FINANCIAL SERVICES IN CHICAGO: EXPLAINING THE DENSITY AND LOCATION OF BANKS AND CURRENCY EXCHANGES

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By

Niall O’Connor, M.P.P.

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The City of Chicago is attempting to move low-income individuals and families into the financial mainstream. As a result, policy-makers in Chicago have promoted the idea that currency exchanges are bad while banks and credit unions are good. Several officials have even made the claim that currency exchanges are targeting low-income communities in order to earn above-average profits (Neely 2007). Other officials argue that the solution is simply providing incentives to banks to locate in low-income neighborhoods. Beside the fact that several studies suggest currency exchanges are locating in middle class neighborhoods, not low-income areas, and that banks have not responded to previous incentives, it is important to understand why currency exchanges exist, and why they and banks locate where they do in the city (Navigant 2008). To address this issue, this study will analyze 2000 Census data and data from the Illinois Department of Financial and Professional Regulation to better understand financial institutions in the City of Chicago. This study will test the widely-held assumption in this literature that the average income of a neighborhood determines the prevalence of currency exchanges and banks (Navigant 2008). It will show that many more factors besides average income contribute to the location of these financial institutions. It will also demonstrate that income does not influence where currency exchanges locate in the way that much of the literature suggests.
Acknowledgements

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# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>II</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>III</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>IV</td>
</tr>
<tr>
<td>List of Tables and Graphs</td>
<td>V</td>
</tr>
<tr>
<td>Introduction</td>
<td>1-3</td>
</tr>
<tr>
<td>Background</td>
<td>3-8</td>
</tr>
<tr>
<td>Literature Review</td>
<td>8-14</td>
</tr>
<tr>
<td>Conceptual Framework and Hypothesis</td>
<td>14-17</td>
</tr>
<tr>
<td>Data and Methods</td>
<td>18-19</td>
</tr>
<tr>
<td>Data Source</td>
<td>18-19</td>
</tr>
<tr>
<td>Analysis Plan</td>
<td>19</td>
</tr>
<tr>
<td>Results</td>
<td>19-26</td>
</tr>
<tr>
<td>Descriptive Results</td>
<td>19-21</td>
</tr>
<tr>
<td>Regression Results</td>
<td>21-26</td>
</tr>
<tr>
<td>Discussion</td>
<td>26-30</td>
</tr>
<tr>
<td>Conclusion</td>
<td>31</td>
</tr>
<tr>
<td>Appendices</td>
<td>32-33</td>
</tr>
<tr>
<td>Tables</td>
<td>32</td>
</tr>
<tr>
<td>Graphs</td>
<td>33</td>
</tr>
<tr>
<td>References</td>
<td>34-35</td>
</tr>
</tbody>
</table>
# List of Tables and Graphs

**Table 1: Descriptive Statistics**  
Page 20

**Table 2: Primary Regression Model**  
Page 32

**Table 3: Error and Degrees of Freedom**  
Page 32

**Table 4: Explanatory Power of the Model**  
Page 32

**Table 5: Correlation Matrix**  
Page 32

**Graph 1: Income and the Number of Currency Exchanges**  
Page 33

**Graph 2: Banks and the Number of Currency Exchanges**  
Page 33
Introduction

The certainty of paying more today versus the uncertainty of paying less tomorrow creates different banking decisions for low- and high-income households. While high-income households typically can afford to have savings and checking accounts at mainstream banking institutions, the same is not necessarily true for low-income households.

Many households in Chicago and the rest of the United States often lack access to traditional financial institutions for a variety of reasons including inadequate identification, inconvenience, and cost. As a result, these “un-banked” individuals often use alternative financial services, which typically charge higher, fees for transactions such as cashing checks and paying bills. The lack of access to mainstream financial institutions and the use of high-cost alternative financial services are believed to undermine societal efforts to reduce poverty and encourage asset-building in low-income communities.

This thinking reflects the popular perception of the poor and their access to financial services, but it also assumes that mainstream banking institutions are good while alternative ones are bad. Those who believe currency exchanges are bad also claim that alternative financial institutions target low-income neighborhoods in an attempt to increase revenues. It is often ignored that currency exchanges are regulated
by the state, and that banks may be failing to compete in low-income neighborhoods. In many cases, it has also been shown that the price structures of bank checking accounts, even those advertised as “free”, can result in some consumers paying more than if they had used a currency exchange (Berry 2004). The notion that low-income individuals are naïve consumers who do not understand they are being victimized isn’t supported by much of the evidence. Certain consumers prefer banks because these institutions address their needs such as asset-building while other consumers use currency exchanges because these institutions are better equipped to meet their needs such as check-cashing.

