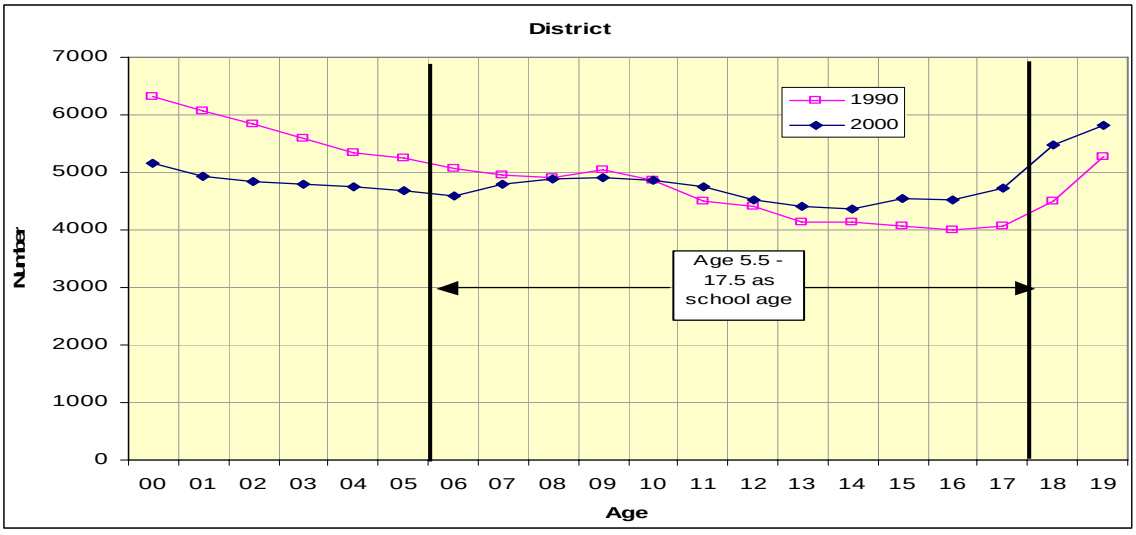
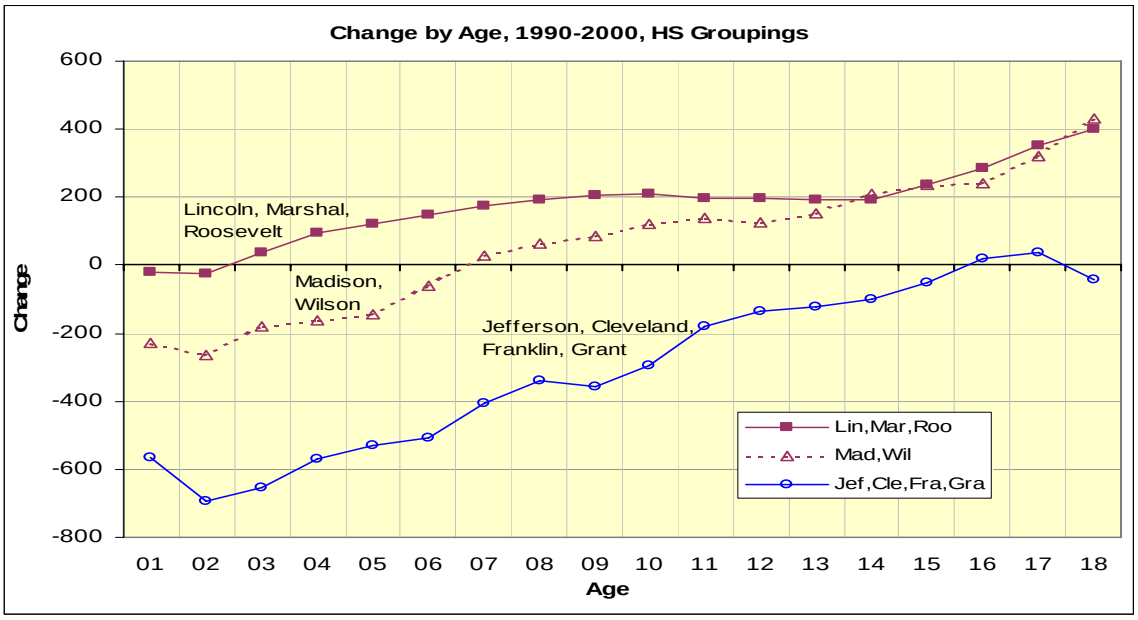


