University Center for Social and Urban Research

Integrated Data to Predict Chronic Absence in the Pittsburgh Public Schools

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This report addresses chronic absence in Pittsburgh Public School District (PPS) and its association with student demographic variables, within-year move, Human Service variables, census tract variables, and house assessment data. PPS student files from the year of 2013 were combined with student records from DHS. The census tract data and housing information were integrated with student level data. Only students with total number of enrollment dates greater than 50 were included, which resulted with 24618 students.

- Attendance rate was computed by summing excused and unexcused absences divided by enrollment days (i.e., (iExc + iUnexc)/iMemb).
- Dependent variables:
  - chronic absence – was created (No, < 10%; yes, ≥ 10%).
- Predictors of CART:
  - School data:
    - sex (0=male, 1=female),
    - race (0=White/other, 1=Black)
    - Lunch status: 1=free/reduced price lunch; 0=Full Price lunch
    - Within school year move (defined as whether the study had a start date after 09/30)
    - Old for grade
  - Department of Human Service Data (all the following variables are binary; 1=yes, 0=no)
    - CYF (EVER IN Children, Youth, and Families Children)
    - DA (EVER IN Drug & Alcohol - CCBHO and County)
    - EI (EVER IN Early Intervention)
    - FSC (EVER IN Family Support Center)
    - HH (EVER IN Hunger and Homeless)
    - MH (EVER IN Mental Health - CCBHO and County)
    - MR (EVER IN Office of Mental Retardation and Developmental Disabilities)
    - HACP (EVER IN Housing Authority of City of Pittsburgh)
    - EVER IN DPW: if any of Department of Public Welfare-FS, SSI, and TNF
    - JPO (Ever in JPO children): this is excluded for grades k-5.
  - Census Tract data
    - Median House Saleprice of 2013
    - Percentage below poverty level
    - Percentage Black
    - Crime related variables
      - Number of violent crimes in 2013
      - Number of Total Crimes (All UCR Categories) 2013
      - Number of Property Crime (burglary, theft, motor vehicle theft, arson) 2013
      - Number of Crimes involving a gun (all types) 2013
    - sumoftotal_13 (sum of total delinquency 2013)
    - HsgAgeBefore1914_tract_CountOfma (number of parcels-structure built before 1914)
  - House assessment data
    - HomesteadFlag_m13

- All the above variables were examined for multicollinearity, and there is no concern with all VIFs<2 (VIF=variation inflated factor).
- Three different types of analyses were performed for each grade:
  - *Section 1: Bivariate relationship* between chronic absence and other variables were examined using t-test (for continuous variables) and two-way chi-square (for dichotomous variables).
  - *Section 2: Binary logistic regression* was performed predicting chronic absence by the aforementioned predictors.
  - *Section 3: Classification and tree analysis* (CART) is a data mining method to determine important predictors of categorical dependent variable using a non-parametric iterative process. Unlike logistic regression, CART examines interactions among predictors. CART was performed for the outcome variable Chronic Absence for subjects by each grade.

Sample sizes. There are missing data on some variables. A listwise deletion resulted with 23,992 subjects. The percentage of missing data is listed in

Table 1 for each grade.

Table 1. Missing data

	grade	N	Percent		grade	N	Percent
Included in Analysis	K	2293	97.1		6	1838	97.9
Missing Cases		68	2.9			39	2.1
Total		2361	100			1877	100
Included in Analysis	1	2167	96.7		7	1755	97.2
Missing Cases		74	3.3			50	2.8
Total		2241	100			1805	100
Included in Analysis	2	1882	96.9		8	1874	97.7
Missing Cases		60	3.1			45	2.3
Total		1942	100			1919	100
Included in Analysis	3	1812	97		9	1877	97.9
Missing Cases		57	3			41	2.1
Total		1869	100			1918	100
Included in Analysis	4	1818	97		10	1765	98.4
Missing Cases		56	3			28	1.6
Total		1874	100			1793	100
Included in Analysis	5	1735	97.3		11	1584	98
Missing Cases		48	2.7			33	2
Total		2293	97.1			1617	100
Included in Analysis					12	1592	98.3
Missing Cases						27	1.7
Total						1619	100

1. Bivariate relationship

1.1 Description of house parcel and census tract variables

There are 12834 house parcels and 44% is homestead.

Table 2 presents descriptive statistics of census tract variables over 205 census tracts from which PPS students were from.

Table 2. Descriptive statistics of census tract variables measured at tract level:

	N	Minimum	Maximum	Mean	Std. Deviation
Violent Crime (murder, rape, robbery, aggravated assault 2013	205	0	82	11.07	15.235
Total Crimes (All UCR Categories) 2013	205	0	1751	139.46	193.230
Property Crime (burglary, theft, motor vehicle theft, arson) 2013	205	0	813	48.04	74.273
Crimes involving a gun (all types) 2013	205	0	42	5.08	7.875
Tract2013_MEDIAN_of_Sale Price	203	4776.00	437017.00	88863.12	87107.96
Percent below poverty level; Estimate; Population for whom poverty status is determined	205	.00	86.00	21.73	15.36
PercentBlack	205	.00	.43	.08	.07
number of parcels - structure built before 1914	203	4.00	1241.00	267.50	232.06
Sum of total delinquency 2013	204	1274.26	169047.02	27925.10	18825.31

1.2   Description of student-level variables by chronic absence

Bivariate relationship between chronic absence and other variables were examined using t-test (for continuous variables) and two-way chi-square (for dichotomous variables). Due to large sample size, most relationships were significant. Therefore, effect sizes (Point-Biserial correlation for continuous variables and Cramer's V for dichotomous variables) was examined in order to determine meaningfulness of results. Cramer's V and point-biserial correlation are on the same metric as correlation coefficient (small, 10-.30; medium, .30-.50; large, >.50).

Table 3. Bivariate association between attendance group and predictors—Kindergarten (N=2293)

	Non-Chronic absent 78.80%		Chronic absent 21.20%		Correlation
	Proportion		Proportion		
Female	0.46		0.44		0.01
black	0.49		0.60		0.09***
Free/Reduced Lunch	0.72		0.83		0.10***
within-year move	0.11		0.19		0.10***
oldforgrade	0.05		0.09		0.08***
EVER IN Children, Youth, and Families Children	0.04		0.09		0.09***
EVER IN Drug & Alcohol - CCBHO and County	0.00		0.00		0.04
EVER IN Early Intervention	0.10		0.10		0.00
EVER IN Family Support Center	0.06		0.09		0.05*
EVER IN Hunger and Homeless	0.03		0.10		0.13***
EVER IN Mental Health - CCBHO and County	0.05		0.10		0.08***
EVER IN Office of Mental Retardation and Developmental Disabilities	0.00		0.00		0.01
EVER IN Housing Authority of City of Pittsburgh	0.13		0.16		0.03
EVER IN JPO Children	0.00		0.00		
EVER IN DPW	0.22		0.34		0.11***
HomesteadFlag_m13	0.33		0.17		0.14***
	Mean	SD	Mean	SD	
Violent Crime (murder, rape, robbery, aggravated assault 2013	21.63	16.17	25.53	17.16	0.097***
Total Crimes (All UCR Categories) 2013	254.82	149.96	280.27	160.90	0.068***
Property Crime (burglary, theft, motor vehicle theft, arson) 2013	78.50	43.92	81.69	48.23	0.029
Crimes involving a gun (all types) 2013	10.51	10.03	12.86	10.99	0.094***
Tract2013_MEDIAN_of_SalePrice	67301.78	75317.51	49600.94	55095.61	0.101***
Percent below poverty level	23.76	12.59	27.33	12.57	0.115***
PercentBlack	0.09	0.05	0.10	0.05	0.087***
Sum of total delinquency 2013	29520.82	14205.07	31495.98	15445.23	0.056**
number of parcels - structure built before 1914	343.05	252.79	355.69	259.31	0.02

Table 4. Bivariate association between attendance group and predictors—Grade 1 (N=2293)

	Non-Chronic absent 83.30%		Chronic absent 16.70%		Correlation
	Proportion		Proportion		
Female	0.47		0.50		0.02
black	0.52		0.62		0.08***
Free/Reduced Lunch	0.76		0.91		0.14***
within-year move	0.08		0.22		0.17***
oldforgrade	0.09		0.16		0.09***
EVER IN Children, Youth, and Families Children	0.05		0.12		0.10***
EVER IN Drug & Alcohol - CCBHO and County	0.00		0.00		0.01
EVER IN Early Intervention	0.09		0.12		0.03
EVER IN Family Support Center	0.06		0.13		0.09***
EVER IN Hunger and Homeless	0.04		0.10		0.12***
EVER IN Mental Health - CCBHO and County	0.08		0.15		0.10***
EVER IN Office of Mental Retardation and Developmental Disabilities	0.00		0.00		0.01
EVER IN Housing Authority of City of Pittsburgh	0.16		0.17		0.01
EVER IN JPO Children	0.00		0.00		
EVER IN DPW	0.30		0.42		0.10***
HomesteadFlag_m13	0.31		0.20		0.10***
	M	SD	M	SD	
Violent Crime (murder, rape, robbery, aggravated assault 2013	22.57	16.83	27.83	16.89	0.116***
Total Crimes (All UCR Categories) 2013	255.59	144.19	296.40	152.76	0.104***
Property Crime (burglary, theft, motor vehicle theft, arson) 2013	76.93	39.95	83.47	40.42	0.061**
Crimes involving a gun (all types) 2013	11.39	10.99	14.56	10.96	0.107***
Tract2013_MEDIAN_of_SalePrice	64914.84	77860.31	39134.22	43530.14	0.13***
Percent below poverty level	24.56	13.07	28.52	12.08	0.114***
PercentBlack	0.09	0.05	0.11	0.05	0.095***
Sum of total delinquency 2013	29145.55	13948.17	31654.38	15410.56	0.066**
number of parcels - structure built before 1914	343.29	252.07	395.43	278.45	0.076***

Table 5. Bivariate association between attendance group and predictors—Grade 2 (N=2167)

	Non-Chronic absent 87.10%		Chronic absent 12.90%		Correlation
	Proportion		Proportion		
Female	0.50		0.44		0.04
black	0.52		0.61		0.06**
Free/Reduced Lunch	0.77		0.92		0.12***
within-year move	0.09		0.21		0.14***
oldforgrade	0.11		0.26		0.14***
EVER IN Children, Youth, and Families Children	0.06		0.11		0.07**
EVER IN Drug & Alcohol - CCBHO and County	0.00		0.00		0.01
EVER IN Early Intervention	0.12		0.12		0.00
EVER IN Family Support Center	0.08		0.14		0.08***
EVER IN Hunger and Homeless	0.05		0.08		0.05*
EVER IN Mental Health - CCBHO and County	0.12		0.23		0.11***
EVER IN Office of Mental Retardation and Developmental Disabilities	0.00		0.00		0.02
EVER IN Housing Authority of City of Pittsburgh	0.15		0.23		0.08**
EVER IN JPO Children	0.00		0.00		
EVER IN DPW	0.32		0.49		0.12***
HomesteadFlag_m13	0.33		0.21		0.09***
	M	SD	M	SD	
Violent Crime (murder, rape, robbery, aggravated assault 2013	23.1	16.92	24.53	16.41	0.027
Total Crimes (All UCR Categories) 2013	263.02	153.38	260.51	143.54	0.006
Property Crime (burglary, theft, motor vehicle theft, arson) 2013	78.94	44.77	74.12	39.96	0.037
Crimes involving a gun (all types) 2013	11.51	10.85	12.53	10.56	0.032
Tract2013_MEDIAN_of_SalePrice	63227.71	70951.50	42653.81	46414.19	0.101***
Percent below poverty level	24.38	12.52	27.41	12.64	0.081***
PercentBlack	0.09	0.06	0.11	0.05	0.07**
Sum of total delinquency 2013	29872.74	14429.61	30147.32	14533.04	0.006
number of parcels - structure built before 1914	350.01	255.70	342.87	248.18	0.009

Table 6. Bivariate association between attendance group and predictors— Grade 3 (N=1882)

	Non-Chronic absent 84.20%		Chronic absent 15.80%		Correlation
	Proportion		Proportion		
Female	0.51		0.47		0.03
black	0.53		0.61		0.06**
Free/Reduced Lunch	0.77		0.92		0.13***
within-year move	0.09		0.28		0.22***
oldforgrade	0.13		0.29		0.16***
EVER IN Children, Youth, and Families Children	0.05		0.14		0.13***
EVER IN Drug & Alcohol - CCBHO and County	0.00		0.00		0.01
EVER IN Early Intervention	0.10		0.13		0.03
EVER IN Family Support Center	0.08		0.09		0.01
EVER IN Hunger and Homeless	0.05		0.09		0.06*
EVER IN Mental Health - CCBHO and County	0.14		0.29		0.15***
EVER IN Office of Mental Retardation and Developmental Disabilities	0.01		0.00		0.02
EVER IN Housing Authority of City of Pittsburgh	0.16		0.24		0.08**
EVER IN JPO Children	0.00		0.00		
EVER IN DPW	0.35		0.56		0.16***
HomesteadFlag_m13	0.33		0.19		0.12***
	M	SD	M	SD	
Violent Crime (murder, rape, robbery, aggravated assault 2013	22.22	16.91	27.44	17.84	0.111***
Total Crimes (All UCR Categories) 2013	260.21	165.87	299.17	169.58	0.085***
Property Crime (burglary, theft, motor vehicle theft, arson) 2013	79.61	52.40	83.13	44.60	0.025
Crimes involving a gun (all types) 2013	10.85	10.44	13.96	11.35	0.107***
Tract2013_MEDIAN_of_SalePrice	66792.18	77043.74	38721.88	35046.64	0.141***
Percent below poverty level	24.45	12.32	26.30	11.59	0.055*
PercentBlack	0.09	0.05	0.10	0.05	0.056*
Sum of total delinquency 2013	29915.47	15360.31	31536.12	15088.88	0.039
number of parcels - structure built before 1914	353.80	260.12	399.22	294.05	0.062**

Table 7. Bivariate association between attendance group and predictors— Grade 4 (N=1812)

	Non-Chronic absent 86.10%		Chronic absent 13.90%		Correlation
	Proportion		Proportion		
Female	0.49		0.56		0.05*
black	0.52		0.59		0.05*
Free/Reduced Lunch	0.77		0.91		0.12***
within-year move	0.07		0.24		0.19***
oldforgrade	0.15		0.31		0.15***
EVER IN Children, Youth, and Families Children	0.05		0.12		0.11***
EVER IN Drug & Alcohol - CCBHO and County	0.00		0.01		0.08***
EVER IN Early Intervention	0.09		0.15		0.07**
EVER IN Family Support Center	0.10		0.10		0.003
EVER IN Hunger and Homeless	0.05		0.07		0.03
EVER IN Mental Health - CCBHO and County	0.18		0.30		0.11***
EVER IN Office of Mental Retardation and Developmental Disabilities	0.01		0.00		0.01
EVER IN Housing Authority of City of Pittsburgh	0.18		0.18		0.002
EVER IN JPO Children	0.00		0.00		
EVER IN DPW	0.39		0.55		0.115***
HomesteadFlag_m13	0.33		0.27		0.05
	M	SD	M	SD	
Violent Crime (murder, rape, robbery, aggravated assault 2013	22.58	17.20	27.86	18.60	0.105***
Total Crimes (All UCR Categories) 2013	259.15	161.49	303.09	164.88	0.094***
Property Crime (burglary, theft, motor vehicle theft, arson) 2013	77.06	46.24	85.46	41.05	0.064**
Crimes involving a gun (all types) 2013	11.18	10.79	14.32	11.80	0.099***
Tract2013_MEDIAN_of_SalePrice	63675.88	69713.17	39261.71	36132.58	0.127***
Percent below poverty level	24.42	12.75	26.79	11.51	0.065**
PercentBlack	0.09	0.05	0.10	0.05	0.061**
Sum of total delinquency 2013	30125.64	14775.64	31507.27	15474.94	0.032
number of parcels - structure built before 1914	352.07	261.01	388.13	276.84	0.047*

Table 8. Bivariate association between attendance group and predictors— Grade 5 (N=1818)

	Non-Chronic absent 86.70%		Chronic absent 13.30%		Correlation
	Proportion		Proportion		
Female	0.51		0.43		0.05*
black	0.52		0.57		0.04
Free/Reduced Lunch	0.74		0.90		0.12***
within-year move	0.06		0.19		0.16***
oldforgrade	0.16		0.37		0.17***
EVER IN Children, Youth, and Families Children	0.05		0.12		0.10***
EVER IN Drug & Alcohol - CCBHO and County	0.00		0.00		0.01
EVER IN Early Intervention	0.10		0.11		0.02
EVER IN Family Support Center	0.12		0.15		0.03
EVER IN Hunger and Homeless	0.05		0.08		0.04
EVER IN Mental Health - CCBHO and County	0.20		0.37		0.14***
EVER IN Office of Mental Retardation and Developmental Disabilities	0.01		0.00		0.01
EVER IN Housing Authority of City of Pittsburgh	0.17		0.30		0.11***
EVER IN JPO Children	0.00		0.00		
EVER IN DPW	0.38		0.60		0.16***
HomesteadFlag_m13	0.39		0.18		0.14***
	M	SD	M	SD	
Violent Crime (murder, rape, robbery, aggravated assault 2013	22.33	16.54	25.57	17.02	0.066**
Total Crimes (All UCR Categories) 2013	260.01	146.66	280.91	153.04	0.048*
Property Crime (burglary, theft, motor vehicle theft, arson) 2013	78.74	40.02	79.87	39.44	0.01
Crimes involving a gun (all types) 2013	10.91	10.48	12.72	11.34	0.058*
Tract2013_MEDIAN_of_SalePrice	66597.36	77983.98	39316.09	35420.67	0.124***
Percent below poverty level	23.77	12.05	25.87	11.27	0.059*
PercentBlack	0.09	0.05	0.10	0.05	0.085***
Sum of total delinquency 2013	30211.58	14102.52	30132.20	14122.67	0.002
number of parcels - structure built before 1914	350.07	250.88	360.34	263.33	0.014

Table 9. Bivariate association between attendance group and predictors— Grade 6 (N=1735)

	Non-Chronic absent 82.30%		Chronic absent 17.70%		Correlation
	Proportion		Proportion		
Female	0.50		0.47		0.03
black	0.56		0.59		0.03
Free/Reduced Lunch	0.74		0.91		0.16***
within-year move	0.08		0.23		0.20***
oldforgrade	0.17		0.34		0.16***
EVER IN Children, Youth, and Families Children	0.05		0.13		0.13***
EVER IN Drug & Alcohol - CCBHO and County	0.00		0.01		0.06*
EVER IN Early Intervention	0.08		0.10		0.02
EVER IN Family Support Center	0.09		0.13		0.04
EVER IN Hunger and Homeless	0.04		0.13		0.14***
EVER IN Mental Health - CCBHO and County	0.21		0.37		0.14***
EVER IN Office of Mental Retardation and Developmental Disabilities	0.01		0.01		0.001
EVER IN Housing Authority of City of Pittsburgh	0.20		0.24		0.04
EVER IN JPO Children	0.00		0.01		0.09***
EVER IN DPW	0.38		0.63		0.19***
HomesteadFlag_m13	0.39		0.25		0.12***
	M	SD	M	SD	
Violent Crime (murder, rape, robbery, aggravated assault 2013	22.00	16.70	27.37	18.35	0.12***
Total Crimes (All UCR Categories) 2013	255.30	155.87	297.92	179.32	0.101***
Property Crime (burglary, theft, motor vehicle theft, arson) 2013	77.22	45.03	83.71	56.36	0.052*
Crimes involving a gun (all types) 2013	10.79	10.49	14.09	12.11	0.116***
Tract2013_MEDIAN_of_SalePrice	65358.35	77308.07	41498.13	49811.28	0.124***
Percent below poverty level	23.73	12.32	26.91	11.30	0.099***
PercentBlack	0.09	0.06	0.10	0.05	0.047*
Sum of total delinquency 2013	30230.28	14211.74	32346.04	15968.90	0.056*
number of parcels - structure built before 1914	347.94	249.70	389.42	283.24	0.062**

Table 10. Bivariate association between attendance group and predictors— Grade 7 (N=1838)