Looking at the ratio of banks to currency exchanges in the top and bottom ten neighborhoods in terms of average income suggests that the number of currency exchanges in a Chicago neighborhood increases as income declines while the number of banks increases as income increases. The assumption that currency exchanges target low-income neighborhoods while banks target high-income neighborhoods is easy to make given this information, but other factors also exist to explain the density of financial institutions in Chicago neighborhoods. In this paper, I will analyze these factors in an attempt to better explain the density of currency exchanges in Chicago. In doing so, it is my hope that policies designed to help Chicago households are formulated without using of the existing, over-simplified good versus bad framework.
The availability of financial institutions for both low- and high-income individuals is important for Chicago to continue being a place where people want to live, work, and raise a family. It is in nobody’s best interest if the wrong questions are being asked even if well-intentioned policies are being implemented. Better understanding the availability of financial services is an important first step to promoting access to financial services for all of Chicago’s residents.

**Background**

Low-income households in the United States often lack access to traditional financial institutions (Barr 2004). As a result, this “un-banked” population is more likely to use alternative banking institutions like currency exchanges, which charge fees for transactions such as cashing checks and paying bills whereas better-off individuals receive these services simply by opening a checking or savings account at a mainstream bank. The lack of access to mainstream banking and use of alternative financial services undermine societal efforts to reduce poverty and encourage asset-building among the poor.

The term “un-banked” refers to households in which no member of the household has a checking or savings account. Nationally, the Government Accountability Office (GAO 2005) has estimated that 20 percent of American
households are un-banked. These families live paycheck-to-paycheck, and find it
difficult to save money and plan financially for the future (Barr 2004). In 2001, the
Federal Reserve Bank of Chicago found that 70 percent of un-banked Chicago
households had an income below $30,000 and 74 percent lived in low-to-moderate
income areas (Rhine, Hogarth, and Greene 2001).

However, the line between the banked and the un-banked isn’t clearly defined.
About half of the un-banked reported that they once held a bank account (Berry 2004).
Even among those who do have account, many consumers continue to use currency
exchanges for certain financial services. About 80 percent of people with bank
accounts who send money abroad use a currency exchange, while over a quarter of
account-holders continue to cash checks at currency exchanges (Berry 2004). This
makes the notion that banks simply target moderate- to high-income areas while
currency exchanges target low-income areas much harder to believe.

While the mainstream banking system works very well for most Americans by
allowing them to save and spend money in an efficient and sustainable manner, low-
income families find this system doesn’t always make sound economic sense (Berry
2004). Besides various minimum balance requirements and high penalty fees, banks
tend to hold checks before releasing the funds. For families who require their proceeds
from checks immediately to pay bills or purchase essentials, this is not a realistic option.

Currency exchanges provide financial services such as check-cashing, money orders, wire-transfers, and bill payment, as well as selling other items such as transit passes, phone cards, and license plates. In Chicago, these institutions are regulated by the State of Illinois, and the fees for check-cashing and money orders are capped. A current industry proposal, which most insiders deem likely to pass in 2008, would increase these caps for the first time in over 20 years. Currency exchanges in Chicago took in an estimated $101 million in revenues in 2005, about $75 million of which was from check-cashing and money orders. Total profit for currency exchanges in Chicago was approximately $7,850,000, or about $22,300 per location (Navigant 2007).

While many view those who use currency exchanges as naïve or ill-informed (Varmilyea and Wilcox 2002), researchers agree that the price structures of checking accounts mean that low-income customers may well pay less by using a currency exchange (Hogarth, Anguelov, and Jinkook 2003). Those who would be unable to accumulate minimum balances and who cash a limited number of relatively small checks each month may be choosing the cheapest option they have available given their situation. However, they are still likely to pay much more for financial services in the long-run than people who can avoid the penalty fees at mainstream banking
institutions. For example, a worker earning $12,000 per year would pay approximately $215 annually to cash their payroll checks (Friedman 2005).

As individuals face high costs using currency exchanges, banks face high costs opening new locations. Due to the large up-front costs of opening new branches, banks are often reticent to move into low-income communities, where profit may be difficult to realize in the short-term. A 2004 Brookings Institution study found that mainstream banking institutions require incentives in order to offer the services that low-income clients demand (Barr 2004). These services include money orders, phone cards, bill payment, and the ability to wire funds. Incentives focusing on minimizing short-term losses are not being adequately provided because banks are deciding against locating in low-income areas. The absence of these services at mainstream banking institutions and the shortage of banks in low-income areas cause many low-income people to look to alternative financial services. Even when banks do offer these services, inconvenient locations and hours of operation often prevent their use. Also, cultural and language barriers can also deter people from using banks, especially among immigrant communities.