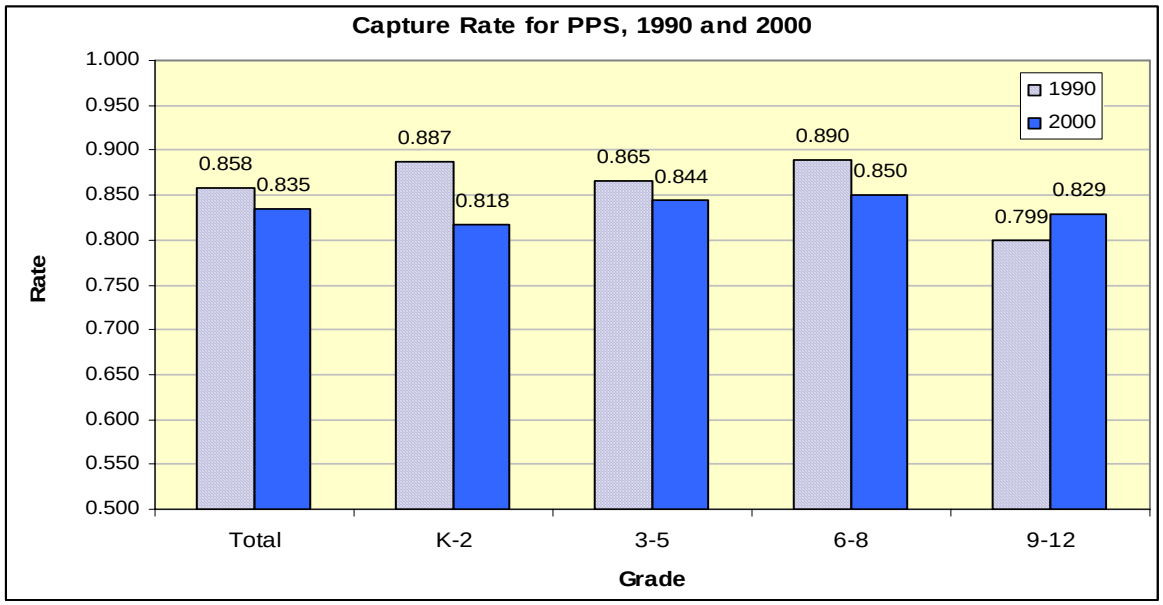
Figure 4. Change Population Under 18 for HS Groupings, 1990-2000



Proportion Enrolled in Public Schools

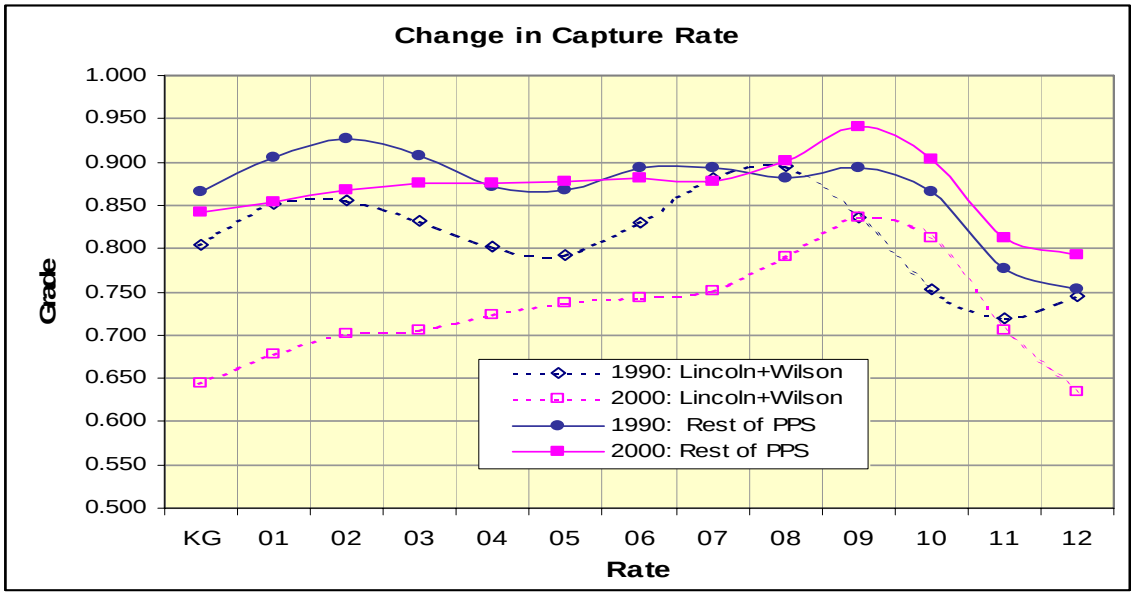
This statistic also is known at the "capture rate" or "public school capture rate". It is calculated by dividing the number of students enrolled in the District's schools and programs by the number of children and youth aged 5½ to 17½ years. For the high school attendance areas, the numbers enrolled are based on the residential locations of students rather that the school that they attend. For example, the capture rate for the Wilson attendance area is the number of grade K-12 students residing in the Wilson area divided by the number aged 5½ to 17½ residing in the Wilson area. By grade level the capture rate is the number enrolled divided by the number of the age group that would normally be enrolled in that grade.

