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November 23, 2014

John Foote
District Attorney's Office
Clackamas County

Dear Mr. Foote:

Earlier this year, the Center for Public Service (CPS) in the Hatfield School of Government, Portland State University and your office entered into an Intergovernmental Agreement to examine whether there are statistical correlations among indicators of certain juvenile justice interventions and public safety outcomes in the State of Oregon.

Upon receiving this request, Associate Professor Masami Nishishiba, PhD, and Stephanie Hawke, a doctoral student, completed the attached analysis using a data set extracted from the Oregon Youth Authority Juvenile Justice Information System (JJIS) and the federal Office of Juvenile Justice and Delinquency Prevention (OJJDP). The analysis focused on examining the relationship between certain juvenile justice system intervention indicators such as petition filings and referral dismissals, to public safety outcome indicators such as arrest and recidivism rates. The analysis primarily focused on county-level data within the State of Oregon; to our knowledge, no similar correlational analysis of this nature seems to exist.

The result of the analysis indicates a moderate negative correlation between juvenile petition rates and juvenile arrest rates, as well as a moderate positive correlation between referrals closed at in-take and juvenile arrest rates, which may well be a meaningful point of departure for further conversations. We believe the results of this small-scale statistical analysis are interesting and could be useful in the ongoing debate about juvenile justice policies.

Please let us know if you have any additional questions. We hope that we can continue to be of assistance.

Sincerely,



Phil Keisling
Director, Center for Public Service
Mark O. Hatfield School of Government
Portland State University

Project Summary

In July 2014, the Center for Public Service (CPS), a unit of the Mark O. Hatfield School of Government, at Portland State University, entered into an Intergovernmental Agreement with the Clackamas County District Attorney's Office to conduct a preliminary analysis of data related to Oregon's juvenile justice system. The original data file used was compiled by the Clackamas County District Attorney's Office (DA's office), extracting relevant information from the Oregon Office of Juvenile Justice and Delinquency Prevention (OJJDP).

The CPS data analysis team was consisted of Dr. Masami Nishishiba, an Associate Professor in the Public Administration Division, and Stephanie Hawke, a doctoral candidate in the school's Public Affairs and Policy (PAP) program. The statistical analysis focused on identifying possible correlations between indicators of juvenile justice interventions and public safety outcomes within Oregon counties. The main indicators used were the following:

Juvenile justice interventions: Key indicators used in this analysis consisted of the following variables: non-intervention rates (percentage of referrals closed at intake); petitions filed; detention rates for new criminal offenses, detention usage pre-adjudication; and detention usage post-adjudication.

Public safety outcomes: Key indicators used in this analysis consisted of the following variables: total juvenile arrest rates; drug index crime arrest rates; property crime arrest rates; and one-year recidivism rates.

The initial analysis focused on the state of Oregon. County data was collected for years 2010, 2011, and 2013 (depending on data availability). One part of our analysis looked at all Oregon counties for which there was data; a second part analyzed data from a subset of the 19 largest counties in Oregon.

Correlational analyses were conducted to determine the strength and direction of the relationships between juvenile justice indicators and public policy outcome indicators.

Scatterplots of the correlations were assessed for outlying counties; when outliers were identified, they were excluded from the analysis.

Results for the Oregon jurisdictions indicated a handful of significant correlations. Generally, across counties and variables, higher levels of intervention-- e.g. the percent of petitions filed -- correlated significantly with higher levels of public safety outcomes. Higher levels of non-intervention—i.e. more referrals closed at intake –correlated significantly with lower levels of public safety outcomes. That is, when more actions were taken, there was a correlation with decreased arrest rates in the jurisdictions included in the analysis.

One of the public safety outcome indicators, one-year recidivism rates, did not show significant correlations with the juvenile justice intervention indicators, which departed from the pattern displayed by other intervention indicators.

Table 1 below¹ shows the specific correlation coefficients between the juvenile justice indicators and public safety outcome indicators included in the analysis.

Table 1

	Non- Intervention (Referrals closed at intake	Petitions filed	Detention for new offenses	Detention usage Pre- adjudication	Detention usage Post- adjudication
Total Arrest Rate	.439*	-.676**	.256	-.232	.504** (excluding outlier)
Property Crime Index Arrest Rate	.483**	-.649**	.030	-.317	.353† (excluding outliers)
Drug Crime Arrest Rate	.468**	-.595**	.102	-.217	.452* (excluding outliers)
One-year Recidivism Rate	.153	.082	.298	-.065	.387* (excluding outliers)

† Approaching significance at the .05 level

* Significant at the .05 level.

** Significant at the .01 level.

¹ Note that Oregon measures recidivism in one-year increments. This differs from almost all other states, which typically measure recidivism over a three-year period.

Within both the academic and practitioner community there is an ongoing discussion related to the relationship between certain juvenile justice interventions and desired public safety outcomes. Some argue that lower rates of juvenile justice interventions tend to correspond with lower arrest and recidivism rates, and thus suggest higher level of public safety. Some argue that the juvenile justice interventions are not systematically correlated with the public safety outcomes.

The research team hopes that this analysis will constructively inform this on-going discussion. It involves, however, only a small subset of data from selected counties, and by no means should be portrayed as a definitive portrayal of all relevant relationships between juvenile justice interventions and public safety outcomes. The analysis performed only involved direct bivariate correlation among the key indicators, and did not take into consideration other factors that might substantively affect the relationships between juvenile justice indicators and public safety outcomes.

Correlational Analysis of Oregon Juvenile Justice Data

Report

Prepared by:

The Center for Public Service
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Portland State University

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Stephanie Hawke, Doctoral student
Phil Keisling, Director, The Center for Public Service

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1. Data Description

Data file was provided by Clackamas DA's Office in Excel format. Some data points were calculated given sources provided by Clackamas DA's Office.

The data file contained information on the following for Oregon counties:

- 2011 Juvenile Arrest Rate per 100,000 persons age 10-17
 - Total arrest
 - Violent index arrest
 - Property crime index arrest
 - Drug crime arrest
- Juvenile recidivism rate reported in 2011 (1 year recidivism rate)
- Juvenile referrals
 - Percentage of referrals closed at intake
 - Percentage of referrals with formal or informal actions taken
- Juvenile petition filed in 2010
- Juvenile detention
 - 2009 detention rate for new criminal offenses
 - Detention usage pre-adjudication (admissions per 100 juveniles in community)
 - Detention usage post-adjudication (admissions per 100 juveniles in community)

Data footnote included the following explanations of the data.

1. Arrest Rates:

1-Year: In order to be included at least 90% of the population in that jurisdiction must covered by a law enforcement agency that reports data.

Source: Arrest Rates: OJJDP.gov. Easy Access to FBI Arrest Statistics. 2011. July 2014. <http://www.ojjdp.gov/ojstatbb/ezaucr/asp/ucr_display.asp>

2. Recidivism Rates:

This is a 12-month referral to referral recidivism rate, which significantly undercounts actual juvenile recidivism for the following reasons:

1. Not all juvenile crime results in an arrest.
2. Not all juvenile arrests result in a referral to juvenile departments.
3. Referral rates do not track past 18-years in Oregon.
4. Referral rates do not record out of state juvenile criminal conduct

Currently the Oregon juvenile directors do not track recidivism data for subcategories of referrals, such as these. However, the data is available in their data system (JJIS) can be produced if directed to do so. Tracking these rates will help local juvenile justice officials track which practices are most successful and also whether or not any risk assessment tools being used to place juveniles in the different categories are accurate or effective, both of which are essential to good juvenile justice policy.

3. 1-year Recidivism Rate:

It is impossible to determine the national juvenile 1-year recidivism rate because states use different measurements. However, only Oregon uses a 1-year measurement. All other states measure a minimum of 2-years.

4. 3-Year Recidivism Rates:

Does not include any referrals after age 18 which if included, are calculated to increase the rate by 8% and it does not include out of state offenses, which if included, would add up to 11%.

(NOTE: The data file only contained 3-year recidivism rate for State-wide. No county data nor National data were included)

5. Detention:

This rate reflects the percentage of offenders referred to juvenile departments who were detained for any period prior to the adjudication of their case.

Detention rates. Detention rates are a measure of how much juvenile systems in each county utilize detention. The figures have been calculated from Oregon JJIS, and the results shown represent the number of juvenile detention admissions per 100 juveniles in the community. They are divided into two sections, pre-adjudication and post-adjudication. The figures do not differentiate between detention for new crimes, probation violations, or violations of conditional release, since JJIS does not separate those categories in its annual detention report. Measure 11 detentions have been excluded since they are outside of the juvenile system. Detention for warrants has also been excluded since local authorities may not have control over many of those detainees.

2. Analysis

In this analysis we assumed **arrest rates** and **recidivism rates** are the indicators of Juvenile Justice System *outcome*; **referrals, petition filed and detention rates** are the indicators of the system's *intervention*. We, therefore, focused on examining bivariate correlations between each one of the outcome indicators and the intervention indicators.

The analyses were conducted in three waves. The first analyzed the county data for Oregon only. The second analyzed the provided data for states only. Eighteen states were included in the study. The third wave of analysis focused on the provided county-level data from 18 states.

In conducting the bivariate correlation analysis, when the values were missing for a given county in the original data file, the county was excluded from the analysis. When the data value was zero (0) in the original data file, the county was included in the analysis.

Table 2.1: Indicators

Outcome indicator	Intervention indicators
Total arrest rate per 100,000 persons age 10-17 (2011)	Percentage of referrals closed at intake
Drug index arrest rate per 100,000 persons age 10-17 (2011)	Percentage of referrals with formal or informal actions taken
Property arrest rate per 100,000 persons age 10-17 (2011)	Petitions filed (2010)
One year recidivism rate (2011)	2010 detention rate for new criminal offenses Detention usage pre-adjudication (admissions per 100 juveniles in community) Detention usage post-adjudication (admissions per 100 juveniles in community)

3. Results

3.1 Correlation between Total Arrest Rate and Referrals/Petition Filed/Detention by County in Oregon

Correlations between total arrest rate and the intervention indicators (referrals, petition filed, and detention rate) were examined, both within all Oregon counties and within the subset of large Oregon counties.

Inspection of the scatterplot indicated the existence of an outlier county in the correlations between total arrest rate and detention usage post-adjudication. Excluding the outlier counties changed the size of the correlation coefficient substantially.

Correlation coefficients are shown in table 3.1.

Table 3.1: Intervention indicators' correlations with Total Arrest Rate

	Percent of referrals closed at intake	Percent of referrals with formal / informal action taken	Percent of petitions filed	Percent of detention for new offenses	Detention usage Pre-adjudication	Detention usage Post-adjudication
All OR counties	.439*	-.438*	-.676**	.256	-.232	.074
OR Counties excluding outlier						.504** (w/o Klamath)
Large OR counties	.213	-.214	-.684**	-.153	-.464†	-.124
Large OR counties Excluding outlier						.305 (w/o Klamath)

*significant at the .05 level

** significant at the .01 level

† approaching significance

The result indicates that there is a negative relationship between total arrest rate and (1) the percentage of referrals that result in a formal or informal action being taken, and (2) the percentage of petitions filed.

In other words:

- When considering all Oregon counties, counties with a higher percentage of referrals resulting in action tend to have a lower total arrest rate.
- When considering all Oregon counties, counties with a higher percentage of petitions filed tend to have a lower total arrest rate.

The results also indicate that there is a strong positive relationship between total arrest rate and (1) percentage of referrals closed at intake. This relationship holds true for all Oregon counties, as well as the large Oregon counties subset.

In other words:

- Counties with a higher percentage of referrals closed at intake tend to have a higher total arrest rate.

When the outlier county (Klamath) was excluded from analysis, there was an additional significant finding. Total arrest rate correlates significantly and positively with (1) detention usage post-adjudication. This relationship holds true only when considering all Oregon counties, regardless of size.