During the past decade, the number of banks in Chicago has stagnated due to consolidation while the number of currency exchanges has declined (Navigant 2007). The number of banks, however, has typically increased in moderate-to-high income
neighborhoods while the low-income neighborhoods have experienced a decline in both banks and currency exchanges (Navigant 2007). In a situation where a low-income individual can choose between a mainstream banking institution and a currency exchange, most research indicates that the former is preferred (Barr 2004). However, in a situation where a low-income individual can only choose between a currency exchange and nothing at all, most people would agree that the currency exchange providing needed services is preferred to the alternative. The situation in Chicago has many public officials openly castigating currency exchanges for harming low-income communities, but public policies designed to provide an alternative have not been successful on a city-wide scale. Examples like ShoreBank, which is a Chicago bank that primarily serves low-income communities by tailoring account structures to the needs of these customers, are indeed interesting and worth examining, but government policy seems to be harming low-income families in the short-term while waiting for a viable alternative to change the way low-income people satisfy their banking needs in the long-term.

Better understanding what determines the number of currency exchanges in a given neighborhood is crucial to understanding how to move low-income families into mainstream banking institutions in a manner that isn’t more harmful than the present situation of very little opportunity for saving and asset-building. Better understanding
these determinants could also provide insight to certain situations where it is not in the immediate, best interests of certain residents to be moved into the financial mainstream. For example, if policy-makers understand that neighborhoods with more minority groups demand more currency exchanges, this can be taken into account as policies to move people into the financial mainstream are implemented. Also, there would be significant policy ramifications if the number of currency exchanges decreases as the number of banks increases. If this isn’t true, the current strategy to provide incentives for banks to move into low-income neighborhoods might be somewhat flawed. The existing structure may not be perfect, but a good system today may be better than a perfect system next year.

**Literature Review**

The literature on currency exchanges addresses several important issues. The first issue focuses on the movement of individuals into the financial mainstream, and why this is good for both the individuals and society. The literature on this issue offers subjective beliefs that currency exchanges are bad and locate predominantly in low-income areas. Additional literature offers contradictory evidence that suggests currency exchanges provide necessary financial services and locate in middle-income areas. The second issue focuses on the current trends in terms of the numbers of banks
and currency exchanges. The literature provides insight into trends such as bank consolidation and declining numbers of currency exchanges.

The reasons that people don’t use mainstream banking institutions are varied. In studies by ShoreBank’s Center for Financial Services Innovation and Harvard’s Joint Center for Housing Studies, these reasons are examined. Contrary to popular perception, there is little indication that bad credit is the primary impediment to opening a bank account for most people. Estimates of the proportion of the un-banked deterred by credit problems range from 6 to 13 percent, while another 10 percent lack proper identification or a social security number (Berry 2004). These “hard” barriers prevent less than one-quarter of the un-banked from having an account at a mainstream banking institution. Far more common are “soft” barriers such as cost and convenience. When un-banked individuals are asked why they don’t have a bank account, 48.5 percent cite cost reasons while 46 percent of people who use currency exchanges (both banked and un-banked) cite convenience of locations as the primary reason (Berry 2004). Checking accounts are also less appealing in these neighborhoods because checks are often not an accepted form of payment. Of those who had a checking account, 35 percent reported that they still used money orders because checks were not accepted in some places. About 20 percent of people (both banked and un-banked) living in low-income areas reported that their landlord does not
accept checks (ShoreBank 2002). As efforts to increase the number of checking accounts in these areas progress, checking accounts may become more useful for residents, creating a tipping effect towards the financial mainstream.