	Non-Chronic absent 78.30%		Chronic absent 21.70%		Correlation
	Proportion		Proportion		
Female	0.49		0.45		0.03
black	0.50		0.63		0.10***
Free/Reduced Lunch	0.73		0.90		0.17***
within-year move	0.07		0.20		0.19***
oldforgrade	0.17		0.31		0.15***
EVER IN Children, Youth, and Families Children	0.04		0.11		0.12***
EVER IN Drug & Alcohol - CCBHO and County	0.01		0.01		0.01
EVER IN Early Intervention	0.08		0.08		0.002
EVER IN Family Support Center	0.09		0.13		0.05*
EVER IN Hunger and Homeless	0.04		0.07		0.06*
EVER IN Mental Health - CCBHO and County	0.21		0.37		0.15***
EVER IN Office of Mental Retardation and Developmental Disabilities	0.01		0.00		0.03
EVER IN Housing Authority of City of Pittsburgh	0.19		0.27		0.08**
EVER IN JPO Children	0.00		0.04		0.14***
EVER IN DPW	0.37		0.61		0.20***
HomesteadFlag_m13	0.41		0.25		0.14***
	M	SD	M	SD	
Violent Crime (murder, rape, robbery, aggravated assault 2013	21.14	16.28	26.29	17.37	0.127***
Total Crimes (All UCR Categories) 2013	248.69	150.70	283.41	156.18	0.094***
Property Crime (burglary, theft, motor vehicle theft, arson) 2013	75.62	43.47	80.56	41.30	0.047*
Crimes involving a gun (all types) 2013	10.35	10.28	13.85	11.44	0.136***
Tract2013_MEDIAN_of_SalePrice	67256.74	77454.59	42461.46	52095.74	0.139***
Percent below poverty level	23.10	12.34	27.04	11.56	0.133***
PercentBlack	0.09	0.05	0.10	0.05	0.102***
Sum of total delinquency 2013	29676.33	14443.61	31304.64	14863.85	0.046
number of parcels - structure built before 1914	356.96	254.88	385.82	274.00	0.046

Table 11. Bivariate association between attendance group and predictors— Grade 8 (N=1755)

	Non-Chronic absent 76.80%		Chronic absent 23.20%		Correlation
	Proportion		Proportion		
Female	0.51		0.48		0.03
black	0.53		0.57		0.04
Free/Reduced Lunch	0.72		0.88		0.16***
within-year move	0.06		0.24		0.25***
oldforgrade	0.18		0.31		0.14***
EVER IN Children, Youth, and Families Children	0.05		0.16		0.16***
EVER IN Drug & Alcohol - CCBHO and County	0.00		0.02		0.07**
EVER IN Early Intervention	0.07		0.07		0.005
EVER IN Family Support Center	0.09		0.12		0.04
EVER IN Hunger and Homeless	0.04		0.08		0.07**
EVER IN Mental Health - CCBHO and County	0.23		0.38		0.15***
EVER IN Office of Mental Retardation and Developmental Disabilities	0.01		0.01		0.003
EVER IN Housing Authority of City of Pittsburgh	0.16		0.24		0.09***
EVER IN JPO Children	0.00		0.04		0.14***
EVER IN DPW	0.38		0.59		0.19***
HomesteadFlag_m13	0.42		0.29		0.11***
Violent Crime (murder, rape, robbery, aggravated assault 2013	21.19	16.11	25.50	17.32	0.11***
	M	SD	M	SD	
Total Crimes (All UCR Categories) 2013	249.30	141.19	281.19	157.10	0.092***
Property Crime (burglary, theft, motor vehicle theft, arson) 2013	75.43	37.25	79.99	40.80	0.05*
Crimes involving a gun (all types) 2013	10.45	10.26	12.92	11.17	0.099***
Tract2013_MEDIAN_of_SalePrice	64864.38	73339.52	45284.36	53754.45	0.118***
Percent below poverty level	23.49	12.11	25.56	11.44	0.073**
PercentBlack	0.09	0.05	0.10	0.05	0.098***
Sum of total delinquency 2013	30486.87	14119.16	31501.44	15023.95	0.03
number of parcels - structure built before 1914	342.60	245.64	383.69	273.30	0.069**

Table 12. Bivariate association between attendance group and predictors— Grade 9 (N=1874)

	Non-Chronic absent 62.90%		Chronic absent 37.10%		Correlation
	Proportion		Proportion		
Female	0.49		0.50		0.01
black	0.45		0.64		0.19***
Free/Reduced Lunch	0.65		0.89		0.26***
within-year move	0.10		0.29		0.24***
oldforgrade	0.18		0.41		0.25***
EVER IN Children, Youth, and Families Children	0.04		0.12		0.16***
EVER IN Drug & Alcohol - CCBHO and County	0.01		0.04		0.09***
EVER IN Early Intervention	0.04		0.04		0.01
EVER IN Family Support Center	0.05		0.12		0.12***
EVER IN Hunger and Homeless	0.02		0.08		0.15***
EVER IN Mental Health - CCBHO and County	0.18		0.38		0.22***
EVER IN Office of Mental Retardation and Developmental Disabilities	0.01		0.01		0.02
EVER IN Housing Authority of City of Pittsburgh	0.12		0.23		0.14***
EVER IN JPO Children	0.01		0.06		0.14***
EVER IN DPW	0.29		0.57		0.27***
HomesteadFlag_m13	0.49		0.27		0.21***
	M	SD	M	SD	
Violent Crime (murder, rape, robbery, aggravated assault 2013	19.82	16.13	23.72	16.60	0.115***
Total Crimes (All UCR Categories) 2013	240.32	153.46	269.06	155.46	0.09***
Property Crime (burglary, theft, motor vehicle theft, arson) 2013	74.71	44.52	79.26	44.47	0.049*
Crimes involving a gun (all types) 2013	9.48	9.76	11.75	10.26	0.109***
Tract2013_MEDIAN_of_SalePrice	79302.14	91127.43	45583.18	47963.90	0.205***
Percent below poverty level	22.29	11.57	25.44	11.73	0.13***
PercentBlack	0.09	0.05	0.10	0.05	0.132***
Sum of total delinquency 2013	29564.33	14258.80	31278.73	14555.79	0.058*
number of parcels - structure built before 1914	340.79	242.82	375.10	263.69	0.066**

Table 13. Bivariate association between attendance group and predictors— Grade 10 (N=1765)

	Non-Chronic absent 64.80%		Chronic absent 35.20%		Correlation
	Proportion		Proportion		
Female	0.46		0.51		0.04
black	0.43		0.59		0.15***
Free/Reduced Lunch	0.62		0.82		0.21***
within-year move	0.07		0.27		0.28***
oldforgrade	0.20		0.37		0.19***
EVER IN Children, Youth, and Families Children	0.06		0.10		0.08***
EVER IN Drug & Alcohol - CCBHO and County	0.01		0.05		0.11***
EVER IN Early Intervention	0.02		0.02		0.02
EVER IN Family Support Center	0.06		0.08		0.02
EVER IN Hunger and Homeless	0.02		0.06		0.10***
EVER IN Mental Health - CCBHO and County	0.20		0.37		0.19***
EVER IN Office of Mental Retardation and Developmental Disabilities	0.02		0.02		0.004
EVER IN Housing Authority of City of Pittsburgh	0.12		0.21		0.12***
EVER IN JPO Children	0.01		0.07		0.16***
EVER IN DPW	0.28		0.50		0.22***
HomesteadFlag_m13	0.51		0.27		0.23***
	M	SD	M	SD	
Violent Crime (murder, rape, robbery, aggravated assault 2013	19.98	15.90	23.92	17.05	0.114***
Total Crimes (All UCR Categories) 2013	242.71	142.15	277.72	169.83	0.109***
Property Crime (burglary, theft, motor vehicle theft, arson) 2013	75.85	38.08	82.33	52.73	0.071**
Crimes involving a gun (all types) 2013	9.49	9.82	11.85	10.58	0.111***
Tract2013_MEDIAN_of_SalePrice	84707.09	95289.65	50590.16	53679.44	0.193***
Percent below poverty level	21.88	11.83	25.02	12.03	0.125***
PercentBlack	0.08	0.05	0.10	0.05	0.111***
Sum of total delinquency 2013	29445.09	13658.09	32069.43	15876.28	0.086***
number of parcels - structure built before 1914	338.92	234.46	381.32	268.04	0.082***

Table 14. Bivariate association between attendance group and predictors— Grade 11 (N=1584)

	Non-Chronic absent 55.20%		Chronic absent 44.80%		Correlation
	Proportion		Proportion		
Female	0.51		0.53		0.02
black	0.41		0.64		0.23***
Free/Reduced Lunch	0.59		0.85		0.29***
within-year move	0.06		0.25		0.28***
oldforgrade	0.16		0.35		0.22***
EVER IN Children, Youth, and Families Children	0.03		0.12		0.17***
EVER IN Drug & Alcohol - CCBHO and County	0.01		0.07		0.17***
EVER IN Early Intervention	0.01		0.01		0.01
EVER IN Family Support Center	0.04		0.11		0.13***
EVER IN Hunger and Homeless	0.02		0.06		0.09***
EVER IN Mental Health - CCBHO and County	0.16		0.36		0.23***
EVER IN Office of Mental Retardation and Developmental Disabilities	0.01		0.01		0.01
EVER IN Housing Authority of City of Pittsburgh	0.09		0.20		0.15***
EVER IN JPO Children	0.01		0.10		0.19***
EVER IN DPW	0.23		0.50		0.28***
HomesteadFlag_m13	0.51		0.27		0.25***
	M	SD	M	SD	
Violent Crime (murder, rape, robbery, aggravated assault 2013	19.24	15.31	23.56	16.66	0.134***
Total Crimes (All UCR Categories) 2013	240.96	157.82	269.79	164.61	0.089***
Property Crime (burglary, theft, motor vehicle theft, arson) 2013	77.48	50.54	78.43	49.50	0.009
Crimes involving a gun (all types) 2013	8.98	8.90	11.56	10.04	0.135***
Tract2013_MEDIAN_of_SalePrice	89567.51	97306.87	50270.84	54200.60	0.235***
Percent below poverty level	21.26	11.80	25.41	12.15	0.17***
PercentBlack	0.08	0.05	0.10	0.05	0.205***
Sum of total delinquency 2013	29633.52	14604.88	31269.87	15876.39	0.054*
number of parcels - structure built before 1914	337.99	238.00	361.94	259.61	0.048

Table 15. Bivariate association between attendance group and predictors— Grade 12 (N=1592)

	Non-Chronic absent 48.10%		Chronic absent 51.90%		Correlation
	Proportion		Proportion		
Female	0.44		0.53		0.09***
black	0.40		0.60		0.20***
Free/Reduced Lunch	0.57		0.78		0.22***
within-year move	0.06		0.19		0.20***
oldforgrade	0.20		0.29		0.11***
EVER IN Children, Youth, and Families Children	0.04		0.08		0.09***
EVER IN Drug & Alcohol - CCBHO and County	0.02		0.03		0.05
EVER IN Early Intervention	0.01		0.01		0.04
EVER IN Family Support Center	0.04		0.07		0.05*
EVER IN Hunger and Homeless	0.01		0.05		0.10***
EVER IN Mental Health - CCBHO and County	0.18		0.31		0.14***
EVER IN Office of Mental Retardation and Developmental Disabilities	0.04		0.02		0.07**
EVER IN Housing Authority of City of Pittsburgh	0.07		0.17		0.16***
EVER IN JPO Children	0.02		0.07		0.12***
EVER IN DPW	0.21		0.44		0.25***
HomesteadFlag_m13	0.57		0.36		0.22***
	M	SD	M	SD	
Violent Crime (murder, rape, robbery, aggravated assault 2013	18.31	15.90	22.43	15.78	0.129***
Total Crimes (All UCR Categories) 2013	235.46	168.93	262.21	147.47	0.084***
Property Crime (burglary, theft, motor vehicle theft, arson) 2013	77.08	60.07	78.05	40.84	0.01
Crimes involving a gun (all types) 2013	8.61	9.43	11.04	9.66	0.126***
Tract2013_MEDIAN_of_SalePrice	94425.42	100937.73	57380.52	70159.20	0.21***
Percent below poverty level	20.91	11.58	24.69	11.81	0.159***
PercentBlack	0.08	0.05	0.10	0.05	0.172***
Sum of total delinquency 2013	29589.35	15716.93	31002.50	14530.60	0.047
number of parcels - structure built before 1914	319.86	228.67	364.25	260.62	0.09***

Figure 1. Effect sizes of demographic variables by grades

EFFECTS OF DEMOGRAPHIC VARIABLES

Legend: Female · black · Free/Reduced Lunch · within-year move · oldforgrade
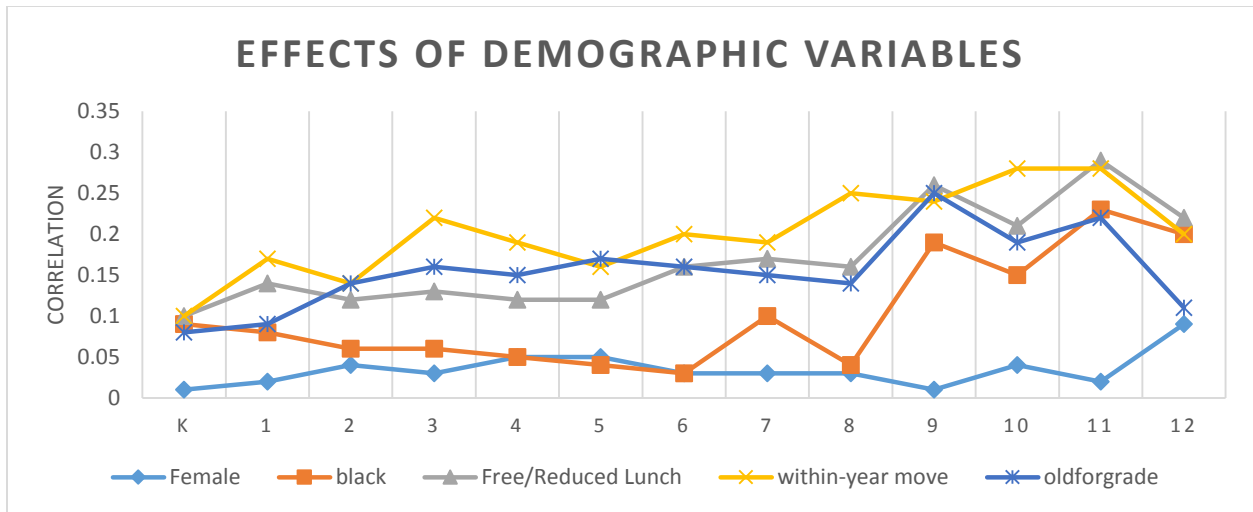
Figure 2. Effect sizes of DHS involvement variables by grades

EFFECT OF DHS VARIABLES

Legend:
- Children, Youth, and Families Children
- Drug & Alcohol
- Early Intervention
- Family Support Center
- Hunger and Homeless
- Mental Health - CCBHO and County
- Office of Mental Retardation and Developmental Disabilities
- Housing Authority of City of Pittsburgh
- JPO Children
- poverty
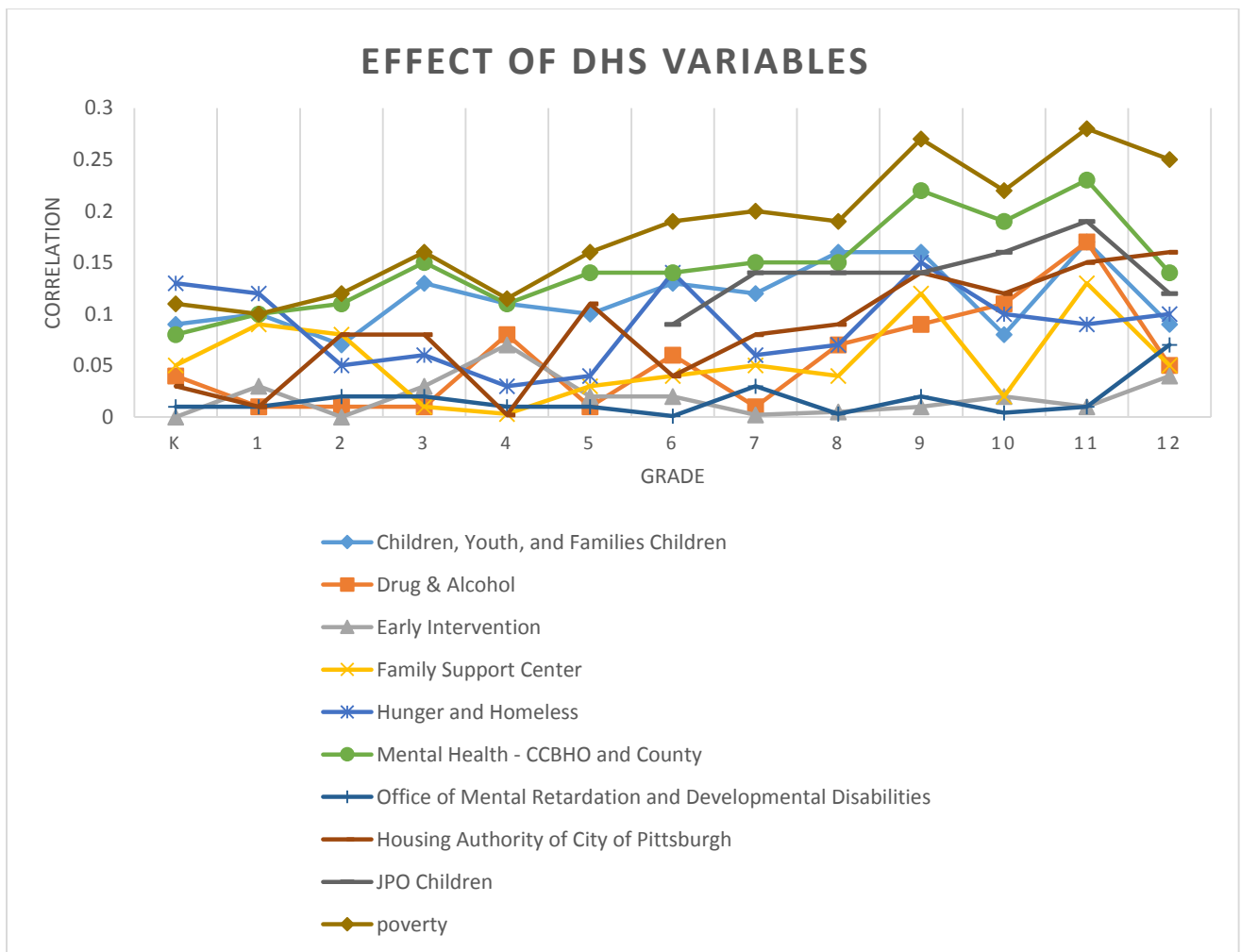
Figure 3. Effect sizes of house and census tract variables by grades

EFFECT OF HOUSE AND CENSUS TRACT VARIABLES
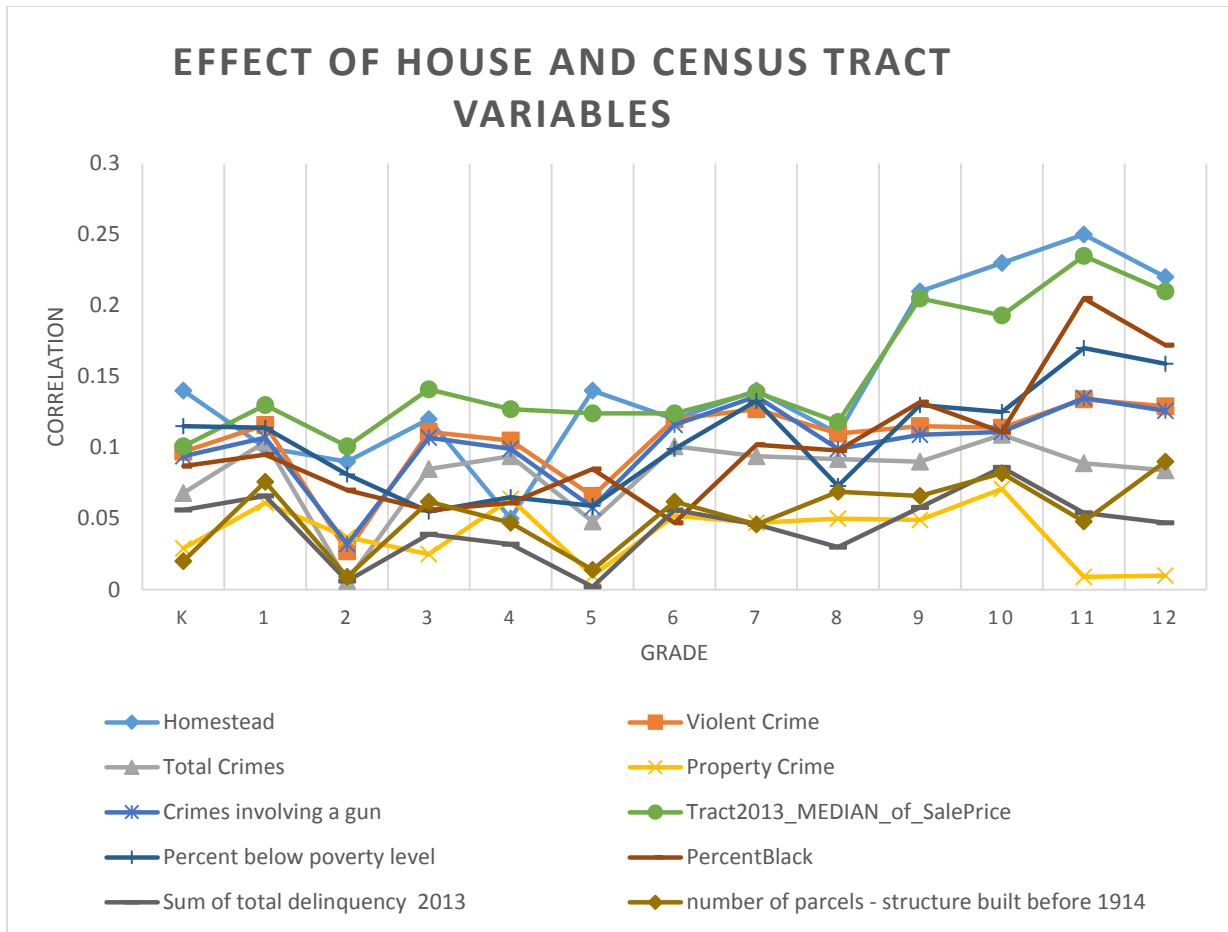
2. Logistic Regression

Logistic regression was used to predict chronic absence for each grade. Several crime variables (total crime, violent crime, crimes involving a gun, and property crime) were examined in the bivariate analysis. The variable of Number of Violent Crime presented consistently highest relationship compared to the other crime variables and thus was chosen in logistic regression and CART analysis.

