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Family Support Caseloads--Determinants of Kentucky's Division of Family Support Personnel Allocation

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Family Support Caseloads

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Determinants of Kentucky's Division of Family Support
Personnel Allocation

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Executive Summary

This paper is an examination of the determinants of Family Support employee allocation. Specifically, related to Kentucky, the goal of this research is to determine if public assistance caseloads are equitable across nine geographic regions. A review of relevant literature provides a larger context to this topic. Literature primarily suggests three mechanisms by which Family Support resources might be allocated: legal regulations, postcode lottery, and Tiebout migration.

Supported by literature the larger context for this paper leads to the examination of five independent variables: (1) percent of Supplemental Nutrition Assistance Program recipients \, (2) total population, (3) percent of the population over 65, (4) percent population identified as white, and (5) percent below poverty. The dependent variable for this study is the number of Family Support personnel per region. Since the dependent variable was reported on a regional level an adjustment to the independent variable data. Level f aggregations of the 720 panel observations for the independent variables were collapsed into a regional level of 54 observations. The remaining 54 observations were then subjected to both fixed-effects and between effects regression analyses.

The output of these analyses suggests that Family Support personnel were allocated to each region in a uniform standard. However, the primary factors in this allocation were more related to demographic variables than to the number of public assistance recipients. This means that the variation of Family Support personnel between the regions has a discriminatory effect as regions with younger populations will receive fewer resources.

I. Introduction

The Kentucky Department for Community Based Services (DCBS) encompasses two divisions: (1) Family Support and (2) Protection/Permanency. Adult and child protective services programs are administered by Protection/Permanency. Family Support is charged with determining eligibility for all entitlement programs administered by the DCBS, such as Supplemental Nutrition Assistance Program (SNAP), Medicaid and the Kentucky Transitional Assistance Program (K-TAP).

With annual expenditures of more than $1 billion,[1] DCBS is facing increased scrutiny of its resource allocation. Recently, Kentucky-based news agencies have attempted to draw a causal link between the number of child abuse deaths and the allocation of Protection/Permanency personnel. The investigative reports by the local news pushed the Kentucky legislature to create a special investigative committee to review child abuse deaths. Currently, the scope of this legislative investigation is limited to Protection/Permanency. The question this author attempts to answer is if DCBS is mismanaging one division is there also mismanagement of Family Support? The purpose of this paper is to examine the allocation of personnel within the division of Family Support personnel allocation to see if this resource has been allocated proportionally to caseloads.

At present, Family Support has at least one office in each of Kentucky's 120 counties. In total, Family Support has 1,822 employees to allocate across the state. However, even a cursory review of Family Support office locations suggests that the number of offices does not coincide

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[1] Kentucky's Transparency Portal, Spending Search. http://opendoor.ky.gov/search/Pages/spendingsearch.aspx. accessed 4/7/14.

with population density. For instance, Fayette County (pop. 305,489) has one office, Jefferson County has eight (pop. 750,828), and Bell County (pop. 28,183) has two.

Family Support strives to allocate personnel in a uniform manner and has developed a case-weight system to compare worker productivity.[2] A case-weight system is needed because Family Support cross-trains its employees, meaning that the same employee may process SNAP and Medicaid applications on the same day. The DCBS Commissioner's Office has assigned different weights to each application type, ranging from 0.5 to 5.0. These numbers were originally based on the average number of hours needed to process the corresponding type of application. For instance, a SNAP application is given a weight of 2.0 while a K-TAP case is weighted at 2.5. These weights give administrators the ability to measure individual productivity and ensure a uniform caseload statewide.

Equity of caseloads is important for Family Support because inequitable caseloads have been tied to lower employee retention rates (Barbee, 2011). Kentucky's FY 2012 – 2014 budget exempted Family Support from budget cuts because caseloads had increased 30 percent since 2007. During the research process of this paper, the author spoke with a director-level Family Support employee who said, "We don't really go by the case weights anymore…there's not really a system for who get[s] what. The regional staff keep[s] records on who works where."[3] This admission of potential mismanagement and shifting economic conditions anecdotally suggests that Family Support personnel may not be allocated uniformly.