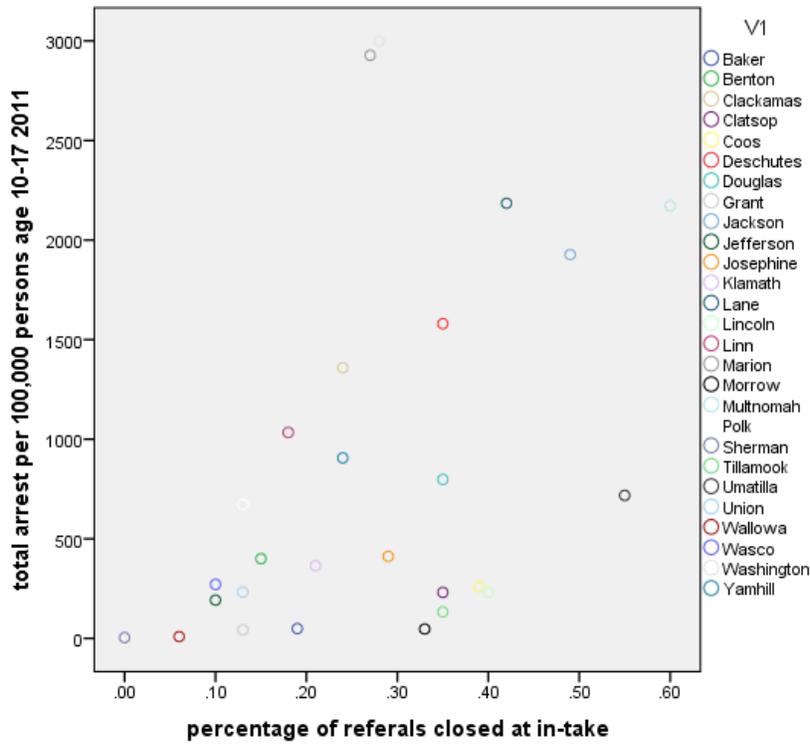
In other words:

- Counties with a higher detention usage post-adjudication tend to have a higher total arrest rate.

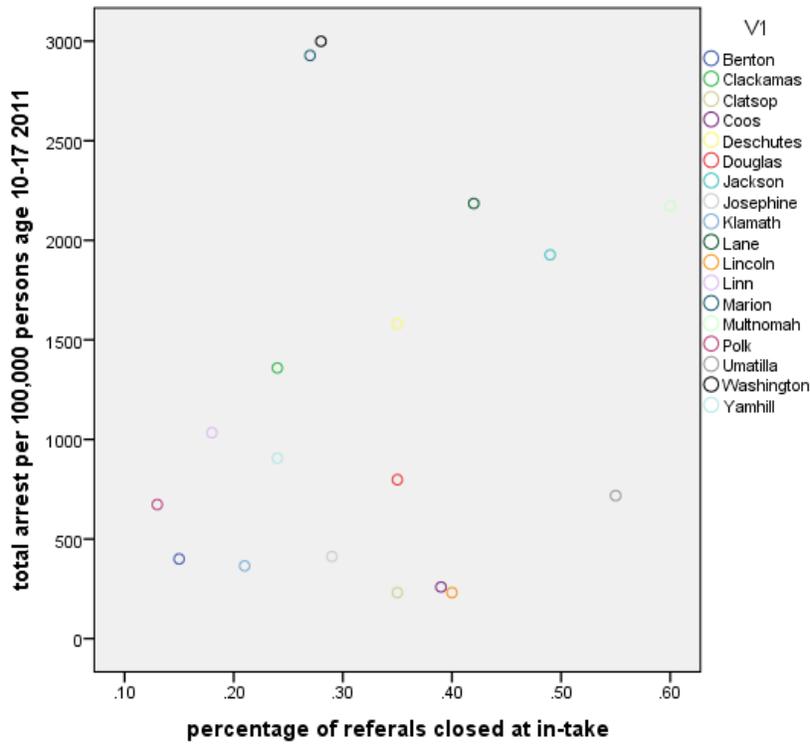
The relationship between total arrest rate and (1) detention usage pre-adjudication is negative and approaching significance only when considering large Oregon counties.

In other words:

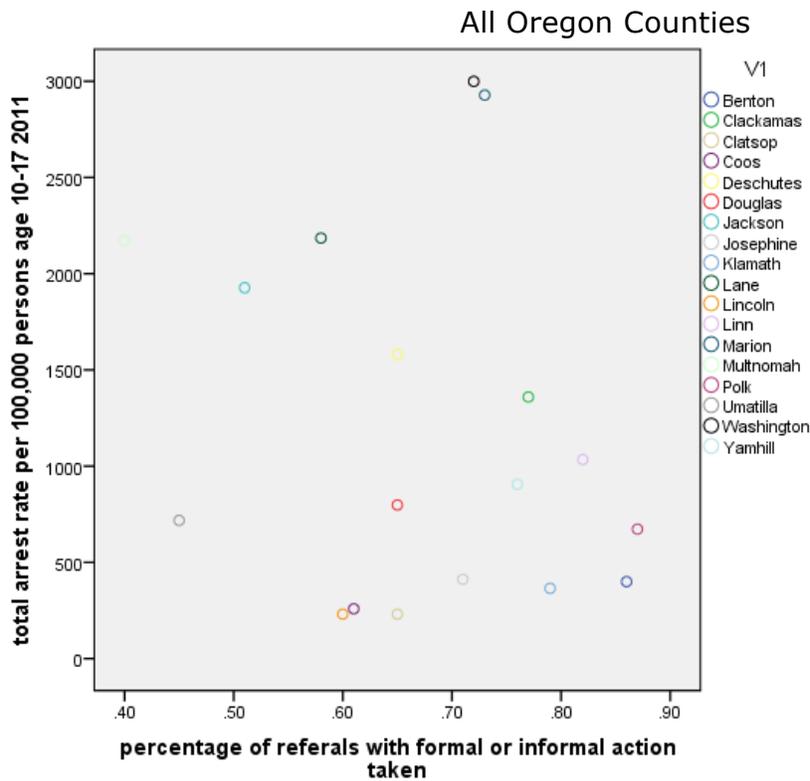
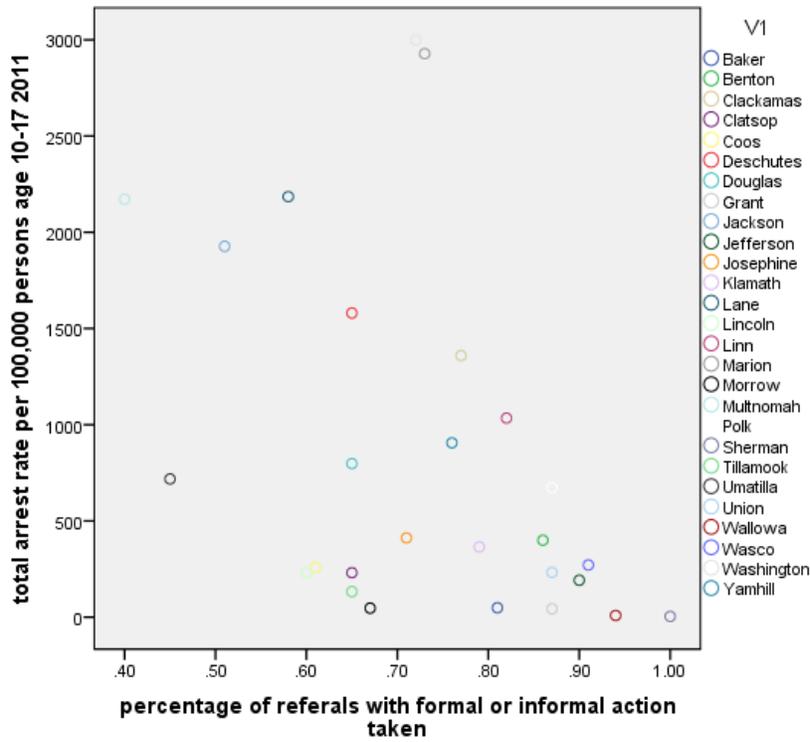
- There is a weak relationship implying that in large Oregon counties, counties with higher detention usage pre-adjudication have lower total arrest rates.



