2016

VOCATIONAL REHABILITATION OUTCOMES FOR HISPANIC CONSUMERS IN TRADITIONAL SETTLEMENT AREAS AND NEW IMMIGRANT DESTINATIONS: A 17-YEAR TREND ANALYSIS

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Digital Object Identifier: http://dx.doi.org/10.13023/ETD.2016.354

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VOCATIONAL REHABILITATION OUTCOMES FOR HISPANIC CONSUMERS IN TRADITIONAL SETTLEMENT AREAS AND NEW IMMIGRANT DESTINATIONS: A 17-YEAR TREND ANALYSIS

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DISSERTATION

A dissertation submitted in partial fulfillment of the requirements of Doctor of Philosophy in the College of Social Work at the University of Kentucky

By

Karen Elizabeth Waddle Cinnamond
Lexington, Kentucky

Co-Directors: Dr. Kay Hoffman, Professor of Social Work and Dr. Harold Kleinert, Professor of Rehabilitation Sciences

Lexington, KY

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ABSTRACT OF DISSERTATION

VOCATIONAL REHABILITATION OUTCOMES FOR HISPANIC CONSUMERS IN TRADITIONAL SETTLEMENT AREAS AND NEW IMMIGRANT DESTINATIONS: A 17-YEAR TREND ANALYSIS

At the end of the 20th century, economic and political forces converged to create an unprecedented migration of Hispanics across and within U.S. borders. Many migrated for work in new destinations like the Southeast instead of traditional regions in the Southwest. In the Southeast many communities struggled to meet the economic and social needs of its newest members of a population that grew seemingly overnight.

The state-federal vocational rehabilitation system is an important service to meet the economic and social needs of people with disabilities that impair their ability to work. Current scholarship suggests Hispanics and other minorities experience disparities in the state-federal vocational rehabilitation (VR) system in access, services and outcomes. To date there are not any studies that examine the VR trends for Hispanics with disabilities in the VR system in general and or specifically compare new destinations compared to traditional settlement areas. This study used a federal archived administrative database (RSA-911) to analyze 469,427 cases over a 17-year period (1997 to 2013) of Hispanic consumers between ages 18 and 64 in the two regions. A human capital and social capital conceptual framework guided the study, as VR services can be interpreted as services that build human capital and social capital to increase economic opportunity and independence.

Declines in application, services, and successful outcomes occurred, but rates significantly differed between the two immigration destination types. An overall downward trend in application rates existed. Both regions experienced increases in eligibility, though in the Southeast a much steeper increase occurred. Overall, consumers in Southwest received more services, but the Southeast had better overall rehabilitation and employment outcomes. However, both regions declined in service and outcomes of the 17-year period. In addition, consumers in both regions received significantly more human capital building services, although social capital building services had higher rates of rehabilitation and employment.
KEYWORDS: Vocational Rehabilitation, Disparities, Immigration, Social Policy, Trend Studies

Karen Waddle Cinnamond

July 24, 2016
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July 24, 2016
For my mother, Barbara Kay Waddle
December 27, 1946
February 24, 2014
My mentor, confidant, fellow adventurer and lover of the sea.

and

for my father, Kit Edward Waddle
My rock, my hero, and what every man should aspire to be.
Acknowledgements

First and foremost, I would like to acknowledge the support and mentorship of my committee. I was fortunate to have Co-Directors that were a perfect match for what I needed to conceptualize and see this project through: Dr. Kay Hoffman was my process expert and Dr. Kleinert was my technical assistance/outcome expert. They both taught me a tremendous amount about research design and scientific writing that I have only begun to emulate. To my other committee members, Dr. Chris Flaherty, Dr. Deborah Harley, and Dr. Adrian Archuletta thank you for helping me do something that I hope contributes to the greater public policy discourse for people with disabilities. I still have fan girl moments and feel such awe that I had the honor of such amazing scholars on my committee.

Though not committee members, I would like to thank Dr. Keith Wilson, Dr. Melanie Otis, and Dr. David Royse. Dr. Wilson graciously accepted a random phone call from an unknown student hundreds of miles and a discipline away. Dr. Wilson freely shared his expertise in a series of emails and phone conversations at the pilot phase of this project that made it technically possible. In that same period Dr. Melanie Otis pushed me to dig deep intellectually and not just “get by.” What I hope will be a life’s work was born from that struggle and I will always be grateful for the growth. And finally, I cannot thank Dr. David Royse enough. He has been an unwavering ally and helped me complete all levels of my education, especially when professional and personal challenges hit head on. I will try to “go forth and do great things.”

Thank you to my students who understood the pressure and shared in my successes; thank you so much for the honor of teaching you. I learned far more from each
of you, though. I want to thank especially the students in SW 422 the Spring Semester of 2014. Your encouragement and support to help me keep going while taking care of a dying parent, well, it really showed me that our students are something special and can live empathy while clearly articulating boundaries and expectations. I also am deeply appreciative to my SW 400 class in the Fall 2015, as well. The culture of learning THEY created in that classroom, it was something many teachers go their whole lives wanting and never feeling. “Captain, Oh! Captain” indeed.

To my Whine and Cheese Club, we were a cohortless cohort and we made our way to each other. No one understood this process like Rebecca, Jing, and Reiko. I also want to acknowledge the deep friendships I made with Kelly and Lynn. All you ladies kept it real. Friday Statistics and Shakes at Smashburger, Emergency Knitting Dates and Mental Health Pilates are skills that will help me climb the next mountain. And the next, and the next. I know these relationships are the foundation of our professional network for 20 years to come.

To my circle of framily, thank you showing me the strength to take’s life’s challenges and make them opportunities. For laughing and crying in all the right places. Thank you in particular Lynda, Katie, Kelly B, Paige, Bobbi Jo, Heather, Julie, Jane, James, Mike, and Mama Gail. I could not have done this without you. You keep me strong.

And my family. How can a few words give acknowledgement for the unwavering support and encouragement? Dad, Brenda (bonus mom), Sissy, Alexis, Becky, and Joe have been such a part of making this happen; many family events missed, weeks without phone calls, gifts for the kids. But they always with understood the emotional energy that
is consumed by the doctoral process and waited patiently. I hope I have made them proud.

Sacrifice is almost a meaningless word in the face of my husband’s willingness to walk this path with me because he knew I “had to do this thing.” Thank you, Jason. For making me laugh when I wanted to cry. For holding me up when I wanted to free fall. And most importantly, thank you for never having any expectations that I would do traditional house-wifey things. Like Cook. Ever. I am sure “Fend for yourself, I am dissertating” will be written on my tombstone by our children. I have been at this thing more than half their lives.

My children, my amazing, precious children, Anne and Carson, who are amazing and precious in spite of me. I hope I have made them proud, too. Not of my education or professional achievements, but the strength of character and courage with which I try to live daily, even when life is its scariest. Most importantly, I hope Anne and Carson saw the moments of joy with which I have tried to walk this crazy path. Funny how that path just leads me back to them. It always will. “Be brave buckaroos, be brave.”

Ultimately, I want to acknowledge the force my mother is in my life. I learned from her to fight the good fight, to do my part in making the world someplace better, not from a place of anger or righteousness, but from a place of love. Her willingness to live in bold, bright strokes has set the marker high for a life well lived.
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Chapter 1: Introduction

This study sought to make a unique contribution to the vocational rehabilitation and comparative immigration literature by investigating trends in vocational rehabilitation experiences for two distinct geographic regions with differing historical and cultural patterns for people of Hispanic origin. Specifically, this study explored trends from 1997-2013 in consumer characteristics, application, eligibility, services, and rehabilitation outcomes for Hispanics in states where people of Hispanic origin, particularly people of Mexican origin, have settled over the past four centuries (Saenz, 1991) come to a U.S. region where new immigration patterns emerged at the end of the 20th century. The states most frequently identified as Hispanic settlement are California, Texas, Arizona, New Mexico, and Colorado. These states were compared to the new Hispanic destinations states of Arkansas, Louisiana, Mississippi, Alabama, Georgia, South Carolina, North Carolina, Virginia, Tennessee and Kentucky, all of which experienced an unprecedented wave of Hispanic immigration in the 1990s (Massey & Capoferro, 2008). Figure 1.1 illustrates these states by type of destination region.

The current literature on vocational rehabilitation and Hispanics is small, as is scholarship on new Hispanic destinations beyond descriptive and case studies (Leach & Bean, 2008). To date there are not any studies that compare outcomes for Hispanics with disabilities in the state-federal vocational rehabilitation system in new immigration destinations, much less analyze comparative trends to traditional Hispanic settlement areas. This study used a human capital and social capital conceptual framework, as vocational rehabilitation services can interpreted as services that build human capital and social capital (Dulude, 2012; Gao, Gill, Schmidt, & Pratt, 2010). Like many vocational
rehabilitation studies, this study analyzed data from the Case Management Record (called RSA-911), the national administrative data of the state-federal vocational rehabilitation system which is managed by U.S. Department of Education Rehabilitation Services Administration. The U.S. Census Bureau provided additional data for population estimates. The questions that guided this study:

Q1. Do consumers’ characteristics differ in 1997 and 2013 for Hispanics within new immigration destinations of the Southeast and within traditional immigration destinations of the Southwest?