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[2] Division of Family Support Operations Manual, Vol.1 Sec. 0080
  http://manuals.chfs.ky.gov/dcbs_manuals/DFS/VOLI/OMVOLI.pdf accessed 4/7/14.
[3] Eldridge, Donna. Interview. February 2014

The following analysis will focus on measuring the relationship between the number of Family Support caseworkers and their caseloads. The goal of measuring this relationship is to find which determinants affect Family Support personnel allocation. Section II is a review of literature on public assistance caseloads, and section III is an overview of the research design used in this study. Section IV contains the results of the research design. Section V is a collection of the conclusions, limitations and future research.

II.   Literature Review

Questions about the effectiveness of public assistance programs in the United States have inspired a large amount of literature. Most literature is focused on the economic impacts of these programs and the corresponding budgetary implications. Within this broad scope of public assistance, many theories examine the impacts of social service allocation. This study examines three theories that may explain Family Support personnel allocation: (1) legal analysis, (2) postcode lottery and (3) Tiebout migration.

Legal Analysis

Legal analysis suggests that the allocation of employees across regions follows the rules and standards set out in stautes and regulations. Located within Kentucky's Executive Brach, the Division of Family Support is an extension of the Department for Community Based Services. Its authorizing legal framework includes guidelines for the provision of public assistance benefits. One of the implications of these guidelines for Family Support caseloads is that the services must not be provided in a discriminatory manner. For instance, if there are

inequitable caseloads, these must not be to the detriment of protected classes of beneficiaries. To do such would be a type of discrimination that Kentucky Courts have rejected.

This situation previously occurred in Kentucky when the Supreme Court ruled in *Rose v. Council* (1989) that disparate funding allocations to rural and urban schools were a violation of state law (Hoyt, N.D.).[4] The ruling also resulted in Kentucky's education reforms of the 1990s. Maintaining equitable Family Support caseloads avoids discrimination and potential illegality (based upon previous precedent), which is an acknowledgement of the role U.S. Courts can have in public assistance administration.

Postcode Lottery

In many settings, the allocation of social services between localities differs from what would be expected by legal analysis. In British studies, such unwarranted geographic variation is often referred to as postcode lottery (Cummins, 2007). The term does not imply intent or ignorance but is simply the result of non-uniform resource allocation. Postcode lotteries of public services are often caused by resource allocations that do not take into account the full complexities of populations. This means that resources were allocated according to a simple formula that would not take into account additional demographic variables that influence resource consumption.

Public assistance resources allocated without consideration of demographic and cultural variables are likely to create postcode lotteries. Demographic and cultural variables can affect

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[4] Supreme Court Justices in Kentucky are politically elected, so it is possible that even though the underpinnings of case logic are the same, there could be a different decision if *Rose v. Council* were retried. Funding mechanisms for K-12 public education in Kentucky include a mixture of local funds. Family Support is entirely funded through the Kentucky's general fund so this could alter the statutory underpinnings of the majority decision in *Rose v. Council.*

both public assistance eligibility and the participation rates of public assistance. For instance, non-white Medicaid applicants are more likely to be misinformed about benefit eligibility (Bradley, 2005). Single-parent households are also disproportionately eligible for public assistance benefits (Ayala, 2005). Minority and parental status are not the only demographic variables that affect public assistance participation. They are, however, an example of how demographic and cultural characteristics vary across geographic areas and can influence demand for public assistance programs.

While postcode lottery is typically a European term, there is anecdotal evidence that suggests Family Support resources are allocated in inequitable concentrations. Literature often focuses on the individual impact of postcode lotteries. However, agencies, like individuals, are affected by postcode lotteries. Previous studies have attempted to determine why the retention rate among Family Support employees is lower than other peer organizations. The taxpayer cost to replace one Family Support caseworker is between $15,000 and $19,000 (Barbee, 2011 and Yankeelov, 2009). What these studies found was that there is a significant difference in Family Support retention rates geographically. The root cause of the disparate retention rates was assigned to inequitable caseloads between rural and urban Family Support offices.