Figure 5. Capture Rates for PPS, 1990 and 2000



Capture rates vary by grade level. For the District, the capture rates increase from kindergarten (grade K) to about grade 3 as students enter from pre-schools and private elementary schools. The rates peak at grade 9 as students return from private schools to public schools at the beginning of the high school years and then decline after grade 9 due to high school dropouts. For the District, the overall capture rate declined from 86 percent in 1990 to 84 percent in 2000 (see Figure 5). Public School capture rates decreased at all grade levels except for high school grades 9 to 12. The declining capture rate for the elementary and middle school levels compounded the declining number of children of elementary and middle school age. Together, they had a downward influence on the District's enrollment. Generally capture rates are lower in higher income areas of the District, probably reflecting the ability of more affluent parents to pay for private schools for their children. The Lincoln and Wilson areas show lower capture rates than the remainder of the District in 1990 and 2000 (see Figure 6). Also, the greatest decline in capture rates over the decade was in more affluent areas such as Lincoln and Wilson.

Figure 6. Change in Capture Rates



DECOMPOSITION MODEL

We make use of a model that allows us to separate the effects of the several factors described above. It begins by considering changes in the numbers of housing units. Then it limits this to the number of occupied housing units. The next steps examine the factors that link the numbers of school age children to housing. Finally we multiply the "capture rate", the proportion of the school age population that attends the District's schools and programs, to obtain the number children and youth enrolled in Portland Public Schools.

We can write these series of factors in terms of a decomposition formula:

Decomposition Formula

PPS enrollments equal the product of the following:

number of housing units
proportion of housing units that are occupied
proportion of housing units with school age children
average number of children in housing units with children
proportion of children who are in school-age years (aged 5½ to 17½ years)
proportion of children in school-age years who enroll in public schools

An example for a hypothetical attendance area may help to show how this decomposition formula helps us to understand the number of students enrolled in public schools:

Example of the Decomposition Formula

55 students enrolled in public schools = 100 x 0.90 x 0.50 x 1.50 x 0.90 x 0.90

where:
100 = number of housing units
0.90 = proportion of housing units that are occupied
0.50 = proportion of occupied housing units with children
1.50 = average number of children in housing units with children
0.90 = proportion of children who are in the school-age years
0.90 = proportion of school-age children who enroll in public schools

In this hypothetical example, there are 55 students per 100 housing units. If 100 housing units were added in this area over a decade and, if there were no changes in the other processes, then we would expect to see an additional 55 students. If there were changes in one of the other factors, we could make the same calculation by assuming that there were no changes in any other factor. For example, if the number of children per occupied housing units were to decrease from 1.50 to 1.20 children, this would have the effect, assuming no changes in the other factors, of reducing public school enrollments from 55 students to 44 students.