Table 16-

Table 18 -- present odds ratio and statistical significance for grades k-5, 6-8, and 9-12 respectively. Note that JPO Children is not a predictor for grades k-5.

Table 16. Odds ratio of logistic regression predicting chronic absence for k to 5th grade (* p < .05, ** p < .01, *** p < .001)

Grade	K		1		2		3		4		5	
Female	0.994		1.148		0.807		1.008		1.635	***	0.806	
black	0.931		0.812		0.79		0.83		0.921		0.516	***
Free/Reduced Lunch	1.423	*	2.629	***	2.547	***	2.402	***	2.47	***	1.828	*
within-year move	1.838	***	3.207	***	2.523	***	3.928	***	4.026	***	3.281	***
oldforgrade	1.817	**	1.585	**	2.098	***	1.916	***	2.31	***	2.209	***
Children, Youth, and Families Children	1.396		1.664	*	1.204		1.829	**	1.516		1.359	
Drug & Alcohol	1.3E9		0		0		0		9.594		0.598	
Early Intervention	0.785		0.98		0.885		1.051		1.831	**	1.037	
Family Support Center	1.073		1.441		1.38		0.767		0.661		1.032	
Hunger and Homeless	2.083	***	2.043	**	1.138		0.919		0.837		1.158	
Mental Health	1.465		1.637	*	1.404		1.553	*	1.28		1.206	
Office of Mental Retardation and Developmental Disabilities	0.000		0		1.589		0.39		0.554		0.397	
Housing Authority	0.814		0.798		1.209		1.052		0.68		1.395	
EVER IN DPW	1.270		1.002		1.197		1.306		1.337		1.358	
Homestead	0.538	***	0.79		0.709		0.682	*	1.168		0.517	***
Violent Crime	1.002		1.001		0.996		1.01		1.011		1.005	
Tract2013 MEDIAN SalePrice	1.000		1	*	1	*	1	***	1	***	1	**
Percent below poverty level	1.009		1.012	*	1.006		0.991		0.995		0.994	
PercentBlack	1.263		2.252		0.424		0.069		0.182		0.727	
Sum of total delinquency 2013	1.000		1		1		1		1		1	
number of parcels - structure built before 1914	1.000		1.001	*	1		1		1		1	
Pseudo R2	0.097		0.146		0.117		0.185		0.169		0.163	

Table 17. Odds ratio of logistic regression predicting chronic absence for 6th to 8th grade (* p < .05, ** p < .01, *** p < .001)

Grade	6		7		8	
Female	0.901		1.003		1.006	
black	0.606	**	0.957		0.637	**
Free/Reduced Lunch	2.175	***	1.851	**	2.067	***
within-year move	2.907	***	2.388	***	3.883	***
oldforgrade	1.81	***	1.645	***	1.529	**
Children, Youth, and Families Children	1.437		1.461		1.602	*
Drug & Alcohol	0.873		0.437		1.784	
Early Intervention	0.877		0.88		0.882	
Family Support Center	0.973		0.974		0.834	
Hunger and Homeless	1.898	**	0.924		1.252	
Mental Health - CCBHO and County	1.128		1.283		1.253	
Office of Mental Retardation and Developmental Disabilities	0.807		0.187		0.882	
Housing Authority of City of Pittsburgh	0.694	*	0.776		1.127	
JPO Children	9.41		4.36	*	3.408	*
EVER IN DPW	1.912	***	1.655	**	1.389	*
Homestead	0.68	*	0.766		0.855	
Violent Crime	1.008		1.009		1.01	*
Tract2013 MEDIAN SalePrice	1	*	1		1	
Percent below poverty level	1.011		1.004		0.995	
PercentBlack	0.088		0.514		4.589	
Sum of total delinquency 2013	1		1		1	
number of parcels - structure built before 1914	1		1		1	
Pseudo R2	0.18		0.154		0.177	

Table 18. Odds ratio of logistic regression predicting chronic absence for 9th to 12th grade (* p < .05, ** p < .01, *** p < .001) CART

Grade	9		10		11		12	
Female	1.347	**	1.415	**	1.236		1.459	***
black	1.168		1.043		1.137		1.045	
Free/Reduced Lunch	2.185	***	1.779	***	1.98	***	1.312	*
within-year move	2.346	***	3.906	***	3.003	***	2.45	***
oldforgrade	2.136	***	1.581	***	1.906	***	1.238	
Children, Youth, and Families Children	1.478		0.783		1.483		1.045	
Drug & Alcohol	1.039		1.053		2.988	*	0.736	
Early Intervention	0.76		1.034		0.325		1.418	
Family Support Center	1.212		0.683		1.74	*	0.798	
Hunger and Homeless	1.971	*	1.689		1.055		1.671	
Mental Health - CCBHO and County	1.554	**	1.428	*	1.297		1.216	
Office of Mental Retardation and Developmental Disabilities	1.382		1.216		0.444		0.256	***
Housing Authority of City of Pittsburgh	0.925		0.876		0.872		1.139	
JPO Children	1.825		2.349	*	2.938	**	1.874	
EVER IN DPW	1.403	*	1.26		1.459	*	1.81	***
Homestead	0.734	*	0.571	***	0.676	**	0.702	**
Violent Crime	1		0.999		0.995		0.997	
Tract2013 MEDIAN SalePrice	1	**	1	**	1	**	1	*
Percent below poverty level	0.998		0.997		0.999		1.003	
PercentBlack	0.37		0.357		2.605		5.201	
Sum of total delinquency 2013	1		1		1		1	
number of parcels - structure built before 1914	1		1		1		1	
Pseudo R2	0.255		0.228		0.288		0.194	

3. Classification and Regression Tree Analysis
3.1 Importance of predictors for grades k-5

The 8 predictors which had the highest average importance value across grades K-5 are highlighted in red below and they are displayed in

Figure 4: 1) within school year move, 2) old for grade, 3) percent below poverty level, 4) child EVER IN DPW (ever in public welfare), 5) ever in mental health, and 6) tract median sale price, 7) Homestead, 8) number of violent crimes in a census tract.

Grade	K	1	2	3	4	5
Female	0	0	0	0	0	0
black	0	0.001	0.001	0	0	0.002
Free/Reduced Lunch	0.002	0.003	0	0.001	0.002	0.001
within-year move	0.003	0.008	0.003	0.012	0.009	0
oldforgrade	0	0.002	0.004	0.007	0.003	0.007
Children, Youth, and Families Children	0	0.003	0.001	0.004	0.002	0.001
Drug & Alcohol	0	0	0	0	0.001	0
Early Intervention	0	0	0	0	0.003	0
Family Support Center	0	0.001	0.001	0	0	0
Hunger and Homeless	0.005	0.003	0	0	0	0
Mental Health - CCBHO and County	0.002	0.002	0.003	0.002	0.003	0.003
Office of Mental Retardation and Developmental Disabilities	0.00E+00	0	0	0	0	0
Housing Authority of City of Pittsburgh	0.00E+00	0	0.002	0.001	0	0.001
EVER IN DPW	0	0.002	0.003	0.004	0.003	0.004
Homestead	0.007	0.003	0	0.002	0	0.001
Violent Crime	0.001	0.007	0	0.003	0	0.002
Tract2013 MEDIAN SalePrice	0.001	0.009	0.001	0	0.001	0.003
Percent below poverty level	0.006	0.005	0.002	0.001	0.001	0.003
PercentBlack	0.001	0.004	0.002	0.002	0	0.002
Sum of total delinquency 2013	0	0.002	0	0.001	0	0
number of parcels - structure built before 1914	0	0.003	0	0.002	0	0

Figure 4. Average importance of predictors for chronic absence across grades k-5.
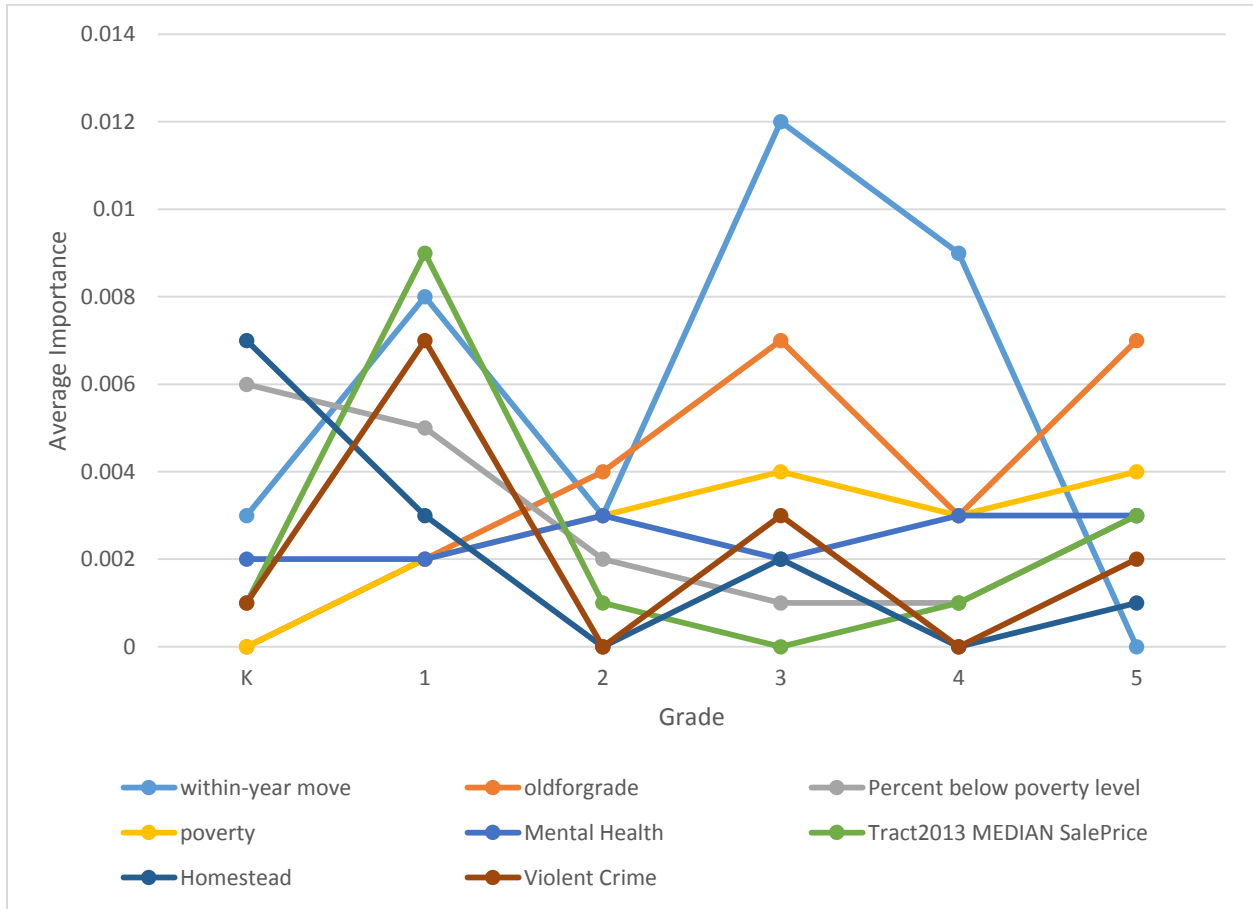
3.2 Importance of predictors for grades 6-12

The 8 predictors which had the highest average importance value across grades 6-12 are highlighted in red below and they are displayed in Figure 5: 1) within school year move, 2) free/reduced lunch, 3) child EVER IN DPW (ever in public welfare), 4) ever in JPO children, 5) old for grade, and 6) percent black, 7) percent below poverty, 8) homestead.

Table 20. Average effects of predictors for Chronic Absence across Grades 6-12.

Grade	6	7	8	9	10	11	12
Female	0.001	0	0	0	0	0	0.002
black	0	0.006	0.001	0.032	0	0.002	0.003
Free/Reduced Lunch	0.007	0.014	0.009	0.046	0.021	0.041	0.002
within-year move	0.011	0.021	0.021	0.04	0.035	0.019	0.012
oldforgrade	0.008	0.009	0	0.044	0	0.004	0.001
Children, Youth, and Families Children	0.006	0.005	0.003	0.013	0	0.003	0
Drug & Alcohol	0	0	0	0	0	0.011	0.001
Early Intervention	0	0	0	0	0	0	0.001
Family Support Center	0	0.001	0	0.006	0	0.004	0.001
Hunger and Homeless	0.007	0.001	0	0.011	0	0.001	0.006
Mental Health - CCBHO and County Office of Mental Retardation and Developmental Disabilities	0.003	0.007	0	0.024	0.002	0.003	0.01
	0	0	0	0	0	0	0
Housing Authority of City of Pittsburgh	0	0.002	0	0.013	0	0.002	0.012
JPO Children	0.002	0.012	0.007	0.017	0.014	0.015	0.008
EVER IN DPW	0.009	0.013	0.001	0.035	0	0.008	0.031
Homestead	0.004	0.011	0	0.032	0.005	0	0.005
Violent Crime	0.003	0.008	0.001	0.016	0.003	0.004	0.004
Tract2013 MEDIAN SalePrice	0	0.008	0.003	0	0.011	0.019	0.012
Percent below poverty level	0.006	0.009	0.002	0.009	0.007	0.019	0.011
PercentBlack	0.006	0.006	0.006	0.014	0.007	0.018	0.009
Sum of total delinquency 2013	0.001	0.003	0	0.008	0.005	0.003	0.003
number of parcels - structure built before 1914	0.004	0.002	0	0.005	0.004	0.003	0.001

Figure 5. Average importance of predictors for Chronic absence across grades 6-12.
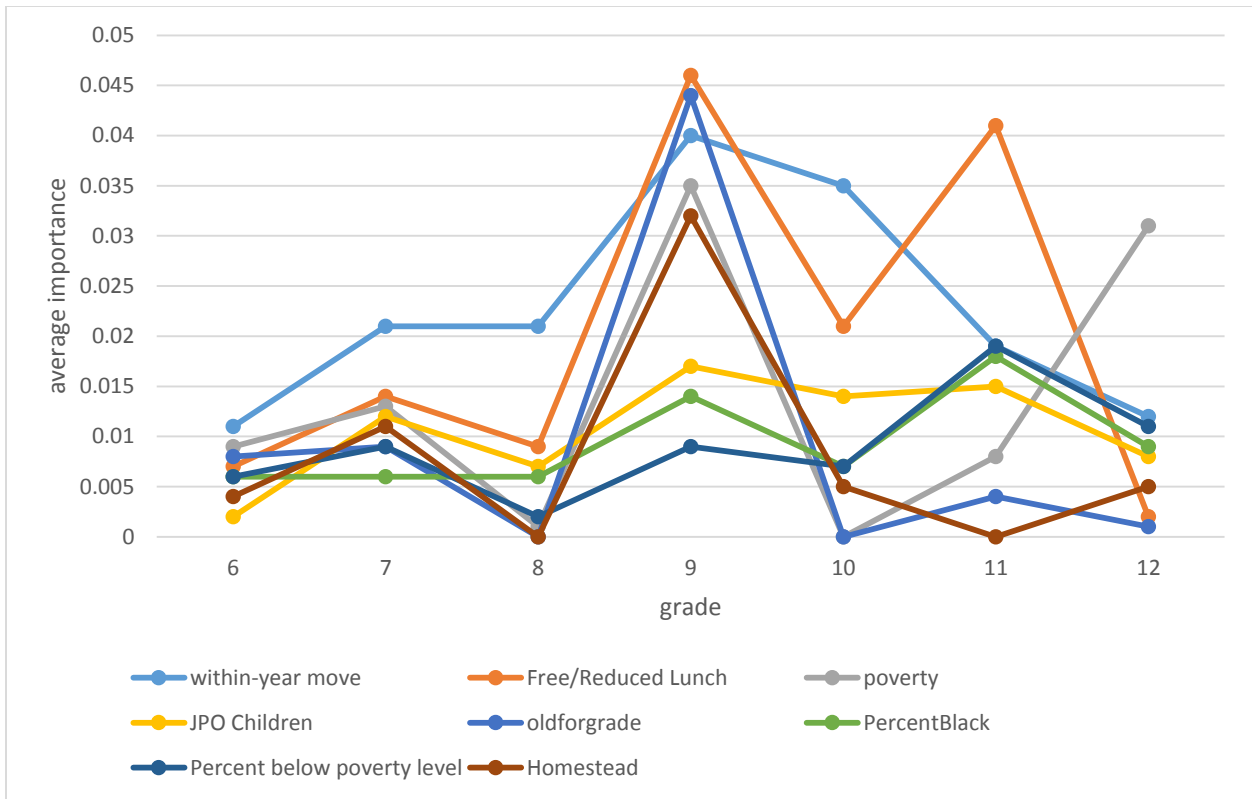
3.3 Grade K

- N = 2293
- 6 predictors contributed to the classification of chronic absence. CART produced 8 child nodes (see Table 22 and Figure 6 and Figure 7).
- The predictors are: level-1, Homestead; level-2, ever in hunger homeless and free/reduced lunch; level-3, within school year move; level-4, percentage below poverty; level-5, ever in mental health.
- Node 12 had the highest levels of chronic absence (58.10%). Node 12 contained 1.9% of students who were in non-homestead residence, not in hunger and homeless program, had within-year move, and in a neighborhood with percentage below poverty greater than 36.8%.
- Node 9 had the lowest level of chronic absence (2%) which contained 2.1% of students who were non-homestead, not in hunger homeless program, did not move, and lived in a neighborhood with less than 7.85% below poverty.
- The largest node, Node 13, had 50.8% of total students. Node 13 contained students who were not in homestead or hunger/homeless, did not move, lived in a neighborhood with more than 7.85% below poverty, and not in Mental Health. For this node, 21.20% were identified as chronic absent.
- Overall 79.2% of students were correctly classified.