Tiebout Migration

The idea of a postcode lottery is that the best government services are received mainly by chance. Another possibility is that the American belief in free markets has created an economy where residents will choose to live in a community that maximizes their utility. In

other words, Americans are content with inequitable distribution of government services because the inequity gives citizens a choice. This conscious choice to relocate in order to receive the level of government benefits desired (and thus taxes paid) is known as Tiebout migration (Tiebout, 1956). While there is no consensus on this issue, several studies have shown that there are causal links between interstate migration and level of public assistance benefits available (Cebula, 2013 and Hsing, 1995). For instance, Hsing found that states can expect a 0.40 percent increase in immigration for each one-percent increase in public assistance benefits. In 1992, California enacted a law to restrict public assistance benefits for new residents as legislators believed that California's more generous social service programs were attracting immigration to the state. This law was later struck down by the U.S. Supreme Court in *Sáenz v. Roe* (*Sáenz,* 1999).

Within Kentucky, there is no regional or local monetary difference in public assistance benefits offered. However, there are measurable differences between counties and cities as far as tax accessed on wages, property and businesses. In tandem with the quality of Family Support services available, it is possible that there is a Tiebout migration of individuals within Kentucky. Clients who are serviced by overburdened caseworkers are more likely to encounter errors with their applications. Kentucky is unable to provide an accurate estimate of the economic impact application errors have on public assistance programs (LRC, 2004). Without an accurate estimate, it is unknown what percentage of type of processing errors, by overburdened caseworkers is in the client's favor. Clients who are serviced by overburdened caseworkers and who marginally qualify for programs are also more likely not to enroll as they face an artificial administrative burden (Moynihan, 2013). Therefore, a public assistance-eligible

individual could maximize their utility by relocating to an area with greater Family Support resources. Previous studies have indicated that there is no geographic pattern to tax effort by Kentucky localities, so it is possible that individuals could maximize their utility by moving a relatively minor distance (Hoyt, N.D.).

Within the framework of Tiebout migration, potential inequity of Family Support caseloads could be economically ideal to Kentucky residents. However, the legality of such a conscious inequity in caseloads is questionable under the previous precedents set by the Kentucky Supreme Court. In sum, the legal analysis suggests that public assistance caseloads should be uniform in nature. However, if there is caseload inequity the theories of postcode lotteries and Tiebout migration could explain potential determinants of Family Support caseload. This study creates a research design, based upon the literature review, to find the determinants of Family Support personnel allocation.

III. Research Design

To determine if Family Support caseloads are equitable, the first task is to determine a good measurement of personnel allocation if legal the analysis was correct. The first independent variables selected for this study were region population and the percent of SNAP recipients. Percent of SNAP recipients is simply the number of SNAP enrollees divided by the total region population. This measure was chosen as it directly contributes to the size of Family Support caseloads.

The literature in section II suggests that postcode lottery or Tiebout migration also could influence the size of Family Support caseloads. To test the possibility of Tiebout migration and

related economic conditions, percent below poverty was added as an independent variable. The rationale behind this selection is that the individuals who vote with their feet and move to an area with better public-assistance service are most likely to be the recipients of such service. A good indicator of possible eligibility for public assistance is the percent below poverty. Tiebout migration could be present if caseloads are more responsive the clustering of poverty.

Last, two other variables were selected to help determine if caseloads are proportional to the demographics of their corresponding communities or if there is the possibility of a postcode lottery. Those two variables are the percent of population over the age of 65 and the percent of white population. Senior and minority populations receive public assistance at higher proportions than other segments of society so these variables could show if caseloads are allocated according to census data.

The null hypothesis (H_0) for this study is that the legal analysis is validated and none of the independent variables representing Tiebout migration or a postcode lottery (percent over 65, percent white and percent below poverty) affects the number of Family Support personnel. The alternative hypothesis (H_A) is that either Tiebout migration or a postcode lottery has the largest effect on the number of Family Support personnel. Prior to this analysis, I expected to accept the null hypothesis given the legal analysis and the presence of Family Support's case-weight system.