This method of thinking about public school enrollments is helpful for understanding the effects of each of these six factors for Portland's public school enrollments from 1990 to 2000. We can use 1990 and 2000 census data to calculate information for each of the six factors for 1990 and 2000 and then calculate the changes over the decade. Moreover, we can make these calculations for the overall attendance area of Portland Public Schools as well as for each of the nine high school attendance areas. The calculation of the proportion of school-age children enrolled in Portland Public Schools is based on student enrollments and census data.

For decomposition of changes over the decade, we hold constant all the factors for the beginning period and then examine, one by one, the amount of change in public school enrollments due to change in a single factor. We ask, for instance, what would have been the change in public school enrollments from 1990 to 2000 if the only change had been an increase in housing units?

The sum of the effects for each of the six factors does not account for all of the changes in enrollment. There is a final effect, called an interaction term in statistical analysis,

reported below; it is the remaining effect that makes accounts for the change not included in changes for the six factors.

ENROLLMENT CHANGES IN PORTLAND PUBLIC SCHOOLS

Overall Portland Public School Area

We report enrollments changes for the overall Portland Public School area in Figure 7, using the same format to report changes in each of the nine high school attendance areas in the next section.

There was a modest overall change in PPS enrollments from 1990 to 2000. PPS enrollments increased from 50,698 in 1990 to 50,950 in 2000, an increase of 251 students. This overall change of 251 is shown as the top bar in Figure 7 and is labeled "Enrollment."

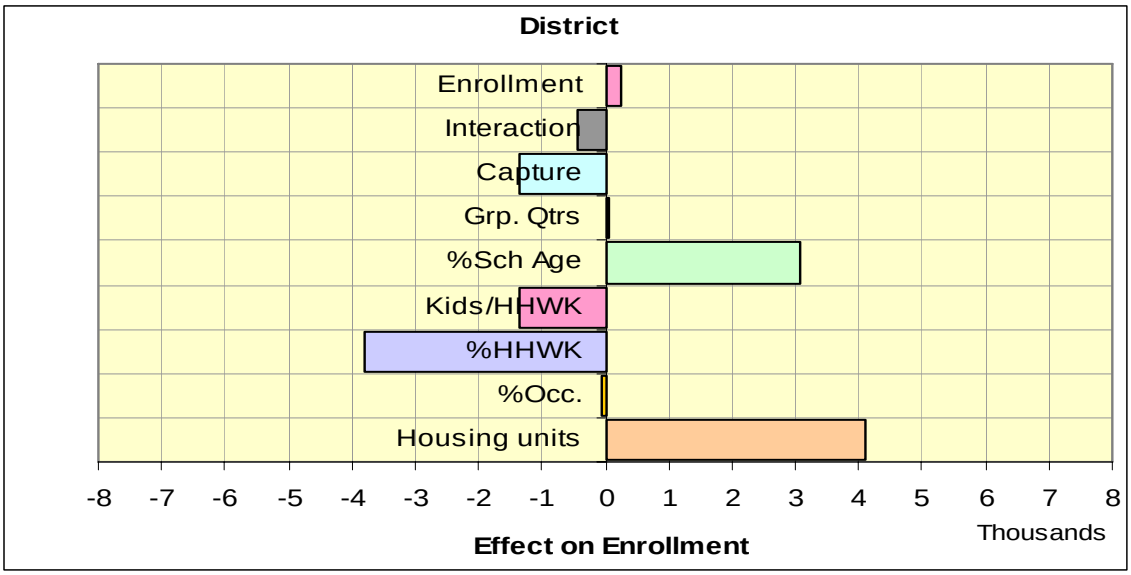
Many changes occurred in the PPS attendance area during the 1990 to 2000 decade. Some changes would have increased public school enrollments, while others would have decreased enrollments. We discuss next how changes in each of six factors affected Portland Public School enrollments.

Housing Units. The number of housing units increased by 14,884 during the last decade, growing from 182,372 in 1990 to 197,246 in 2000. If there had been no other changes during the decade, the growth of housing would have increased the number of students in Portland Public Schools by 4,104. This effect is shown as the bottom bar in Figure 7.