Table 21. Importance table (Kindergarten)

Independent Variable	Importance	Normalized Importance
HomesteadFlag_m13	0.007	100.00%
Percent below poverty level	0.006	82.50%
EVER IN Hunger and Homeless	0.005	69.70%
within-year move	0.003	49.70%
Free/Reduced Lunch	0.002	28.90%
EVER IN Mental Health - CCBHO and County	0.002	22.50%
PercentBlack	0.001	17.90%
Tract2013_MEDIAN_of_SalePrice	0.001	16.40%
Violent Crime (murder, rape, robbery, aggravated assault 2013	0.001	12.90%
EVER IN Drug & Alcohol - CCBHO and County	0	7.20%
number of parcels - structure built before 1914	0	2.40%
Sum of total delinquency 2013	9.42E-05	1.40%
EVER IN Office of Mental Retardation and Developmental Disabilities	3.90E-05	0.60%

Table 22. Chronic absence by node (kindergarten).

Homestead	Hunger Homeless	Free / Reduced Lunch	Within-year Move	Per. Below Poverty	Mental Health	Node	N	% Total Sample	% Chronic absence
N	Y					4	101	4.40%	47.50%
Y		Y				5	415	18.10%	16.90%
Y		N				6	273	11.90%	5.10%
N	N		N	<=7.85		9	49	2.10%	2%
N	N		Y	<=36.8		11	178	7.80%	30.30%
N	N		Y	>36.8		12	43	1.90%	58.10%
N	N		N	>7.85	N	13	1165	50.80%	21.20%
N	N		N	>7.85	Y	14	69	3.00%	37.70%

Figure 6. Chronic absence by node (kindergarten).
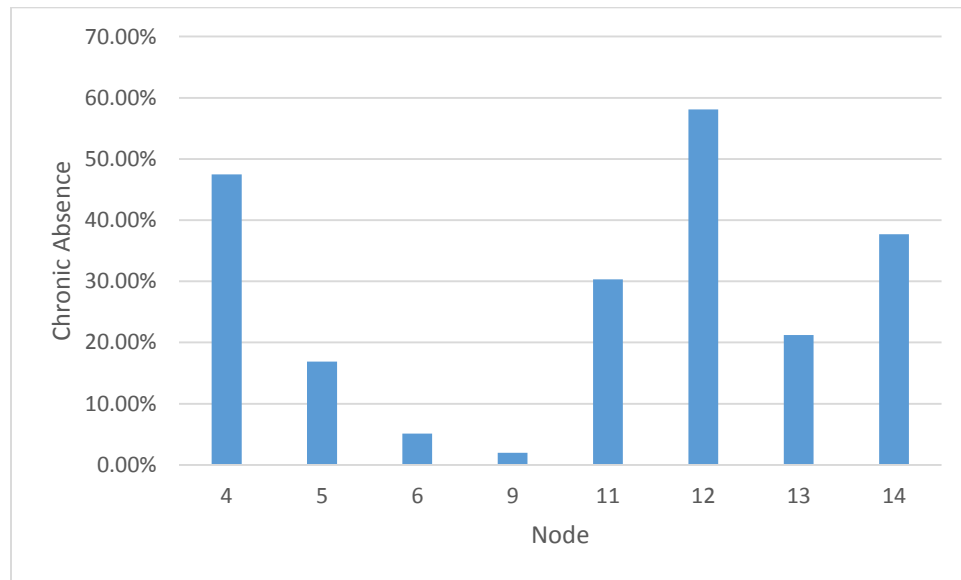
Figure 7. Tree Diagram (kindergarten).

ChronicAbsence

Node 0		
Category	%	n
■ 0.000	78.8	1808
■ 1.000	21.2	485
Total	100.0	2293

Legend:
■ 0.000
■ 1.000

HomesteadFlag_m13
Improvement=0.007

0.0

Node 1		
Category	%	n
■ 0.000	75.0	1204
■ 1.000	25.0	401
Total	70.0	1605

1.0

Node 2		
Category	%	n
■ 0.000	87.8	604
■ 1.000	12.2	84
Total	30.0	688

EVER IN Hunger and Homeless
Improvement=0.005

Free/Reduced Lunch
Improvement=0.002

0.0

Node 3		
Category	%	n
■ 0.000	76.5	1151
■ 1.000	23.5	353
Total	65.6	1504

1.0

Node 4		
Category	%	n
■ 0.000	52.5	53
■ 1.000	47.5	48
Total	4.4	101

free/reduced

Node 5		
Category	%	n
■ 0.000	83.1	345
■ 1.000	16.9	70
Total	18.1	415

regular

Node 6		
Category	%	n
■ 0.000	94.9	259
■ 1.000	5.1	14
Total	11.9	273

within-year move
Improvement=0.003

0.0

Node 7		
Category	%	n
■ 0.000	78.6	1009
■ 1.000	21.4	274
Total	56.0	1283

1.0

Node 8		
Category	%	n
■ 0.000	64.3	142
■ 1.000	35.7	79
Total	9.6	221

Percent below poverty level
Improvement=0.002

Percent below poverty level
Improvement=0.002

<= 7.85

Node 9		
Category	%	n
■ 0.000	98.0	48
■ 1.000	2.0	1
Total	2.1	49

> 7.85

Node 10		
Category	%	n
■ 0.000	77.9	961
■ 1.000	22.1	273
Total	53.8	1234

<= 36.80

Node 11		
Category	%	n
■ 0.000	69.7	124
■ 1.000	30.3	54
Total	7.8	178

> 36.80

Node 12		
Category	%	n
■ 0.000	41.9	18
■ 1.000	58.1	25
Total	1.9	43

EVER IN Mental Health - CCBHO and County
Improvement=0.002

0.0

Node 13		
Category	%	n
■ 0.000	78.8	918
■ 1.000	21.2	247
Total	50.8	1165

1.0

Node 14		
Category	%	n
■ 0.000	62.3	43
■ 1.000	37.7	26
Total	3.0	69

3.4 Grade 1

- N = 2167
- 7 predictors contributed to the classification of chronic absence. CART produced 8 child nodes.
- The predictors are: level-1, within-year move; level-2, number of violent programs in a neighborhood and tract house median sale price; level-3, ever in mental health and old for grade; level-4, free/reduced lunch; level-5, number of parcels before 1914.
- Node 5 had the highest levels of chronic absence (48.4%). Node 5 contained 5.8% of students who moved and lived in a census tract with median sale price <=33500.
- Node 12 had the lowest level of chronic absence (3.4%) which contained 13.4% of students who did not move, lived in a neighborhood with number of violent crimes <=22.5, were not in mental health and had regular lunch.
- Overall 83.3% of students were correctly classified.

Table 23. Importance table (Grade 1)

Independent Variable	Importance	Normalized Importance
Tract2013_MEDIAN_of_SalePrice	0.009	100.00%
within-year move	0.008	91.50%
Violent Crime (murder, rape, robbery, aggravated assault 2013	0.007	73.10%
Percent below poverty level	0.005	59.00%
PercentBlack	0.004	46.20%
Free/Reduced Lunch	0.003	37.00%
number of parcels - structure built before 1914	0.003	35.10%
EVER IN Children, Youth, and Families Children	0.003	31.20%
EVER IN Hunger and Homeless	0.003	27.30%
HomesteadFlag_m13	0.003	27.30%
oldforgrade	0.002	24.90%
EVER IN DPW	2.00E-03	22.30%
Sum of total delinquency 2013	2.00E-03	22.00%
EVER IN Mental Health - CCBHO and County	0.002	19.10%
EVER IN Family Support Center	0.001	14.40%
black	0.001	13.80%
EVER IN Housing Authority of City of Pittsburgh	6.65E-05	0.70%
EVER IN Drug & Alcohol - CCBHO and County	1.94E-05	0.20%
EVER IN Office of Mental Retardation and Developmental Disabilities	8.81E-06	0.10%

Table 24. Chronic absence by node (Grade 1).

Within year move	Violent Crime	Tract Median Sale Price	Mental Health	Old for Grade	Free / Reduced Lunch	No. of Parcels	Node	N	% Total Sample	% Chronic absence
Y		<=33500					5	126	5.80%	48.40%
Y		>33500					6	97	4.50%	19.60%
N	<=22.5		Y				8	88	4.10%	23.90%
N	>22.5			N			9	757	34.90%	18.80%
N	>22.5			Y			10	91	4.20%	36.30%
N	<=22.5		N		N		12	291	13.40%	3.40%
N	<=22.5		N		Y	<=81.5	13	85	3.90%	17.60%
N	<=22.5		N		Y	>81.5	14	632	29.20%	9.70%

Figure 8. Chronic absence by node (Grade 1).
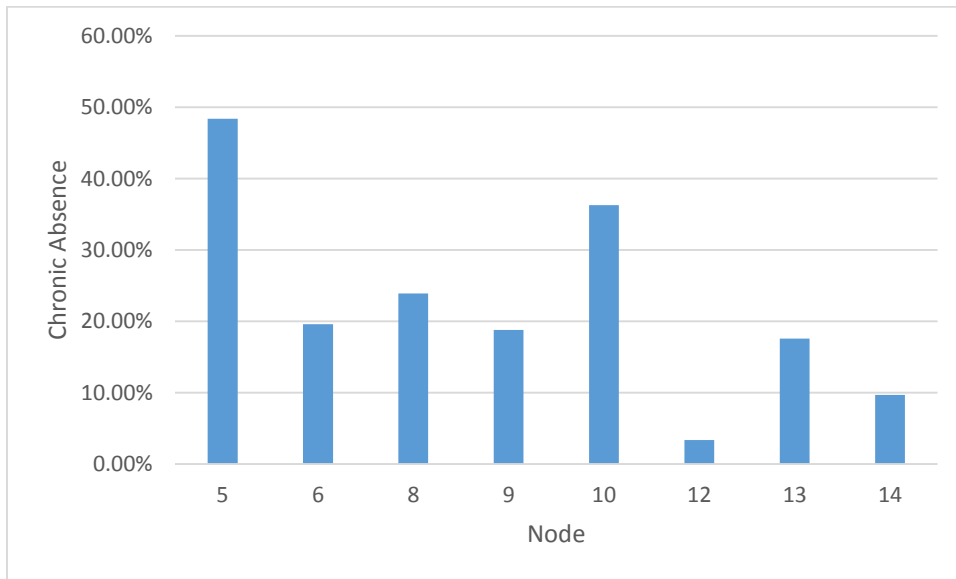
Figure 9. Tree Diagram (Grade 1).

ChronicAbsence

Node 0

Category	%	n
■ 0.000	83.3	1805
■ 1.000	16.7	362
Total	100.0	2167

Legend: ■ 0.000 ■ 1.000

within-year move
Improvement=0.008

0.0

Node 1

Category	%	n
■ 0.000	85.5	1662
■ 1.000	14.5	282
Total	89.7	1944

1.0

Node 2

Category	%	n
■ 0.000	64.1	143
■ 1.000	35.9	80
Total	10.3	223

Violent Crime (murder, rape, robbery, aggravated assault 2013
Improvement=0.005

Tract2013_MEDIAN_of_SalePrice
Improvement=0.004

<= 22.5

Node 3

Category	%	n
■ 0.000	90.2	989
■ 1.000	9.8	107
Total	50.6	1096

> 22.5

Node 4

Category	%	n
■ 0.000	79.4	673
■ 1.000	20.6	175
Total	39.1	848

<= 33500.0

Node 5

Category	%	n
■ 0.000	51.6	65
■ 1.000	48.4	61
Total	5.8	126

> 33500.0

Node 6

Category	%	n
■ 0.000	80.4	78
■ 1.000	19.6	19
Total	4.5	97

EVER IN Mental Health - CCBHO and County
Improvement=0.002

oldforgrade
Improvement=0.002

0.0

Node 7

Category	%	n
■ 0.000	91.5	922
■ 1.000	8.5	86
Total	46.5	1008

1.0

Node 8

Category	%	n
■ 0.000	76.1	67
■ 1.000	23.9	21
Total	4.1	88

no

Node 9

Category	%	n
■ 0.000	81.2	615
■ 1.000	18.8	142
Total	34.9	757

yes

Node 10

Category	%	n
■ 0.000	63.7	58
■ 1.000	36.3	33
Total	4.2	91

Free/Reduced Lunch
Improvement=0.001

free/reduced

Node 11

Category	%	n
■ 0.000	89.4	641
■ 1.000	10.6	76
Total	33.1	717

regular

Node 12

Category	%	n
■ 0.000	96.6	281
■ 1.000	3.4	10
Total	13.4	291

number of parcels - structure built before 1914
Improvement=0.000

<= 81.5

Node 13

Category	%	n
■ 0.000	82.4	70
■ 1.000	17.6	15
Total	3.9	85

> 81.5

Node 14

Category	%	n
■ 0.000	90.3	571
■ 1.000	9.7	61
Total	29.2	632

3.5 Grade 2

- N = 1882
- 6 predictors contributed to the classification of chronic absence. CART produced 7 child nodes.
- The predictors are: level-1, old for grade; level-2, percent below poverty in a neighborhood and student EVER IN DPW; level-3, percent black and within-year move; level-4, ever in mental health.
- Node 10 had the highest levels of chronic absence (33.8%). Node 10 contained 3.5% of students who were not old for grade, but had EVER IN DPW (public welfare) and within-year move.
- Node 7 (also the largest node) had the lowest level of chronic absence (5.2%) which contained 34.6% of students who were not old for grade, not in public welfare (EVER IN DPW), and lived in neighborhoods with percent black <=.094.
- Overall 87.1% of students were correctly classified.

Table 25. Importance table (Grade 2)

Independent Variable	Importance	Normalized Importance
oldforgrade	0.004	100.00%
within-year move	0.003	74.20%
EVER IN DPW	0.003	64.20%
EVER IN Mental Health - CCBHO and County	0.003	58.70%
EVER IN Housing Authority of City of Pittsburgh	0.002	44.70%
PercentBlack	0.002	42.70%
Percent below poverty level	0.002	39.80%
EVER IN Children, Youth, and Families Children	0.001	27.40%
black	0.001	18.90%
Tract2013_MEDIAN_of_SalePrice	0.001	18.20%
EVER IN Family Support Center	0.001	15.40%
EVER IN Hunger and Homeless	0.00E+00	11.00%
Violent Crime (murder, rape, robbery, aggravated assault 2013	0.00E+00	10.50%
Free/Reduced Lunch	0	9.80%
number of parcels - structure built before 1914	0	2.80%
EVER IN Office of Mental Retardation and Developmental Disabilities	0	2.50%
Sum of total delinquency 2013	5.61E-05	1.30%
EVER IN Early Intervention	4.35E-05	1.00%
EVER IN Drug & Alcohol - CCBHO and County	7.37E-06	0.20%

Table 26. Chronic absence by node (Grade 2).

Old for grade	% below poverty	child EVER IN DPW	% black	within year move	mental health	Node	N	% Total Sample	% Chronic absence
Y	<=23.10					3	98	5.20%	17.30%
Y	>23.10					4	152	8.10%	29.60%
N		N	<=.094			7	651	34.60%	5.20%
N		N	>.094			8	454	24.10%	12.80%
N		Y		Y		10	65	3.50%	33.80%
N		Y		N	N	11	328	17.40%	12.20%
N		Y		N	Y	12	134	7.10%	20.10%

Figure 10. Chronic absence by node (Grade 2).
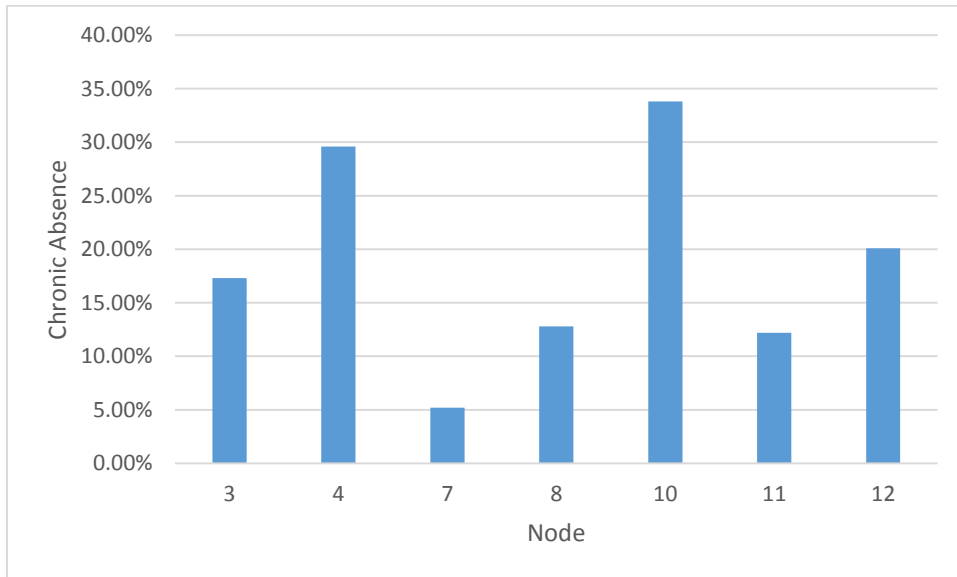
Figure 11. Tree Diagram (Grade 2).

ChronicAbsence

Legend:
- ■ 0.000
- ■ 1.000

Node 0

Category	%	n
■ 0.000	87.1	1639
■ 1.000	12.9	243
Total	100.0	1882

oldforgrade
Improvement=0.004

yes →

Node 1

Category	%	n
■ 0.000	75.2	188
■ 1.000	24.8	62
Total	13.3	250

no →

Node 2

Category	%	n
■ 0.000	88.9	1451
■ 1.000	11.1	181
Total	86.7	1632

Percent below poverty level
Improvement=0.001

<= 23.10

Node 3

Category	%	n
■ 0.000	82.7	81
■ 1.000	17.3	17
Total	5.2	98

> 23.10

Node 4

Category	%	n
■ 0.000	70.4	107
■ 1.000	29.6	45
Total	8.1	152

EVER IN DPW
Improvement=0.003

0.0

Node 5

Category	%	n
■ 0.000	91.7	1013
■ 1.000	8.3	92
Total	58.7	1105

1.0

Node 6

Category	%	n
■ 0.000	83.1	438
■ 1.000	16.9	89
Total	28.0	527

PercentBlack
Improvement=0.002

<= 0.0935994665

Node 7

Category	%	n
■ 0.000	94.8	617
■ 1.000	5.2	34
Total	34.6	651

> 0.0935994665

Node 8

Category	%	n
■ 0.000	87.2	396
■ 1.000	12.8	58
Total	24.1	454

within-year move
Improvement=0.002

0.0

Node 9

Category	%	n
■ 0.000	85.5	395
■ 1.000	14.5	67
Total	24.5	462

1.0

Node 10

Category	%	n
■ 0.000	66.2	43
■ 1.000	33.8	22
Total	3.5	65

EVER IN Mental Health - CCBHO and County
Improvement=0.001

0.0

Node 11

Category	%	n
■ 0.000	87.8	288
■ 1.000	12.2	40
Total	17.4	328

1.0

Node 12

Category	%	n
■ 0.000	79.9	107
■ 1.000	20.1	27
Total	7.1	134

3.6 Grade 3

- N = 1812
- 7 predictors contributed to the classification of chronic absence. CART produced 8 child nodes.
- The predictors are: level-1, within-year move; level-2, old for grade and child EVER IN DPW (public welfare); level-3, tract median sale price and ever in Children, Youth and Families; level-4, sum of total delinquency; level-5, homestead status.
- Node 3 had the highest levels of chronic absence (60.4%) which contained 2.6% of students who moved and were old for grade.
- Node 8 had the lowest level of chronic absence (3.0%) which contained 20.5% of students who did not move, not in public welfare (non EVER IN DPW), and lived in a census tract with median sale price greater than $61568.5.
- Overall 84.8% of students were correctly classified.