- Sex
- Age
- Race
- Referral source
- Disability
- Educational attainment at application
- Employment status at application
- Earnings at application

Q2. Do trends exist in the rates of Hispanics applying for vocational rehabilitation services in new immigration destinations of the Southeast compared to traditional immigration destinations of the Southwest from 2002 to 2012?

Q3. Do trends exist in the rates of eligibility for vocational rehabilitation services for Hispanics in new immigration destinations of the Southeast compared to traditional immigration destinations of the Southwest from 1997-2013?

Q4. Do trends exist in vocational rehabilitation services for Hispanics determined eligible in new immigration destinations of the Southeast compared to traditional immigration destinations of the Southwest from 1997 to 2013?

Q4.1: Do trends exist in human capital building services (diagnosis and treatment services, adjustment training, miscellaneous training, college training, and vocational training)?
Q4.2: Do trends exist in social capital building services (job search, job placement)?

Q5. Do trends exist in rehabilitation and employment outcomes for Hispanics who receive vocational rehabilitation services in new immigration destinations of the Southeast compared to traditional immigration destinations of the Southwest from 1997 to 2013?

Background

From 1980 to 2010 the Hispanic population more than doubled in size in the United States, from 6.4% of the population to 16%, for a total of 50.5 million (Gratton, 2000; U.S. Census Bureau, 2011) and more than 50% of the Hispanic population either immigrated or was born after 1990 (Haverluk & Trautman, 2008). In 2011 the Hispanic population was estimated at 51.9 million with 64.6% (33.5 million) identifying themselves as Mexican (Motel & Pateen, 2012). Distinct migration patterns exist based on country of origin (Massey & Capoferro, 2008) with people of Mexican origin settling primarily in the Southwest historically and today (Laidlaw, 2012; Saenz, 1991).

Before becoming part of the U.S. with the Treaty of Guadalupe Hidalgo in 1848 at the end of the Mexican-American War, the states of California, Texas, Arizona, New Mexico, and Colorado belonged to Mexico and prior to that had 300 years of Spanish settlement (Tutino, 2011). Today, most Mexicans and Central Americans continue to immigrate and settle in this region, adding numbers to generations of settlers. Over the century and half that California, Texas, Arizona, New Mexico, and Colorado have belonged to the U.S., bilingual, bicultural Hispanics have played a role in developing advocacy, social service, and political organizations to address the needs of Mexican
immigrants, as well as second and third generation Mexican-Americans (De León & del Castillo, 2012). Efforts to “Americanize” people of Hispanic origin in the Southwest have been ongoing since the region became part of the U.S. However, the fluidity of the border and the transnational nature of the families and social networks along the border and in urban areas continually infuse the region with a reaffirmation of Mexican culture (De León & del Castillo, 2012).

Economic and policy forces merged in the late 1980s (Durand, Massy, & Capoferro, 2008) and then accelerated in the 1990s (Fisher & Tienda, 1996) to create the largest wave of Mexican immigration the U.S. has experienced to date (Camarillo, 2007). However, instead of migrating to traditional destinations in the Southwest, in the early 1990s, many Hispanics, primarily Mexicans, began to disperse to new regions of the U.S. in response to better employment opportunities (Crowley, Lichter, & Qian, 2006). The southern states of Arkansas, Louisiana, Mississippi, Alabama, Georgia, South Carolina, North Carolina, Virginia, Tennessee and Kentucky experienced Hispanic population growth rates from 1990 to 2000 anywhere from three to six times the national growth rate (Mohl, 2003), with many going to rural areas (Kandel & Cromartie, 2004). Though Hispanic migration slowed in the 2000s compared to the boom of the 1990s though from 2000-2010 the South continued to see exponential growth (Brown & Lopez, 2013) that continued to strain communities trying to incorporate the immigrants into their schools, housing markets, health care system, and social service organizations (Singer, 2004).

Scholars have identified a number of potential reasons for the demographic shift. The most commonly cited reasons are unintended consequences of almost a century of failed immigration policy (Massey & Pren, 2012) and macroeconomic changes that were
occurring as the global market economy emerged in the 1980s (Farmer & Moon, 2011). The rapid growth of Hispanics in the United States from the late 1980s to the present is believed to be in part the result of policies like the Immigration Reform and Control Act of 1986 and the North American Free Trade Agreement of 1993 (Boucher, Yúnez-Naude, Taylor, & Smith, 2007; Massey & Capoferro, 2008). These policies and economic opportunity pushed Hispanic immigration in a new direction in the late 1980s and early 1990s, away from traditional gateway states of Southwest to new destinations in the Southeast (Hernández-León & Zúñiga, 2000). Scholars also suggest many Hispanics already living in the Southwest migrated to the Southeast because of an economic recession in California, an anti-immigration political environment, and high unemployment (Massey & Capoferro, 2008). People also were looking for better economic opportunities, better education systems and more affordable housing (Kandel & Parrado, 2005).

Practitioners and scholars alike believe that the growing Hispanic population in the high growth areas, like the Southeast, quickly put a strain on social service agencies trying to help Hispanics with a wide variety of services, from health care to education to employment (Andrade & Viruell-Fuentes, 2011; Lewis, 2008; Strug & Mason, 2011; Strong & Fureseth, 2004). Like other social service agencies, vocational rehabilitation (VR) services for people with disabilities has grappled with how to improve access and services to Hispanics, as well as to all minorities (Hayward & Schmidt-Davis, 2003; Herbert & Martinez, 1992; LeBlanc & Smart, 2007; Wilson, 2000). Due to numerous studies documenting racial and ethnic disparities in all aspects of vocational rehabilitation services (e.g., Atkins-Wright, 1980; Martin, 2010; Wilson, 2005) the 1973 Rehabilitation
Act has been amended several times (Gilmore, Schuster, Timmons, & Butterworth, 2000). Two Amendments that were intended to address racial/ethnic disparities are the 1992 Amendment and the 1998 Amendment. The 1992 Rehabilitation Act Amendment mandates that the state-federal vocational rehabilitation systems create greater access to services, improved consumer involvement, and improved services (Gilmore et al., 2000; LeBlanc & Smart, 2007; Weber, 1994; Whitney-Thomas, Timmons, Gilmore, & Thomas, 1999).

Despite this policy change and others, evidence suggests that Hispanics do not access the VR system or have employment outcomes at the same rate of non-Hispanic whites (Martin, 2010; Romero-Ramirez, 2010; Velcoff, Hernandez, & Keys, 2010; Wilson et al., 2001). The lack of access, services, and employment outcomes for Hispanics with disabilities is of concern to rehabilitation counselors and administrators as Hispanics are estimated to have a higher rate of disability than the general public (Bellini, 2003; Le Blanc & Smart, 2005; Leydorf, 2006). Research indicates higher disability rates in the Hispanic population could be due to the interplay of higher levels of poverty, low educational attainment, poor health, lack of health insurance, and low access to non-emergency health care (Leydorf, 2006; Strong & Maralani, 1999; Wilson, 2005). In addition, Hispanics are over-represented low wage jobs that are dangerous and physically demanding (Wilson, 2005) increasing the likelihood of acquiring a disability.

The success of vocational rehabilitation services is largely determined by the resources, support and skills the client brings to the rehabilitation process (Hayward & Schmidt-Davis, 2003a). Many of these personal characteristics are captured during the application and eligibility process and recorded in RSA-911. VR scholars have used this
secondary dataset to identify predictors of several potential outcomes, with an employment outcome being the most frequent. Scholars have argued that in addition to race or ethnicity, personal characteristics that impact employment outcomes include work status at application (Hayward & Schmidt-Davis, 2003a), education (Wilson, Alston, Harley, & Mitchel, 2002), not receiving Social Security Insurance or Social Security Disability Insurance (Moore, Feist-Price, & Alston, 2002), and absence of an intellectual disability or mental illness (Hayward & Schmidt-Davis, 2003a).

Scholars have also identified higher levels of functioning (severity of impact of disability) and a consumer’s financial status prior to application for VR services as variables that increase the likelihood of an employment outcome (Rogers, Bishop, & Crystal, 2005; Walls, Misra, & Majumder, 2002). The impact of age on employment outcomes remains debated in the literature, with some studies identifying younger consumers more likely to obtain employment (Capella, 2002; Moore, et al., 2002) while others suggest older consumers (Chen, Sung, & Pi, 2015). Debring & Roseneck (2002) suggested it is a matter of appropriate services based on age not necessarily the age itself. Like age, gender has not consistently predicted likelihood of an employment outcome (Bradley, Ebner, & Geyer, 2013), either.