The reason that low-income individuals and families should move into the financial mainstream is fairly well agreed upon in that it encourages asset- and wealth-building among the poor and promotes more broad efforts to reduce poverty on the part of the government. In Caskey’s three major studies on the topic of moving low-income individuals into the financial mainstream, he focuses on the benefits of banks versus the costs of currency exchanges in order to demonstrate the desirability of mainstream banking institutions to the poor (Caskey 1994, 1997, 2002). Caskey mentions the current situation where banks are not offering the services that low-income individuals and families demand, but he leads with the assumption that currency exchanges are targeting low-income neighborhoods instead of recognizing that banks are not opening in these neighborhoods. In 2005, Jacobsen went into detail pointing out the ways that banks have failed the poor, and this allows him to conclude that addressing these failures will make banks more appealing to low-income individuals and families. Jacobsen accepts Caskey’s finding that currency exchanges are bad for low-income neighborhoods because they target them to make above-average profits (Jacobsen 2005). Dove Consulting performed a survey of non-bank
financial institutions for the U.S. Treasury, but its analysis did not include the City of Chicago. This is important due to the fact that the survey shows the number of currency exchanges increasing nationwide between 1990 and 2000 while the number of currency exchanges in Chicago declined during that period. The survey details the types of services offered by currency exchanges and the reasons that they don’t use mainstream financial institutions. The survey also suggests that the longer hours of operation, which low-income individuals demand, by currency exchanges contributes to the lower profits compared to banks (Dove 2000). Studies by Barr and Friedman in 2005 continue detailing the positives and negatives in bringing low-income individuals and families into the financial mainstream, and offer little new information. However, they lean on the Caskey’s finding that currency exchanges target low-income neighborhoods so their solution is encouraging banks to offer services that the poor will find desirable. Studies by Dunham and Rhine, Toussaint-Comeau, Hogarth, and Greene, all in 2001, are more even-handed in their approach to understanding the reasons that the poor might rationally choose currency exchanges over banks. These two studies also detail the role of currency exchanges as financial service providers in low-income neighborhoods. This is relevant because it is the first time in the literature that banks and currency exchanges co-exist in providing financial services without strategies for banks to become the dominant financial service being presented.
Contradicting this finding that currency exchanges locate in low-income neighborhoods is a January 2008 Virginian-Pilot article that suggested that currency exchanges are more likely to be located in middle-income neighborhoods (Hoyer 2008). While Hoyer analyzed data that focused on Virginia, she did suggest that her research could have implications across the entire country. If currency exchanges are more likely to be in middle-income areas than either low- or high-income areas, this would call into question many of the ideas put forth by Caskey, Barr, and Jacobsen.

Three events that contributed to the increase of banks at the expense of declining numbers of currency exchanges were the 1987 court ruling in Mississippi allowing national bank branching, the 1996 welfare reform, and the 1996 currency exchange rate assessment. Davis and Rice (2007) detail how bank branching grew at such a rapid rate (66 percent in Illinois compared to 23 percent nationally) in Chicago after the 1987 ruling. Currently, bank branching growth is experiencing a slowdown with many mainstream banks discussing closing down under-performing branches. This financial climate is not appropriate for moving people from alternative to mainstream institutions because the ability of banks to open new locations is restricted by economic realities. If banks did not move into low-income neighborhoods during a period of explosive growth, the likelihood that they will do so now is low.
Fischer and Weber (1998) detail the effect of welfare reform in 1996 on mainstream and financial banking institutions. As more people moved into the financial mainstream after 1996, welfare reform helped create the opinions that work was better than welfare and banks were better than currency exchanges for poor people. This study assumed poor people were all the same, and that they had similar preferences when it came to financial services. It also assumed that as more people moved from welfare to work, they would have less need for currency exchanges. Berry’s research on the diversity of individuals who use currency exchanges had not yet been published so Fischer and Weber failed to recognize that many consumers use banks and currency exchanges as complimentary services.

As a result, regulatory laws governing rates currency exchanges could charge in Illinois were kept constant and the number of currency exchanges declined. A 2007 Navigant Consulting study detailed the trends in the alternative financial service sector since the last rate assessment in 1996. The declining number of currency exchanges was due to the declining profitability and the reluctance of the State of Illinois to go against the wishes of the City of Chicago, which wanted the trend of increasing numbers of banks and decreasing numbers of currency exchanges to continue. In the past year, the State of Illinois has recognized that currency exchanges have a role in providing financial services, and as a result, legislation in Springfield increasing the
rates that currency exchanges can charge customers is expected to pass in 2008
(Navigant 2007). The results of this proposed rate increase will help determine the role
of currency exchanges in the City of Chicago, as many people are likely to move into
the financial mainstream if the additional costs are perceived as being too high. On the
other hand, if the rate increase does not cause many customers to leave and currency
exchanges experience increased profits; the inelasticity of demand for currency
exchange services should not be ignored by policy-makers who wish to see the decline
of currency exchanges continue.

Conceptual Framework and Hypothesis

The following framework and hypothesis will serve as the primary tool to test
why banks and currency exchanges locate where they do. This conceptual model will
examine a variety of factors, including average income, which may determine the
location and density of banks and currency exchanges. The primary model used for
this paper is the following:

\[ \text{Number of Currency Exchanges per Neighborhood} = \beta_0 + \beta_1(\text{Number of Banks per Neighborhood}) + \beta_2(\text{Neighborhood Median Income}) + \beta_3(\text{Neighborhood Median Income-Squared}) + \beta_4(\text{Ratio of Home-Owners to Home-Renters}) + \beta_5(\text{Total Number of Workers who use Public Transportation}) + \beta_6(\text{Ratio of Residents with No Vehicle to Residents with One or More Vehicles}) + \beta_7(\text{Neighborhood Median Age}) + \beta_8(\text{Poor English}) + \beta_9(\text{Percentage of Residents with a High School Degree}) + \mu \]
For the number of banks, the expectation is that this variable increasing causes the number of currency exchanges to decrease. This inverse relationship is due to the fact that currency exchanges thrived in Illinois when bank branching was severely restricted. The literature suggests that the majority of people prefer banks, and only use currency exchanges due to a shortage of banks. This implies that as the number of banks increases to satisfy demand, the number of currency exchanges declines.