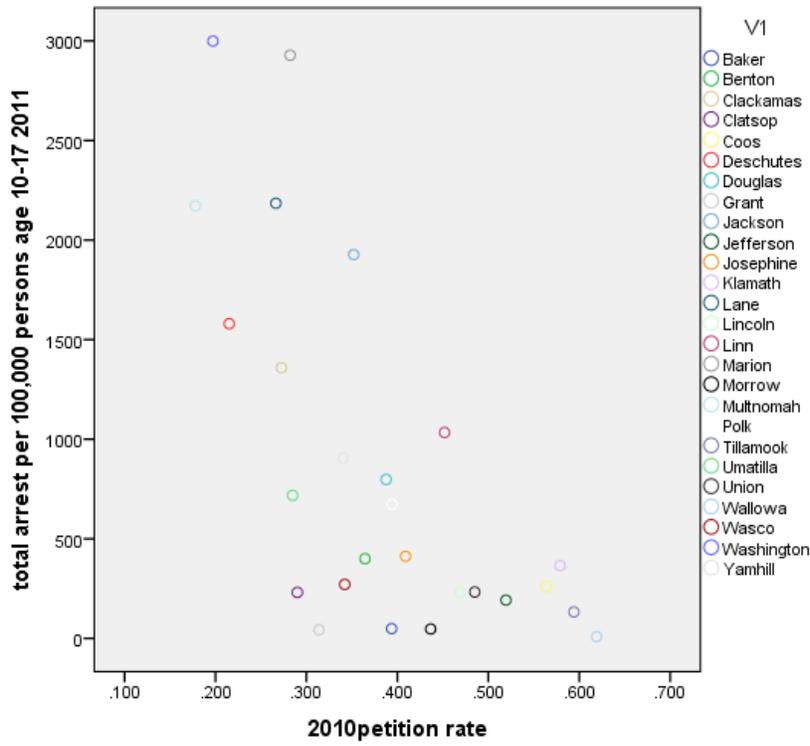
All Oregon counties



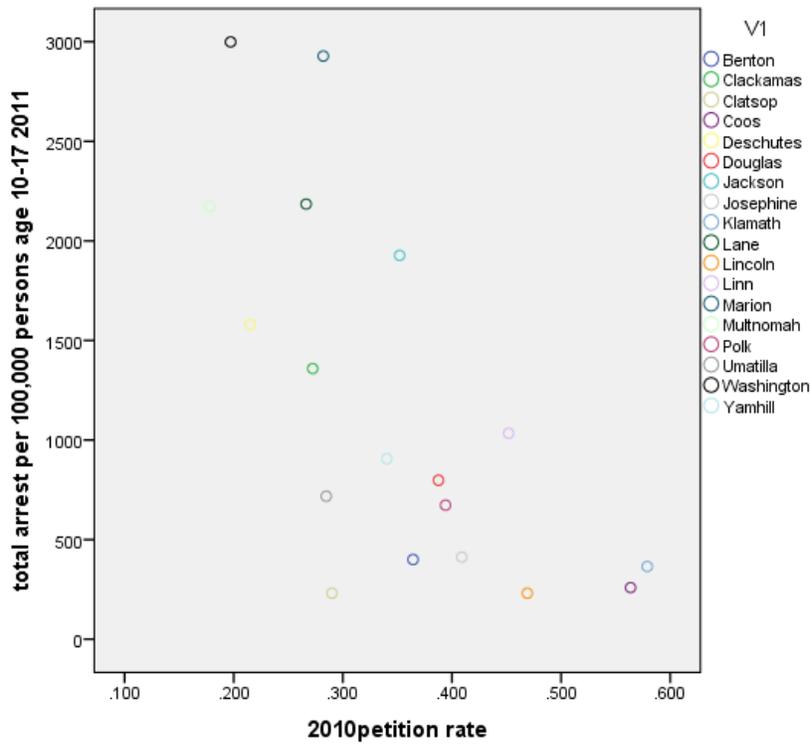
Large OR counties



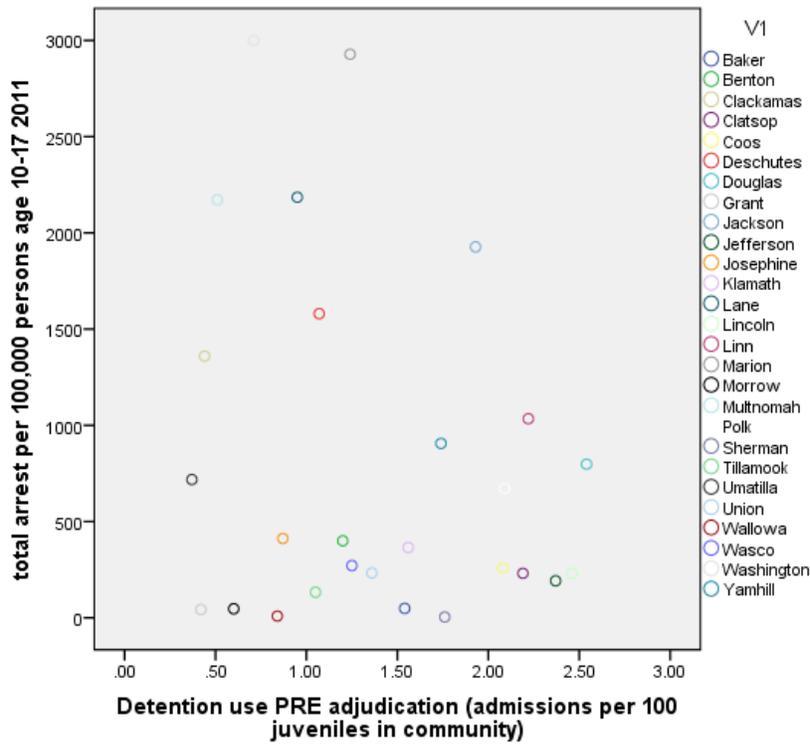
Large Oregon counties



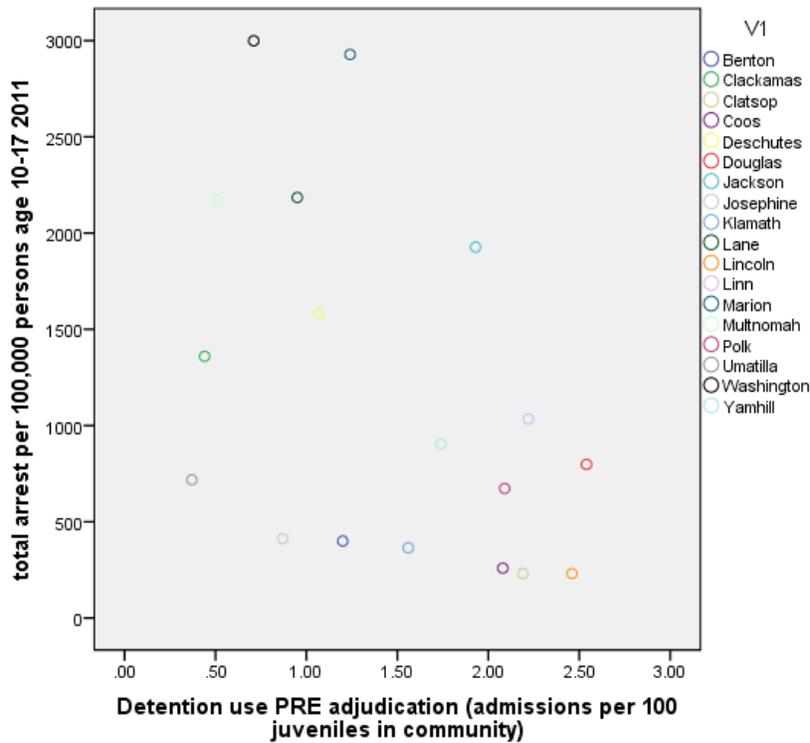
All Oregon Counties



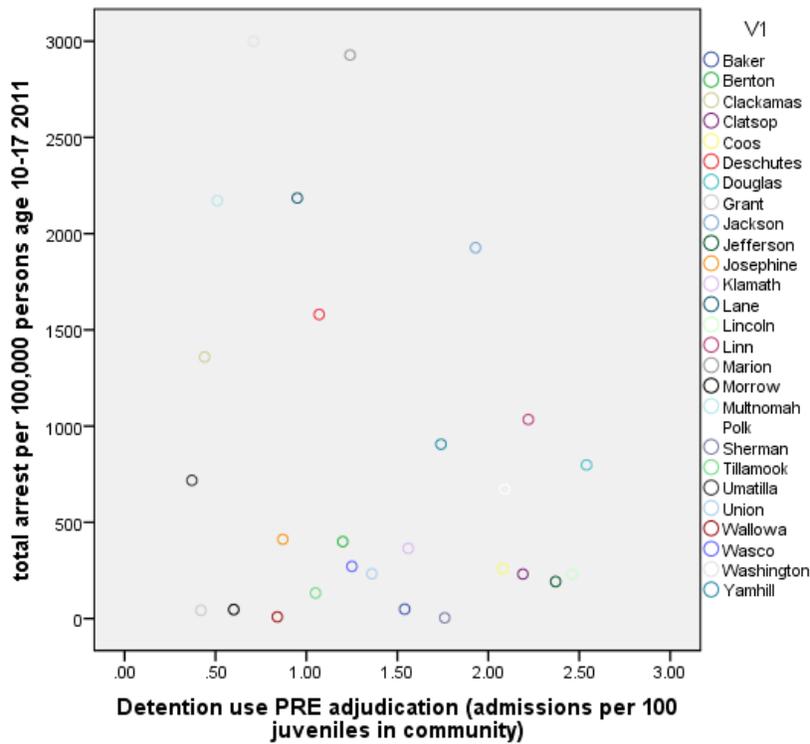
Large Oregon Counties



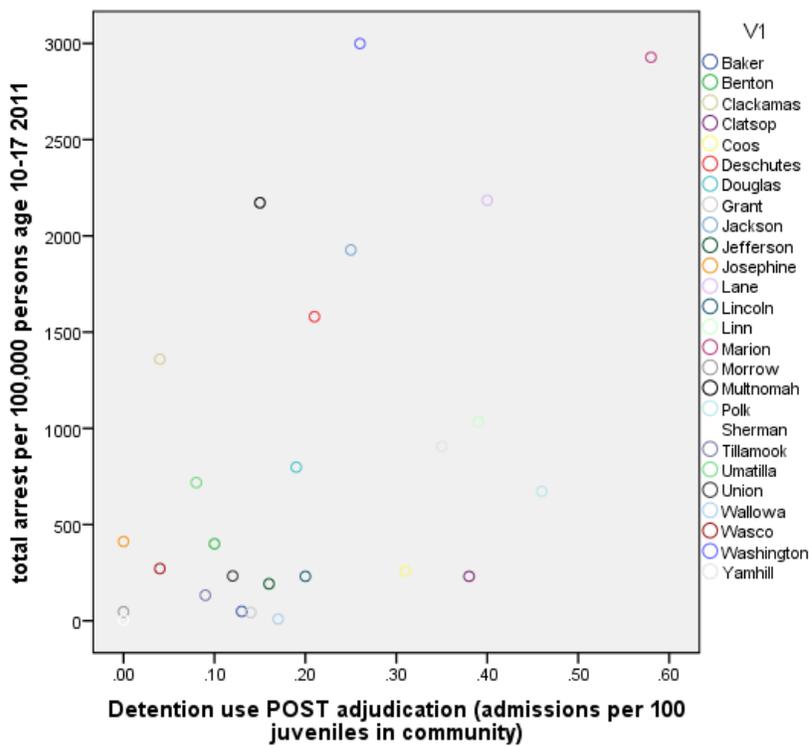
All Oregon Counties



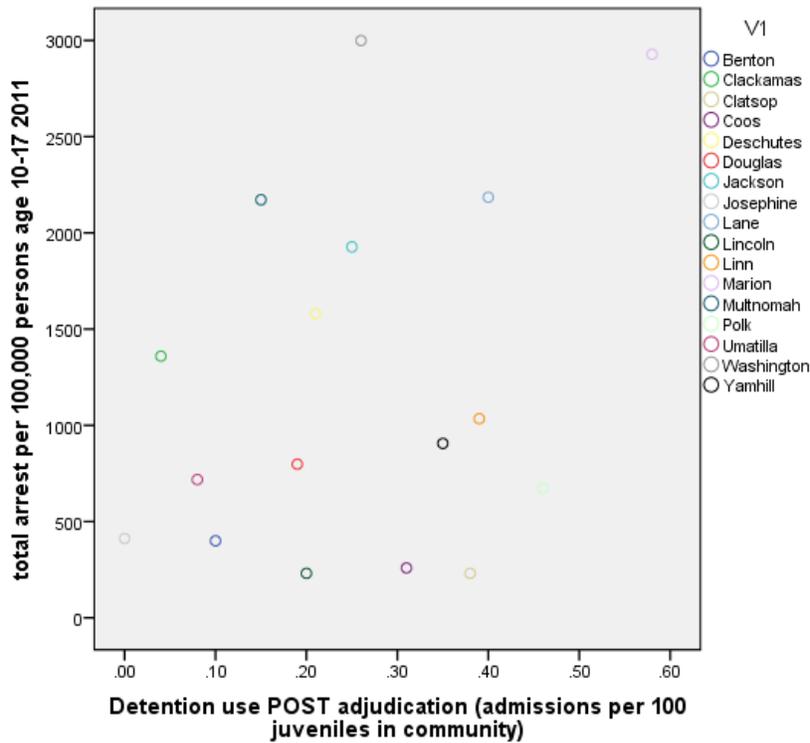
Large Oregon counties



All Oregon Counties



All Oregon Counties, excluding outlier Klamath



Large Oregon counties, excluding outlier Klamath

3.2 Correlation between Property Index Arrest Rate and Referrals/Petition Filed/Detention by County in Oregon

Correlations between property index arrest rate and the intervention indicators (referrals, petition filed, and detention rate) were examined.

Inspection of the scatterplot indicated the existence of outlier counties. In analysis of all Oregon counties, regardless of size, and the correlation between property index and detention usage post-adjudication, counties Klamath and Harney were considered outliers. In analysis of the large Oregon county subset, Klamath was considered an outlier.

Correlations with and without excluding Harney and Klamath counties are showed in the table 3.2.

Table 3.2: Intervention indicators’ correlations with Property Index Arrest Rate

	% of referral closed at intake	% of referrals with formal or informal actions taken	% of petitions filed	Percent of detention for new offenses	Detention usage Pre-adjudication	Detention usage Post-adjudication
All OR counties	.483**	-.482**	-.649**	.0296	-.317	.035
All OR counties excluding outliers						.353† (w/o Klamath and Harney)
Large OR counties	-.280	-.568*	-.703**	-.199	-.568*	-.10
Large OR counties excluding outliers						.177 (w/o Klamath)

*significant at the .05 level
 **significant at the .01 level
 †approaching significance

The results indicate that there is a strong negative relationship between the property index arrest rate and (1) the percentage of referrals with formal or informal action taken and (2) the percent of petitions filed. This relationship holds true for all Oregon counties, as well as the large Oregon county subset.

In other words:

- Counties with higher formal or informal action taken increases tend to have lower property index arrest rates.
- Counties with a higher percentage of petitions filed tend to have a lower property index arrest rate.

The results indicate that when considering all Oregon counties, there is a strong positive relationship between the percentage of referrals closed at intake and property index arrest rate.

In other words:

- When considering all Oregon counties, counties with a higher percentage of referrals closed at intake tend to have higher property index arrest rates.

The results indicate that there is a negative relationship between detention usage pre-adjudication and property crime index arrest rate, when considering the large Oregon county subset.