The first course of action when collecting data for this study was to focus on the dependent variable: the number of Family Support employees per region. Currently, the Cabinet for Health and Family Services (CHFS) only publishes the number of CHFS employees in each county. In January 2014, I sent a formal open records request to the DCBS Commissioner, Teresa James, for the number of Family Support personnel by county. The open records request was approved, and six years of data was released: 2006, 2007, 2008, 2009, 2012 and 2013. All six years of the data were used for this study; however, there are several issues in the reporting that needed to be addressed. First, the employee data that DCBS keeps is only on a regional level and not on a county level. DCBS has nine geographic regions within Kentucky, and each region is allowed to allocate personnel according to its individual needs. The Commissioner's Office does not keep track of where Family Support employees are assigned once a region is given permission to fill a position. In the analysis, I match the regional reporting of the dependent variable by aggregating the independent variables into a regional level as well.

The second concern regarding the dependent variable is the missing years of data. DCBS is unable to give employee numbers pre-2006 because that data was stored on its previous human resources software and was not imported into the new program. According to DCBS, data for 2010 and 2011 also is not available, but there is no explanation for why this data was lost. The data pre-2006 should not affect this study because DCBS was created in 2004. Data before this time period is simply nonexistent. The missing 2010 and 2011 data is not expected to contain any unpredictable variation in personnel allocation. There were no budgeted changes to the level of staff in these years. The 2012 Commonwealth budget allocated an

additional 300 personnel to DCBS.[5] The 2012 and 2013 data will show how this increase in personnel was allocated.

The final concern with the dependent variable data is that the data was compiled by DCBS in inconsistent time periods. Data for 2006 and 2007 reflect the employee totals for November of those respective years. 2008 and 2012 data were compiled in October of those years. 2009 was collected in May, and 2013 was collected in December. Family Support does not have seasonal employment or temporary employees. Each reported position is a full-time position, so it is unlikely that the inconsistent measurement would influence the data by way of a hiring cycle. As such, the inconsistent measurements should not alter the reliability of the data more than a marginal amount.

This trio of dependent variable data issues (regional level, missing years and inconsistent definitions) gives concern that DCBS is not equipped to effectively manage Family Support. However, the aforementioned adjustments were made before the data were organized into the panel dataset. There are 54 observations of Family Support personnel in the panel dataset (9 regions by 6 years). Included in this dataset are five independent variables. Each independent variable was aggregated from county-level data to match the regional nature of the dependent variable. The aggregation was completed by taking the means of county-level and data then adding a weight for county population. This gives the county-level data the effect of proportional representation within the regional aggregation. Last, the independent variables

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[5] Additional money was also allocated in 2013 and 2014 to hire more Family Support staff. The executive budget for these years states that, "caseloads in Family Support which have increased by over 30 percent since 2007. This investment will fund additional front-line benefit workers, reducing caseloads by approximately 14 percent over the biennium in the areas of Medicaid Eligibility, State Supplementation, Temporary Assistance for Needy Families, and Supplemental Nutrition Assistance Program (food stamps)." http://www.osbd.ky.gov/NR/rdonlyres/28C22F94-8799-47C4-9627-3CF8B40C388F/0/1214ExecBudBudInBrief.pdf

measured in the number of persons were converted into percentages of the regional

population. This final step was taken as regions are geographic in nature and do not have equal

populations. For example, the Southern Bluegrass (pop. 593,966) region which includes

Lexington, Ky., has 207 Family Support employees, compared to the Eastern Mountain region

(pop. 265,008) which has 202 Family Support Employees. The percentage nature of the

demographic data allows for an easier analysis of the results to come.