For the neighborhood median income, the expectation is that this variable increasing causes the number of currency exchanges to decrease. This inverse relationship is due to the expectation that currency exchanges are more prevalent in low-income neighborhoods while banks are more prevalent in moderate- to high-income neighborhoods. This is what many studies use as evidence that currency exchanges are targeting low-income areas. Squaring neighborhood median income will test whether this inverse relationship is consistent across the income spectrum.

For the language variable that divides the number of people who don’t speak English “very well” by the total number of people who speak English “very well” despite it not being their first language, the expectation is that as this variable increases, the dependent variable also increases. This is due to the assumption that language barriers are an important factor contributing to why people don’t use banks and prefer currency exchanges where employees are more likely to speak a language
other than English, which is spoken in the neighborhood. Immigrants are also more likely to use currency exchanges because of remittance services.

For the ratio of home-owners to home-renters, the expectation is that as the number of people who own houses increases, the dependent variable decreases. This expectation is due to literature that suggests people who use currency exchanges are more likely to be renters rather than buyers (Berry 2004). The concern with this independent variable is that it will be highly correlated with the neighborhood median income, as buyers are more likely to have higher incomes while renters are more likely to have lower incomes.

For the number of workers who use public transportation divided by the total number of workers, the expectation is that as this variable increases, the dependent variable also increases. This is due to the understanding that currency exchanges view one of their strengths as their convenience where people can purchase many goods and services under one roof. People who use public transportation will most likely place greater importance on this convenience as they will want to save money on transportation. The number of households with no vehicle will be similar to the number of workers who use public transportation in that increases in both will cause increases in the dependent variable. Since this variable is a ratio of those with no
vehicle to those with one or more vehicles, the expectation is that as this variable decreases, the dependent variable will increase.

For the neighborhood median age, the expectation is that as this variable increases, the dependent variable will decrease. Berry suggests that younger people are less likely to have a demand for asset-building services that banks provide. As a result, currency exchanges will be preferred to banks as the primary benefit banks offer that currency exchanges do not is the accumulation of interest. Older people with families are more likely to demand these asset-building services so banks will be more likely to locate in neighborhoods with a higher proportion of people over a certain age.

For the percentage of residents in a neighborhood who have graduated from high school, the expectation is that as this variable decreases, the number of currency exchanges will increase. The literature suggests that less educated people are more inclined to use currency exchanges while more educated people use banks. Thus, at the neighborhood level, the more educated the neighborhood, the lower the demand will be for currency exchanges. While I do not have data on average years of schooling, I do have the percentage of residents in a neighborhood who have graduated from high school. A higher percentage of high school graduates should result in a lower number of currency exchanges.
Data and Methods – Data Source

The dataset being used for this study was initially provided by the City of Chicago and modified by me. The modified dataset combined 2000 Census data with State of Illinois financial service data. The data is population data from each of Chicago’s 77 neighborhoods, and is divided into general demographic, social demographic, economic, and housing categories. The bank and currency exchange figures come from the Illinois Department of Financial and Professional Regulation, which last updated its figures in July of 2006.

For the 200 Census, the Census Bureau sent a seven-question survey to all of the households in Chicago. Nearly 20 percent of the households received a longer survey that provided the estimates detailed in the dataset. The 2000 Census had a 69 percent response rate in Illinois. In each of the four sections of the dataset (general demographic, social demographic, economic, and housing), there are several variables that need to be combined and coded properly in order to provide insight to the research question being tested in this study. There are obvious limitations with the dataset in terms of census flaws, but these will not prohibit a thorough analysis of financial institution density and location. For example, there isn’t information on the people administering and answering the census to each household so uncertainty exists due to
not knowing about cases where a young child (who isn’t as reliable as an adult) provides information on the household.

**Data and Methods – Analysis Plan**

This paper analyzes all of the neighborhoods of the City of Chicago with the exception of the central business district or “the Loop” as it is called in Chicago. The Loop will be excluded because the high density of both banks and currency exchanges primarily exists due to the need to serve the large number of businesses and commuters in the city’s central business district.

The type of regression model that will be used in this study is an ordinary least squares (OLS) model. Since the dependent variable (the number of currency exchanges) is continuous, the OLS model is appropriate for this analysis.