Occupied Housing Units. According to the 1990 and 2000 decennial censuses, there was virtually no change in the proportion of occupied housing units in the Portland Public Schools attendance area. In 1990, 94.3 percent of all housing units were occupied (in other words, 5.7 percent were vacant). There was a decrease of 0.1 percentage points during the 1990s, with a 94.2 percent occupancy rate for all housing units in 2000. The change in the proportion of occupied housing units had a modest effect on Portland Public School enrollments in the 1990s. If the only change that occurred from 1990 to 2000 were a slight decrease in the proportion of housing units that were occupied, Portland's public school enrollments would have declined by 57 students.

Occupied Housing Units with Children. In 1990, 26.6 percent of Portland Public School's occupied housing units had children in them. There was a decrease of 3.7 percentage points during the decade, with 22.9 percent of occupied housing units with children in 2000. Changes in the proportion of occupied housing units with children, if no other changes occurred, would have had a major effect on public school enrollments, reducing enrollments by 6,931 students.

Figure 7. Decomposition of Factors Affecting Overall Portland Public School Enrollments, 1990-2000



Number of Children Per Occupied Housing Unit with Children. The average number of children per occupied housing unit with children increased from 1.90 in 1990 to 1.98 in 2000. This gain of about .08 children per occupied housing unit with children, if there had been no other changes, would have lead to an increase of 2,206 students in Portland's public schools.

Proportion of Children in the School-Age Years. In 1990, 67.6 percent of children in the Portland Public School attendance area were in the school-age years (5½ to 17½ years). There was an increase of 4.2 percentage points in the 1990s, to 71.7 percent in 2000. The result of this increase, all other factors being equal, would have lead to an increase of 3,091 students.

Proportion of School-Age Children Enrolled in Public Schools. There was a modest decline in the proportion of school-age children, based on recent 2000 census data, in the Portland Public School attendance area that enrolled in public schools during the 1990's. The proportion declined by 2.3 percentage points, from 85.8 percent in 1990 to 83.5 percent in 2000. This means that there was an increase in the proportion of school-age children in other categories, including private, home schooling, and not enrolled in school. If there were no changes in other factors, public school enrollments would have declined by 1,370 if there were a decrease in the proportion of school-age children enrolled in public schools.

Interaction. Some changes in enrollments in Portland Public Schools is due to the interaction of effects for combinations of the six factors above and cannot be assigned to

changes in only one factor. We calculate that there was a decline of 844 students because of the combined changes in all of the six factors discussed above.

Summary of Effects for Overall Portland Public School Attendance Area. Between 1990 and 2000, actual enrollments increased by 251. Four major trends affected public school enrollments. First, there was a 3.7 percent decrease in the proportion of occupied housing units with children, which produced a 7,012 decline in enrollments. Second, the number of housing units increased by 14,884, which yielded an increase in enrollments of 4,114. Third, the proportion of children in the 5-17 year-old school-age ages, of all children in the attendance areas, increased by 4.2 percentage points, bringing about an increased enrollment of 3,058 students. Finally, the proportion of students enrolled in public schools, of the overall school-age population, decreased by 2.3 percentage points, decreasing public school enrollments by 1,362 students.

Changes in High School Attendance Areas

Not all high attendance areas experienced a pattern of changes that were similar to changes in the overall Portland Public School attendance area. Figure 8 displays the overall change in enrollment for each of the nine high school attendance areas, illustrating the effect of the six factors discussed above. There is a change in the horizontal scale in Figures 7 and 8. In Figure 7, the horizontal scale ranges from –8,000 to +8,000 students. In Figure 8, the horizontal scale ranges from –1,200 to +1,200 students.

Cleveland High School Area. Enrollments in the Cleveland high school area decreased by 548 students from 1990 to 2000. There was a 4 percent decline in the proportion of occupied housing units with children that resulted in a loss of 1,018 students. The positive effects of two other trends helped mitigate this loss. There was an increase of 2,014 housing units that added 429 students. Furthermore, there was a 3.2 percent increase in the proportion of children aged 5-17 of housing units with children that increased enrollment by 266 students.