Independent Variables

Given the literature review which concludes that caseloads should legally be equal, the

first two independent variables collected were region population and the percent of SNAP

recipients per region. The total number of residents in a region will affect the anticipated

number of potential public-assistance eligible persons and serves as a baseline for the other

four independent variables. The second variable is the total number of individuals who receive

SNAP benefits as reported by the Cabinet for Health and Family Services, divided by the total

population of the corresponding region. The percent of SNAP recipients is relevant to the

dependent variable because it directly shows how many applications Family Support employees

are processing within a region. While Family Support employees also process Medicaid and K-

TAP applications, these measures were not used as independent variables because of

collinearity between the three programs. For instance, the correlation between SNAP and

Medicaid was calculated in STATA to be 0.97. Between the public assistance programs, the

percentage of SNAP recipients per region was chosen as the independent variable because it is

the most representative measure of Family Support caseloads. [6]

The third independent variable is the percent of population over the age of 65. This

group, along with the fourth variable (percent of white individuals), was collected in order to

control for demographic differences between the regions. Additionally, it has been established

that there are knowledge gaps between age and ethnic groups in terms of public assistance

programs (Moynihan, 2013). The percent over the age of 65 and the percent of white

individuals will test for the existence of a postcode lottery by way of demographic inequities.

The data for both variables were obtained from the Centers for Disease Control. Before this

study, it was expected that the percent of individuals over the age of 65 would have a positive

relationship with the dependent variable as seniors can qualify for additional Medicaid

programs. The percent of white individuals did not have an expected relationship because of its

relationship to overall population and to the number of minorities present.

The last variable gathered for this study is the percent below poverty. This variable was

selected to help control for macroeconomic conditions that affect the number of public

assistance recipients. The data were also gathered from the Cabinet for Health and Family

Services. Percent below poverty is expected to have a positive relationship to the dependent

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[6] The variance infatuation factor was calculated in STATA and produced the following results. Medicaid, 605; SNAP, 323; KTAP, 62. Since the collinearity between the three programs is so high the numbers of Medicaid and K-TAP recipients were not selected as independent variables. The number of Medicaid recipients is not as good a measure as SNAP recipients because Kentucky is a 1634 SSI state, which means that 201,195 of the current 829,826 Medicaid beneficiaries do not interface with Family Support to receive Medicaid. (KY DMS, 2014) Instead, they receive Medicaid automatically when Social Security establishes SSI eligibility. Additionally, K-TAP primarily services urban recipients, so these two variables have more potential to alter the results of this study as compared with the number of SNAP recipients.

variable as it correlated to the number of individuals potentially eligible for public assistance.[7]

Table 1 summarizes all the variables with their abbreviations from the model, description,

expected sign and source.

Table 1. Variable Descriptions

Name	Description	Ex. Sign	Source
Dependent Variable			
CHFSEmployees	Number of Family Support Employees (per region)	N/A	DCBS Open Records
Independent Variable			
PercentSNAP	Percent of SNAP Recipients (per region)	(+)	http://chfs.ky.gov
Population	Population (per region)	(+)	http://chfs.ky.gov/dms
PercentOver	Percent Over the Age of 65 (per region)	(+)	http://wonder.cdc.gov
PercentWhite	Percent Identified as White (per region)	(- / +)	http://wonder.cdc.gov
PercentBelowPoverty	Percent Below Poverty (per region)	(+)	http://chfs.ky.gov

Exp. Sign = Expected Sign

(+) = positive effect
(-) = negative effect
N/A = not applicable

Research Models

The nature of the panel dataset used for this study is that it observes the same

dependent variable across time. The sample size of this analysis is the number of Family

Support regions, 9, times the number of years observed, 6, for a total of 54 observations. The

dependent variable is defined as the number of Family Support personnel per region. As

previously stated, the independent variables were aggregated from county-level data into

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[7] Additional independent variables were analyzed but not included in this analysis because they were co-linear with the existing variables. These omitted variables include the percent of K-TAP recipients, percent of Medicaid recipients, average household income, unemployment rate, and square miles of each region.

regional level in order to match the sample size of the dependent variable. The Family Support

regions are geographically oriented, and a simple mean would have distorted the results of

each region as there are often urban and rural counties in the same observation. So, a

weighted-average aggregation proportional to county population was completed in STATA. This

weighted average gives the aggregated regional data proportional representation within the

panel dataset.