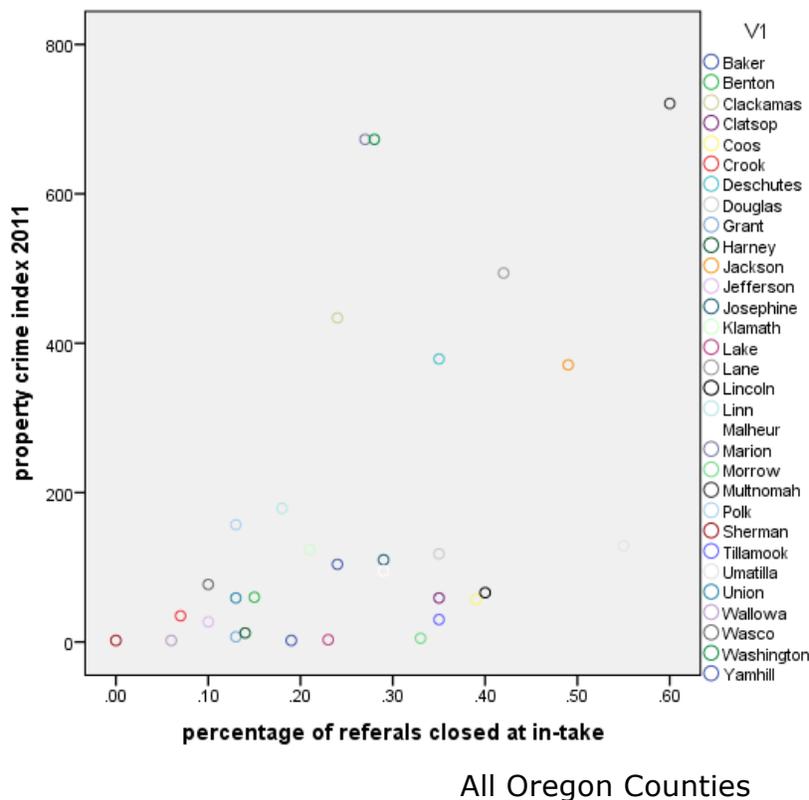
In other words

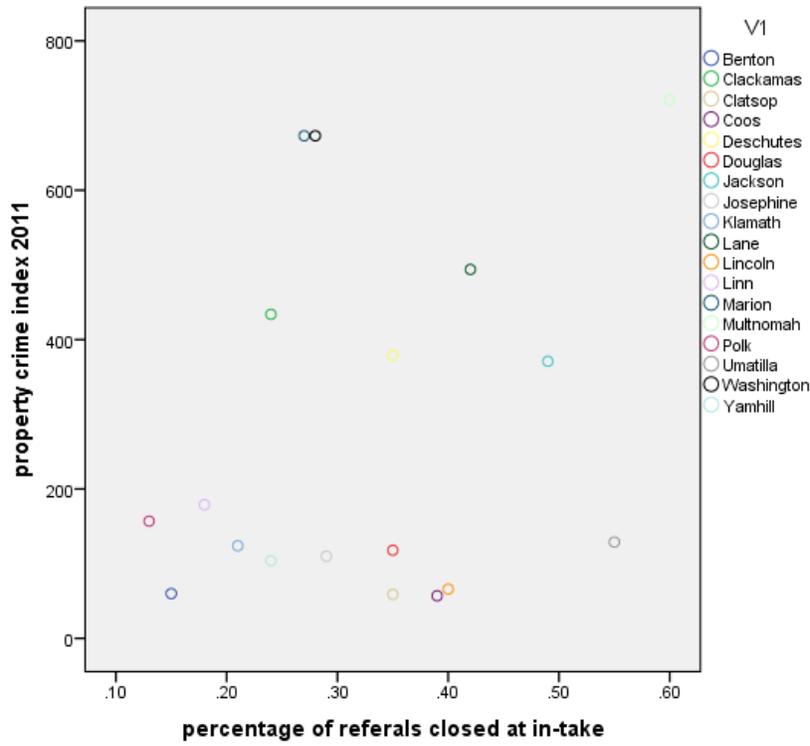
- When considering large Oregon counties only, counties with higher property crime index arrests tend to have lower detention usage pre-adjudication.

Finally, the results indicate that by excluding the outlier counties (Harney and Klamath), there is a positive correlation between property crime index arrests and detention usage post-adjudication that approaches significance.

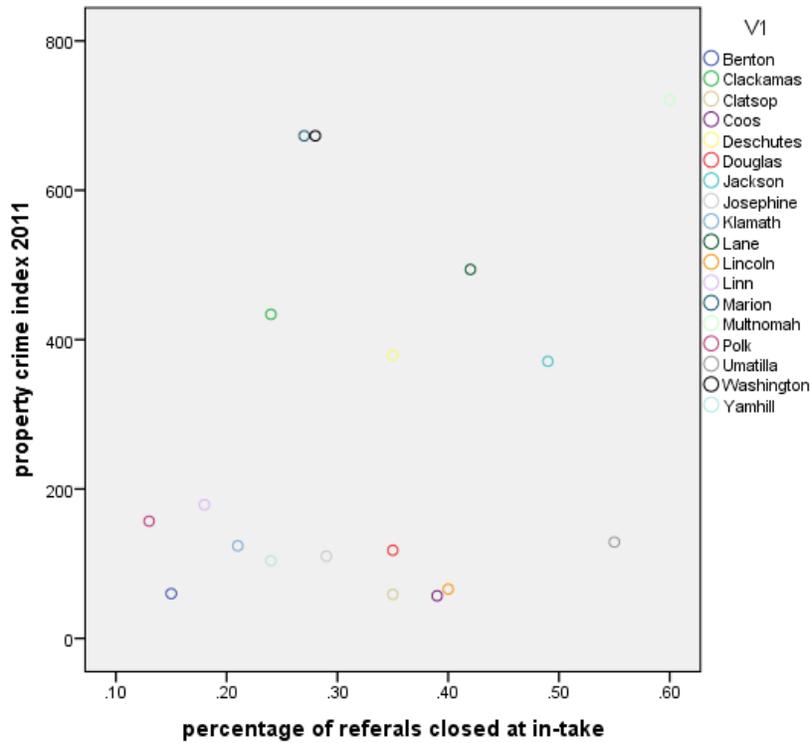
In other words:

- The results tenuously suggest that counties with higher detention usage post-adjudication rates tend to have higher property crime index arrests.