Table 27. Importance table (Grade 3)

Independent Variable	Importance	Normalized Importance
within-year move	0.012	100.00%
oldforgrade	0.007	54.50%
EVER IN DPW	0.004	33.60%
Tract2013_MEDIAN_of_SalePrice	0.004	31.70%
EVER IN Children, Youth, and Families Children	0.004	29.30%
Violent Crime (murder, rape, robbery, aggravated assault 2013	0.003	23.40%
number of parcels - structure built before 1914	0.002	19.50%
HomesteadFlag_m13	0.002	19.10%
EVER IN Mental Health - CCBHO and County	0.002	18.10%
PercentBlack	0.002	14.20%
Sum of total delinquency 2013	0.001	11.00%
EVER IN Housing Authority of City of Pittsburgh	1.00E-03	9.50%
Free/Reduced Lunch	1.00E-03	9.00%
Percent below poverty level	0.001	5.80%
EVER IN Early Intervention	0	1.70%
EVER IN Hunger and Homeless	7.20E-05	0.60%
EVER IN Office of Mental Retardation and Developmental Disabilities	7.14E-05	0.60%
EVER IN Drug & Alcohol - CCBHO and County	1.85E-05	0.10%
EVER IN Family Support Center	2.64E-06	0.00%

Table 28. Chronic absence by node (Grade 3).

Within year move	old for grade	EVER IN DPW	tract median sale price	Children, Youth and Families	Sum of total delinquency	Home-stead	Node	N	% Total Sample	% Chronic absence
Y	Y						3	48	2.60%	60.40%
Y	N						4	163	9.00%	30.70%
N		N	>64586.5				8	371	20.50%	3.00%
N		Y		Y			9	69	3.80%	31.90%
N		Y		N			10	523	28.90%	17.60%
N		N	<=64586.5		<=1446.20		11	46	2.50%	28.30%
N		N	<=64586.5		>1446.20	N	13	402	22.20%	14.20%
N		N	<=64586.5		>1446.20	Y	14	190	10.50%	6.30%

Figure 12. Chronic absence by node (Grade 3).
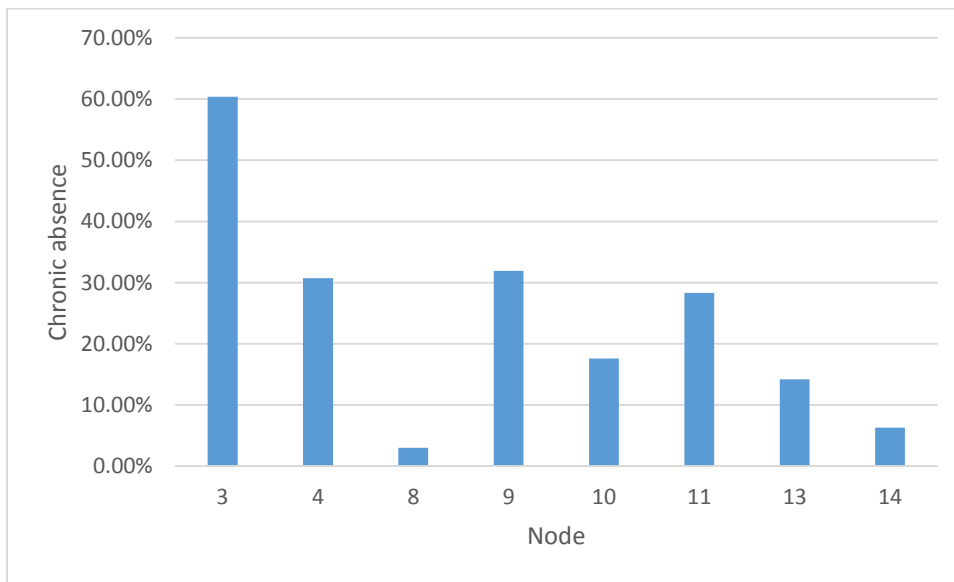
Figure 13. Tree Diagram (Grade 3).

ChronicAbsence

Legend:
- 0.000
- 1.000

Node 0

Category	%	n
0.000	84.2	1526
1.000	15.8	286
Total	100.0	1812

within-year move
Improvement=0.012

1.0

Node 1

Category	%	n
0.000	62.6	132
1.000	37.4	79
Total	11.6	211

oldforgrade
Improvement=0.004

yes

Node 3

Category	%	n
0.000	39.6	19
1.000	60.4	29
Total	2.6	48

no

Node 4

Category	%	n
0.000	69.3	113
1.000	30.7	50
Total	9.0	163

0.0

Node 2

Category	%	n
0.000	87.1	1394
1.000	12.9	207
Total	88.4	1601

EVER IN DPW
Improvement=0.004

0.0

Node 5

Category	%	n
0.000	90.8	916
1.000	9.2	93
Total	55.7	1009

Tract2013_MEDIAN_of_SalePrice
Improvement=0.003

<= 61568.5

Node 7

Category	%	n
0.000	87.1	556
1.000	12.9	82
Total	35.2	638

Sum of total delinquency 2013
Improvement=0.001

<= 14461.9950000000000

Node 11

Category	%	n
0.000	71.7	33
1.000	28.3	13
Total	2.5	46

> 14461.9950000000000

Node 12

Category	%	n
0.000	88.3	523
1.000	11.7	69
Total	32.7	592

HomesteadFlag_m13
Improvement=0.001

0.0

Node 13

Category	%	n
0.000	85.8	345
1.000	14.2	57
Total	22.2	402

1.0

Node 14

Category	%	n
0.000	93.7	178
1.000	6.3	12
Total	10.5	190

> 61568.5

Node 8

Category	%	n
0.000	97.0	360
1.000	3.0	11
Total	20.5	371

1.0

Node 6

Category	%	n
0.000	80.7	478
1.000	19.3	114
Total	32.7	592

EVER IN Children, Youth, and Families Children
Improvement=0.001

1.0

Node 9

Category	%	n
0.000	68.1	47
1.000	31.9	22
Total	3.8	69

0.0

Node 10

Category	%	n
0.000	82.4	431
1.000	17.6	92
Total	28.9	523

3.7 Grade 4

- N = 1818
- 6 predictors contributed to the classification of chronic absence. CART produced 7 child nodes.
- The predictors are: level-1, within-year move; level-2, old for grade and ever in mental health; level-3, free/reduced lunch; level-4, ever in early intervention; level-5, ever in children, youth, and families.
- Node 6 had the highest levels of chronic absence (53.7%) which contained 3% of students who moved and had been ever in mental health.
- Node 8 had the lowest level of chronic absence (3.6%) which contained 16.9% of students who did not move, were not old for grade, and had regular lunch.
- Overall 86.3% of students were correctly classified.

Table 29. Importance table (Grade 4)

Independent Variable	Importance	Normalized Importance
within-year move	0.009	100.00%
EVER IN Mental Health - CCBHO and County	0.003	37.80%
oldforgrade	0.003	35.00%
EVER IN Early Intervention	0.003	29.60%
EVER IN DPW	0.003	29.40%
EVER IN Children, Youth, and Families Children	0.002	23.70%
Free/Reduced Lunch	0.002	20.20%
Percent below poverty level	0.001	11.20%
EVER IN Drug & Alcohol - CCBHO and County	0.001	11.10%
Tract2013_MEDIAN_of_SalePrice	0.001	9.50%
PercentBlack	0	4.90%
EVER IN Hunger and Homeless	0.00E+00	3.30%
Violent Crime (murder, rape, robbery, aggravated assault 2013	7.60E-05	0.90%
number of parcels - structure built before 1914	5.47E-05	0.60%
EVER IN Housing Authority of City of Pittsburgh	3.70E-05	0.40%
Sum of total delinquency 2013	2.13E-05	0.20%
EVER IN Office of Mental Retardation and Developmental Disabilities	1.79E-05	0.20%

Table 30. Chronic absence by node (Grade 4).

within year move	old for grade	mental health	free / reduced lunch	early intervention	CYF	Node	N	% Total Sample	% Chronic absence
N	Y					3	265	14.60%	21.10%
Y		N				5	122	6.70%	25.40%
Y		Y				6	54	3.00%	53.70%
N	N		N			8	307	16.90%	3.60%
N	N		Y	Y		9	94	5.20%	21.30%
N	N		Y	N	Y	11	56	3.10%	19.60%
N	N		Y	N	N	12	920	50.60%	10.30%

Figure 14. Chronic absence by node (Grade 4).
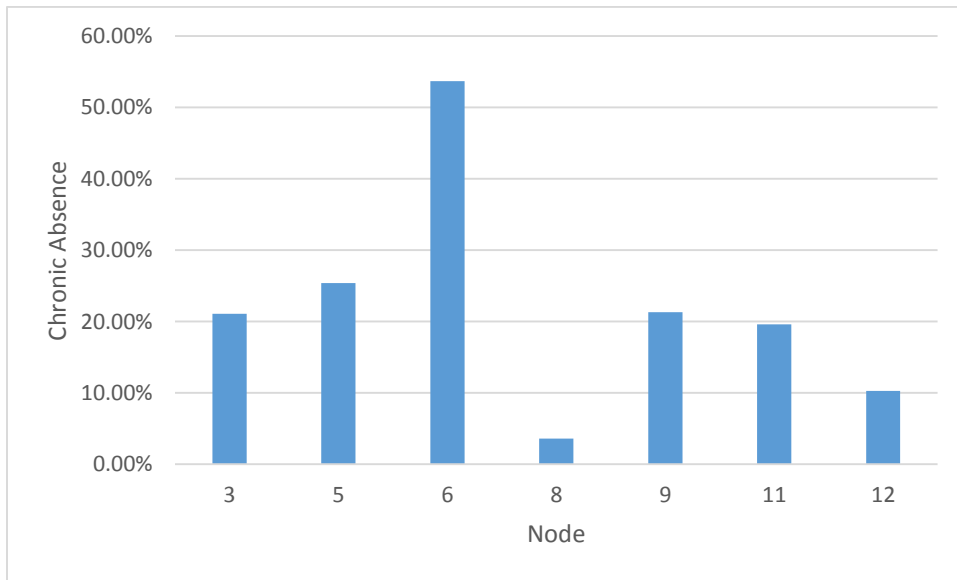
Figure 15. Tree Diagram (Grade 4).

ChronicAbsence

Legend
- 0.000
- 1.000

Node 0
Category	%	n
0.000	86.1	1565
1.000	13.9	253
Total	100.0	1818

within-year move
Improvement=0.009

0.0

Node 1
Category	%	n
0.000	88.2	1449
1.000	11.8	193
Total	90.3	1642

oldforgrade
Improvement=0.003

1.0

Node 2
Category	%	n
0.000	65.9	116
1.000	34.1	60
Total	9.7	176

EVER IN Mental Health - CCBHO and County
Improvement=0.003

yes

Node 3
Category	%	n
0.000	78.9	209
1.000	21.1	56
Total	14.6	265

no

Node 4
Category	%	n
0.000	90.1	1240
1.000	9.9	137
Total	75.7	1377

Free/Reduced Lunch
Improvement=0.002

0.0

Node 5
Category	%	n
0.000	74.6	91
1.000	25.4	31
Total	6.7	122

1.0

Node 6
Category	%	n
0.000	46.3	25
1.000	53.7	29
Total	3.0	54

free/reduced

Node 7
Category	%	n
0.000	88.2	944
1.000	11.8	126
Total	58.9	1070

EVER IN Early Intervention
Improvement=0.001

regular

Node 8
Category	%	n
0.000	96.4	296
1.000	3.6	11
Total	16.9	307

1.0

Node 9
Category	%	n
0.000	78.7	74
1.000	21.3	20
Total	5.2	94

0.0

Node 10
Category	%	n
0.000	89.1	870
1.000	10.9	106
Total	53.7	976

EVER IN Children, Youth, and Families Children
Improvement=0.001

1.0

Node 11
Category	%	n
0.000	80.4	45
1.000	19.6	11
Total	3.1	56

0.0

Node 12
Category	%	n
0.000	89.7	825
1.000	10.3	95
Total	50.6	920

3.8 Grade 5

- N = 1735
- 6 predictors contributed to the classification of chronic absence. CART produced 7 child nodes.
- The predictors are: level-1, old for grade; level-2, child EVER IN DPW (public welfare); level-3, tract median sale price and homestead; level-4, race; level-5, number of violent crimes.
- Node 10 had the highest levels of chronic absence (27.0%) which contained 8.1% of students who were not old for grade, were in public welfare (EVER IN DPW), lived in a tract with median sale price <=94844.5, and not black.
- Node 6 had the lowest level of chronic absence (2.3%) which contained 2.5% of students who were not old for grade, had EVER IN DPW and lived in a tract with median sale price <94844.5. Note that only 1 was identified chronic absent in Node 6.
- The node with the next lowest level of chronic absence is Node 8 (3.0%) which contained 25% of students who were not old for grade, non-EVER IN DPW, and lived in a homestead place.
- Overall 86.7% of students were correctly classified.

Table 31. Importance table (Grade 5)

Independent Variable	Importance	Normalized Importance
oldforgrade	0.007	100.00%
EVER IN DPW	0.004	59.10%
EVER IN Mental Health - CCBHO and County	0.003	46.40%
Tract2013_MEDIAN_of_SalePrice	0.003	40.00%
Percent below poverty level	0.003	39.00%
Violent Crime (murder, rape, robbery, aggravated assault 2013	0.002	29.70%
black	0.002	26.50%
PercentBlack	0.002	24.30%
HomesteadFlag_m13	0.001	19.20%
EVER IN Housing Authority of City of Pittsburgh	0.001	18.80%
Free/Reduced Lunch	0.001	15.30%
EVER IN Children, Youth, and Families Children	1.00E-03	7.30%
EVER IN Hunger and Homeless	0.00E+00	7.00%
number of parcels - structure built before 1914	0.00E+00	4.60%
EVER IN Early Intervention	0.00E+00	4.50%
Sum of total delinquency 2013	0.00E+00	2.40%
EVER IN Drug & Alcohol - CCBHO and County	9.87E-05	1.40%
EVER IN Office of Mental Retardation and Developmental Disabilities	6.25E-05	0.90%
EVER IN Family Support Center	5.77E-06	0.10%

Table 32. Chronic absence by node (Grade 5).

Old for grade	EVER IN DPW	Tract Median Sale price	Homestead	Black	No. of Violent crime	Node	N	% Total Sample	% Chronic absence
Y						1	330	19.00%	25.50%
N	Y	>94844.5				6	44	2.50%	2.30%
N	N		N			7	462	26.60%	10.00%
N	N		Y			8	434	25.00%	3.00%
N	Y	<=94844.5		N		10	141	8.10%	27.00%
N	Y	<=94844.5		Y	<=54	11	272	15.70%	12.50%
N	Y	<=94844.5		Y	>54	12	52	3.00%	26.90%

Figure 16. Chronic absence by node (Grade 5).

Figure 17. Tree Diagram (Grade 5).

ChronicAbsence

Node 0
Category	%	n
■ 0.000	86.7	1505
■ 1.000	13.3	230
Total	100.0	1735

Legend:
■ 0.000
■ 1.000

oldforgrade
Improvement=0.007

yes

Node 1
Category	%	n
■ 0.000	74.5	246
■ 1.000	25.5	84
Total	19.0	330

no

Node 2
Category	%	n
■ 0.000	89.6	1259
■ 1.000	10.4	146
Total	81.0	1405

EVER IN DPW
Improvement=0.004

1.0

Node 3
Category	%	n
■ 0.000	82.9	422
■ 1.000	17.1	87
Total	29.3	509

0.0

Node 4
Category	%	n
■ 0.000	93.4	837
■ 1.000	6.6	59
Total	51.6	896

Tract2013_MEDIAN_of_SalePrice
Improvement=0.001

HomesteadFlag_m13
Improvement=0.001

<= 94844.5

Node 5
Category	%	n
■ 0.000	81.5	379
■ 1.000	18.5	86
Total	26.8	465

> 94844.5

Node 6
Category	%	n
■ 0.000	97.7	43
■ 1.000	2.3	1
Total	2.5	44

0.0

Node 7
Category	%	n
■ 0.000	90.0	416
■ 1.000	10.0	46
Total	26.6	462

1.0

Node 8
Category	%	n
■ 0.000	97.0	421
■ 1.000	3.0	13
Total	25.0	434

black
Improvement=0.002

1.0

Node 9
Category	%	n
■ 0.000	85.2	276
■ 1.000	14.8	48
Total	18.7	324

0.0

Node 10
Category	%	n
■ 0.000	73.0	103
■ 1.000	27.0	38
Total	8.1	141

Violent Crime (murder, rape, robbery,
aggravated assault 2013
Improvement=0.001

<= 54.0

Node 11
Category	%	n
■ 0.000	87.5	238
■ 1.000	12.5	34
Total	15.7	272

> 54.0

Node 12
Category	%	n
■ 0.000	73.1	38
■ 1.000	26.9	14
Total	3.0	52

3.9 Grade 6

- N = 1838
- 9 predictors contributed to the classification of chronic absence. CART produced 10 child nodes.
- The predictors are: level-1, within-year move; level-2, tract median sale price and child EVER IN DPW; level-3, ever in hunger and homeless and old for grade; level-4, percent black and percent below poverty level; level-5, ever in CYF and homestead.
- Node 3 had the highest levels of chronic absence (51.5%) which contained 5.6% of students who moved and lived in a census tract with median sale price <=25075.
- Node 18 had the lowest level of chronic absence (3.8%) which contained 18.8% of students who did not move, did not have child EVER IN DPW, not old for grade, lived in a tract with percent below poverty level >29.75, and lived in a homestead resident.
- Overall 82.4% of students were correctly classified.