**Descriptive Results**

The total population of the City of Chicago according to the 2000 Census was 2,896,016. In Chicago, there are 789 mainstream banking institutions (743 banks and 46 credit unions) and 352 currency exchanges. The mainstream banking institutions are more prevalent in high-income neighborhoods while currency exchanges are more evenly distributed across the city. The contrast in available financial services in low-
and high-income neighborhoods appears stark. In the ten highest-income neighborhoods (excluding the Loop, which has large numbers of both banks and currency exchanges that primarily serve commuters), there are 4.45 banks per 10,000 people, while the ten lowest-income neighborhoods have only 1.51. Meanwhile, there are only 0.94 currency exchanges per 10,000 people in the highest-income neighborhoods while there are almost twice that many in the lowest-income neighborhoods.

The following table examines the dependent and independent variables used in the primary regression model. The 76 neighborhoods of Chicago are the unit of measurement.

Table 1: Descriptive Statistics

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<th>Mean</th>
<th>Standard Deviation</th>
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<td>0.000</td>
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<td>Banks</td>
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<td>60.000</td>
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<td>0.083</td>
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<td>HS</td>
<td>70.607</td>
<td>13.027</td>
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<td>Vehicle</td>
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<td>7.831</td>
<td>86.149</td>
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The population density of the city is approximately 12.5 people per square mile, which makes it one of the country’s most densely populated cities. The racial makeup of the city is 31 percent white/non-Hispanic, 36 percent black, 26 percent
Hispanic or Latino, 4 percent Asian or Pacific Islander. Of the 1,061,928 households, nearly 30 percent have children under the age of 18 living at home. Of the city’s population, over 25 percent are under the age of 18, 12 percent are between 18 and 24, 33 percent are between 25 and 44, 19 percent are between 45 and 65, and 10 percent are over the age of 65. These statistics describe a city that is very diverse in terms of both age and race. This diversity helps explain several independent variables such as the percentages of people who take public transportation or who have graduated from high school, and the variance between the numbers of people who own their homes compared to those who rent their homes. This diversity may also help explain what different neighborhoods demand different types of financial services.

**Regression Results**

The primary regression model used in this paper suggests that income is significant at the 0.1 level in determining the number of currency exchanges in a neighborhood. However, other variables are also significant, which confirms the hypothesis that the number of currency exchanges depends on a variety of factors, and not just on the average income of a neighborhood. Interestingly, several of the significant independent variables have a different impact on the dependent variable than previous researched found.
There were many significant factors in the primary regression model I ran to explain the density and location of currency exchanges. However, the one variable that remains consistently significant is the number of banks per neighborhood. Interestingly, this variable suggests that the number of banks and currency exchanges are positively associated, which goes against the standard assumption that currency exchanges are located in low-income neighborhoods while banks are located in moderate- to high-income neighborhoods. For each additional bank, the number of currency exchanges will increase by about 0.25. This positive relationship suggests that the number of currency exchanges in a neighborhood is dependent on the number of banks in that same neighborhood.

Previous analysis of the top and bottom ten neighborhoods in terms of income which shows that the number of currency exchanges decreases as income increases while the number of banks increases as income increases is the basis for this incorrect assumption. The primary regression model used in this paper suggests that currency exchanges and banks tend to follow one another when income is held constant. While it is not clear from this model which type of financial institution is the leader in terms of determining location and where specifically these institutions locate in neighborhoods, it is clear that these two different types of financial institutions follow a similar pattern in terms of where they locate.
This pattern could possibly be explained by Hotelling’s Law, which states that competing shop owners will locate their shops where they can maximize market share by attracting the largest number of customers (Hotelling 1929). As a result, competing shops will tend to locate near each other even though it would be more socially beneficial if the shops were more evenly distributed throughout a street, neighborhood, or city. While consumers at banks and currency exchanges may not be identical in terms of characteristics, they may not differ significantly in terms of location. In either case, Hotelling’s Law provides a compelling explanation for this outcome, which seems to refute the assumption that the numbers of currency exchanges and banks move in different directions depending on the average level of income in neighborhoods.

The income variables are interesting in terms of suggesting that previous assumptions about currency exchange and bank locations may not be accurate. These variables, log (median income) and log (median income-squared), also seem to provide support to the Hoyer’s argument that currency exchanges are more likely to be located in middle-income neighborhoods rather than low-income neighborhoods (Hoyer 2008). By using income and income-squared variables, it is clear that the number of currency exchanges and the average income of a neighborhood are positively correlated up to a certain point before the mean income. At approximately 10.25 on the log (median
income) axis, the number of currency exchanges and the average income of a neighborhood become negatively correlated. Basically, the number of currency exchanges is highest in middle-income neighborhoods. Also, the fewest number of currency exchanges are located in the lowest and highest income neighborhoods according to this model.