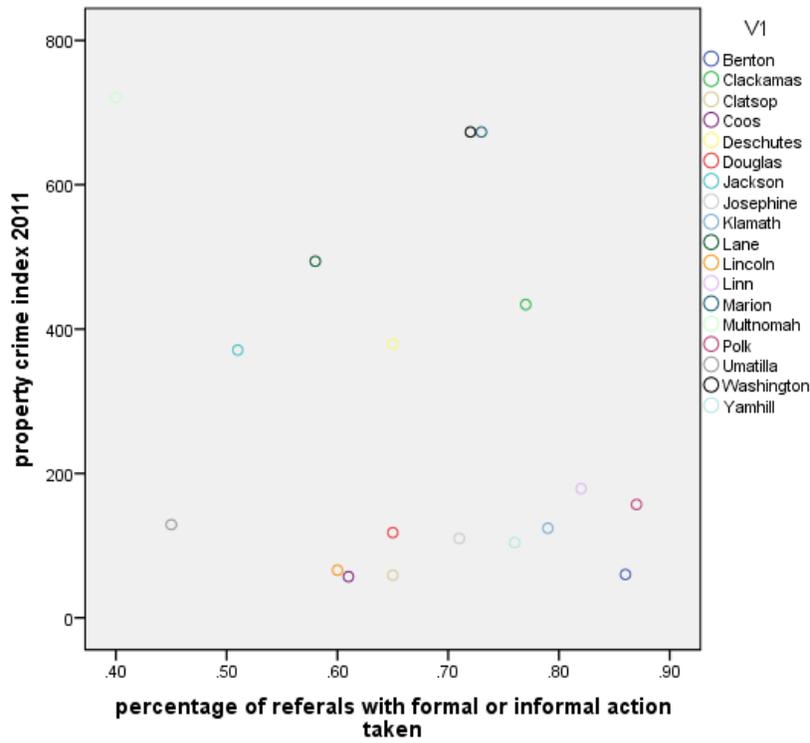




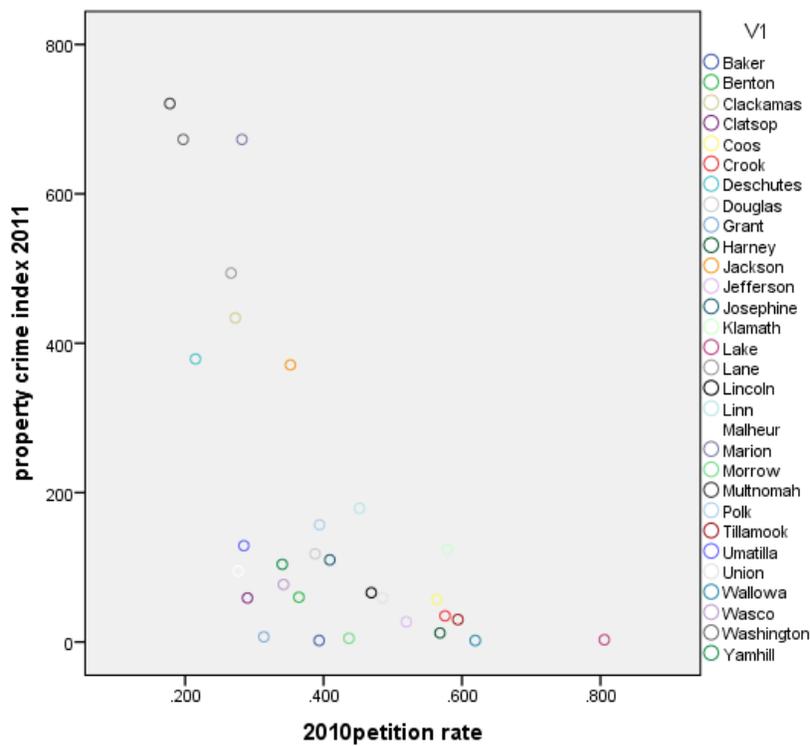
Large Oregon Counties



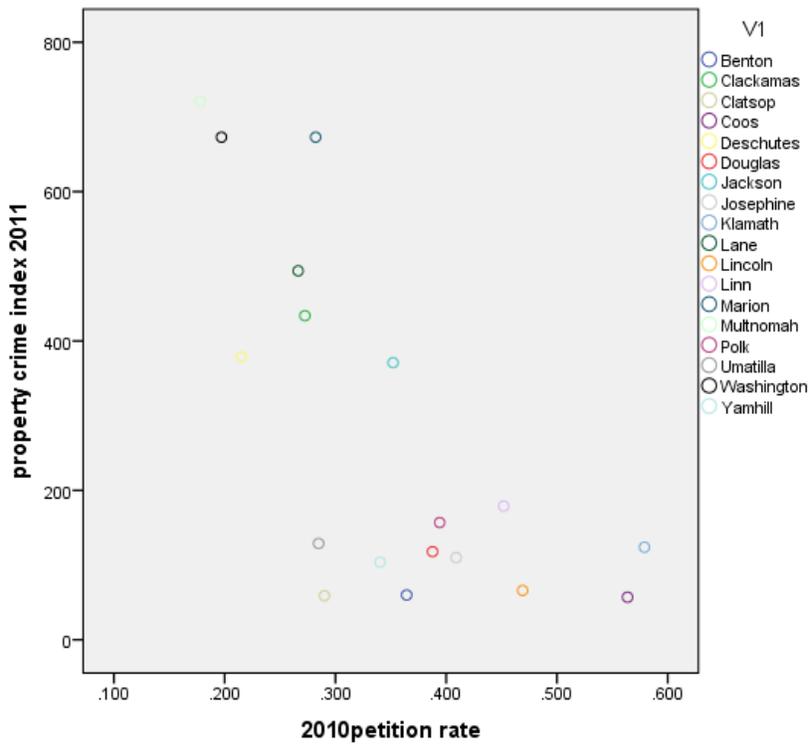
All Oregon Counties



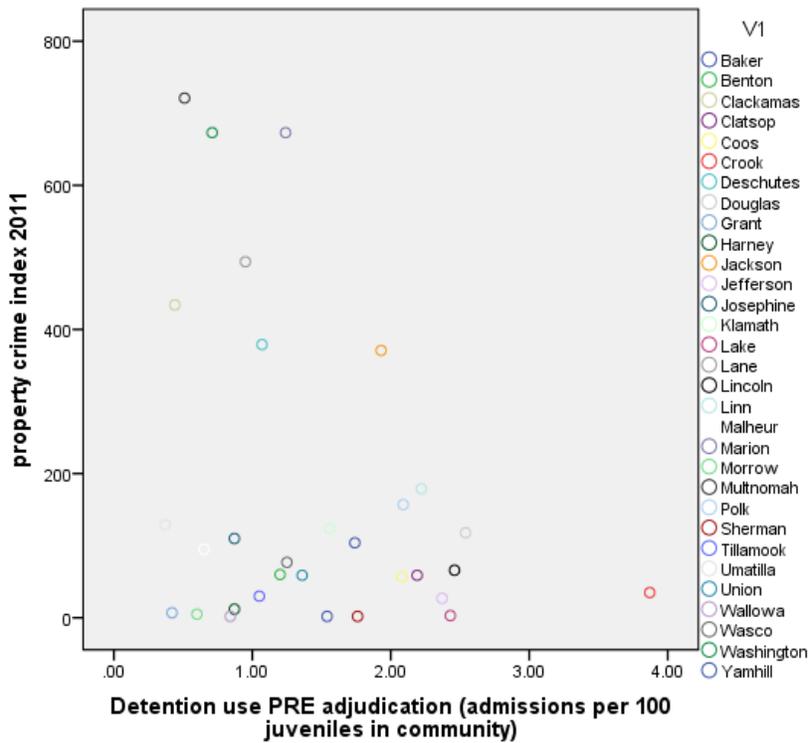
Large Oregon Counties



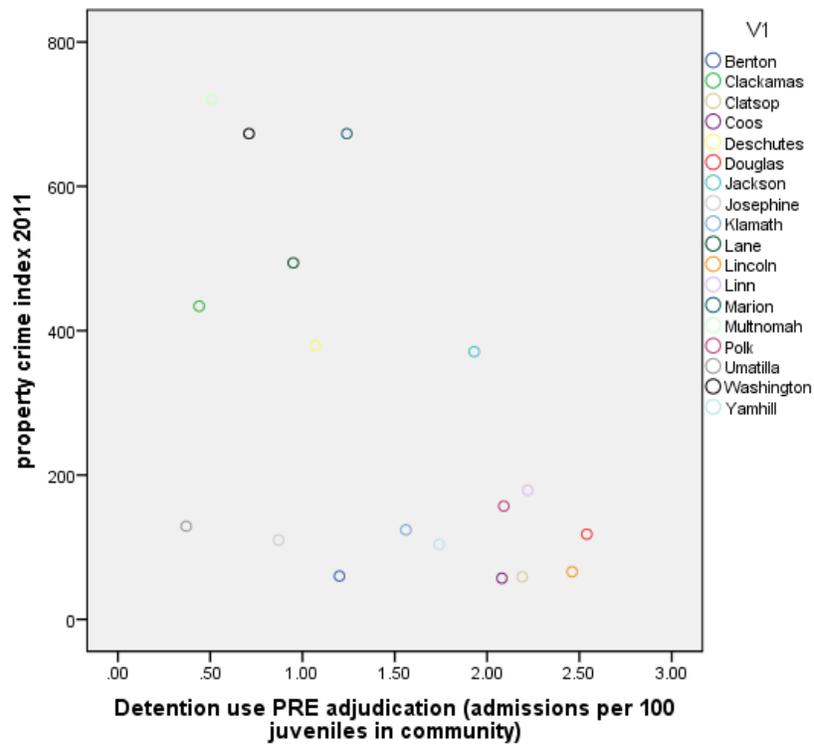
All Oregon Counties



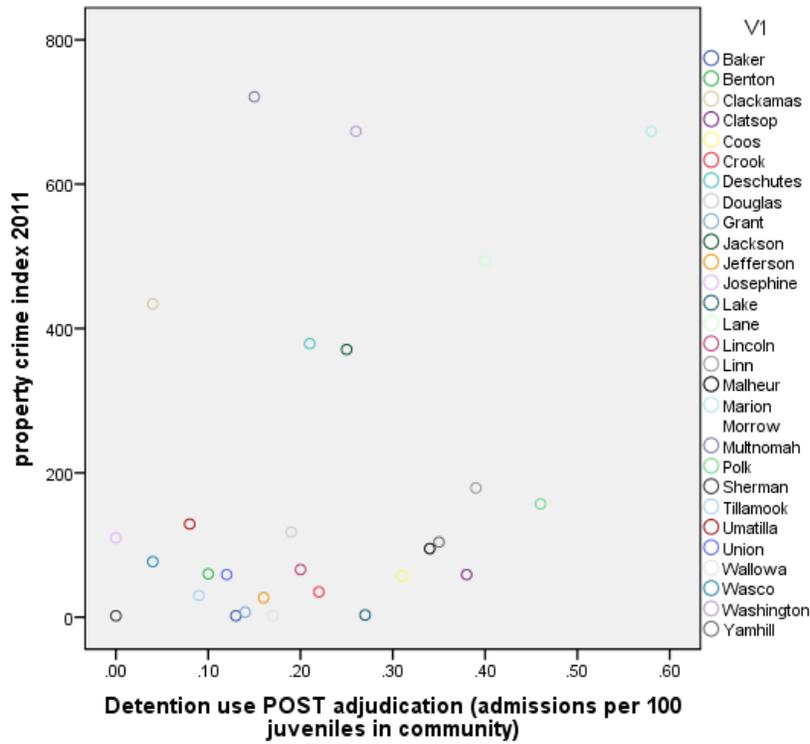
Large Oregon Counties



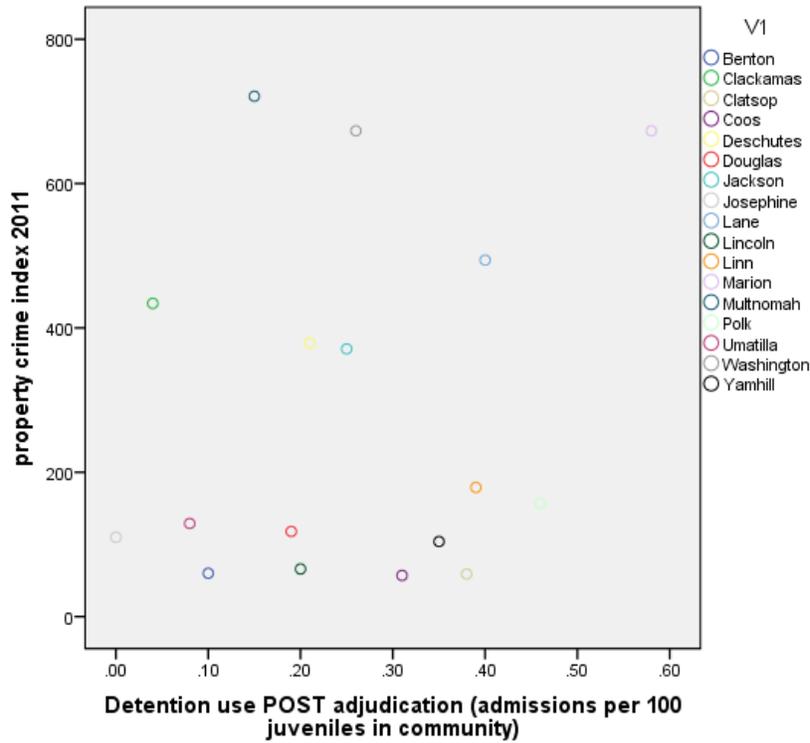
All Oregon Counties



Large Oregon Counties



All OR counties, without Harney and Klamath



Large OR counties

3.3 Correlation between Drug Arrest Rate and Referrals/Petition Filed/Detention by County in Oregon

The correlation between drug arrest rate and the intervention indicators (referrals, petition filed, and detention rate) were examined.

Inspection of the scatterplot indicated the existence of outlier counties. In analysis of all Oregon counties the correlation between property index and detention usage post-adjudication, counties Klamath and Harney were considered outliers. In analysis of the large Oregon county subset, Klamath was considered an outlier.

Correlations with and without excluding Harney and Klamath counties are showed in the table 3.3.

	% of referral closed at intake	% of referrals with formal or informal actions taken	% of petitions filed	Percentage of Detention for new offences	Detention usage Pre-adjudication	Detention usage Post-adjudication
All OR counties	.468**	-.470**	-.595**	.102	-.217	.022
All OR counties excluding outliers						.452* (w/o Harney and Klamath)
Large OR counties	.269	-.271	-.614**	-.045	-.405	-.119
Large OR counties excluding outliers						.320 (w/o Klamath)

* significant at the .05 level

** significant at the .01 level

The results indicate that when considering all Oregon counties, there is a strong, negative relationship between drug crime arrests and (1) the percentage of referrals with formal or informal action taken and (2) the percentage of petitions filed. The relationship between drug crime arrests and the percentage of petitions filed holds true when considering the large Oregon county subset.

In other words:

- When considering all Oregon counties, counties with a higher percentage of referrals with formal or informal action taken tend to have a lower drug crime arrest rate.
- When considering all Oregon counties, or the subset of large Oregon counties, counties with a higher percentage of petitions filed tend to have a lower drug crime arrest rate.

The results indicate that there is a strong, positive correlation between drug crime arrest rate and the percentage of referrals closed at in-take. This relationship does not hold when considering the large Oregon county subset.

In other words:

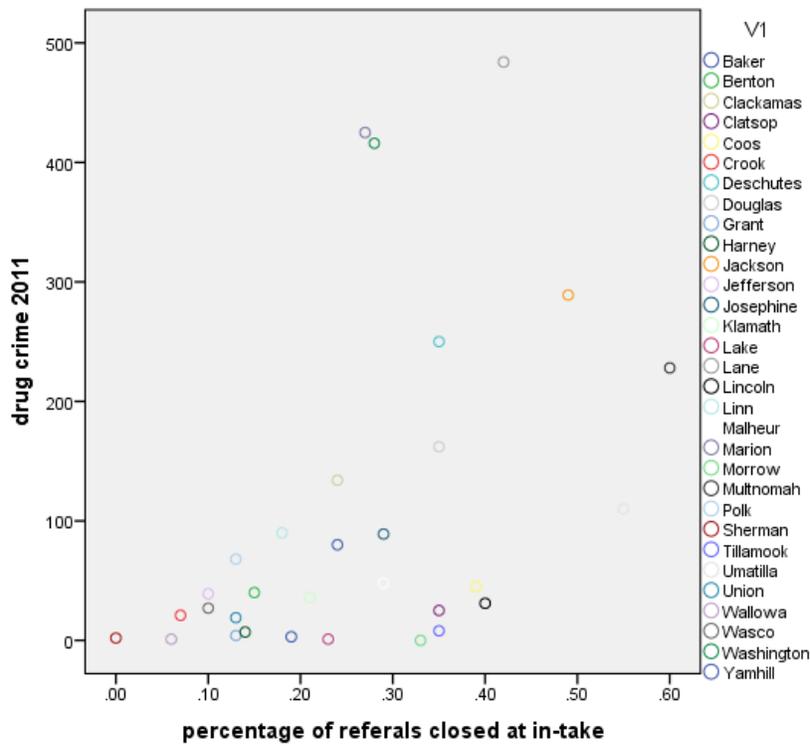
- When considering all Oregon counties, counties that have a higher percentage of referrals closed at intake tend to have a higher drug crime arrest rate.

Finally, the results indicate that when considering all Oregon counties – and excluding the outlying counties of Klamath and Harney – there is a positive correlation between detention usage post-adjudication and drug crime arrest rate.