Table 33. Importance table (Grade 6)

Independent Variable	Importance	Normalized Importance
within-year move	0.011	100.00%
EVER IN DPW	0.009	83.10%
oldforgrade	0.008	70.70%
EVER IN Hunger and Homeless	0.007	59.40%
Free/Reduced Lunch	0.007	58.70%
PercentBlack	0.006	52.60%
Percent below poverty level	0.006	51.50%
EVER IN Children, Youth, and Families Children	0.006	51.20%
number of parcels - structure built before 1914	0.004	35.20%
Tract2013_MEDIAN_of_SalePrice	0.004	33.40%
HomesteadFlag_m13	0.004	33.20%
EVER IN Mental Health - CCBHO and County	3.00E-03	28.10%
Violent Crime (murder, rape, robbery, aggravated assault 2013	3.00E-03	23.60%
EVER IN JPO Children	2.00E-03	15.70%
Sum of total delinquency 2013	1.00E-03	9.00%
Female	1.00E-03	8.70%
EVER IN Family Support Center	0.00E+00	3.90%
EVER IN Housing Authority of City of Pittsburgh	0.00E+00	2.20%
black	0.00E+00	2.10%
EVER IN Early Intervention	0	1.10%
EVER IN Drug & Alcohol - CCBHO and County	4.22E-05	0.40%
EVER IN Office of Mental Retardation and Developmental Disabilities	1.09E-05	0.10%

Table 34. Chronic absence by node (Grade 6).

within year move	tract median sale price	EVER in PPW	hunger and home-less	old for grade	% black	% poverty	CYF	Home-stead	Node	N	% Total Sample	% Chronic absence
Y	<=25075								3	103	5.60%	51.50%
Y	>25075								4	87	4.70%	26.40%
N		Y	Y						8	66	3.60%	39.40%
N		N		Y					9	135	7.30%	21.50%
N		Y	N		<=.072				11	131	7.10%	32.10%
N		N		N		>29.75			14	201	10.90%	15.40%
N		Y	N		>.072		Y		15	55	3.00%	32.70%
N		Y	N		>.072		N		16	426	23.20%	15.30%
N		N		N		<=29.75		N	17	289	15.70%	9.00%
N		N		N		<=29.75		Y	18	345	18.80%	3.80%

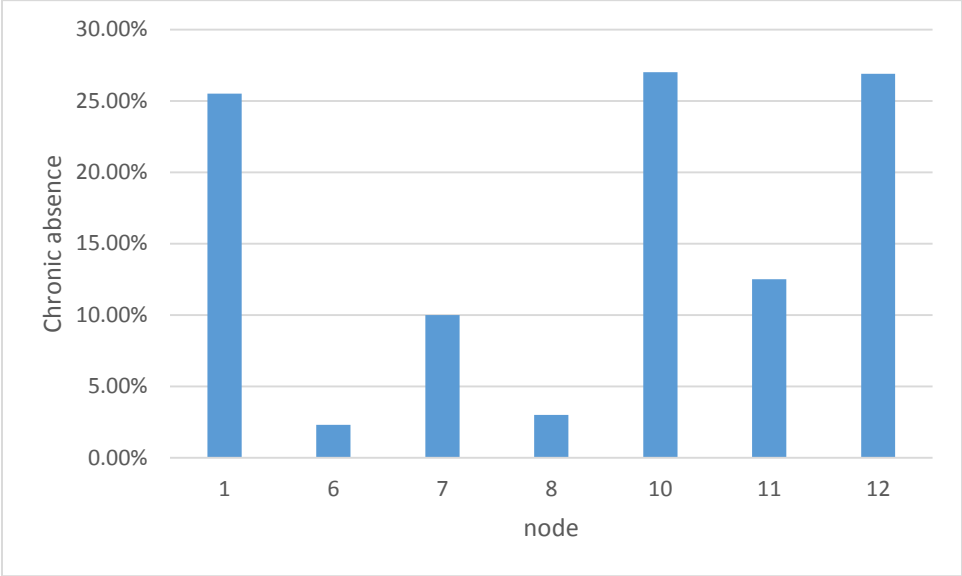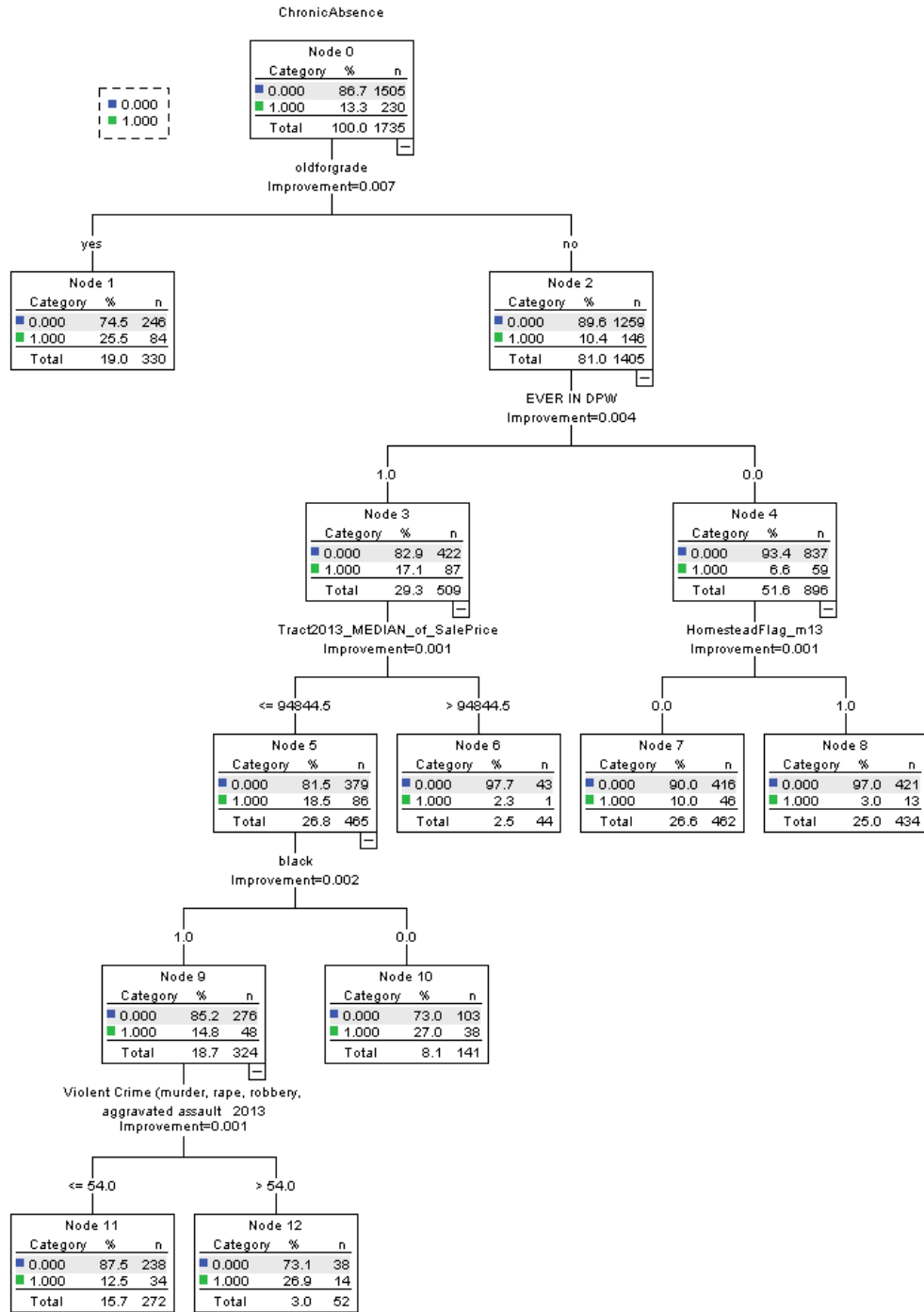Figure 18. Chronic absence by node (Grade 6).
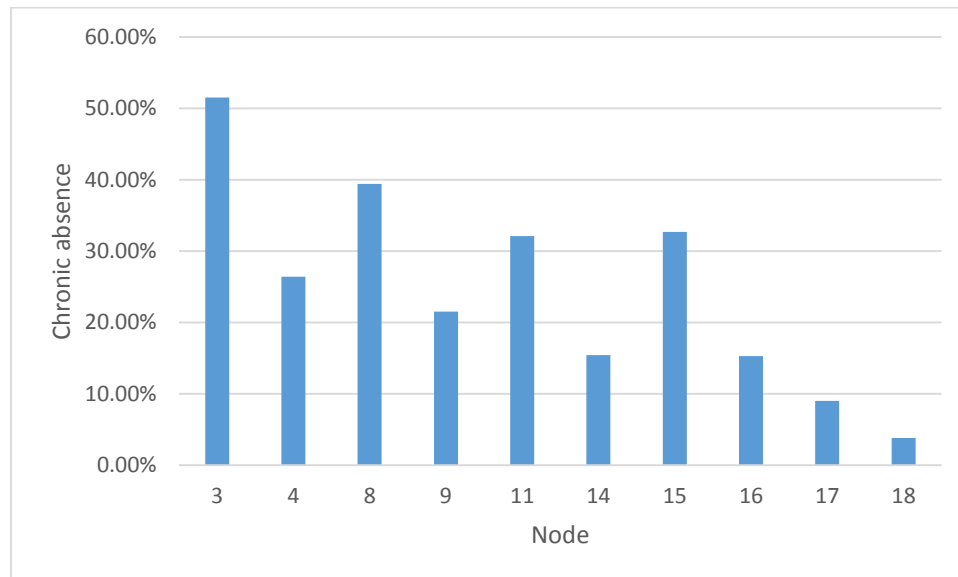
Figure 19. Tree Diagram (Grade 6).
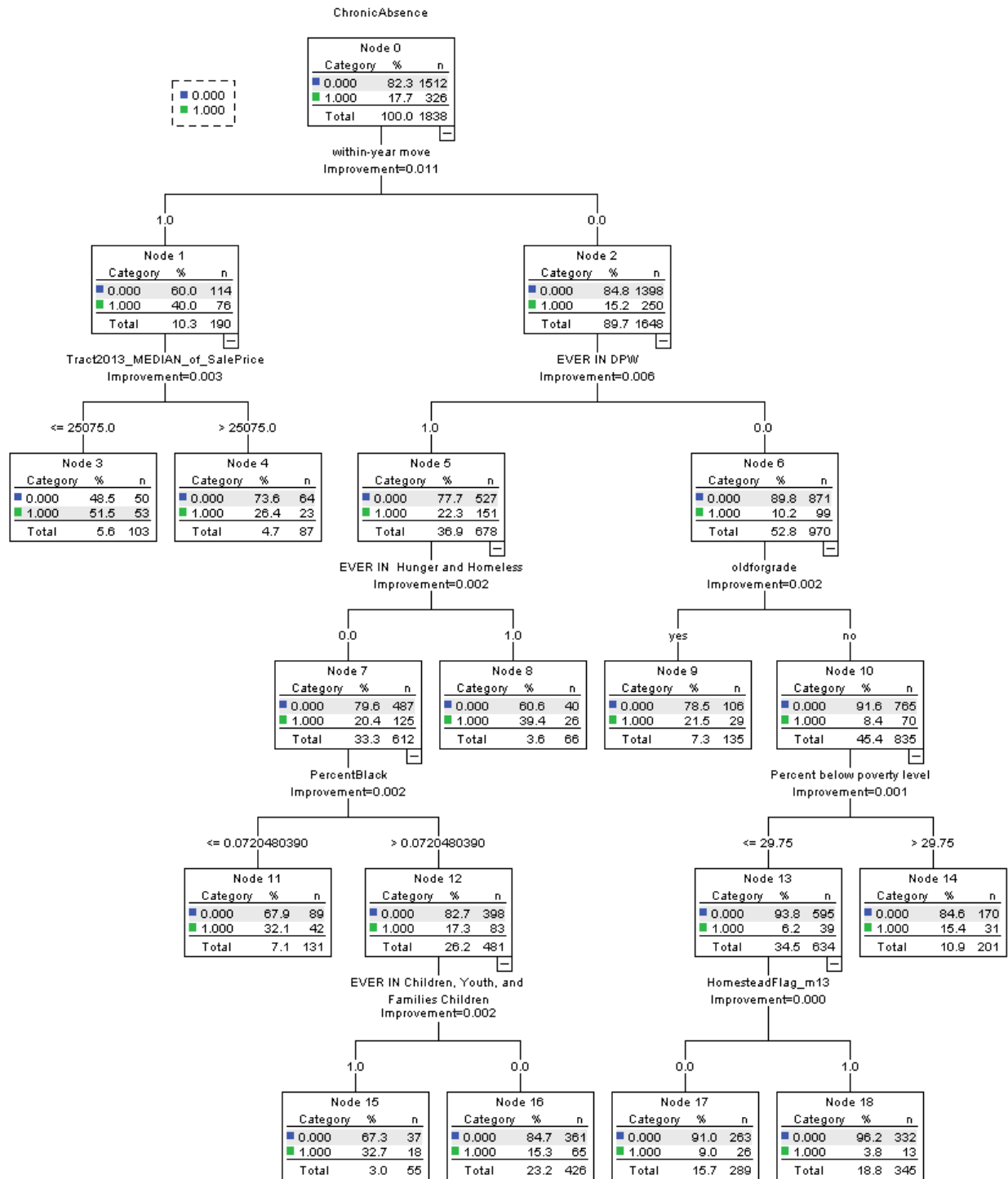
3.10 Grade 7

- N = 1755
- 9 predictors contributed to the classification of chronic absence. CART produced 11 child nodes.
- The predictors are: level-1, child EVER IN DPW; level-2, free/reduced lunch and within year move; level-3, within year move, sum of total delinquency, and tract median sale price; level-4, number of violent crimes, and black; level-5, homestead and old for grade.
- Node 6 had the highest levels of chronic absence (52.4%) which contained 6% of students who had child EVER IN DPW (public welfare) and moved.
- Node 9 had the lowest level of chronic absence (5.2%) which contained 17.5% of students who did not have child EVER IN DPW, had regular lunch, and lived in a tract with sum of total delinquency <=35041.3.
- Overall 78.6% of students were correctly classified.

Table 35. Importance table (Grade 7)

Independent Variable	Importance	Normalized Importance
within-year move	0.021	100.00%
Free/Reduced Lunch	0.014	65.70%
EVER IN DPW	0.013	63.20%
EVER IN JPO Children	0.012	56.80%
HomesteadFlag_m13	0.011	54.50%
Percent below poverty level	0.009	45.60%
oldforgrade	0.009	43.10%
Violent Crime (murder, rape, robbery, aggravated assault 2013	0.008	41.00%
Tract2013_MEDIAN_of_SalePrice	0.008	37.30%
EVER IN Mental Health - CCBHO and County	0.007	35.50%
PercentBlack	0.006	29.90%
black	0.006	27.70%
EVER IN Children, Youth, and Families Children	0.005	23.20%
Sum of total delinquency 2013	0.003	12.50%
number of parcels - structure built before 1914	0.002	10.10%
EVER IN Housing Authority of City of Pittsburgh	0.002	10.10%
EVER IN Hunger and Homeless	0.001	5.30%
EVER IN Family Support Center	0.001	4.30%
EVER IN Office of Mental Retardation and Developmental Disabilities	0.000	2.40%
EVER IN Drug & Alcohol - CCBHO and County	0.000	0.10%
EVER IN Early Intervention	0.000	0.00%

Table 36. Chronic absence by node (Grade 7).

Po-verty	free / reduced lunch	within year move	sum of total delin-quency	tract median sale price	violent crime	black	Home-stead	old for grade	Node	N	% Total Sample	% Chronic absence
Y		Y							6	105	6.00%	52.40%
N	Y	Y							8	53	3.00%	39.60%
N	N		<= 35041						9	308	17.50%	5.20%
N	N		> 35041						10	67	3.80%	16.40%
Y		N		>57125					12	132	7.50%	15.90%
N	Y				<=13.5				13	220	12.50%	12.30%
Y		N		<=57125		N			15	130	7.40%	40.80%
N	Y				>13.5		Y		17	125	7.10%	12.00%
N	Y				>13.5		N		18	236	13.40%	25.00%
Y		N		<=57125		Y		Y	19	95	5.40%	37.90%
Y		N		<=57125		Y		N	20	284	16.20%	23.60%

Figure 20. Chronic absence by node (Grade 7).
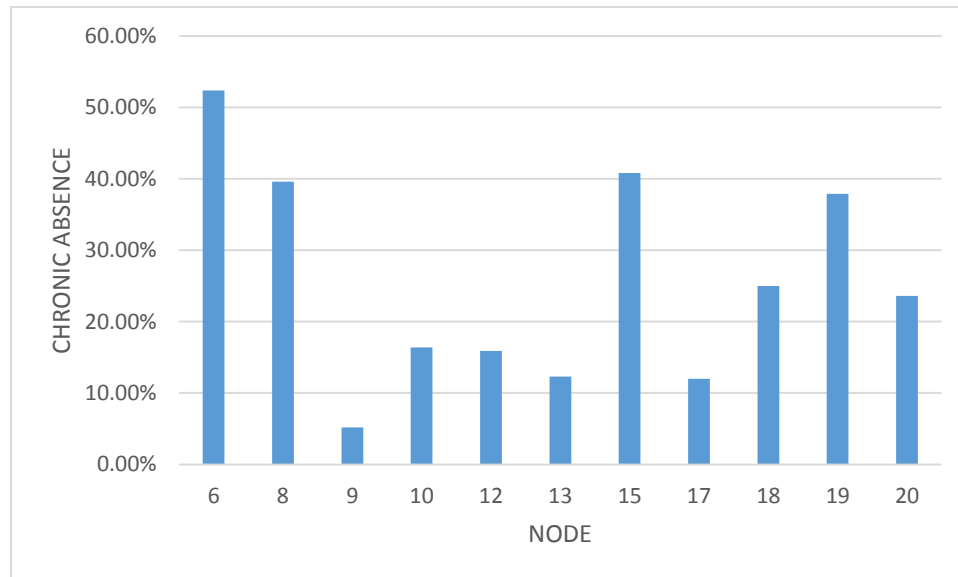
Figure 21. Tree Diagram (Grade 7).

ChronicAbsence

- 0.000
- 1.000

Node 0
Category	%	n
0.000	78.3	1374
1.000	21.7	381
Total	100.0	1755

EVER IN DPW
Improvement=0.013

0.0

Node 1
Category	%	n
0.000	85.2	860
1.000	14.8	149
Total	57.5	1009

Free/Reduced Lunch
Improvement=0.004

1.0

Node 2
Category	%	n
0.000	68.9	514
1.000	31.1	232
Total	42.5	746

within-year move
Improvement=0.006

free/reduced

Node 3
Category	%	n
0.000	80.8	512
1.000	19.2	122
Total	36.1	634

within-year move
Improvement=0.003

regular

Node 4
Category	%	n
0.000	92.8	348
1.000	7.2	27
Total	21.4	375

Sum of total delinquency_2013
Improvement=0.001

0.0

Node 5
Category	%	n
0.000	72.4	464
1.000	27.6	177
Total	36.5	641

Tract2013_MEDIAN_of_SalePrice
Improvement=0.003

1.0

Node 6
Category	%	n
0.000	47.6	50
1.000	52.4	55
Total	6.0	105

0.0

Node 7
Category	%	n
0.000	82.6	480
1.000	17.4	101
Total	33.1	581

Violent Crime (murder, rape, robbery, aggravated assault_2013
Improvement=0.001

1.0

Node 8
Category	%	n
0.000	60.4	32
1.000	39.6	21
Total	3.0	53

<= 35041.2750000000000

Node 9
Category	%	n
0.000	94.8	292
1.000	5.2	16
Total	17.5	308

> 35041.2750000000000

Node 10
Category	%	n
0.000	83.6	56
1.000	16.4	11
Total	3.8	67

<= 57125.0

Node 11
Category	%	n
0.000	69.4	353
1.000	30.6	156
Total	29.0	509

black
Improvement=0.002

> 57125.0

Node 12
Category	%	n
0.000	84.1	111
1.000	15.9	21
Total	7.5	132

<= 13.5

Node 13
Category	%	n
0.000	87.7	193
1.000	12.3	27
Total	12.5	220

> 13.5

Node 14
Category	%	n
0.000	79.5	287
1.000	20.5	74
Total	20.6	361

HomesteadFlag_m13
Improvement=0.002

0.0

Node 15
Category	%	n
0.000	59.2	77
1.000	40.8	53
Total	7.4	130

1.0

Node 16
Category	%	n
0.000	72.8	276
1.000	27.2	103
Total	21.6	379

oldforgrade
Improvement=0.002

1.0

Node 17
Category	%	n
0.000	88.0	110
1.000	12.0	15
Total	7.1	125

0.0

Node 18
Category	%	n
0.000	75.0	177
1.000	25.0	59
Total	13.4	236

yes

Node 19
Category	%	n
0.000	62.1	59
1.000	37.9	36
Total	5.4	95

no

Node 20
Category	%	n
0.000	76.4	217
1.000	23.6	67
Total	16.2	284

3.11 Grade 8

- N = 1874
- 4 predictors contributed to the classification of chronic absence. CART produced 5 child nodes.
- The predictors are: level-1, within-year move; level-2, free/reduced lunch and percent black; level-3, ever in CYF.
- Node 6 had the highest levels of chronic absence (65.8%). Node 6 contained 5.9% of students who moved and lived in a census tract with percent black >.094.
- Node 4 had the lowest level of chronic absence (7.9%) which contained 21.7% of students who did not move and had regular lunch.
- Overall 78.7% of students were correctly classified.

Table 37. Importance table (Grade 8)

Independent Variable	Importance	Normalized Importance
within-year move	0.021	100.00%
Free/Reduced Lunch	0.009	40.70%
EVER IN JPO Children	0.007	32.70%
PercentBlack	0.006	26.10%
Tract2013_MEDIAN_of_SalePrice	0.003	16.20%
EVER IN Children, Youth, and Families Children	0.003	14.70%
Percent below poverty level	0.002	9.70%
Violent Crime (murder, rape, robbery, aggravated assault 2013	0.001	5.10%
EVER IN DPW	0.001	3.20%
black	0.001	3.10%
number of parcels - structure built before 1914	0	2.10%
Sum of total delinquency 2013	0.000	1.20%
EVER IN Office of Mental Retardation and Developmental Disabilities	0.000	1.10%
HomesteadFlag_m13	0.000	0.60%

Table 38. Chronic absence by node (Grade 8).

within year move	free/reduced lunch	% black	CYF	Node	N	% Total Sample	% Chronic absence
N	N			4	407	21.70%	7.90%
Y		<=.094		5	86	4.60%	37.20%
Y		>.094		6	111	5.90%	65.80%
N	Y		N	7	1176	62.80%	22.00%
N	Y		Y	8	94	5.00%	40.40%

Figure 22. Chronic absence by node (Grade 8).

Figure 23. Tree Diagram (Grade 8).