Hoyer suggests that currency exchanges locate in “middle-income neighborhoods, usually near shopping malls, and avoid poor areas” and that the average client is “a high school graduate with a job and an average income of $40,000 a year” (Hoyer 2008). Hoyer did not provide specific reasons why currency exchanges locate in middle-income areas, but she did make clear that the products and services currency exchanges offer exist because consumers like them and there is no other institution meeting this need with a less expensive product. Hoyer also points out that the Virginia General Assembly has taken an interest in curtailing the types of services provided by currency exchanges, and has used protecting the poor as reason for this action. Assuming Hoyer’s article and this paper are correct, actions by politicians to protect the poor in Illinois, Virginia, and other states are not only misguided and uninformed, but also detrimental to the financial needs of the middle class.

The age variable is also significant, but in a more predictable manner than the income variables. Median age and the number of currency exchanges in a
neighborhood are negatively correlated so that for each additional year, the number of currency exchanges declines by 0.25. While much of the literature doesn’t provide insight as to why younger people might be more likely to have a higher demand for currency exchanges, it does suggest that individuals decide to use banks when asset-building is a realistic financial strategy (Barr 2004). It is reasonable to assume that asset-building might not be a realistic financial strategy for younger individuals just out of high school or college, and starting a career with expenses in excess of income. For these types of individuals, currency exchanges may be the preferred method of managing their finances. As people grow older and saving becomes more realistic, banks would become the preferred method. To support this idea, the model suggests that median age and the number of banks are significant and positively correlated.

Other variables tend to fluctuate between being and not being significant. In several preliminary models for example, the variable that represents the diversity of minority groups living in a neighborhood seemed to indicate that if more minority groups lived in a neighborhood, more currency exchanges would also be in that neighborhood. After refining the model, this variable was insignificant. In the primary regression model, the only other significant variable is the ratio of those who own their home and those who rent their home. Interestingly, the correlation between this ratio and the number of currency exchanges is positive. This means that currency
exchanges are more likely to be in neighborhoods where there are more people who own their homes and less people who rent their homes. This could be related to the fact that currency exchanges seem to be located in middle income neighborhoods, but the model does not provide a definitive answer on this point.

Discussion

There are two very important implications for policy-makers in these findings. The first has to do with the location of currency exchanges in middle-income neighborhoods while the second has to do with the positively correlated relationship between banks and currency exchanges. These two implications could either help or hinder the City of Chicago in terms of promoting access to financial institutions for all its residents, including low-income individuals.

The first implication has to do with where currency exchanges are located in terms of income. Since some middle class individuals with bank accounts also use currency exchanges as a complimentary service to meet their financial needs, enacting policies that seek to further regulate currency exchanges due to the unsubstantiated claim that they are locating primarily in low-income neighborhoods could have a harmful impact on middle class standards of living. If Chicago policy-makers seek to promote regulatory policies which view currency exchanges as an unwanted financial
service institution, the result would be the continuing decline of currency exchanges in terms of both numbers and profitability. By mistakenly assuming that the clients of currency exchanges are low-income individuals without a bank account, Chicago politicians and policy-makers could negatively impact middle class individuals with bank accounts who use currency exchanges as a complimentary service, and further expand the gap between rich and poor.

The second implication has to do with the positive relationship between banks and currency exchanges. While this analysis does not provide insight as to whether banks or currency exchanges act as the leader in terms of location, it does confirm the fact that banks and currency exchanges tend to locate in the same neighborhoods even though the customers may not be exactly the same. Policy-makers must take this positive relationship into account when proposing plans to increase the number of banks in low-income neighborhoods such as Banking Development Districts (BDDs) similar to New York and California because the secondary goal of these BDDs is that an increase in banks will cause a reduction in the number of currency exchanges, which will benefit low-income communities according to BDD supporters (Evans 2007). While this research does not aim to suggest that policies such as banking development districts would cause an increase in currency exchanges within these banking development districts, it does suggest that the premise behind such a program
is flawed. This analysis does seem to indicate, however, that providing incentives for banks to open branches in low-income neighborhoods as a way to reduce the number of currency exchanges is the wrong approach. Banks in low-income areas may help the poor, but this must be more thoroughly examined before being accepted as the correct policy approach. If the City of Chicago maintains the subjective opinion that currency exchanges are bad, a different regulatory mechanism besides providing incentives for banks will be necessary to achieve this reduction or elimination.