Fixed-Effects Model

Since the panel dataset consists of six years, two regression models were used for this study:

fixed-effects and between-effects. The first model selected was the fixed-effects which hold

constant the observed and unobserved characteristics of each region. Fixed-effects are used

when attempting to measure time-series information. The benefit of this approach is that it

reduces the possibility of omitted variable bias that could otherwise be present in a simple

ordinary least squares regression. The equation for this fixed-effects model is as follows:

$$Y_r = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \alpha_r + \varepsilon$$

Y_r represents the number of Family Support personnel allocated to an individual region. $X_1 - X_6$

represents the six independent variables (region population, percent SNAP, percent over 65,

percent white, and percent below poverty). α_r represents the fixed effects for each region while

ε is the random error of variables not included in the model. Below, in table 2, the summary

statistics of the independent variables are listed for this fixed-effects model.

Table 2. Summary Statistics

Variable	Obs	Mean	St. Dev	Min	Max
Number of Family Support Employees (per region)	54	182.5	41.1	119.0	292.0
Total Population (per region)	54	107,883.7	218,991.8	18,237.4	750,828.0
Percent of SNAP Recipients (per region)	54	18.2	6.8	9.4	34.9
Percent of Population Over the age of 65 (per region)	54	13.5	1.4	11.1	16.3
Percent of Population Identified as White (per region)	54	90.1	6.9	71.4	97.7
Percent Below Poverty (per region)	54	19.7	5.8	11.5	32.3

Obs = Number of Observations

St. Dev = Standard Deviation

Between-Effects Model

A between-effects model also was used for this study to measure the cross-sectional effects of the independent variables. Where fixed-effects measure the variation over time within the regions, between-effects measure the variation across the regions. Since this model uses the same panel dataset as the fixed-effects, the summary statistics are the same as presented earlier in table 2.

IV. Results

The results of both models indicate that three of the independent variables will have a measurable impact on the number of Family Support employees in a region. First, the results of the fixed-effects model are presented in Table 3. From this model, it can be concluded that the

distribution of Family Support employees is not equitable across the state. This will be further

explained after Table 4.

Table 3. Fixed-Effects Results

Variables	Total Family Support Employees per Region	
	Coefficient	Standard Error
Total Population (1000s)	0.638*	0.3702
Percent of SNAP Recipients	-8.862***	2.265
Percent of Population Over the age of 65	37.963***	9.213
Percent of Population Identified as White	-7.412***	1.816
Percent Below Poverty	0.003	1.100
Constant	423.151	189.399

Observations = 54

R-Squared = 0.51

***p<0.01, **p<0.05, *p<0.1

Table 4. Between-Effects Results

Variables	Total Family Support Employees per Region	
	Coefficient	Standard Error
Total Population (1000s)	-0.0686	0.291
Percent of SNAP Recipients	12.366	24.957
Percent of Population Over the age of 65	-1.574	14.262
Percent of Population Identified as White	-4.562	8.780
Percent Below Poverty	-7.65E+00	2.56E+01
Constant	545.818	955.259

Observations = 54

R-Squared = 0.04

***p<0.01, **p<0.05, *p<0.1

Table 4, above, contains the results of the between-effects model. None of the variables in this model has a p-value less than .05. However, this is not surprising as the regional nature of the data has reduced the total number of observations. The lack of statistically significant findings in the between-effects model contrasts with the results in Table 3.

In Table 3, the percent of SNAP recipients has a negative effect on the number of Family Support employees at the 0.01 level. With each one-percent increase in the number of SNAP recipients, the number of Family Support employees decreases by -8.86. This is opposite of the earlier prediction of a positive relationship.

Another prediction proven wrong by these results is the relationship of caseworkers and the percent of the white population. The previous prediction was that there would be no relationship. Instead, the results show that a one-percent increase in the number of white individuals decreases the number of Family Support employees -7.41. This is interesting especially when compared to the region population which has a positive relationship with the dependent variable. However, the region population does not have statistical significance below the 0.05 level.