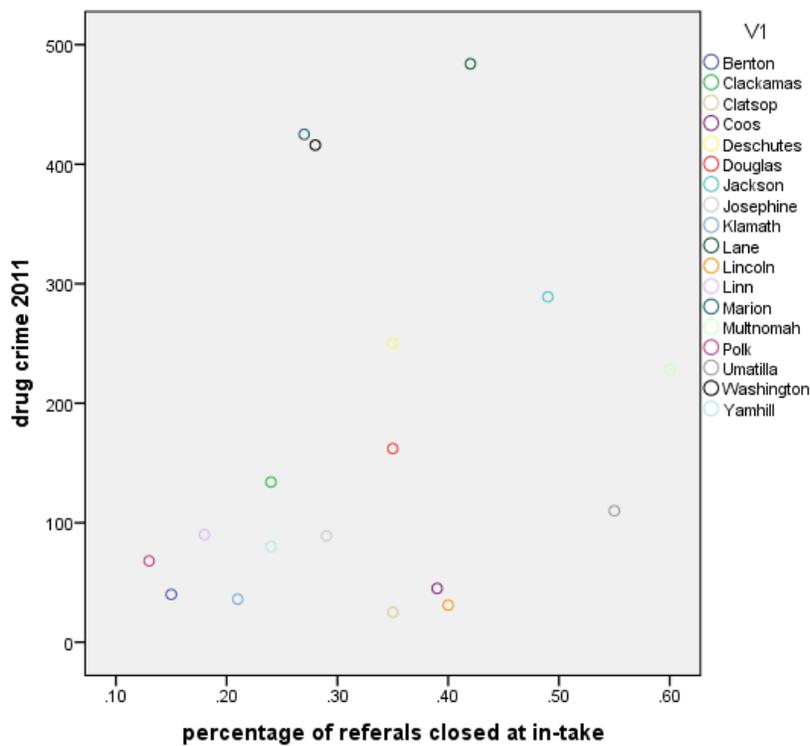
In other words:

- When considering all Oregon counties, and excluding outliers, counties with a higher detention usage post-adjudication rate tend to have a higher drug crime arrest rate.

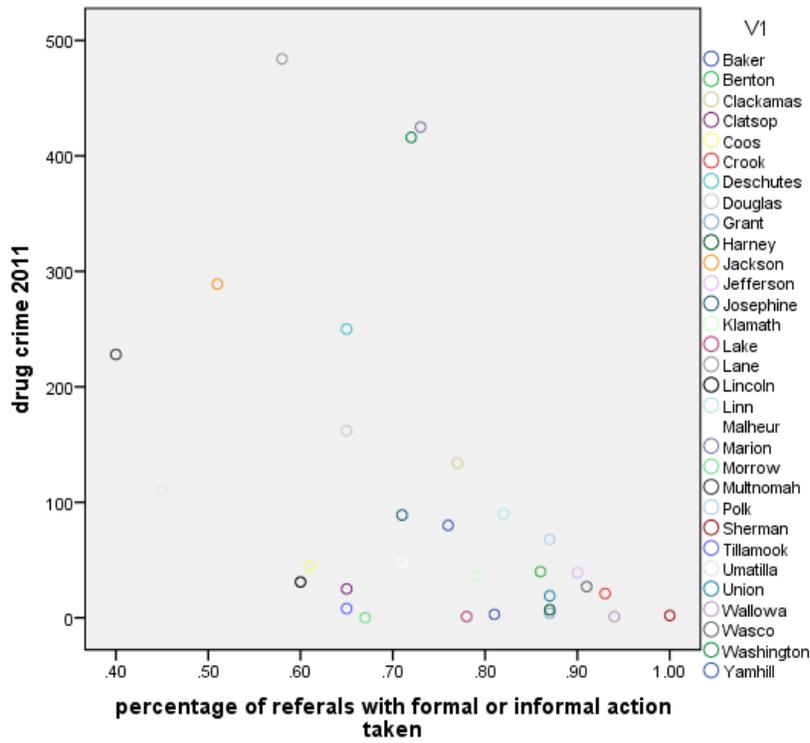
There appears to be no relationship between detention usage pre-adjudication and the drug crime arrest rate.