Further research beyond this paper should focus on several aspects of this issue that were not covered in my model and analysis. The most important aspect is doing a more in-depth analysis on the positive relationship between banks and currency exchanges. Hotelling’s Law states that a leader will initiate the trend of businesses locating in the same area or neighborhood. Conducting research to explain which type of financial institution acts as a leader will aid policy-makers in creating regulatory mechanisms to facilitate the locating of appropriate financial institutions in different neighborhoods. The concept that banks and currency exchanges are located in the same areas challenges the assumption in previous research that currency exchanges locate in one area while banks locate in another. After confirming this finding, further research should seek to better examine and explain this positive relationship, and also
delve into additional complexities such as the existence of informal financial institutions like pawn shops.

Beyond the relationship between banks and currency exchanges, further research should perform a time-series analysis to determine the significance of the independent variables from one period of time to the next. The primary model in this paper observed instability associated with the majority of the independent variables with the number of banks being the exception. Refining these inconsistent variables such as the diversity of minority populations and the use of public transportation, and measuring them over time would address this inconsistency and hopefully provide better insight as how best to financially serve the residents of Chicago. Another interesting analysis that could take place is the proposed rate increase for currency exchanges that could possibly be passed into law by the Illinois General Assembly during the next legislative session. Studying the impact of the rate increase on the number of currency exchanges would provide insight on the location of these types of financial institutions.

There were several weaknesses in the model used for this paper that should be improved upon in future research. First, the model did not take into account the number of businesses in each neighborhood. By adding this variable into the model and interacting it with the number of banks, further research would be able to better
explain the relationship between banks and currency exchanges in terms of the types of customers each targets. I would assume that banks rely more on businesses in order to make a profit while currency exchanges rely more on individuals and families, but this assumption should be thoroughly tested in subsequent research. Second, the model implicitly assumed that residents used financial institutions in the neighborhood in which they lived. This is not a strong assumption because many residents may live closer to banks and currency exchanges in a bordering neighborhood than their own. For example, this model does not take into account major roads dividing neighborhoods where banks and currency exchanges are located on one side of the road, and residents on the side of the road without the financial institution will cross into the bordering neighborhood instead of possibly traveling farther within their own neighborhood to conduct their financial business. Figuring out how to take into account these individuals and situations should be a primary goal of future research on this topic. Third, the model uses neighborhoods as the unit of measurement, which results in 76 observations. In future research, census tracts would provide a greater number of observations and better take into account the differences that occur within a neighborhood.
Conclusion

Better understanding the location of banks and currency exchanges will allow policy-makers to make informed decisions regarding regulating financial institutions. Recognizing the fundamental flaws in the opinion that currency exchanges are located in low-income neighborhoods while banks are located in high-income neighborhoods will allow policy-makers to create much better and more focused policies to aid all Chicago’s residents, including the diverse middle class, with access to adequate and desirable financial services.
Table 2: Primary Regression Model

| Exchanges  | Coefficient | Std. Error | T    | P>|t|  | 95% Conf. Interval |
|------------|-------------|------------|------|------|-------------------|
| Banks      | 0.241       | 0.043      | 5.57 | 0.000 | 0.154 - 0.327     |
| PoorEng    | -0.821      | 1.277      | -0.64| 0.523 | -3.372 - 1.729    |
| PTWorkers  | 5.793       | 6.361      | 0.91 | 0.366 | -6.907 - 18.494   |
| HS         | -0.004      | 0.053      | -0.07| 0.945 | -0.109 - 0.101    |
| Vehicle    | -4.752      | 3.630      | -1.31| 0.195 | -12.000 - 2.450   |
| MedianAge  | -0.256      | 0.109      | -2.34| 0.023 | -0.474 - 0.037    |
| OwnRentRatio| 0.528       | 0.264      | 2.00 | 0.049 | 0.010 - 1.054     |
| LMedInc    | 87.164      | 47.151     | 1.85 | 0.069 | -6.977 - 181.304  |
| LMedIncSq  | -4.512      | 2.220      | -2.03| 0.046 | -8.944 - 0.080    |

*Highlighted cells indicate significance at the .10 confidence level

Table 3: Error and Degrees of Freedom

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<th>df</th>
<th>MS</th>
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<tr>
<td>Residual</td>
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<td>6.420</td>
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Table 4: Explanatory Power of the Model

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<tr>
<td>R-squared</td>
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<td>Adjusted R-squared</td>
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<td>Root MSE</td>
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Table 5: Correlation Matrix

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<th>PE</th>
<th>PT</th>
<th>HS</th>
<th>V</th>
<th>MA</th>
<th>ORR</th>
<th>LMI</th>
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Chart 1: Income and the Number of Currency Exchanges

Chart 2: Banks and the Number of Currency Exchanges
References