Some researchers argue that service variables are better predictors of employment outcomes than personal characteristics (Ispen & Swicegood, 2015; Keyser-Marcus et al., 2002). Common services that VR consumers receive once determined eligible include diagnostic and restorative services for physical and mental disabilities, postsecondary education, on the job training, job search services, and job placement services (Chiu et al., 2014; Feist, 2014; Hayward & Schmidt-Davis, 2003b; Poppen, 2014). Assessment
services for eligibility, primarily medical and psychological assessments have been identified as two of the most common types of assessments services provided by VR (Dutta, et al, 2008; Hayward & Schmidt-Davis, 2003b). Of the wide range of services a consumer can receive through VR, job placement has shown to have the greatest impact on an employment outcome (Bradley, et al, 2013; Dutta et al, 2008; Gildbride & Stensrud, 2003; Hayward & Schmidt-Davis, 2003b) regardless of type of disability.

New destination communities do not have the decades of social service and advocacy infrastructures that would be present in regions where there is an historical and cultural presence of Hispanics. This community dynamic is of particular importance for local vocational rehabilitation offices because the VR system relies heavily on outsourcing services to community vendors (Hayward & Schmidt-Davis, 2003b; Ispen & Swicegood, 2015). If there is limited access to helping organizations with bilingual, bicultural professionals, then there is greater potential for Hispanic clients not to access or not follow through on services. Gresenz, Rogowski, & Escarce (2009) concluded that Mexican American immigrants (multiple generations) living in areas populated by more Spanish speakers or Hispanic immigrants had better access to health care. As medical and psychological assessments as well as medical and psychological services are the most common services provided to VR consumers (Dutta et al., 2008; Hayward & Schmidt-Davis, 2003b), access to bilingual bicultural professionals would increase likelihood of culturally appropriate services that would ultimately lead to better employment opportunities. Private agencies are frequently used for vocational assessments, education, job search and job placement assistance in addition to outsourcing diagnostic and restorative services to local health care providers.
Trend Studies

A trend analysis is a conceptual term that means time is considered a factor contributing to change and as such is treated as a predictor variable in a statistical analysis (Rosenberg, 1997). Social scientists often use trend analyses to compare geographic regions or groups of people (Rosenberg, 1997) on a particular outcome by simply plotting counts on a graph and looking for differences in patterns. Some researchers might suggest that a trend analysis beyond a descriptive count and plotting of counts across years is unnecessary because population parameters will be known and would therefore be theoretically free from sampling or random error (Ely et al., 1997; Rosenberg, 1997). However, population counts can be considered samples in time and space (Rosenberg, 1997) rather than absolute population parameters (Ely et al., 1997; Rosenberg, 1997; Singer & Willet, 2003). Rosenberg (1997) suggests that the results of a trend analysis (and significance of statistical trends) to be useful for policymakers and professionals in the human services the trend analysis should be conceptually linked to a program or policy issue. This trend study follows that suggestion as it clearly links vocational rehabilitation program services to Hispanics with disabilities to the performance indicators outlined in the Vocational Rehabilitation Act of 1973 and its amendments.

Purpose of the Study

The purpose of this study was to explore if vocational rehabilitation outcomes for Hispanics with disabilities vary based on whether or not the consumer receives services in a state with a relatively new Hispanic population compared to states with a historical Hispanic population. In addition, this study will investigate trends in outcomes for
Hispanics between the two types of regions from 1997-2013 to understand what, if any changes, occurred in outcomes over the 17-year period. Specifically, this research seeks to understand the trends in the rates of application, eligibility, services provided, and employment for Hispanics from 1997-2013 in traditional migrant destinations compared to new migrant destinations. The conceptual framework guiding the study consists of human capital theory and social capital theory, particularly as they pertain to VR services that are investments in human capital and social capital.

**Rationale of the Study**

There is an established record of disparities in the VR system for Hispanics (Martin, 2010), but these studies have been either at the national level or specific to a particular state (Martin, 2010) and generally compare Hispanics to non-Hispanic whites and other minority groups (Wilson, 2005). Studies that have examined Hispanic experiences and outcomes with the VR system use data for a single state or nationwide (LeBlanc & Smart, 2007; Martin, 2010) and only one study has examined outcomes for Hispanics in a state with a cultural and historical presence (Martin, 2010).

Scholars have not yet explored any vocational rehabilitation outcomes between traditional Hispanic destinations and new immigrant destinations like the Southeast, despite the well-documented geographic dispersion of Hispanics away from traditional settlement areas (Farmer & Moon, 2011; Haverluk & Trautman, 2008) and the hyper-growth of Hispanic populations in the Southeast since the 1990s through the 21st century (Singer, 2004). A comparison of access, services, and outcomes for Hispanics in the vocational rehabilitation system will contribute to the overall understanding of the role of vocational rehabilitation services in integrating Hispanics with disabilities into their new
communities, as well as informing policy decisions at the state, local and organizational levels.

**Conceptual Framework**

The state-federal vocational rehabilitation system is based on an economic model of disability where services are intended to help an individual with disabilities fulfill the important role of worker for wages (Dulude, 2012; Smart, 2004). This model focuses on developing knowledge, skills and abilities to increase a person’s participation in the labor force (Smart, 2004; Smart, 2009). An economic model of disability lends itself to the conceptualization of vocational rehabilitation services as investments in human capital and social capital (Dulude, 2012).

Previous vocational rehabilitation studies investigated the value of social networks, social capital and human capital in obtaining employment or maintaining employment after losing employment (Dulude, 2012; Kraimer & Liden, 2010). Human capital accumulation occurs through experience, training, and education (Becker, 1964; Capella-McDonall, 2005; Pfeffer & Parra, 2009; Phillip & Massey, 2000) and is intended to produce advantage, benefit, or profit (Potts, 2005). Investments in human capital can increase income (Duleep & Dowhan, 2008) and education and training are two of the most important types of human capital (Becker, 1964; Capella-McDonall, 2005; Deng & Zhang, 2008).

Human capital investments that contribute to increased employability and wages for people with disabilities are: restorative, job training, and formal education (Deng & Zhang, 2008). Completion of formal education such as postsecondary education is considered one the best predictors of a competitive employment outcome for a person
with a disability (Deng & Zhang, 2009; Gao et al., 2010) as higher education translates into better employability and higher wages (Becker, 2007). Investment in health as human capital investment (Becker, 2007), is present in the scope of services vocational rehabilitation provides in its restorative services (Gao et al., 2010). Other human capital building services provided by VR agencies, assistive technology skills, vocational counseling, and vocational assessment. While many of VR’s services can be identified as investment in human capital, this study focuses on the human capital investment services of restorative services, education, and occupational training.

Social capital building services through VR includes relationship building exercises like job search and job placement services (Dulude, 2012). These services help build a consumers’ social networks through direct and indirect contact that build trust and connections (Jackson, Meade, Ellenbogen, & Barret, 2006) and build meaningful relationships (Flaherty, 2008). As social capital building activities, job search and job placement services function to connect the consumer to networks that can facilitate transfer of resources (Dulude, 2012) and can come in the form of information two individuals share about opportunities or resources (Bourdieu, 1986; Coleman, 1990).

Building social capital is more important for persons with disabilities because people with disabilities who are rich in social capital have more opportunities for work (Dulude, 2012, Flaherty, 2008). Social networks in vocational rehabilitation literature describes social networks as family networks, wider support networks (e.g., friends and coworkers), voluntary organizations, and the relationships with organizations like vocational rehabilitation (Dulude, 2012; Garcia, 2005).
Figure 1.2
Conceptual Model Question 1

Independent Variables

Immigration Destinations
New Region
Traditional Region

Years
1997
2013

Dependent Variables

Q1: Personal Characteristics
- Sex
- Age
- Referral source
- Disability
- Education at application
- Employment status at application
- Earnings at application

Figure 1.3
Conceptual Model Question 2 through Question 5

Independent Variables

Immigration Destinations
New Region
Traditional Region

Years
1997
2013

Dependent Variables

Q2: Application Rates
Q3: Eligibility Rates
Q4: Services
  Q4.1 Human capital building services
  Q4.2 Social capital building services
Q5: Rehabilitation and Employment Rates
Chapter 2: Review of Selected Literature

As outlined in Chapter 1, this study aimed to compare vocational rehabilitation experiences and outcomes for Hispanics in the traditional settlement areas of the Southwest and the new immigrant destinations of the South from 1997 to 2013. Three overarching conceptual elements guide the study and Chapter 2 is loosely organized around those elements: immigration destination type, conceptual framework for the study and a review of vocational rehabilitation research. In the first section the differing historical and cultural patterns for Hispanics are discussed between the traditional settlement area of the Southwest (California, Texas, New Mexico, Arizona, and Colorado) and the new immigration destinations of the Southeast (Arkansas, Louisiana, Mississippi, Alabama, Georgia, South Carolina, North Carolina, Virginia, Tennessee and Kentucky). The second section summarizes the conceptual framework of the study, human capital and social capital. The third and final section summarizes the vocational rehabilitation research salient to the study. Within this section an overview of VR’s process is provided.