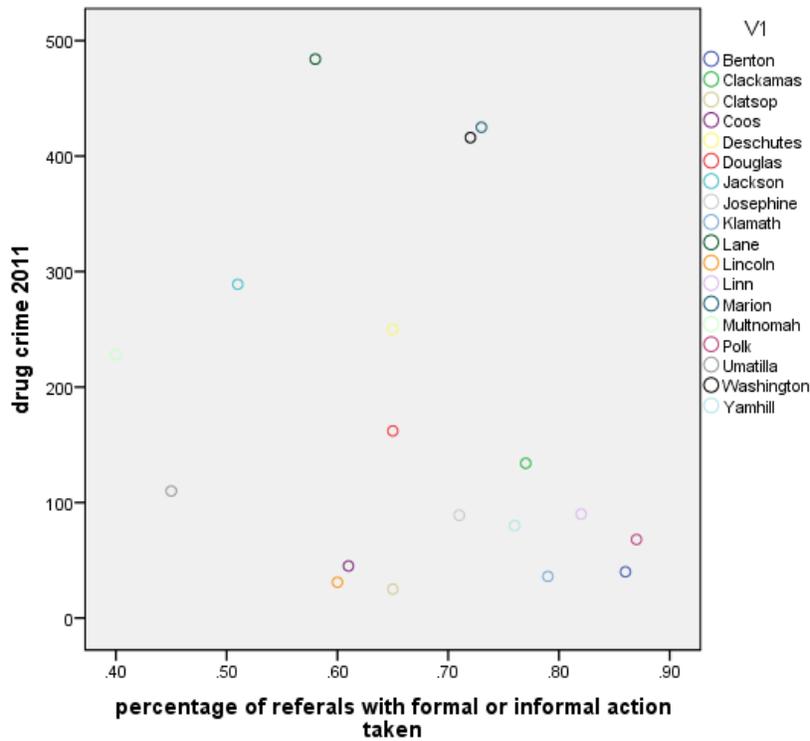
All Oregon Counties



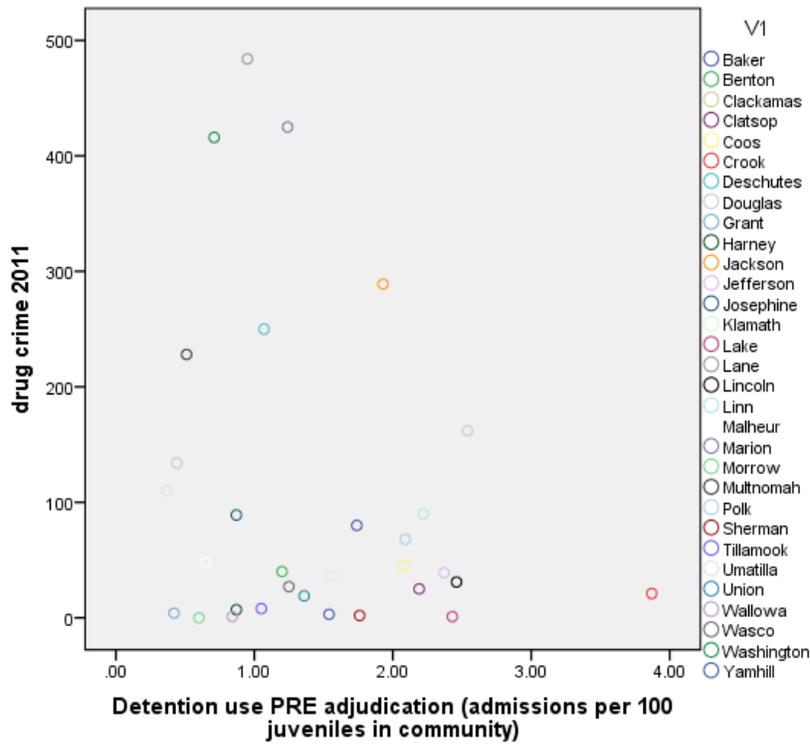
Large Oregon Counties



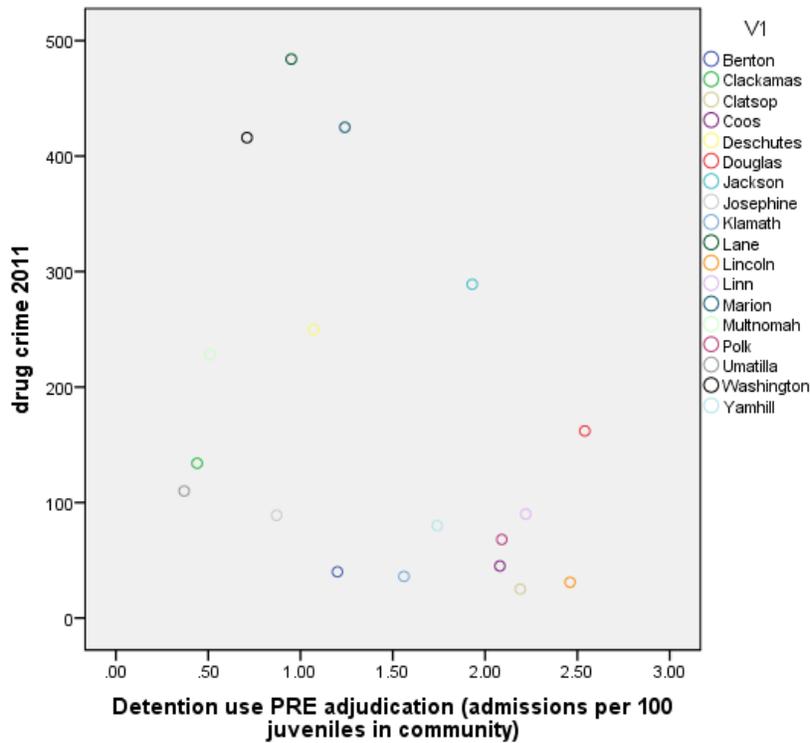
All Oregon Counties



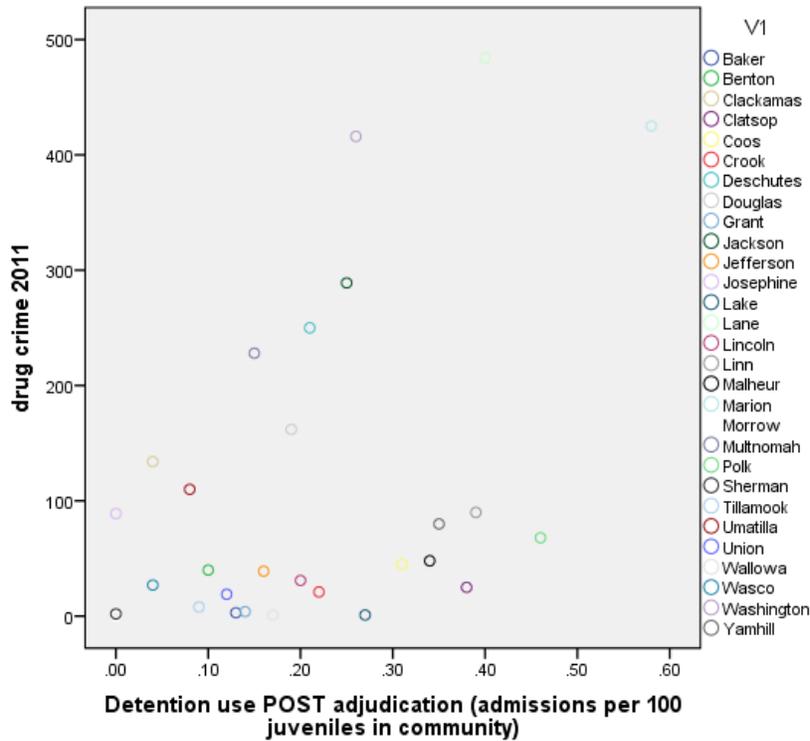
Large Oregon Counties



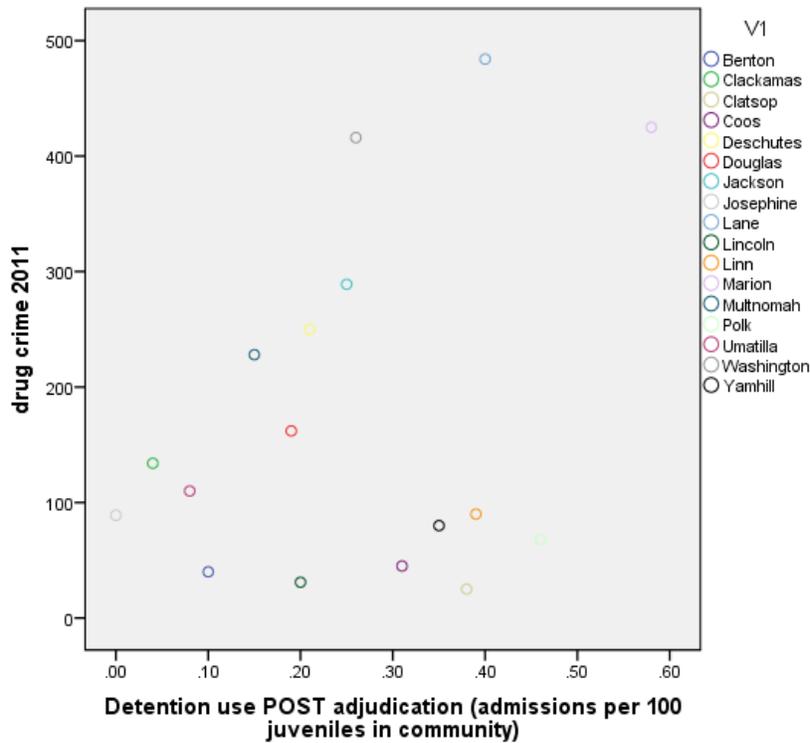
All Oregon Counties



Large Oregon Counties



All Oregon Counties, without Harney and Klamath



Large Oregon Counties, without Klamath

3.4 Correlation between Recidivism Rate and Referrals/Petition Filed/Detention by County in Oregon

Correlations between one-year recidivism rate and the intervention indicators (referrals, petition filed, and detention rate) were examined.

Inspection of the scatterplot indicated that Klamath County is an outlier for the correlational analysis between detention usage post-adjudication and one-year recidivism rate. Substantial change in the size of correlation coefficient was observed in the detention usage post-adjudication.

Correlations with and without excluding Klamath County are shown in table 3.4.

Table 3.4: Intervention indicators correlation with One-year Recidivism Rate

	% of referral closed at intake	% of referrals with formal or informal actions taken	% of petitions filed	Percentage of detention for new offences	Detention usage Pre-adjudication	Detention usage Post-adjudication
All OR counties	.153	-.152	.082	.298	-.065	.055
All OR counties excluding outliers						.387* (w/o Harney and Klamath)
Large OR counties	-.039	.027	-.251	.044	.004	.003
Large OR counties excluding outliers						.474* (w/o Klamath)

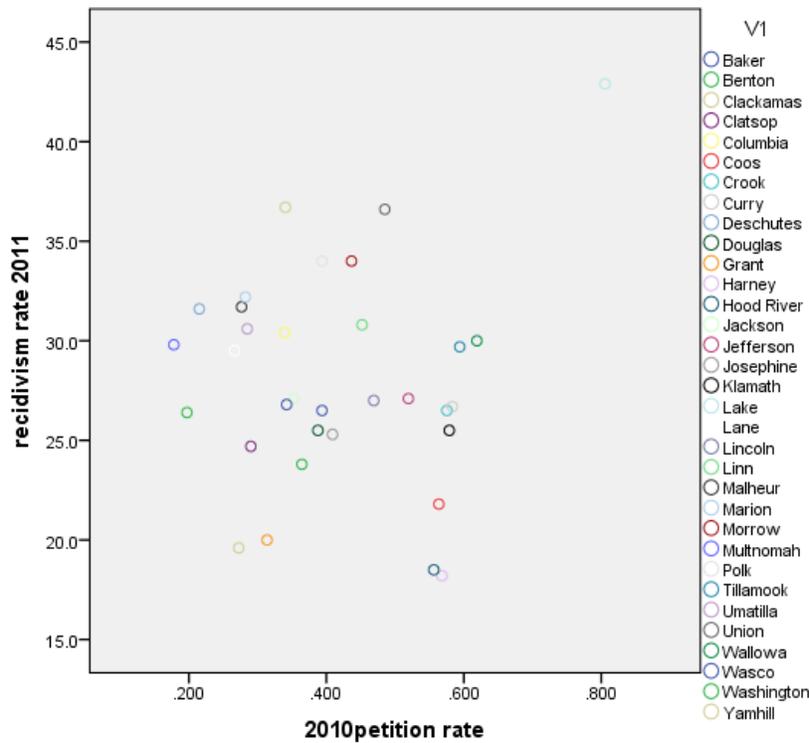
* significant at the .05 level

The results indicate that there is a significant, positive relationship between detention usage post-adjudication and one-year recidivism. This relationship holds when considering all Oregon counties - after excluding the outlying counties of Harney and Klamath- and when considering the large Oregon county subset after excluding Klamath County.

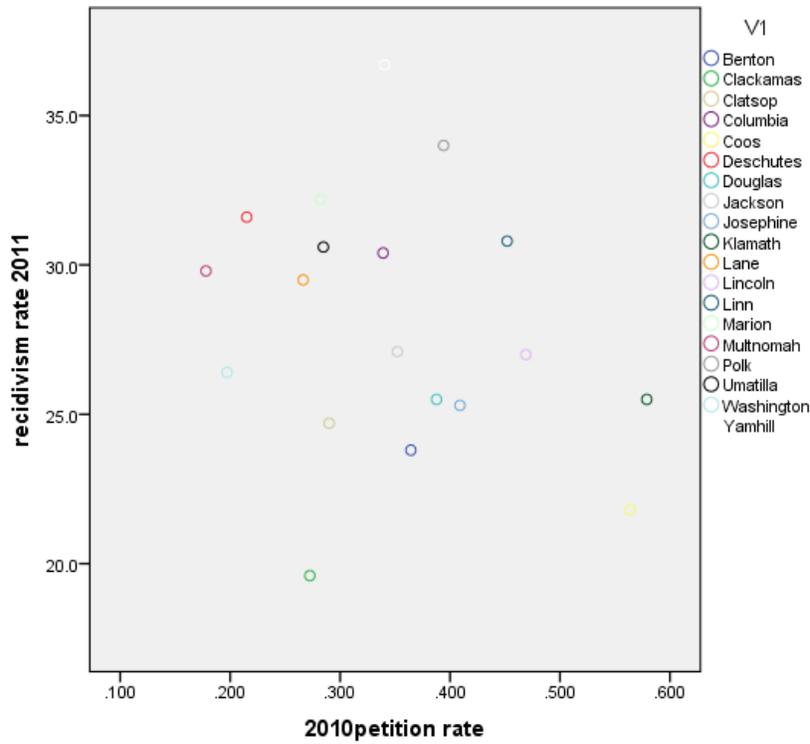
In other words:

- After excluding outlying counties, counties with a higher detention usage post-adjudication rate tend to have a higher one-year recidivism rate.

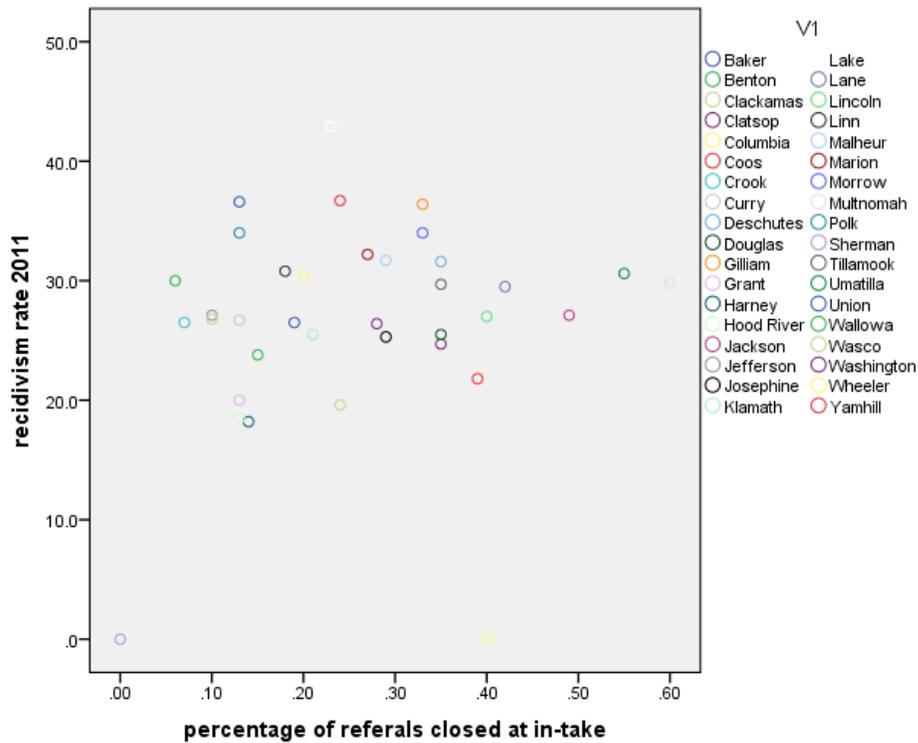
The results indicate that there is no significant correlation between the other intervention variables (percentage of referrals closed at in-take, percentage of referrals in which formal or informal action was taken, percentage of petitions filed, and detention usage pre-adjudication) and the one-year recidivism rate.