ChronicAbsence

Legend:
- 0.000
- 1.000

Node 0

Category	%	n
0.000	76.8	1440
1.000	23.2	434
Total	100.0	1874

within-year move
Improvement=0.021

0.0

Node 1

Category	%	n
0.000	80.4	1348
1.000	19.6	329
Total	89.5	1677

Free/Reduced Lunch
Improvement=0.008

1.0

Node 2

Category	%	n
0.000	46.7	92
1.000	53.3	105
Total	10.5	197

PercentBlack
Improvement=0.004

free/reduced

Node 3

Category	%	n
0.000	76.6	973
1.000	23.4	297
Total	67.8	1270

EVER IN Children, Youth, and
Families Children
Improvement=0.003

regular

Node 4

Category	%	n
0.000	92.1	375
1.000	7.9	32
Total	21.7	407

<= 0.0935994665

Node 5

Category	%	n
0.000	62.8	54
1.000	37.2	32
Total	4.6	86

> 0.0935994665

Node 6

Category	%	n
0.000	34.2	38
1.000	65.8	73
Total	5.9	111

0.0

Node 7

Category	%	n
0.000	78.0	917
1.000	22.0	259
Total	62.8	1176

1.0

Node 8

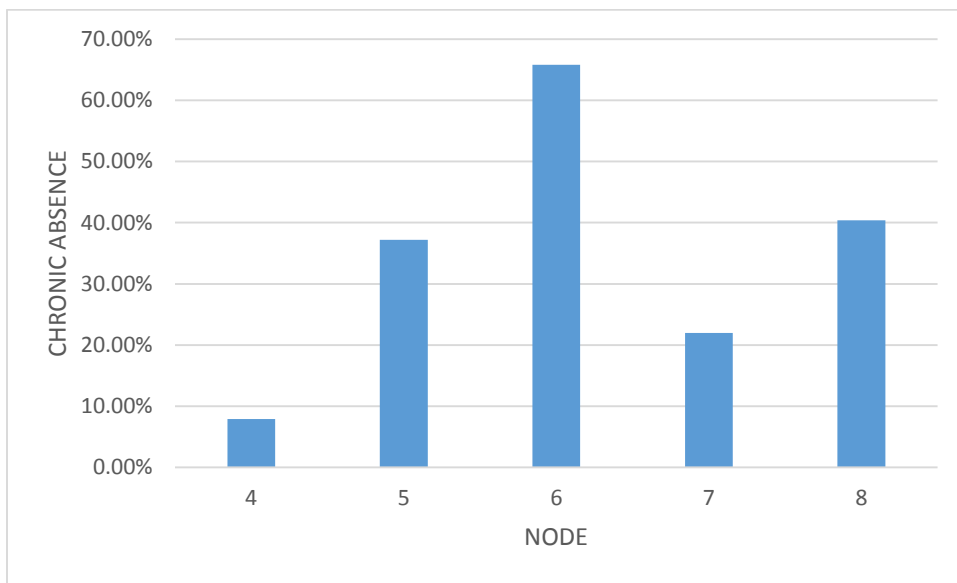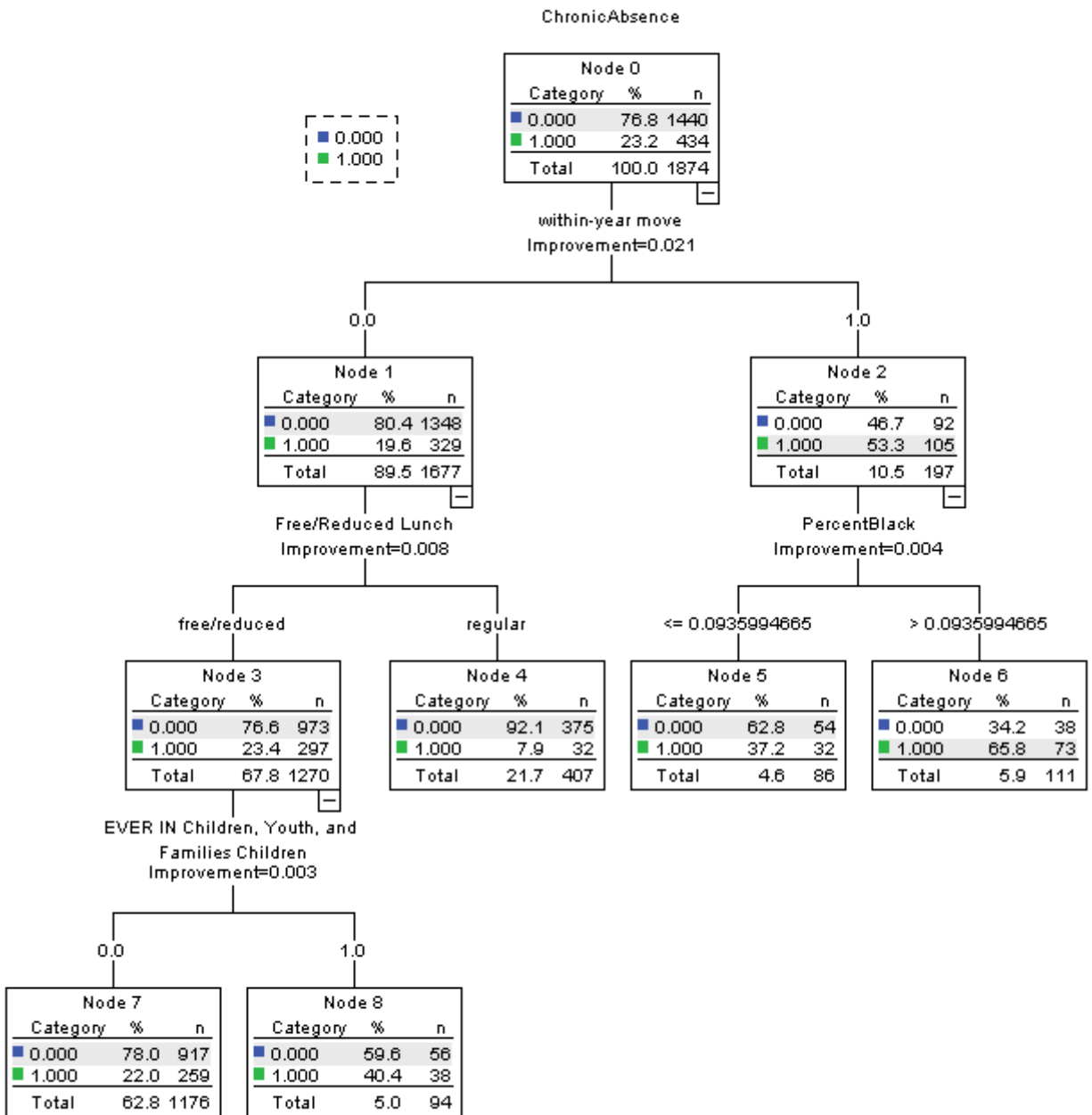| Category	%	n
0.000	59.6	56
1.000	40.4	38
Total	5.0	94

3.12 Grade 9

- N = 1877
- 8 predictors contributed to the classification of chronic absence. CART produced 13 child nodes.
- The predictors are: level-1, child EVER IN DPW; level-2, within year move and free/reduced lunch; level-3, old for grade; level-4, percent below poverty, number of violent crimes, black, and within-year move; level-5, number of parcels, percent below poverty.
- Node 22 had the highest levels of chronic absence (83.0%) which contained 2.8% of students who had child EVER IN DPW, did not move, were old for grade, lived in a tract with percent below poverty <=30.45 and number of parcels before 1914>395.5.
- Node 12 had the lowest level of chronic absence (9.2%) which contained 20.9% of students who did not have child EVER IN DPW, had regular lunch, and were not old for grade
- Overall 72% of students were correctly classified.

Table 39. Importance table (Grade 9)

Independent Variable	Importance	Normalized Importance
Free/Reduced Lunch	0.046	100.00%
oldforgrade	0.044	94.70%
within-year move	0.04	87.00%
EVER IN DPW	0.035	75.00%
black	0.032	68.90%
HomesteadFlag_m13	0.032	68.30%
EVER IN Mental Health - CCBHO and County	0.024	52.10%
EVER IN JPO Children	0.017	35.70%
Tract2013_MEDIAN_of_SalePrice	0.017	35.60%
Violent Crime (murder, rape, robbery, aggravated assault 2013	0.016	33.40%
PercentBlack	0.014	29.20%
EVER IN Housing Authority of City of Pittsburgh	0.013	27.30%
EVER IN Children, Youth, and Families Children	0.013	27.00%
EVER IN Hunger and Homeless	0.011	23.80%
Percent below poverty level	0.009	19.90%
Sum of total delinquency 2013	0.008	16.60%
EVER IN Family Support Center	0.006	13.50%
number of parcels - structure built before 1914	0.005	11.60%
EVER IN Drug & Alcohol - CCBHO and County	0.005	10.50%
Female	0.000	0.50%
EVER IN Office of Mental Retardation and Developmental Disabilities	0.000	0.40%
EVER IN Early Intervention	6.37E-05	0.10%

Table 40. Chronic absence by node (Grade 9).

EVER IN DPW	within year move	free / reduced lunch	old for grade	% below poverty	No. Violent Crime	Black	No. Parcels	Node	N	% Total Sample	% Chronic absence
Y	Y							4	187	10.00%	72.20%
N		N	Y					11	51	2.70%	37.30%
N		N	N					12	392	20.90%	9.20%
Y	N		Y	>30.45				14	73	3.90%	49.30%
Y	N		N		<=15.5			15	129	6.90%	53.50%
N		Y	Y			N		17	90	4.80%	30.00%
N		Y	Y			Y		18	88	4.70%	69.30%
N	N	Y	N					19	453	24.10%	27.80%
N	Y	Y	N					20	60	3.20%	51.70%
Y	N		Y	<=30.45			<=395.5	21	71	3.80%	56.30%
Y	N		Y	<=30.45			>395.5	22	53	2.80%	83.00%
Y	N		N	<=22.35	>15.5			23	57	3.00%	19.30%
Y	N		N	>22.35	>15.5			24	173	9.20%	35.80%

Figure 24. Chronic absence by node (Grade 9).
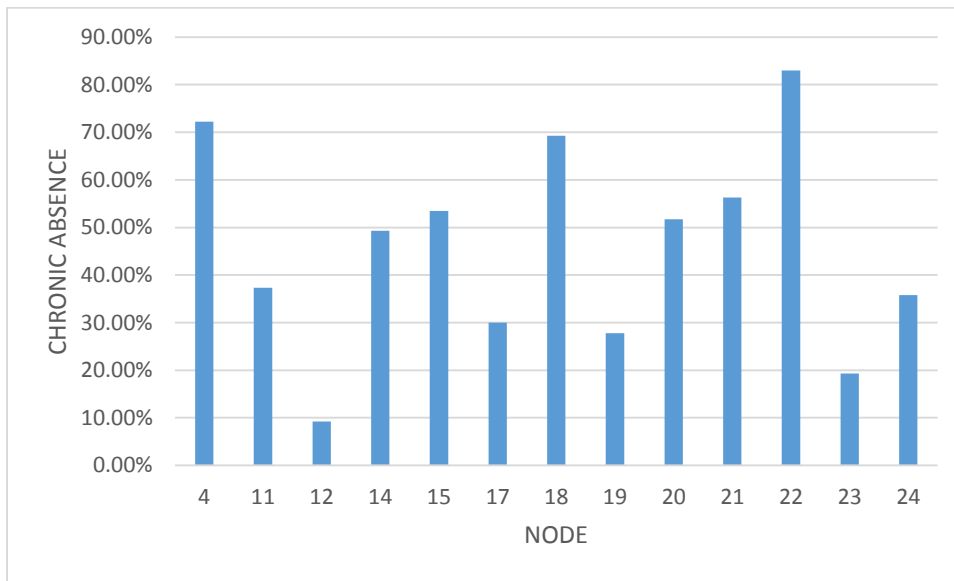
Figure 25. Tree Diagram (Grade 9).
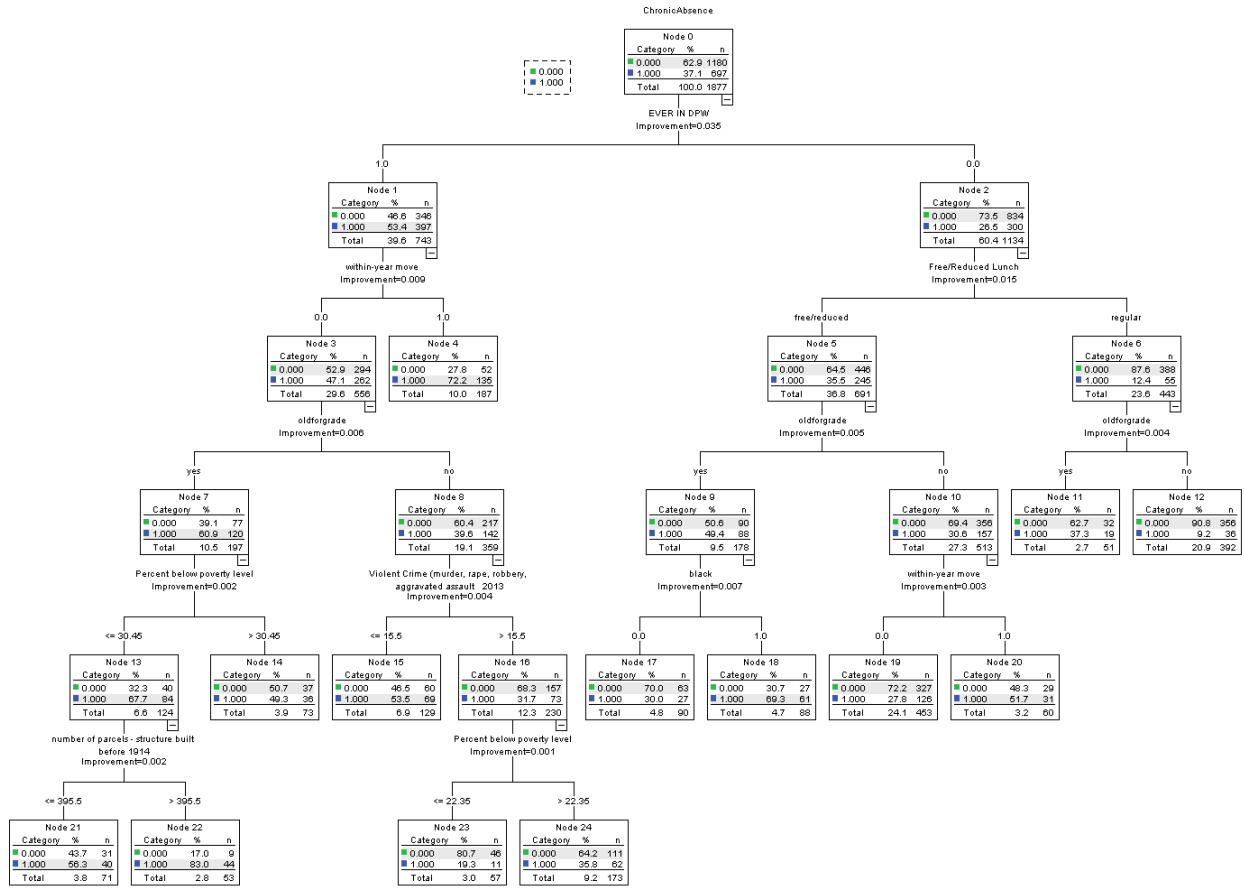
3.13 Grade 10

- N = 1765
- 6 predictors contributed to the classification of chronic absence. CART produced 7 child nodes.
- The predictors are: level-1, within-year move; level-2, free/reduced lunch; level-3, homestead and number of parcels; level-4, sum of total delinquency and ever in mental health.
- Node 1 had the highest levels of chronic absence (68.5%). Node 1 contained 13.7% of students who moved.
- Node 7 had the lowest level of chronic absence (10.8%) which contained 24.1% of students who did not move, had regular lunch, and lived in a neighborhood with number of parcels before 1914<=588.5.
- Overall 70.1% of students were correctly classified.

Table 41. Importance table (Grade 10)

Independent Variable	Importance	Normalized Importance
within-year move	0.035	100.00%
Free/Reduced Lunch	0.021	59.30%
EVER IN JPO Children	0.014	39.30%
Tract2013_MEDIAN_of_SalePrice	0.011	32.30%
Percent below poverty level	0.007	20.70%
PercentBlack	0.007	19.10%
HomesteadFlag_m13	0.005	15.50%
EVER IN Drug & Alcohol - CCBHO and County	0.005	15.00%
Sum of total delinquency 2013	0.005	14.30%
number of parcels - structure built before 1914	0.004	12.80%
Violent Crime (murder, rape, robbery, aggravated assault 2013	0.003	8.90%
EVER IN Mental Health - CCBHO and County	0.002	7.10%
EVER IN Office of Mental Retardation and Developmental Disabilities	0.000	1.20%
EVER IN Hunger and Homeless	0.000	0.90%
EVER IN Children, Youth, and Families Children	0.000	0.50%
EVER IN Early Intervention	0.000	0.50%

Table 42. Chronic absence by node (Grade 10).

within year move	free / reduced lunch	homestead	number of parcels	sum of delinquency	mental health	Node	N	% Total Sample	% Chronic absence
Y						1	241	13.70%	68.50%
N	N		<=588.5			7	425	24.10%	10.80%
N	N		>588.5			8	55	3.10%	36.40%
N	Y	Y		<=18723		9	66	3.70%	45.50%
N	Y	Y		>18723		10	283	16.00%	23.70%
N	Y	N			N	11	504	28.60%	38.70%
N	Y	N			Y	12	191	10.80%	51.30%

Figure 26. Chronic absence by node (Grade 10).

Figure 27. Tree Diagram (Grade 10).