Traditional Settlement Areas and New Immigrant Destinations for Hispanics

This section reviews the changes in immigration patterns that occurred at the end of the 20th century. The first subsection provides a simplified review of 400 years of historical and cultural presence of Hispanics in the Southwest. The next subsection describes the demographic shift of Hispanics to new immigrant destinations in the Southeast at the end of the 20th century along with emerging historical and cultural patterns as we understand them now.
**Traditional Hispanic settlement and immigration patterns.** California, Texas, Arizona, Colorado, and New Mexico are considered the primary areas of settlement for people of Spanish heritage in the U.S. (Saenz, 1991), the majority of which are of Mexican origin (Massey & Pren, 2012). Southwestern communities, where multiple generations of Hispanics live, are augmented by the continuous flow of immigrants across the border transnational multi-generational families with ties on both sides of the U.S.-Mexico border (Falicov, 2007). The circular flow of immigration and settlement we see today in the Southwest began more than 400 years ago, well before English colonist established settlements in Virginia and Massachusetts in the late 17th century (Woodard, 2011). While the following historical review is limited to generalizations of the region as a whole, it is to be noted that Texas, California, New Mexico, Colorado and Arizona all have unique Hispanic histories based on local variations in how hispanicized the area is, even today (Haverluke, 1998).

**Traditional settlement region.** Much of modern culture of the Southwest is deeply rooted in the Spanish Catholic people who settled in Texas, California, Arizona, New Mexico, southern Colorado, and parts of Utah and Nevada, as well as isolated outposts in southern Oregon (Weber, 1988). The Spanish Empire established its first settlement in New Spain in 1598 in what is now northern New Mexico (Woodard, 2011). Throughout the 17th and 18th centuries, priests, military commanders, and groups of families explored the Spanish frontier and established missions, colonies, and supporting military outposts in the northern wilderness (De León & del Castillo, 2012) under the Vatican imperative to hispanicize (detribalize and force adoption of Spanish Catholic culture) any native peoples. In return, settlers received land and financial, political, and
military support from the Catholic Spanish monarchy (De León & del Castillo, 2012). Spanish settlers and their racially mixed descendants built long lasting urban centers for “socialization, economic activity, religious work, and governance” (De León & del Castillo, 2012 p. 11) where Spanish law and politics dominated. These communities facilitated the expansion of Hispanic culture (i.e., Catholic Spanish) into the far north of New Spain, if somewhat adapted to the frontier (Tutino, 2011).

In 1810 Mexico initiated a war for independence from Spain that was won by 1821. The war itself had little impact on the settlements in the frontier until the new Mexican government began implementing centralist policies and aggressively recruited Anglo-Americans to settle in the area, trying to convert the area into a market economy which produced much needed income for the state (Tutino, 2011). In 1836 the Mexican territory of what is now Texas fought the Centralist government and won (Weber, 1988). In 1836 the territory of Texas became the Republic of Texas and became a free and independent nation until the U.S. annexed it at the behest of the Texan Congress in 1845 (Weber, 1988). In 1846 the U.S. declared war on Mexico, primarily fueled by the young republic’s belief in its manifest destiny (divine right to expand U.S. territories from the Atlantic to the Pacific) (Woodard, 2011).

In 1848 the Treaty of Guadalupe Hidalgo established U.S. victory over Mexico. With a signature Mexico ceded 5000,000 square miles of its land to the U.S., more than half of its total territory (Weber, 1998). With this same signature the people living in what are now California, Texas, New Mexico, Arizona, and Colorado and all the other Mexican territories became American citizens, supposedly with their family lands and heritage to remain intact (Weber, 1998). The people of the old Mexican frontier were
now natives of a foreign land (De León & del Castillo, 2012). When the U.S. won the Mexican-American War in 1848 approximately 75,000 Mexicans lived in the newly ceded territories and became U.S. citizens (Pachon & Moore, 1981).

In exchange for land and other economic opportunities Anglo-American settlers had agreed to adopt Mexican culture and law but instead actively worked to preserve U.S. political and cultural traditions (like slavery) (De León & del Castillo, 2012). People who managed to keep land or economic resources in the immediate aftermath of the ceding of Mexican territory to the U.S. began to lose the land and resources by the end of the 19th century (De León & del Castillo, 2012). Farms and ranches became profit corporations instead of the subsistence endeavors practiced by the landed Mexican elite. Mexican elites living by the rules of the Old Mexican frontier could not respond rapidly enough to the changing cultural and economic conditions. Very quickly Mexican-Americans became a cheap source of labor, proletarianized for the changing market economy brought by the Anglo-Americans, no longer cared for by the paternal structure of the rancheros and haciendas (Tutino, 2011).

By the end of the 19th century, the market economy was firmly entrenched in the Southwest and Anglo-Americans dominated in numbers and in the social and political landscape. The limited but persistent trickle of Mexican immigration in the second half of the 19th century continually helped to re-establish cultural patterns and norms of Mexico as they settled into the ethnic enclaves of the Southwest (Bolton, 1996). The constant trickle of new immigrants complemented the social and labor segregation imposed on Mexican-Americans to further solidify the cultural identity of Mexicans (De
León & del Castillo, 2012) while simultaneously creating a racial divide of “non-whiteness” (Weise, 2012).

At the turn of the 20th century, the U.S. Census Bureau estimates 500,000 Hispanics lived in the United States, of which 400,000 were Mexican or Mexican-American (Gratton & Gutmann, 2000). The vast majority lived in California, Texas, Arizona, Colorado, and New Mexico (De León & del Castillo, 2012). Historians estimate that between 1900 and 1930 about 10% of Mexico’s population migrated to the U.S., mostly to the Southwest (Corwin, 1978). The majority of immigrants were unskilled laborers responding to the labor shortage caused by World War I and the economically booming industrial age (Mize & Swords, 2011). By 1920 the number of Hispanics doubled to over 1.2 million and foreign born and native born Mexicans still lived in the Southwest (Gratton & Gutmann, 2000). In 1930 the native and foreign born Mexican population was concentrated still in Texas, California, Arizona, New Mexico, and Colorado though 8% of Mexican origin people lived outside the traditional Southwest (Corwin, 1978) drawn by jobs in railroads, slaughterhouses and farms (Mize & Swords, 2011).

In 1940 the U.S. Hispanic population was estimated to be 2.1 million, of which Mexican origin people were 77.5% of the population (Gratton & Gutmann, 2000). Of the estimated 1.56 million Mexicans (Gratton & Gutmann, 2000), 90% lived in the Southwest and the 10% of Mexican origin people that lived outside the Southwest lived primarily in the Midwest (Cardenas, 1976). In 1950 88% of Mexican origin people lived in the Southwest, which dropped to 83% in 1970 (U.S. Department of Commerce, 1973 as cited by Gratton & Gutmann, 2000), and down to 75% in 1990 (U.S. Department of
Commerce, 1992 as cited by Gratton & Gutmann, 2000). Following job opportunities in factories, fields and food processing plants, small but growing numbers of Mexican immigrants and Mexican-Americans continued to migrate to the Midwest and Pacific Northwest (Camarillo, 2007), but the Southwest has stayed the primary settlement and immigration destination for people of Spanish heritage (Saenz, 1991). By the end of the 20th century Hispanics were estimated to number 35.3 million, or 12.5% of the total U.S. population (U.S. Census Bureau, 2002). At the end of the 20th century Mexicans were still the largest subgroup of Hispanics in the U.S. at 64% of all Hispanics and most still lived in the Southwest (Laidlaw, 2012). The terms Southwest, traditional destination or traditional region refer to the states of California, Colorado, Arizona, New Mexico and Texas unless otherwise specified.

Common heritage, immigration, and cultural patterns suggest using Texas, California, Arizona, New Mexico, and Colorado as comparison states for examining outcomes for Hispanics in the state-federal vocational rehabilitation system in the new destinations of the Southeast. In 2000 at least 84% of the foreign born Hispanic population in the core southeastern states of North Carolina, Arkansas, Alabama, Georgia, South Carolina and Tennessee identified themselves as Mexican or Central American (Kochhar, 2005). In 2010 71% of all Latinos (foreign born and native born) in the Southeast were of Mexican or Central American descent (Brown & Lopez, 2013).

Hispanic communities of the Southwest have generations of social, organization and advocacy infrastructures that can respond to the material and social needs of immigrant and transnational communities (Andrade & Viruell-Fuente, 2011). Scholars argue that new destination communities did not have programs, services and structures to
meet the housing (Painter & Yu, 2014), education (Stamps & Bohon, 2006) and health needs (Andrade & Viruell-Fuente, 2011) of a population that seemingly grew overnight. Communities in the Southeast in particular continue to struggle to integrate growing immigrant populations (Lippard & Gallagher, 2011).

**Contributing dynamics to changes in immigration.** Scholars have identified a number of potential reasons for the demographic shift. The most commonly cited reason is consequences of almost a century of failed immigration policy (Massey & Pren, 2012). Many scholars point to the Immigration Reform and Control Act (IRCA) of 1986 as the watershed policy. As undocumented immigration began to grow after the termination of the Bracero Program in 1964, the U.S. Congress sought to address the problem by creating sanctions on employers who knowingly hired undocumented workers, expand the Border Patrol to stop entry, and then provide amnesty to undocumented workers in the U.S. who could prove continuous residence in the U.S. after January 1, 1982 (Massey & Capoferro, 2008). This third approach created three million amnestied workers by 1996, of which 2.3 million were Mexican (Kandel & Cromartie, 2004). After amnesty, these workers, many young, single men, could now freely travel the country in search of better economic opportunities than what was available in the saturated labor market of Southwest (Massey & Capoferro, 2008).