The next statistically significant variable was the percent of population over the age of 65. The fixed effects model shows that a one-percent increase in the senior population has an increase of 37.96 Family Support employees at the 0.01 level. Last, the percent below poverty did not have statistical significance in either model. This variable has a positive relationship as predicted but is not a reliable measure of Family Support employee allocation. Since three of the five independent variables in the fixed-effects model have statistical significance at the 0.05 level or less, the null hypothesis (H_0) is rejected.

Interpretation of Results

Having determined that the null hypothesis (H_0) can be rejected, the threat of committing a type I error is not significant based on the results presented in Table 3. The main question of this study is if Family Support employees have been allocated equitably according to a legal analysis. The coefficients of the fixed-effects model provide the answer to that question. Four of the variables are quantified as a measure of population. Within this group, the percent of population over the age of 65 has the largest effect on the number of Family Support employees with a coefficient of 37.96.   The fixed-effects suggest that a region will have more family support workers when it has an increasing number of seniors.

The results show that neither the legal analysis, postcode lottery, or Tiebout migration can explain inequity in Family Support caseloads. The postcode-lottery theory is rejected as the between-effects model was not able to produce any statistically significant results. Had the between-effects model produced significant results the conclusion would have been made that caseload inequity is a response to demographic clustering. However, this is not the case. The statistically insignificant results in the between-effects model suggest that none of the five independent variables has a cross-sectional effect on Family Support allocation. In other words, Family Support personnel allocation has changed more over time. This time series change is partly because of the 300 extra Family Support workers that were hired in the Commonwealth's last budget cycle and general shifts in the population.

Both the fixed-effects and between-effects models also do not provide sufficient evidence to conclude that Tiebout migration is responsible for caseload inequity. The variable percent below poverty was selected as the measure of this theory and does not have

significance in either model. If Tiebout migration had explanatory power it would be more logical that Family Support employee allocation would be more responsive to the percent below poverty.

Without the ability to explain caseload inequity by way of a postcode lottery or Tiebout migration, the author concludes that the legal analysis still remains the principled way to allocate Family Support personnel. This means that the variation of Family Support personnel between the regions is age discriminatory as the variation in caseloads is more responsive to the percent of population over the age of 65 than to other explanatory variables. While age is a qualifying factor for Medicaid, seniors do not represent a disproportionate share of Medicaid applications. The latest count shows that individuals over the age of 65 represent only 9.9 percent of Kentucky Medicaid beneficiaries (KY DMS, 2014). Yet, according to data collected for this study, seniors represent 14.1 percent of Kentucky's population. Therefore, Family Support caseloads are age discriminatory.

V. Summary

With an F-value of the fixed-effects model of <0.01, it is the opinion of the author that this study has found a statistical relationship between the number of seniors and the allocation of Family Support personnel. After an analysis of the empirical results and relevant literature, this study reaches the conclusion that Family Support employees are not allocated equitably. However, even though the results and conclusions of this study have descriptive power, there are limitations to this conclusion. First, the reliability of the dependent variable data is

questionable as previously outlined in section III. A more disaggregated collection of variables on the county level could provide more results or more accurate conclusions.

Second, there are other variables not included in this model that could potentially explain the difference in Family Support employee allocation. The fixed-effects model has an r-squared value of 0.51. Footnote four explains which other variables were tested but not included in either model. Further research could develop a more comprehensive panel dataset that would achieve a higher r-squared value.

Last, the results of this paper are not generalizable outside of Kentucky. The economic and population data used in this study is unique to Kentucky and would not reflect an accurate analysis of other departments. The dependent variable data supplied by DCBS also is not relevant to other states as other states have different program eligibility requirements, application processes and bureaucratic structures that make their public assistance departments unique.