Franklin High School Area. Enrollments in the Franklin high school area decreased by 784 students in the 1990's. The principal reason for this loss was a 5.6 decline in the proportion of housing units with children, dropping from 27.4 percent in 1990 to 21.8 percent in 2000, leading to a decrease of 1,262 students. There was a 3 percentage point rise in the proportion of school-aged children that had a positive effect on enrollments, bringing about an increase of 278 students. Overall, however, the positive effects of several trends were relatively limited and did not offset the decreases produced by declines in the proportion of housing units with children.

Grant High School Area. Enrollments in the Grant high school area decreased by 1,054 students in the 1990's. Two factors, the proportion of housing units with children and the proportion of school-age children enrolled in public schools, contributed primarily to this loss. The proportion of occupied housing units with children dropped by 5.2 percent, declining from 30.3 percent in 1990 to 25.1 percent in 2000, resulting in a 1,137 decrease in the number of students enrolled in Portland Public Schools. The proportion of school-

age children enrolled in public schools fell by 6.1 percent, decreasing enrollments by 453 students. The only variable that experienced notable gains was a 3.4 percentage point increase in the proportion of school-age children of all children that added 328 students.

Jefferson High School Area. The Jefferson High School Area experienced a decrease of 416 students in enrollments from 1990 to 2000. There was a 7.1 percent decline in the proportion of occupied housing units with children, which led to a 1,681 drop in enrollments. The effects of this decline in the proportion of occupied housing units with children were offset, in part, by two trends that increased enrollments. The number of children per occupied housing unit increased by 16 percent, from 2.10 children in 1990 to 2.26 children in 2000; this increased enrollments by 610 students. There was an increase of 464 housing units during the decade, increasing enrollments by 464 students.

Lincoln High School Area. Enrollments in the Lincoln High School Area increased by 696 in the 1990's. There was an increase of 5,988 housing units, or a gain of 21 percent, that had a significant impact on enrollments, increasing enrollments by 631 students. The proportion of children in the school-ages of 5-17 years rose by 4.8 percent, increasing enrollments by 202. There was an 8.6 percent decline in the proportion of school-age children enrolled in public schools, however, which reduced enrollments by 325.

Madison High School Area. Enrollments in the Madison high school area increased by 319 students from 1990 to 2000. There was a 5 percentage point increase in the proportion of school-age children of all children and a 14 percentage point gain in the average number of children per occupied housing unit with children. Both trends had positive effects on enrollments, increasing enrollments by 421 and 407 students respectively. Their positive effects were diminished, however, by a 3.3 percentage point decline in the proportion of occupied housing units with children that decreased enrollments by 589 students.

Marshall High School Area. Enrollments in the Marshall high school area increased by 1,123 in the 1990 to 2000 period. There was a combination of factors responsible for this growth. There was an increase of 0.20 children in the average number of children per occupied housing unit with children, rising from 1.96 children in 1990 to 2.16 in 2000, and resulting in a gain of 548 students. There was a 5.9 percentage point increase in the proportion of all children enrolled in public schools that added 373 students. There was an increase of 1,018 housing units that added 358 students. Combined, changes in these three factors added 1,279 students to public school enrollments in the Marshall high school attendance area. There was only one factor – the proportion of occupied housing units with children, which dropped by 2.5 percentage points and resulted in a decreased enrollments of 401 students – that had a notable negative effect on the attendance area's enrollment.

Roosevelt High School Area. The Roosevelt high school area experienced an enrollment increase of 510 students during the decade. Two factors were primarily responsible for the increase. The number of children per occupied housing unit with children grew by 21.5 percent, from 2.05 children in 1990 to 2.26 children in 2000, leading to an increase of 523 students. This increase, however, was partly offset by a 3.4

percent decline in the proportion of housing units with children, which lead to a loss of 477 students.

Wilson High School Area. Enrollments in the Wilson high school area increased by 428 students during the 1990's. There was a gain of 2,493 housing units in the area that increased enrollments by 704 students. In addition, there was a 9.4 percent jump in the proportion of children in the school-ages ages 5-17 that increased enrollments by 581 students. On the other hand, there was a 9.4 decline in the proportion of school-age children enrolled in public schools that decreased enrollments by 559. Although the proportion of school-aged children among households with children rose, the percentage of children enrolled in area public schools declined and the two effects counterbalanced each other.