Scholars also cite macroeconomic changes in manufacturing in response to the globalization of market economies (Farmer & Moon, 2011; Zúñiga & Hernández-León, 2005). In particular, changes in agriculture and food production processes created job opportunities in the Southeast because owners moved factories closer to supply farms in the Southeast (Haverluk & Trautman, 2008; Kandel & Cromartie, 2004). Much of the
economic restructuring resulted in new manufacturing facilities in the Southeast, where low unemployment, and out migration of non-Hispanic whites from rural communities, created a labor shortage for these relocated industries (Farmer & Moon, 2011; Mohl, 2003). The general economic boom of the Southeast in the 1990s also created employment opportunities in non-skilled service jobs like the hospitality industry (Haverluk & Trautman, 2008) and construction to support the overall growing population of the region (Gleave & Wang, 2013).

**New immigration region of the Southeast.** Overall, for decades, and even centuries, Hispanic immigrants have followed traditional immigration and settlement patterns (Hirschman & Massey, 2008), and none of those patterns, regardless of national origin, have included the states Arkansas, Louisiana, Mississippi, Alabama, Georgia, South Carolina, North Carolina, Virginia, Tennessee, Kentucky until the end of the 20th century. These southern states have been identified as the “Hispanic migrant frontier” (p. 6) because until the 1990s Hispanics had not migrated and settled into the region in large numbers (Furuseth & Smith, 2006). Regional economic structuring, especially in low-wage, low-skill sector of the economy increased the demand for workers outside the Southwest and drew immigrant labor from Mexico (Crowley et al., 2006).

Hispanic migration to the Southeast for employment is not a new phenomenon (Weise, 2012). A century of history exists in white capitalists recruiting Hispanic workers (Weise, 2012) from a race-based belief that Hispanic immigrants would not claim social or political rights (Helton & Steusse, 2013). Early in the 20th century most workers came to work in agriculture, many settling in the Mississippi delta area (Weise, 2008). The majority of workers joined migrant labor crews to escape the low wages and oppression
of Texas (Rodriquez, 2011) and its saturated labor markets (Weise, 2012). However, an examination of the numbers and the employment opportunities that drew Hispanics to the Southeast confirm the common academic rhetoric that until the 1990s, Hispanics did not immigrate to the South in large numbers prior to the end of the 20th century, and certainly not with the intent of settling.

Some of the most common monikers used to describe this region of the U.S. are Southeast (Arcury & Marin, 2009), Nuevo South (Mohl, 2003), Old South (Zuniga & Hernandez-León, 2005), Deep South (Marrow, 2011), Historical South (Hernandez-Leon & Zuniga, 2000) and Traditional South (Furuseth & Smith, 2006). In general, there are 11 states that “lie at the heart of the traditional American South” (Furuseth & Smith, 2006 p. 2), all with a commonality in economic and political life, history and culture (Woodard, 2011): Arkansas, Louisiana, Mississippi, Alabama, Georgia, South Carolina, North Carolina, Virginia, Tennessee, Kentucky, and Florida (see Figure 1.1).

Florida is considered the 11th state of the Traditional South (Furuseth & Smith, 2006), but the majority of research on Hispanic immigration to the Southeast recognizes that Florida has a distinctly different immigration history and culture than the other states in the region due to the large number of Caribbean Hispanics, primarily Cuban and Puerto Rican, that have settled in southern Florida since middle of the 20th century (Andrade & Viruell-Fuente, 2011; Farmer & Moon, 2011; Woodard, 2011). For purposes of the study, Arkansas, Louisiana, Mississippi, Alabama, Georgia, South Carolina, North Carolina, Virginia, Tennessee and Kentucky will be referred to collectively as the Southeast. The terms new destination or new region will refer to these 10 states unless otherwise specified, as well.
At the end of the 20th century, communities in the Southeast with near zero or zero count of Hispanics in the 1990 census were not unusual (Furuseth & Smith, 2006). Gordon County Georgia, a small rural community north of Atlanta, for example, went from 200 Hispanics in the 1990 Census to 3,200 in the 2000 Census (Kochhar, 2005). Hispanic growth in rural communities was 26.7% in the 1980s and 67.3% in the 1990s, while the overall average growth was 8.1% (Kandel & Cromartie, 2004). Between 1990 and 2000 seven states in the Southeast had the fastest growing non-metro Hispanic populations: North Carolina, Alabama, Tennessee, South Carolina, Georgia, Arkansas, and Virginia (U.S. Census, 1990, 2000 as cited by Furuseth & Smith, 2006 p. 2-3). The first decade of the 21st century saw the non-metro population double again in many non-metro counties of the Southeast (Brown & Lopez, 2013). As another example of the intensity of growth for the communities of these 10 states, consider Hall County Georgia, a sparsely populated and rural community north of Atlanta. Its Hispanic population grew from 4,558 to 27,242, or 498%, between 1990 and 2000, with the majority of those coming between 1995 and 2000 (Frey, 2005).

Though Hispanic migration slowed in the 2000s compared to the boom of the 1990s (Gonzalez-Barrera, 2015), states still experienced growth in the Hispanic population from 2000-2010 that continued to strain communities trying to incorporate the immigrants into their schools, housing markets, health care system, and social service organizations (Lippard & Gallagher, 2011; Rich & Miranda, 2005; Singer, 2004). The extremes ranged from 394% in North Carolina as the state with the fastest growing population to the “slowest” rate of increase of 173% in Kentucky (Fry, 2008). The other eight states had rates of increase somewhere between those of Kentucky and North
Carolina.

The magnitude of change is considered to be small in absolute numbers relative to traditional states, but the rate of immigration to these new destinations has been exponential and as result, the shift had a profound impact on Southeastern communities’ social and economic systems (Leach & Bean, 2008). The speed at which fire and police departments, public and social services and the community health system had to respond to the growing population created a wide range of responses and many communities are still struggling to meet the demand (Rich & Miranda, 2005). Some communities have responded with a wide degree of welcome and support. Some communities have responded with racialized hate (Lippard & Gallagher, 2011), others with paternalistic welcome (Rich & Miranda, 2005). In between these two extremes there has been ambivalence, partial paternalistic concern and partial xenophobia (Rich & Miranda, 2005).

Differences in the historical and cultural patterns of Hispanics in the Southeast give rise to several important differences that suggest it as a distinct region from the Southwest in terms of how social services will be provided and experienced. One significant difference is in the presence of an educated, bicultural, bilingual middle class to provide advice, political advocacy and social services in new destinations (Singer, 2004; Stamps & Bohon, 2004; Strug & Mason, 2011). New immigrant destinations may not be structurally equipped to deal with rapid addition of a new community with varying needs (Stamps & Bohon, 2006). Unlike the traditional settlement region, there are zero Hispanic-Serving Institutions to can meet the unique needs of immigrant students (Hispanic Association of Colleges and Universities, n.d.).
Another distinction to consider between the traditional and new destinations is that initial migration to the Southeast has largely been motivated by economic opportunity (Weise, 2012), not for family reunification purposes (Crowley, Lichter, & Qian, 2006). The immigration self-selection process and labor market economy that has pulled Hispanics to the Southeast impacted who migrated to the Southeast initially (Farmer & Moon, 2011). Economic migrants are generally young adults, primarily male, which affects age structure (Farmer & Moon, 2011). According to Farmer and Moon (2011), a change in age structure in a receiving community changes what services are needed from community institutions and businesses.

Educational attainment and prior work experience, commonly studied human capital variables in vocational rehabilitation and immigration scholarship, impact an immigrant’s ability to compete in the primary and secondary labor markets (Massey & Espinosa, 1997). The labor pool of a community is built on the accumulation of an individual’s skills and experiences, and the success of participating in that labor market largely dictates whether or not an immigrant will settle and bring family or out-migrate in search of better economic opportunity (Crowley, Lichter, & Qian, 2006). Several studies have found that early migrants to the Southeast were more likely to work in agriculture (Kandel & Comartie, 2004), be less educated, and lack legal documentation (Farmer & Moon, 2011). Other studies found that migrants to new destinations often end up in substandard, segregated housing that impede the acquisition of human capital skills like English proficiency and educational opportunity (Atiles & Bohon, 2002), as well as work experience outside an ethnic enclave or labor market. Crowley, Lichter, and Qian (2006) concluded that wages for immigrant Mexican workers were higher in high-growth
destinations than in the traditional regions and wages in low-growth new destinations were lower than traditional regions but overall immigrants in the Southeast immigrants were 15% less likely to live in poverty.