Future Research

The focus of this research has been the allocation of Family Support personnel for the years 2006 – 2013. Beginning January 1, 2014, Kentucky opted to expand Medicaid eligibility under the Affordable Care Act. In preparing for this expansion, Kentucky introduced a new Family Support call center, online application process and a re-alignment of Family Support offices. While this study could help guide the current re-alignment of Family Support employees, future research may find this study increasingly to be obsolete. However, given the

current findings of employee inequity, future research is encouraged in order to ensure

continuous accountability of Family Support resources.

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Data Sources

Division of Family Support Employees

       The number of Division of Family Support Employees was obtained through an open records request submitted on January 22, 2014 to Commissioner Teresa James. Dorcas Peach, Human Resource Branch Manager provided the data sets for 2006, 2007, 2008, 2009, 2012 & 2013.

Population (2006 – 2013)

       Cabinet for Health and Family Services Data Book.
       http://chfs.ky.gov/dcbs/data_book.htm Accessed March 7, 2014.

SNAP Recipients (2006 – 2013)

       Cabinet for Health and Family Services Data Book.
       http://chfs.ky.gov/dcbs/data_book.htm Accessed March 7, 2014.

K-TAP Recipients (2006 – 2013)

       Cabinet for Health and Family Services Data Book.
       http://chfs.ky.gov/dcbs/data_book.htm Accessed March 7, 2014.

Medicaid Recipients (2006 – 2013)

       Department for Medicaid Services. MS 264 Report and Supplements.
       http://chfs.ky.gov/dms/stats.htm Accessed March 7, 2014.

Population Below Poverty (2006 – 2013)

       Cabinet for Health and Family Services Data Book.
       http://chfs.ky.gov/dcbs/data_book.htm Accessed March 7, 2014.

Population Unemployed (2006 – 2013)

       Cabinet for Health and Family Services Data Book.
       http://chfs.ky.gov/dcbs/data_book.htm Accessed March 7, 2014.

Population (Caucasian) 2006 – 2013

       Center for Disease Control. Bridged-Race Population Estimates.
       http://wonder.cdc.gov/Bridged-Race-v2012.HTML Accessed March 7, 2014.

Population (Age 65 and Over) 2006 – 2013

Center for Disease Control. Bridged-Race Population Estimates.
http://wonder.cdc.gov/Bridged-Race-v2012.HTML Accessed March 7, 2014.

Average Household Income (2006 – 2013)

Cabinet for Health and Family Services Data Book.
http://chfs.ky.gov/dcbs/data_book.htm Accessed March 7, 2014.

Square Miles (2006 – 2013)

United States Census Bureau. State and County QuickFacts.
http://quickfacts.census.gov/qfd/states/21000.html Accessed March 7, 2014.
This measure is the land area in square miles, 2010.

Appendix

A.   Descriptive Statistics for Independent Variables

Fixed-Effects Model						
Y	Coef.	Err.	T-stat	P-value	95% Conf. Int.	
Population	0.00	0.00	1.75	0.10	0.00	0.00
PercentSNAP	-8.86	2.27	-3.91	0.00	-13.48	-4.24
PercentOver	37.96	9.21	4.12	0.00	19.17	56.75
Percent White	-7.41	1.82	-4.08	0.00	-11.12	-3.71
PercentBelowPoverty	0.00	1.10	0.00	0.99	-2.85	2.86
Constant	423.15	189.40	2.23	0.03	36.87	809.43

Between-Effects Model						
Y	Coef.	Err.	T-stat	P-value	95% Conf. Int.	
Population	0.00	0.00	-0.24	0.83	0.00	0.00
PercentSNAP	12.37	24.96	0.50	0.65	-67.06	91.79
PercentOver	-1.57	14.26	-0.11	0.92	-46.96	43.81
Percent White	-4.56	8.78	-0.52	0.64	-32.50	23.38
PercentBelowPoverty	-7.65	25.60	-0.30	0.78	89.13	73.82
Constant	545.82	955.26	0.57	0.61	-2494.24	3585.88

Coef = coefficient
Err = Robust Standard Error
T-stat = t-statistic
95% Conf. Int. = 95% Confidence Interval