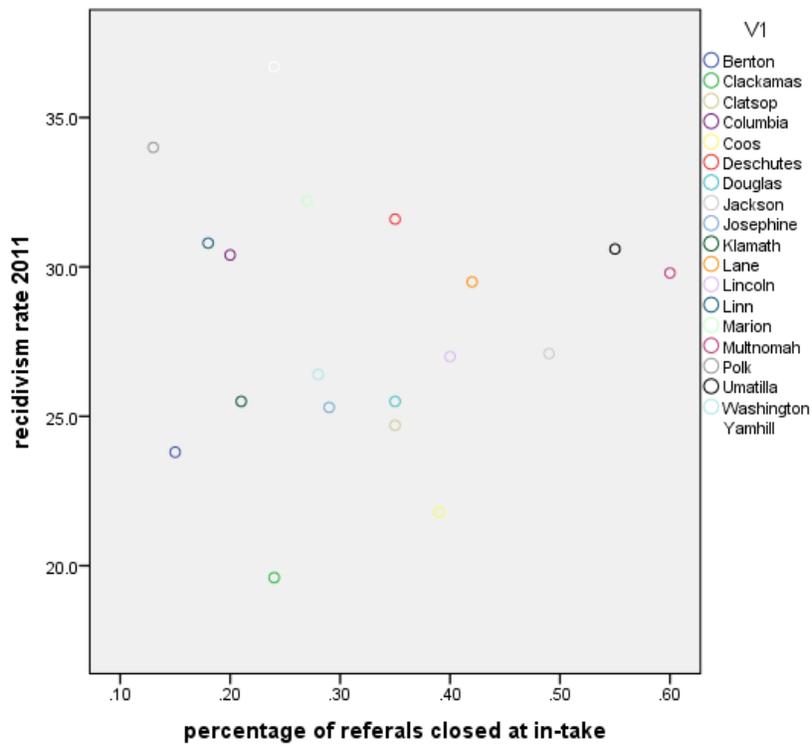
All Oregon Counties



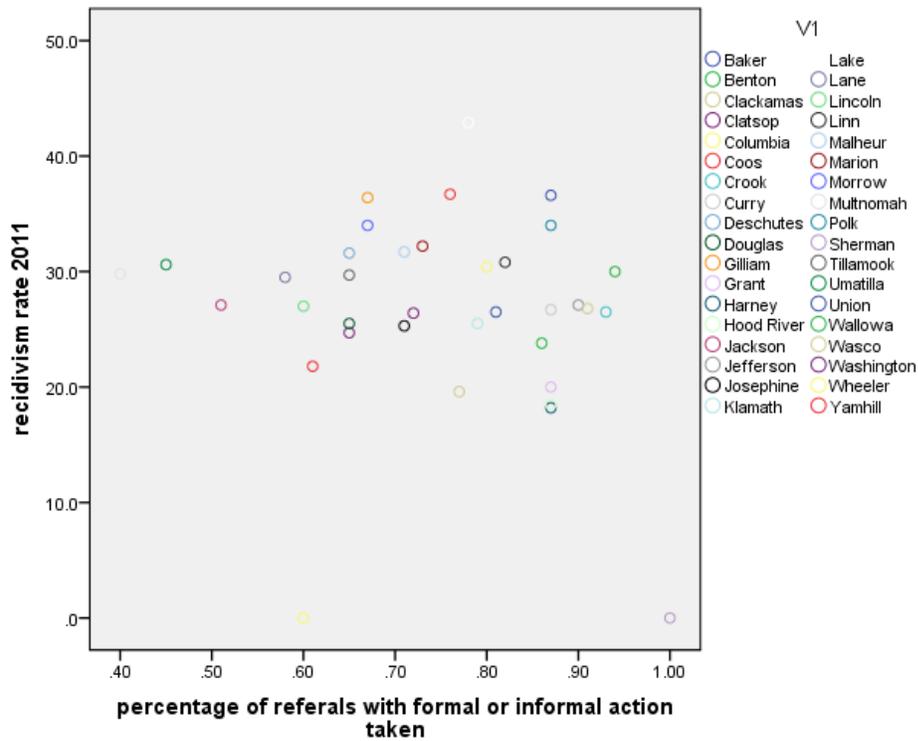
Large Oregon Counties



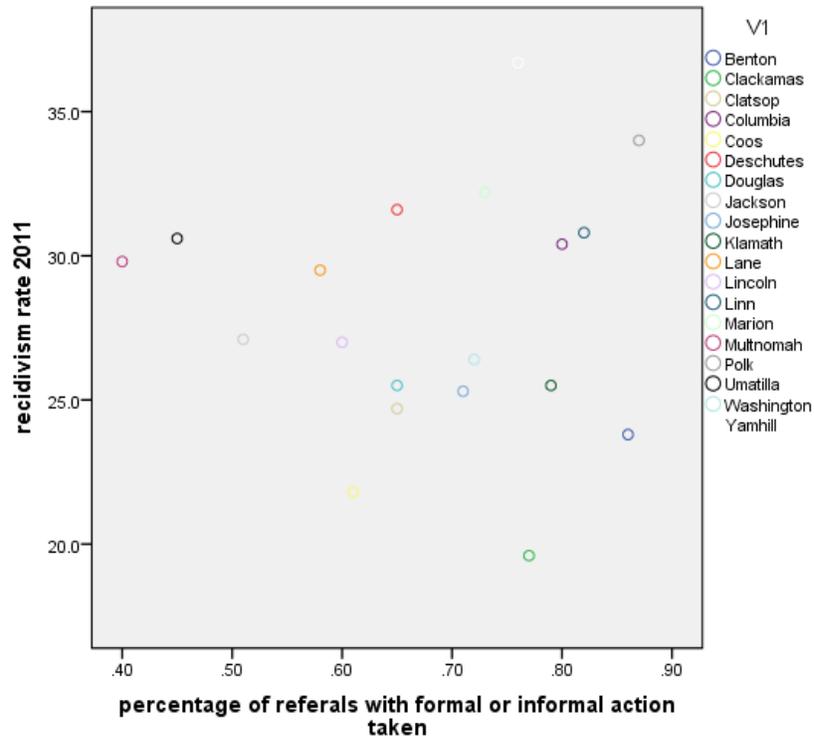
All Oregon Counties



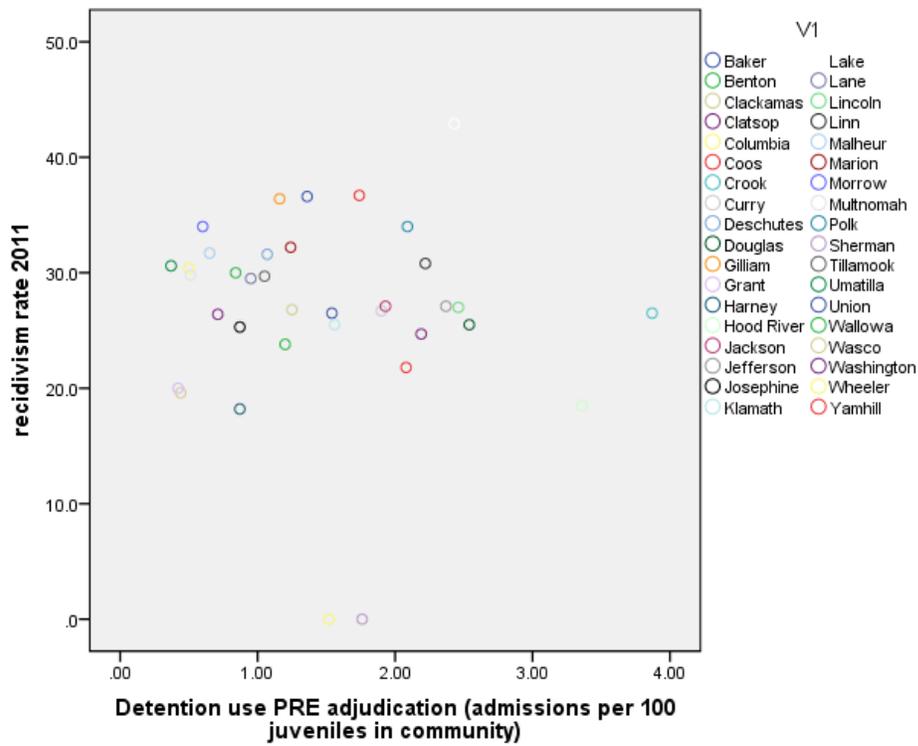
Large Oregon Counties



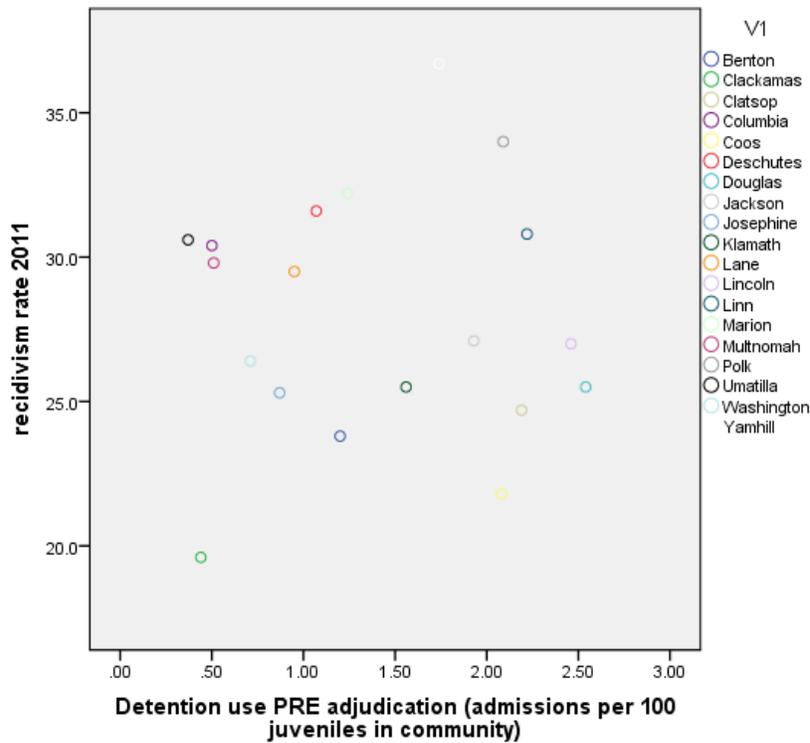
All Oregon Counties



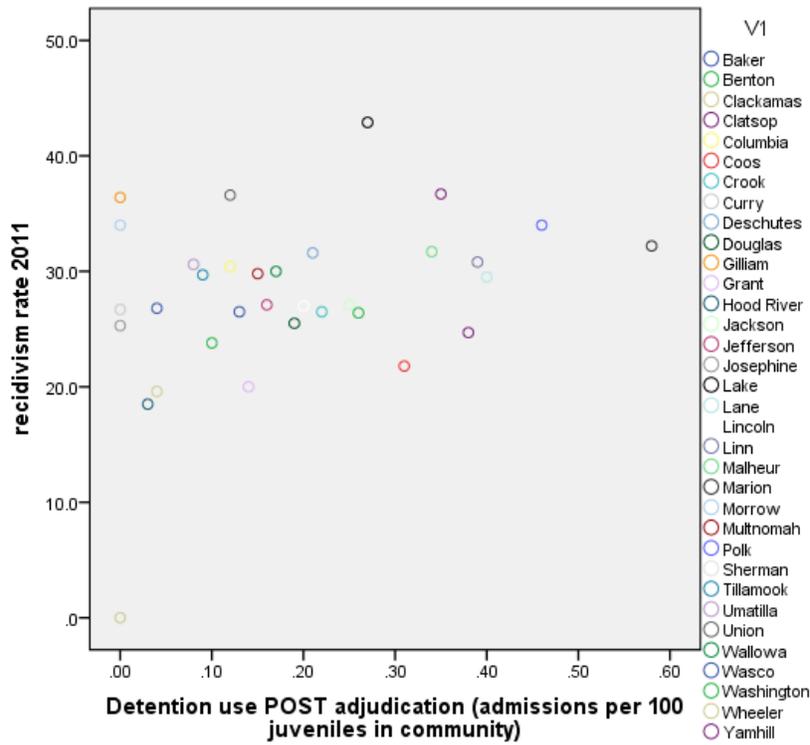
Large Oregon Counties



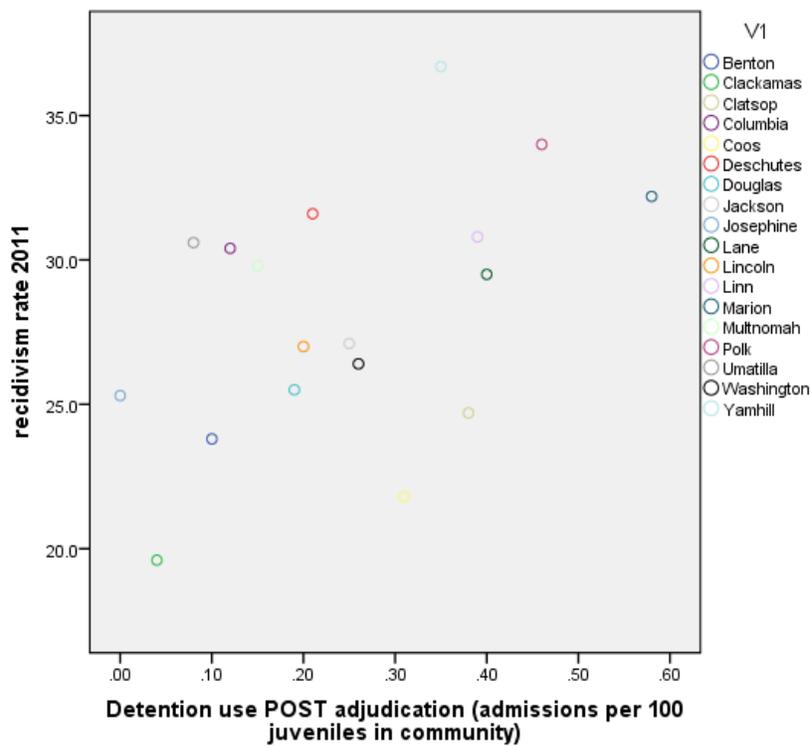
All Oregon Counties



Large Oregon Counties



All Oregon Counties, without Harney and Klamath



Large Oregon Counties, excluding Klamath