More Hispanics in the Southeast are foreign born than in the Southwest (Brown & Lopez, 2013). According to Lichter, Crowley and Qian (2006) foreign born Mexican immigrants have higher rates of poverty, less income and wealth, fewer resources and greater economic vulnerability and more likely to be employed in low wage industries. Rural immigrants have higher poverty rates than native born or metropolitan residing immigrants (Effland & Butler, 1997). However, McConnell and LeClere (2002) in a study of a Midwest new destination found that Mexican men who migrated to the Midwest were more educated, had more manufacturing experience, more likely to have papers to work and have higher human capital in general. Other studies suggested the Hispanics arriving in the Southeast in the 1990s were actually socially and economically diverse and differed across rural to urban locations (Barcus, 2007).

Kochhar (2005) concluded that migrants to the Southeast had low levels of education attainment but stayed, married, and had children. Several studies have shown that these initial patterns of young male “trailblazers” have changed past the initial wave of immigration (Hernández-Leon & Zúñiga, 2000). Family reunification becomes the permanent settlement feature of these new destinations as a destination matures (Hernandez-León & Zuniga, 2000; Massey, Goldring, & Durand, 1994). Selectivity decreases and women and children become part of the inflow of newcomers, which education data has substantiated these claims (Hernandez-León & Zuniga, 2000). This settling out process has required a response from educational systems and social services
systems in the Southeast (Atiles & Bohon, 2002; Stamps & Bohon, 2006). As these systems mature in a new destination through the settling out process, it would be expected the age, gender, education and similar characteristics of immigrants in the Southeast evolve as well.

**Conceptual Framework: Human and Social Capital**

Human capital and social capital are directly related to an individual’s earnings and production capacity as a worker (Becker, 1962; Glaeser, Laibson & Scardote, 2002), an important normative role in U.S. culture (Szymanski, Willmering, Tschopp, Tansey, & Mizelle, 2004). The term human capital refers to knowledge, attitudes, and skills a person possesses that provide potential value for labor in a market economy (Baptiste, 2001). Modern human capital theory posits that education, training, and medical care are the most important investments for economic development for societies and individual (Becker, 2007). Human capital theory is one of the underlying theoretical frameworks for many social welfare policies in the US (Gao et al., 2010; Smart, 2004) and social capital is gaining ground as research identifies significant correlations between social capital and economic outcomes (Glaeser et al., 2002).

Social capital has been called the social component of human capital because it examines the effect of relationships with friends, acquaintances or groups on individual outcomes (Coleman, 1988). While scholars have not come to a complete consensus on the definition of social capital, within the vocational rehabilitation context social capital frequently refers to the social relationships that impact employment by virtue of the “trust, social reciprocity, norms, culture and community” (Condeluci, Ledbetter, Ortman, Fromknecht & DeFries, 2008 p. 134) inherent within those relationships that lead to
employment opportunities (Potts, 2005). The purpose of a state-federal vocational rehabilitation system is to improve employment opportunities, most commonly by providing services that improve human capital and social capital (Dulude, 2012).

Using an economic model of disability lays the conceptual foundation for applying a human capital and social capital theoretical framework to the services and outcomes of the vocational rehabilitation system. After briefly describing the economic model of disability the remainder of this section reviews human capital and social capital as theoretical frameworks for this study, followed by a discussion of how human capital and social capital impact experiences and outcomes for vocational rehabilitation consumers. The section ends with a brief discussion of the interplay between human and social capital on employment outcomes.

**Economic Model of Disability.** According to Smart (2004), models of disability a) provide disability definitions b) are based on perceived needs c) provide explanations of causal attributions and responsibility attributions d) are not value neutral, e) guide the formulation and implementation of policy and f) can cause prejudice and discrimination. Smart goes on to identify three primary models of disability that have guided societal perception and interventions on behalf of people with disabilities, as well as the people who would be responsible for implementing the intervention. These three models of disability are the biomedical model, the sociopolitical model, and the economic model.

The economic model of disability defines a disability as the inability to fulfill an important role, specifically work (Smart, 2004). In this model the needs of the individual with a disability are vocational and economic in nature therefore the individual’s functioning for work related tasks becomes the primary focus of intervention. Failure to
work, overall, resides within the individual and he or she must change to meet the requirements to work (Smart, 2004). This model requires the individual with a disability to develop the knowledge, skills, and abilities to work and improve production capacity (Smart, 2004), which is the definition of human capital investment (Gao, Schmidt, Gill & Pratt, 2011). Human capital investment services provided by vocational rehabilitation include education opportunities, on-the-job training, and diagnosis and treatment for mental health and medical conditions to help consumers obtain or maintain employment (Dulude, 2012).

In an economic model of disability, a person’s value to society is inherent to his ability to contribute to the country’s economic well-being (Liachowitz, 1988) and a person’s worth is measured by their earning or production capacity (Danzinger, Kalil & Anderson, 2000). Legislators and the public assume that providing short term employment services costs less than long-term welfare assistance (Cheng, 2007) like Social Security Insurance. The expense of services is considered to have a greater return because working is the normative value and not working is considered deviant behavior (Smart, 2004) and results in higher use of public assistance. Many U.S. social welfare policies reflect the importance of work and individual responsibility (Gao et al., 2010) as they focus on improving education and training for better employment opportunities (Cheng, 2007; Konstantiuk, 2014). Much of the VR system’s legislation, beginning with the Smith-Fess Act of 1920, can be conceptually linked back to an economic model of disability.

Reno, Mashaw, and Gradison (1997) (as cited by Smart, 2004 p. 39) describe the economic model as an interactive model where a work disability comes from an
underlying health condition that impacts the person’s ability to perform tasks. However, in this model the underlying health condition may cause an impairment in functioning in one work environment, but not another. For example, diabetes may not be a work disability for an accountant who has freedom to set her schedule to better coordinate meals and insulin injections, but the same person would have difficulty working on a factory line 8 hours a day because of these restrictions. The impact of the underlying health condition on the person’s ability to perform work tasks is a key component of the vocational rehabilitation eligibility process and selection of services provided to the consumer.

In addition to a task oriented dynamic between the individual with a disability and the environment, this model allows for the impact of discrimination and prejudice against people with disabilities to be part of the problem for unemployment or underemployment in the population. The effects of prejudice and discrimination have produced civil rights legislation for people with disabilities so that the employer becomes responsible for discriminatory employment practices (Smart, 2011). Recognizing that work environments are subject to prejudice and discrimination means the location of the problem (lack of employment) shifts to the employer instead of simply being about the individual with a disability’s lack of ability. The potential challenges of the work environment means that in addition to providing services that increase human capital, VR provides services that help the consumer develop social networks in a corporate culture that is accommodating and less prejudicial towards people with disabilities. Job placement and job search services are the two most common services provided by VR to build social capital (Dulude, 2012).
Human capital. A basic assumption of human capital theory is that individuals and society benefit from investments in people (Sweetland, 1996). Modern human capital theory posits that education, training, and medical care are the most important investments for economic development for societies and individuals (Becker, 2004). Investments in human capital increase income, improve health, improve stability in the home, and increase job satisfaction and reduce likelihood of requiring public assistance again (Danziger et al., 2000). Human capital formation is the process of developing human capital, human capital investment refers to the resources allocated to that development process (Baptiste, 2001).

People make decisions about education and training by comparing benefits and costs (Becker, 2004) believing that investment made to improve skills, health, knowledge or job search skills will result in raised income (Duleep & Dowhan, 2008). People increase human capital investments if they anticipate benefits from the investments (Becker, 2004) like raised income. Human capital theory predicts a positive relationship between earnings and investments in human capital via educational attainment (Becker, 1962). Many social welfare policies and programs to reduce the number of people receiving public benefits use the concepts of human capital theory to develop and implement programs that increase education and training for recipients and program results demonstrate improved employment rates (Gao et al., 2011). Vocational rehabilitation invests public resources with the assumption that the cost of providing those services offset the cost of a person NOT working and remaining on public cash assistance (Elliott & Leung, 2006) like Social Security Insurance (SSI) or Social Security Disability Insurance (SSDI).
Vocational rehabilitation and human capital. Vocational rehabilitation provides employment-related services to people with disabilities with the goal of competitive employment that leads to independence and self-sufficiency for the person (LeBlanc & Smart, 2007). The services provided by vocational rehabilitation are designed to increase a person’s knowledge, ability, and skills to compete in the workforce for competitive long-term employment (Dulude, 2012). Human capital investments that contribute to increased employability and wages are: health, formal education, job training, and job seeking skills (Deng & Zhang, 2008). Vocational rehabilitation provides these services and others guided by an Individual Plan for Employment (IPE) designed specifically to improve the knowledge, skills, and abilities to meet the employment goals of the individual.

Daniels and Mickel (2001) claim that viewing VR services through human capital theory switches the person from a consumer of government services to potential human capital. People with higher capital have increased labor participation and earnings over time (Borjas, 2006) thus reducing the likelihood of receiving social security benefits (Elliot & Leung, 2004) or other welfare benefits (Cheng, 2006; Danzinger et al., 2000). Human capital building services that this study will explore are physical and mental health diagnosis and treatment services, adjustment services, miscellaneous training, college training, and vocational training. Diagnosis and treatment services and adjustment services build health or mitigate disabilities from health conditions that impede the ability to physically and mentally do work.