ChronicAbsence

Legend:
- 0.000
- 1.000

Node 0
Category	%	n
0.000	64.8	1144
1.000	35.2	621
Total	100.0	1765

within-year move
Improvement=0.035

1.0 →

Node 1
Category	%	n
0.000	31.5	76
1.000	68.5	165
Total	13.7	241

0.0 →

Node 2
Category	%	n
0.000	70.1	1068
1.000	29.9	456
Total	86.3	1524

Free/Reduced Lunch
Improvement=0.021

free/reduced →

Node 3
Category	%	n
0.000	62.6	654
1.000	37.4	390
Total	59.2	1044

regular →

Node 4
Category	%	n
0.000	86.2	414
1.000	13.8	66
Total	27.2	480

HomesteadFlag_m13
Improvement=0.005

number of parcels - structure built before 1914
Improvement=0.004

1.0 →

Node 5
Category	%	n
0.000	72.2	252
1.000	27.8	97
Total	19.8	349

0.0 →

Node 6
Category	%	n
0.000	57.8	402
1.000	42.2	293
Total	39.4	695

<= 588.5 →

Node 7
Category	%	n
0.000	89.2	379
1.000	10.8	46
Total	24.1	425

> 588.5 →

Node 8
Category	%	n
0.000	63.6	35
1.000	36.4	20
Total	3.1	55

Sum of total delinquency 2013
Improvement=0.003

EVER IN Mental Health - CCBHO and County
Improvement=0.002

<= 18723.4900000000000 →

Node 9
Category	%	n
0.000	54.5	36
1.000	45.5	30
Total	3.7	66

> 18723.4900000000000 →

Node 10
Category	%	n
0.000	76.3	216
1.000	23.7	67
Total	16.0	283

0.0 →

Node 11
Category	%	n
0.000	61.3	309
1.000	38.7	195
Total	28.6	504

1.0 →

Node 12
Category	%	n
0.000	48.7	93
1.000	51.3	98
Total	10.8	191

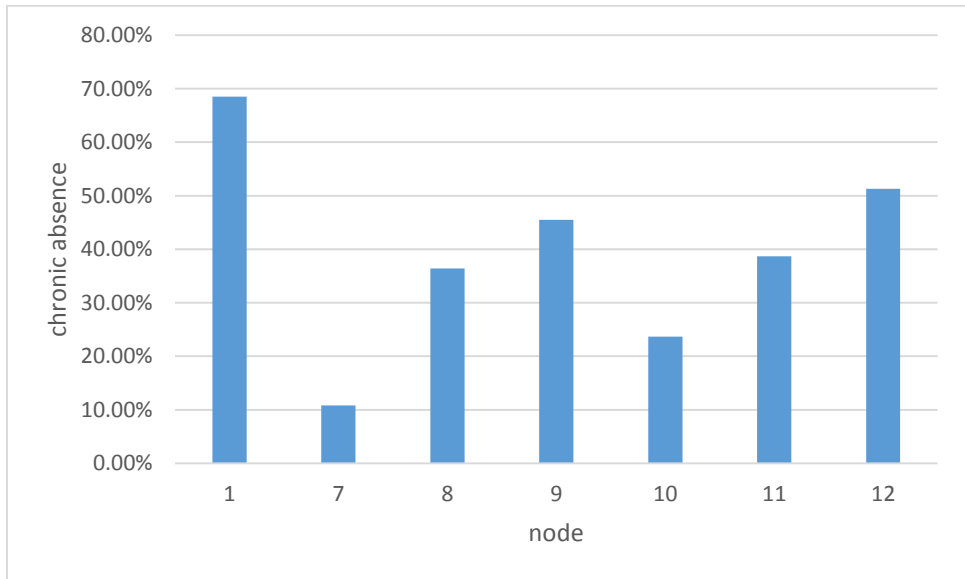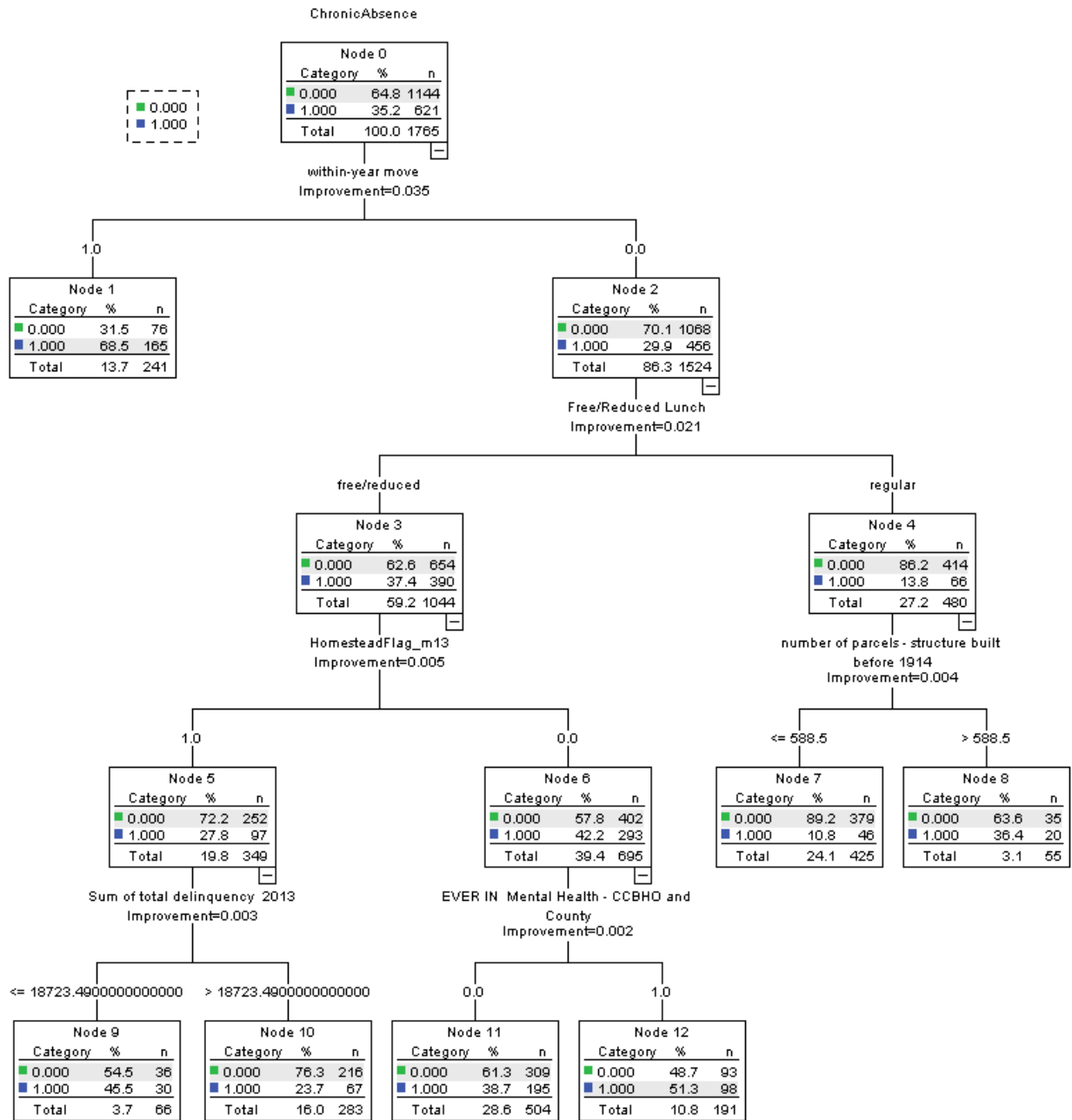## 3.14 Grade 11

- N = 1584
- 5 predictors contributed to the classification of chronic absence. CART produced 6 child nodes.
- The predictors are: level-1, free/reduced lunch; level-2, within-year move; level-3, sum of total delinquency and EVER IN DPW; level-4, old for grade.
- Node 5 had the highest levels of chronic absence (90.5%) which contained 4.7% of students who had free/reduced lunch, moved, and lived in a tract with sum of total delinquency <=26499.
- Node 2 had the lowest level of chronic absence (22.4%) which contained 29% of students who had regular lunch.
- Overall 66.5% of students were correctly classified.

Table 43. Importance table (Grade 11)

Independent Variable	Importance	Normalized Importance
Free/Reduced Lunch	0.041	100.00%
within-year move	0.019	47.90%
Tract2013_MEDIAN_of_SalePrice	0.019	47.90%
Percent below poverty level	0.019	47.70%
PercentBlack	0.018	44.10%
EVER IN JPO Children	0.015	36.70%
EVER IN Drug & Alcohol - CCBHO and County	0.011	25.90%
EVER IN DPW	0.008	19.90%
Violent Crime (murder, rape, robbery, aggravated assault 2013	0.004	10.30%
EVER IN Family Support Center	0.004	8.70%
oldforgrade	0.004	8.60%
EVER IN Mental Health - CCBHO and County	0.003	8.30%
number of parcels - structure built before 1914	0.003	8.10%
EVER IN Children, Youth, and Families Children	0.003	7.40%
Sum of total delinquency 2013	0.003	6.80%
EVER IN Housing Authority of City of Pittsburgh	0.002	6.10%
black	0.002	5.40%
EVER IN Hunger and Homeless	0.001	3.20%
EVER IN Office of Mental Retardation and Developmental Disabilities	0.000	0.30%
EVER IN Early Intervention	0.000	0.00%

Table 44. Chronic absence by node (Grade 11).

free / reduced lunch	within year move	sum of total delinquency	EVER IN DPW	old for grade	Node	N	% Total Sample	% Chronic absence
N					2	459	29.00%	22.40%
Y	Y	<=26499			5	74	4.70%	90.50%
Y	Y	>26499			6	118	7.40%	72.90%
Y	N		N		7	528	33.30%	41.30%
Y	N		Y	Y	9	112	7.10%	71.40%
Y	N		Y	N	10	293	18.50%	52.90%

Figure 28. Chronic absence by node (Grade 11).

Figure 29. Tree Diagram (Grade 11).

ChronicAbsence

Node 0
Category	%	n
■ 0.000	55.2	875
■ 1.000	44.8	709
Total	100.0	1584

Legend:
■ 0.000
■ 1.000

Free/Reduced Lunch
Improvement=0.041

free/reduced

Node 1
Category	%	n
■ 0.000	46.1	519
■ 1.000	53.9	606
Total	71.0	1125

regular

Node 2
Category	%	n
■ 0.000	77.6	356
■ 1.000	22.4	103
Total	29.0	459

within-year move
Improvement=0.019

1.0

Node 3
Category	%	n
■ 0.000	20.3	39
■ 1.000	79.7	153
Total	12.1	192

0.0

Node 4
Category	%	n
■ 0.000	51.4	480
■ 1.000	48.6	453
Total	58.9	933

Sum of total delinquency 2013
Improvement=0.002

<= 26499.1450000000000

Node 5
Category	%	n
■ 0.000	9.5	7
■ 1.000	90.5	67
Total	4.7	74

> 26499.1450000000000

Node 6
Category	%	n
■ 0.000	27.1	32
■ 1.000	72.9	86
Total	7.4	118

EVER IN DPW
Improvement=0.008

0.0

Node 7
Category	%	n
■ 0.000	58.7	310
■ 1.000	41.3	218
Total	33.3	528

1.0

Node 8
Category	%	n
■ 0.000	42.0	170
■ 1.000	58.0	235
Total	25.6	405

oldforgrade
Improvement=0.004

yes

Node 9
Category	%	n
■ 0.000	28.6	32
■ 1.000	71.4	80
Total	7.1	112

no

Node 10
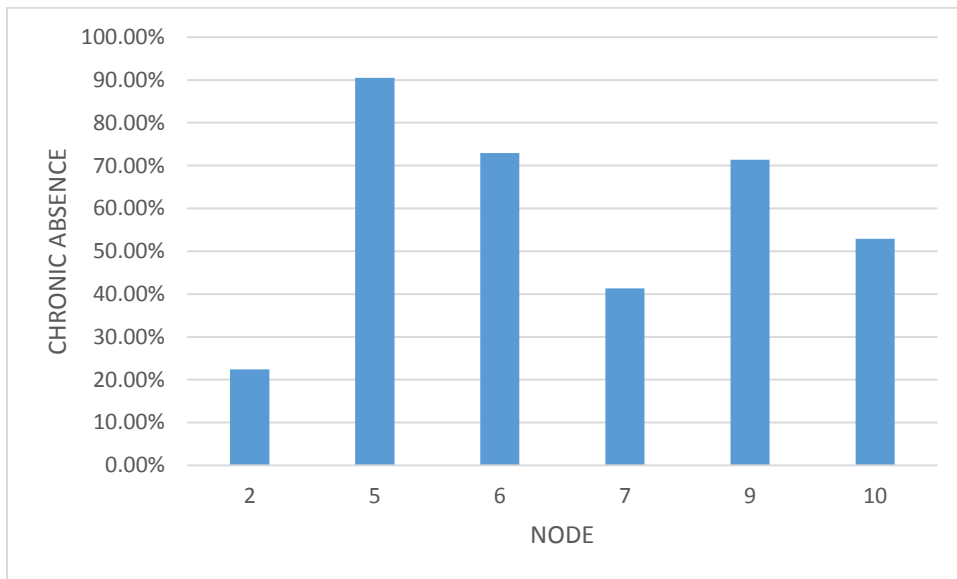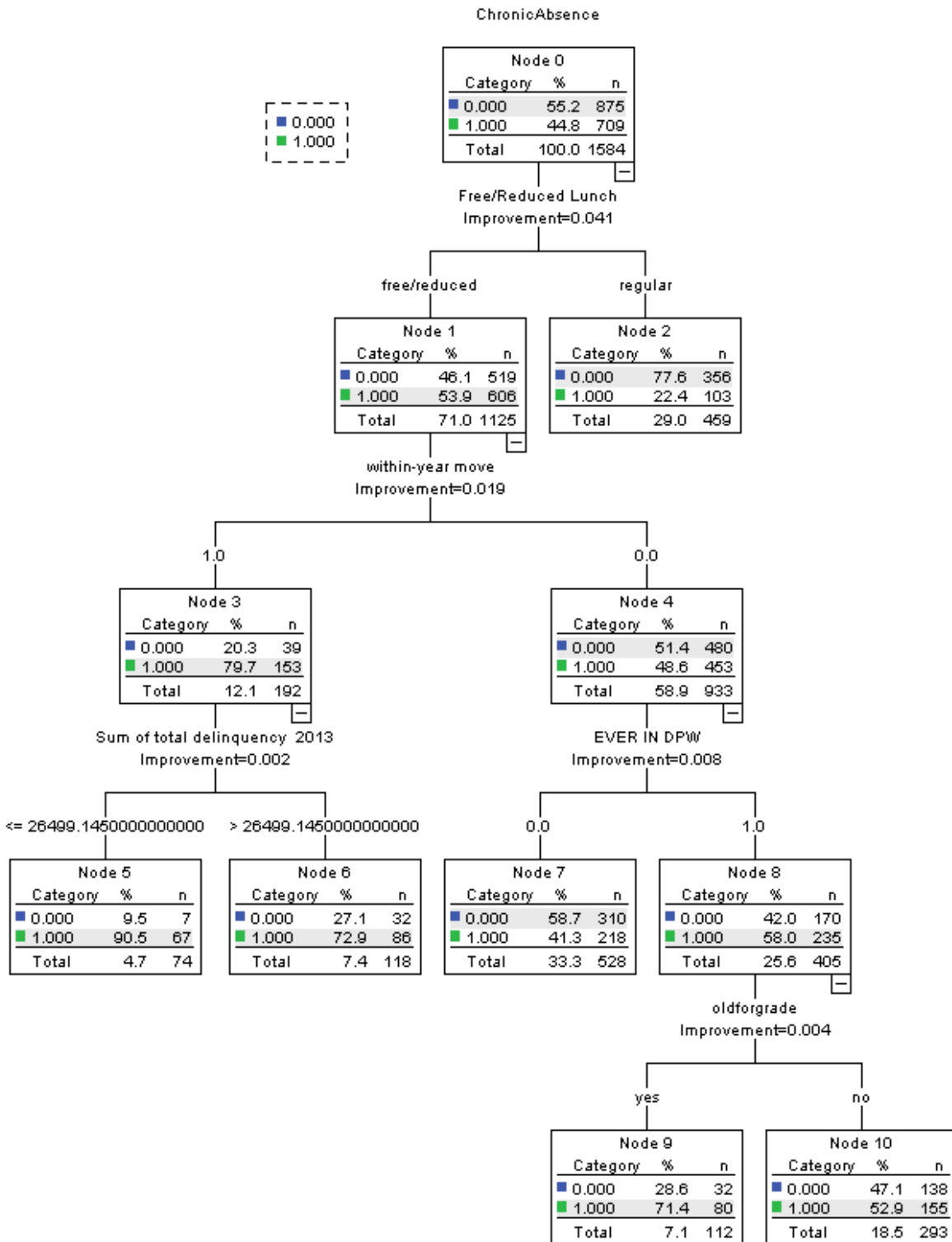| Category	%	n
■ 0.000	47.1	138
■ 1.000	52.9	155
Total	18.5	293

3.15 Grade 12

- N = 1592
- 5 predictors contributed to the classification of chronic absence. CART produced 6 child nodes.
- The predictors are: level-1, student EVER IN DPW (public welfare); level-2, within year move and tract median sale price; level-3, homestead; level-4, percent black.
- Node 4 had the highest levels of chronic absence (91.2%). Node 12 contained 6.4% of students who had EVER IN DPW (public welfare) and moved.
- Node 6 had the lowest level of chronic absence (27.6%) which contained 18% of students who did not have EVER IN DPW, and lived in tract with median sale price >116250.
- Overall 64% of students were correctly classified.

Table 45. Importance table (Grade 12)

Independent Variable	Importance	Normalized Importance
EVER IN DPW	0.031	100.00%
Tract2013_MEDIAN_of_SalePrice	0.012	40.00%
EVER IN Housing Authority of City of Pittsburgh	0.012	39.30%
within-year move	0.012	37.30%
Percent below poverty level	0.011	33.80%
EVER IN Mental Health - CCBHO and County	0.01	33.30%
PercentBlack	0.009	30.50%
EVER IN JPO Children	0.008	25.50%
EVER IN Hunger and Homeless	0.006	18.70%
HomesteadFlag_m13	0.005	16.00%
EVER IN Children, Youth, and Families Children	0.005	15.60%
Violent Crime (murder, rape, robbery, aggravated assault 2013	0.004	11.70%
black	0.003	9.30%
EVER IN Office of Mental Retardation and Developmental Disabilities	0.003	9.20%
Sum of total delinquency 2013	0.003	8.80%
Free/Reduced Lunch	0.002	7.60%
Female	0.002	7.00%
EVER IN Family Support Center	0.001	4.10%
oldforgrade	0.001	3.70%
EVER IN Drug & Alcohol - CCBHO and County	0.001	3.30%
EVER IN Early Intervention	0.001	2.20%
number of parcels - structure built before 1914		1.00E-03

Table 46. Chronic absence by node (Grade 12).

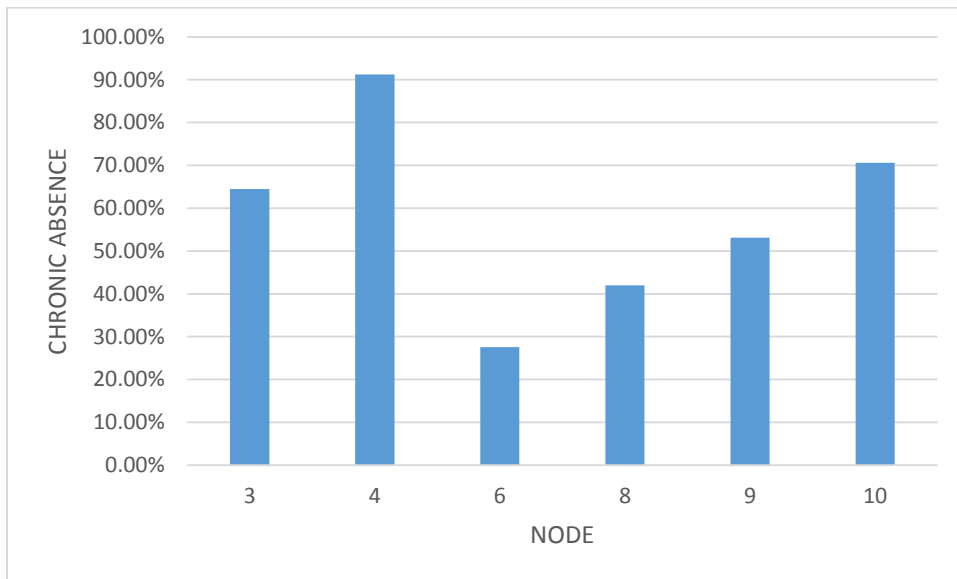| EVER IN DPW	within year move	tract median sale price	homestead	% black	Node	N	% Total Sample	% Chronic absence
Y	N				3	420	26.40%	64.50%
Y	Y				4	102	6.40%	91.20%
N		>116250			6	286	18.00%	27.60%
N		<116250	Y		8	405	25.40%	42.00%
N		<116250	N	<=.137	9	311	19.50%	53.10%
N		<116250	N	>.137	10	68	4.30%	70.60%

Figure 30. Chronic absence by node (Grade 12).

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Figure 31. Tree Diagram (Grade 12).

ChronicAbsence

Node 0

Category	%	n
0.000	48.1	766
1.000	51.9	826
Total	100.0	1592

0.000
1.000

EVER IN DPW
Improvement=0.031

1.0

Node 1

Category	%	n
0.000	30.3	158
1.000	69.7	364
Total	32.8	522

0.0

Node 2

Category	%	n
0.000	56.8	608
1.000	43.2	462
Total	67.2	1070

within-year move
Improvement=0.007

0.0

Node 3

Category	%	n
0.000	35.5	149
1.000	64.5	271
Total	26.4	420

1.0

Node 4

Category	%	n
0.000	8.8	9
1.000	91.2	93
Total	6.4	102

Tract2013_MEDIAN_of_SalePrice
Improvement=0.012

<= 116250.0

Node 5

Category	%	n
0.000	51.1	401
1.000	48.9	383
Total	49.2	784

> 116250.0

Node 6

Category	%	n
0.000	72.4	207
1.000	27.6	79
Total	18.0	286

HomesteadFlag_m13
Improvement=0.005

0.0

Node 7

Category	%	n
0.000	43.8	166
1.000	56.2	213
Total	23.8	379

1.0

Node 8

Category	%	n
0.000	58.0	235
1.000	42.0	170
Total	25.4	405

PercentBlack
Improvement=0.002

<= 0.1372395485

Node 9

Category	%	n
0.000	46.9	146
1.000	53.1	165
Total	19.5	311

> 0.1372395485

Node 10

Category	%	n
0.000	29.4	20
1.000	70.6	48
Total	4.3	68