Similarities of High School Attendance Areas. There are some similarities in the types of changes affecting public school enrollments in the high school attendance areas of Portland Public Schools. Considering the factors at work during the 1990ss, there are five patterns to highlight:

- Cleveland and Lincoln high school attendance areas experienced some common changes, including increases in the number of housing units, decreases in the proportion of all children in the school-age years, and declines in the proportion of school-age children that enrolled in public schools. Public school enrollments increased by 696 students in Lincoln and decreased by 548 students in Cleveland, however, primarily because there was a substantial decline in the Cleveland area in the proportion of housing units with children.

- Madison, Marshall, and Roosevelt high school attendance areas all experienced public school enrollment gains during the 1990 to 2000 period and shared some common features. First and foremost, these three areas experienced gains in the average number of children in housing units with children and in the proportion of all children who were in the school-age years. These trends more than offset reductions in the proportion of housing units with children in the three areas. Second, there a modest increase in the number of housing units that added to school enrollments. Third, the proportion of school-age children enrolled in public schools either stayed relatively unchanged (in Madison and Roosevelt areas) or increased (in the Marshall area); this helped to maintain public school enrollments in these three attendance areas.

- Franklin and Grant high school attendance areas experienced the largest declines in public school enrollments during the 1990's. Although these two areas had increases in the proportion of all children who were in the school-age years, they experienced large negative effects from declines in the proportion of housing units with children. Moreover, the proportion of school-age children enrolled in public schools declined in the Grant area from 89.9 percent in 1990 to 83.8 percent in 2000, bringing about further drops in public school enrollments.

- Jefferson high school area experienced a decline of 416 students during the decade. The features related to enrollment declines were unique in the Jefferson area. First, the proportion of housing units that were occupied increased from 89.4 percent in 1990 to 92.4 percent in 2000, bringing about an increased enrollment of 266 students. Jefferson is the only high school attendance area that witnessed a substantial increase in the proportion of occupied housing units, mainly because its levels were the lowest in the Portland Public School area in 1990. Second, Jefferson experienced Portland Public Schools largest percentage point decline in the proportion of housing units with children, dropping from 33.9 percent in 1990 to 26.8 percent in 2000, and resulting in an enrollment decrease of 1,695 students. On the other hand, this effect was partially offset by an increase in the average number of children in housing units with children, increasing enrollments by 610 students.

- Wilson high school area also has unique features and differs from the other high school attendance areas. Wilson gained 428 students during the 1990-2000 period, primarily because there were large increases in the number of housing units and gains in the proportion of all children who were in the school-age years. These increases were partially counterbalanced by decreases in the proportion of housing units with children and the proportion of all school-age children enrolled in public schools. The Wilson area, compared to other high school attendance areas, experienced particularly sharp declines in the proportion of school-age students enrolled in public schools, dropping from 82.1 percent in 1990 to 72.7 percent in 2000, ranking with the Lincoln area as having the lowest proportion of school-age children enrolled in public schools at present.

PROJECT STAFF

This report involves the work of faculty and staff at the Portland State University's Population Research Center, including:

- Barry Edmonston is Director, Population Research Center, and Professor, School of Urban Studies and Planning. He was responsible for the overall preparation of the report and co-editing the final draft.
- Richard Lycan is Professor Emeritus of Geography, Population Research Center. He directed the data analysis, the preparation of graphs and tables, and co-editing the final draft.
- Tina Muscat is graduate research assistant, Population Research Center and is working on her Masters in Urban and Regional Planning in the School of Urban Studies and Planning. She prepared initial analysis on the decomposition of factors affecting enrollment changes in high attendance areas and helped with editing the final draft.
- Risa Proehl is Research Assistant at the Population Research Center. She helped with data analysis and editing the final draft.
- Irina Sharkova is Research Assistant Professor, School of Urban Studies and Planning. She helped with editing the final draft and advised on the presentation of the report.

We appreciate help from Pam Brown, Cary Hampton, and Theresa White of Portland Public Schools.

Figure 8. Decomposition of Factors Affecting Portland Public School Enrollments, by High School Attendance Areas, 1990 to 2000