Education services have been the primary services vocational rehabilitation provides to its consumers since the inception of the state-federal system with the Smith-
Fess Act of 1920 (Peterson & Aquiar, 2004) as people with disabilities have, on average, fewer years of formal education and less work experience (Brault, 2012). Whether or not a person with a disability graduates or drops out of school has a significant impact on future employment and earnings, just like it does for the general population (Daniels & Mickel, 2001). There are several types and means of education investment in human capital (Sweetland, 1996). The most frequent type of educational investment formal education at primary, secondary, and post-secondary levels (Cohn & Geske, 1990). Daniels and Mickel (2001) suggest that educational investment can be quantified in two forms, as a number of years of education or the attainment of a specific credential like a Bachelor’s or Master’s degree.

**Social capital.** Bourdieu (1986) and Coleman (1988) defined social capital as the resources and benefits that are gained through establishing and maintaining relationships. The relationships are frequently called social networks and networks are direct and indirect contacts that can help an individual meet some goal with the expectation of reciprocity at some other time (Coleman, 1988). One of the most common types of information exchange that uses and builds social capital is searching for employment (Potts, 2005). Granovetter (1974) in his seminal work *Getting a job: A study of contacts and careers* identified two types relationships embedded within social networks related to employment. The first is “weak ties” and these are acquaintances and friends of friends. The other is strong ties, which means those close family and friends where there is a stronger bond of influence and reciprocity.

In terms of job searches, weak ties are thought to be better for connecting people with jobs because there is less overlap in relationships and the reach is farther away.
Social capital helps the job search process because employers can become linked with employees through intermediaries who are believed to be trustworthy informal references (Granovetter, 1974). Granovetter (1974) suggests there are five reasons why people prefer to use social networks for job searches: a) will learn about more job opportunities, b) gives access to jobs that are not publicly announced or have limited range in announcement, c) the referring network member has contact with the employer d) networks have been found to be more effective than other job search methods, and e) job opportunities that come through social networks generally are for better jobs with higher pay. Potts (2005) suggests that in order for social networks to be effective for employment that they are a) large, b) have well-connected contacts, c) have little to no redundancy d) have a high proportion of “weak” ties, e) include employers of places desired for employment f) have a network that will think of individual when job becomes available g) have prestigious contacts. Studies have shown that between 40% and 70% of people find employment through a weak tie, and frequently when they were not looking for employment (Potts, 2005).

**Social capital and vocational rehabilitation.** Job seekers (and job developers) have to put energy into their networks in order for it to be effective (Owen & Young, 2008). However, people with disabilities have a number of challenges to building and utilizing social capital for employment. When searching for a job people with disabilities have negative attitudes of employers to deal with, have disabilities that impact personal interaction, and often do not have the resources or knowledge on how to build contacts for job searches (Owen & Young, 2008). As discussed earlier, job placement is consistently a service that is correlated with an employment outcome. Job placement for
purposes of this study is defined as a social capital building services because the activities that VR staff do for job placement are exactly what has been described by Potts (2005) as effective ways to build and utilize social networks for employment purposes. Job placement services means that VR staff is networking with employers to develop reciprocal relationships where the VR staff can learn about job openings and educate the employer on the benefits of hiring people with disabilities and the employer reciprocates by contacting the VR staff when employment comes available or when he or she needs assistance with issues related to hiring and retaining someone with a disability (e.g., accommodations or assistive technologies).

One of the intended outcomes of job placement activities is a direct referral, and preferably an interview. A direct referral from a trusted VR staff for job placement could increase the likelihood of an interview and a job offer. In a study of banking staff, Fernandez & Weinberg (1997) found that applicants with a referral from a current employee were more than twice as likely to get an interview and three times as likely to have a job offer and up to 30% times more likely to get the job compared to someone without a network link. Another common service that can be classified as building social capital for consumers is job search. In this service, similar to job placement but more informational than direct contact, the consumer is assisted to locate job opportunities through job search skills.

**Vocational Rehabilitation**

**History and process.** With the Smith-Hughes Act of 1917 the U.S. Congress established the Federal Board of Vocational Education (Oberman, 1965). However, the Smith-Hughes Act of 1917 was educational, not rehabilitative (Peterson & Aguiar, 2004).
In 1918 Congress passed the Soldiers Rehabilitation Act for disabled veterans returning from World War I and again, the Federal Board of Vocational Education oversaw the administration of the funds and programming (Kundu & Schiro-Geist, 2006). Both of these acts laid the foundation for the infrastructure for the modern state-federal vocational rehabilitation system for civilians that began with the Smith-Fess Act of 1920.

The Smith-Fess Act of 1920, sometimes called the Civilian Vocational Rehabilitation Act, extended services to civilians with physical disabilities (Peterson & Aguiar, 2004). The Act gave a 50-50 match of federal funds to states, to be administered through federal Board of Vocational Education and state boards. By 1922 33 states had active vocational rehabilitation services (Oberman, 1965) and by 1935 the Social Security Act made the state-federal vocational rehabilitation system a permanent government program and increased funding to states (Peterson & Aguiar, 2004). In 1954 Congress passed the Vocational Rehabilitation Act Amendments that provided funds to higher education for master’s level rehabilitation training and opened VR services to people with intellectual disabilities and mental illness (Kundu & Schiro-Geist, 2006). The amendments of 1954 also created the framework of today’s program evaluation system by creating a systematic data collection tool (Walls et al., 2002) which all VR programs had to complete and submit on a regular basis to the Rehabilitation Services Administration for annual statistical reporting. This reporting system changed into the Case Management Reporting System (RSA-911) in the early 1980s and remains the key dataset for program evaluation and VR research (Bruyère & Houtenville, 2006).

However, despite this early legislative and program history, most scholars point to the Vocational Rehabilitation Act of 1973 as the watershed policy of the modern
rehabilitation system as it recognized the greater rights of people with disabilities to having meaningful work lives. Groups like the American Coalition of Consumers with Disabilities pushed for the legislation to emphasize the involvement of the person with the disability in the planning process and other consumer-focused changes (Chan et al., 2004). The Vocational Rehabilitation Act of 1973 mandated each person had to have an Individualized Written Rehabilitation Program (IWRP) (Chan et al., 2004) and states had to prioritize services for individuals with the most severe disabilities. Despite its efforts to be consumer and rights-focused, the Act has been amended several times as the system continued to fall short in serving people with the most severe disabilities, youth transitioning from to post-secondary education or work, as well as consumer choice and self-determination (Beveridge & Fabian, 2007). In addition, numerous studies have identified disparities for minorities within the VR system (LeBlanc & Smart, 2007).

As a result of these challenges in the VR system, the Congress amended the Vocational Rehabilitation Act in 1992 and 1998 (LeBlanc & Smart, 2007). The amendments of 1992 focused on empowering consumers to identify their own employment goals and work collaboratively with the rehabilitation counselor to achieve those (Beverage & Fabian, 2007). Section 21 of the 1992 amendments attempted to legislatively address the patterns of inequitable treatment for minorities in the rehabilitation system by allocating funds for capacity building within the state agency and for minority outreach, research, training and technical assistance (Kundu & Schist-Geist, 2006). Section 21 also required state agencies to recruit professionals from diverse backgrounds and to provide scholarships at minority institutions like Historically Black
Colleges, Hispanic Serving Institutions, and Tribal Colleges and Universities (Kundu & Schist-Geist, 2006).

The Rehabilitation Act was amended again within the Workforce Investment Act of 1998 (WIA) as the federal government sought to establish a Workforce Investment System that folded together different job training programs, including the vocational rehabilitation system to create the “One-Stop” job service system (Elliott & Leung, 2004; Peterson & Aguiar, 2004). Title IV of the Workforce Investment Act contained amendments to the Vocational Rehabilitation Act (1998 Amendments) and held sweeping changes to the philosophy, practices and accountability of the state-federal VR system (Elliott & Young, 2004).

Another key piece of disability legislation that has evolved with vocational rehabilitation specific policies is the Education for All Handicapped Children Act of 1975, that became more commonly known as the Individuals with Disabilities Education Act (IDEIA) of 1990. IDEA was amended in 1997, but it was the changes in 2004 in response to the changes in the Elementary and Secondary Education Act of 1965 in 2001 (more commonly known as “No Child Left Behind) that strengthened the role of state-federal VR system in transitioning youth out of secondary education. The changes in 2004, known as Individuals with Disabilities Education Improvement Act (IDEIA) required special attention to transitions services for students receiving special education services (Turnbull, 2005) where a student had to work toward strengths based measurable postsecondary goals (National Collaborative on Workforce and Disability, 2004). Goals were to encompass training, education, employment, and independent living skills (Turnbull, 2005). Vocational rehabilitation was to play a lead role in the transition
planning process (National Collaborative on Workforce and Disability, 2004). IDEIA also required that school districts address the over-identification of minority students for special education (National Collaborative on Workforce and Disability, 2004). In practice, changes in educational policies mirrored a number of philosophical changes in the amendments to the Rehabilitation Act under WIA.

One the most fundamental changes to the VR system under the 1998 Amendments was the move to a belief that all consumers had a right to informed choice and were to be active and full partners in all aspects of the VR process. According to the U.S. Department of Education (2003) this change required state agencies “…to rethink their policies and practices to reflect this major reorientation the relationships between the individual and the VR counselor” (p. 10). Another important change brought by the 1998 Amendments required agencies to emphasize high quality employment outcomes for consumers with severe disabilities. The statute defined high quality employment as employment in a competitive, integrated labor market, either full-time or part-time, and where the individual earned at or above minimum wage and wages also had to be similar to the payment and benefits paid to workers without disabilities (U.S. Department of Education, 2003).

As mentioned previously, research has identified a number of disparities for minorities within the VR system (LeBlanc & Smart, 2007), which in turn have impacted the current accountability system for the state-federal vocational rehabilitation system through amendments to the Vocational Rehabilitation Act of 1973. This mandate resulted in the establishment of evaluation standards and performance indicators now outlined in federal regulations and reported to Congress every year. RSA revised the
Case Management System (RSA-911) extensively to incorporate the new accountability practices (U.S. Department of Education, 2000). The program evaluation standards and performance indicators focus on equal access (particularly for minority groups) and employment outcomes for all consumers.

The evolution of vocational rehabilitation services is deeply embedded in its legislative history (Elliott & Leung, 2004), which in turn, reflect the attitudes, believes, and values of society at the time of passing (Smart, 2004). Despite a trend toward devolution in social services in the U.S. (Perez-Koenig & Rock, 2000), the civilian VR system has remained centralized under the federal government since its inception in 1920. The VR process can be broken down broadly into access (application and eligibility), services (Individual Plan for Employment and actual services received) and outcomes (rehabilitation and competitive employment outcome). The following subsections provide a selected review of the literature related to these steps. An emphasis is placed on experiences and outcomes of Hispanics and other minorities in the VR system. Figure 2.1 illustrates the intake, services, outcomes process.

**Access.** During the intake process potential consumers apply for services and then go through an eligibility assessment process. The major requirements or criteria for application and eligibility determination is guided uniformly across all state agencies under the Vocational Rehabilitation Act of 1973 and its amendments (Hager & Sheldon, 2006). Before discussing the literature relevant to application and eligibility, a brief review of frequently studied personal characteristics of consumers will be discussed. The variable of race and ethnicity is discussed there, and is revisited throughout the review of vocational rehabilitation literature.
**Personal characteristics.** Early in its inception, evaluators of the VR system have tried to identify what personal characteristics are most likely to predict a successful employment outcome. While the aim of this study to examine trends over a 17-year period rather than predict rehabilitation access and outcomes, the personal characteristics that are often examined are important to understanding the trends themselves and what they could mean. Variables associated with intake are personal characteristics like sex, age and race/ethnicity and referral source (Pi, 2006). Other personal characteristics commonly seen in the VR literature are type and severity of disability, education at application, work status and wages at application, (Hayward & Schmidt-Davis, 2003a; Pi, 2006) all of which have been identified as human capital variables (Dulude, 2012; Gao, Gill, Schmidt & Pratt, 2010). Personal characteristics are captured at the application and eligibility (i.e., intake) phase of the VR process.

**Sex.** Outcomes for men versus women in the vocational rehabilitation system have mixed results. Several studies have supported gender as impacting VR outcome Bishop, 2004; (Bolton, Bellini, & Brooking 2000; Bounds, Schopp, Johnston, Unger, & Goldman, 2003; Saxon, Spitznagel, & Shelhorn-Shutt, 1983) while a number have suggested sex is not a predictor (Bromet, 2005, Wheaton, Wilson, & Brown, 1996). While women may be employed more frequently, they may be in lower wage positions and earn less money than their male counterparts (Menz, Hansen, Smith, Brown, Ford, & McCrowey, 1989). A more recent study by Doren, Gaue & Lindstrom (2011) had similar results regarding young women transitioning from secondary education.

**Age.** Like gender, there are not consistent findings on age and VR outcomes (Bromet, 2005; Pi, 2006). Some studies have indicated consumers younger than 50 are
more likely to exit as rehabilitated (Daniels, 2007), and a few studies on transitioning youth found that each year of age increased odds of employment (Poppen, 2014). Other studies have found age to be an important predictor or covariate of rehabilitation outcomes (Daniels, 2007; Dutta et al., 2008; Poppen, 2014; Vaughn & Boston, 2010).

*Disability.* Since the seminal study of Rubin, Bolton and Salley (1973), rehabilitation scholars have explored how the type and severity of a disability impacts access to services and rehabilitation outcomes and in general it has concluded that there are biases and preferences for certain types of disabilities (Brickham, 2012). Comparative studies have consistently concluded that consumers with psychiatric disabilities have lower rates of employment than consumers with orthopedic, physical impairments or sensory impairments (Chan et al., 2006; Dutta, et al., 2008; Feist, 2013; Hayward & Schmidt-Dave, 2003a; Rosenthal et al., 2005; Vaugh & Boston, 2011). Vaugh and Boston (2011) concluded that consumers with depression and schizophrenia are less likely to exit as employed but the severity of the condition did not impact outcome. Chan (2005) concluded that consumers with more ambiguous mental impairments such as a learning disability were more likely to be accepted for services. Chronister et al. (2008) concluded that consumers with substance addiction had the lowest rehabilitation outcomes. Chan et al. (2005) and Martin (2010) reported that severity of disability was an important factor for Hispanic rehabilitation outcomes in both of their studies.

*Education at application.* Researchers consistently have identified educational level at application as an important predictor of access and rehabilitation outcomes, though what level of education and in combination with what other consumer characteristics is often contradictory. Vaugh and Boston (2010) concluded that people
with psychiatric disabilities had the highest rate of employment outcomes if they a bachelor’s degree or higher, while Kolakowsky-Hayner (2010) found special education status to be the most statistically significant predictor of acceptance rates. Wilson and Gines (2009) concluded that a high school diploma or higher was a greater predictor of VR acceptance over race. Dutta and colleagues (2008) reported higher levels of education associated with an employment outcome for sensory and physical impairments. Gonzalez (2011) reported than white and Hispanic consumers with an associate’s degree had higher rates of employment outcomes and Martin (2010) reported that a bachelor’s degree or higher at application resulted in better quality employment outcomes regardless of race or ethnicity.

Employment status at application. Employment history is an important aspect of human capital accumulation (Becker, 1962; Dulude, 2012) and wages often reflect the greater value placed on certain human capital (i.e., work skills and abilities (Becker, 1964). However, work history is rarely included in VR studies as a predictor or covariate as often as variables such as age, gender, education or race/ethnicity even though the majority of consumers apply for VR unemployed (Hayward & Schmidt-Davis, 2003a). The few studies that have included it determined it to be an important predictor of employment outcomes (Capella, 2003; Dutta et al., 2008; Feist, 2013; Hayward & Schmidt-Davis, 2003a). A recent study by Chiu and colleagues (2015) included employment status at application for consumers with diabetes and determined that employed consumers received different services than unemployed consumers.

Race and ethnicity. Numerous studies have made it clear that race and ethnicity, alone or in conjunction with other demographic and service factors, impact access and
service provision as well as rehabilitation and competitive employment outcomes (Hayward & Schmidt-Davis, 2003a; LeBlanc & Smart, 2007; Martin, 2010; Wilson et al., 2001; Wilson, 2005). Studies that evaluated race and ethnicity are reviewed in the appropriate step in the VR process.

**Application and eligibility.** During the intake process potential consumers apply for services and then go through an eligibility assessment process. The major requirements or criteria for application and eligibility determination are guided uniformly across all state agencies under 34 CFR 361.41 (Hagar & Shelton, 2006).

**Application.** Once a referral is received, typically the rehabilitation counselor will arrange an initial meeting to gather information about the potential consumer as well as share with the individual the VR system’s purpose and services. As part of the application process, the potential consumer will provide the counselor with basic contact information and demographic information such as gender, race, ethnicity, and age. Additionally, the individual will provide the counselor information about his or her vocational history and goals, and current means of support, including if the person receives public benefits like Social Security Insurance or Social Security Disability Insurance (U.S. Department of Education, 2000).

Most importantly, the individual will share with the counselor information about his or her disability and how it impedes work. An individual who has applied for services and can be identified as such is accepted for services when the above criteria are met and a signed an agency application form is completed that provides the requisite information for assessment and eligibility determination. An implied aspect of the application for vocational rehabilitation services is that the applicant, ultimately, wants to work (Hagar
& Sheldon, 2006). A person can desire full-time or part-time work in an integrated setting, habilitation center (formerly called sheltered workshops), or self-employment (Hagar & Shelton, 2006).

Vocational rehabilitation scholarship has reflected the growth of the Hispanic population in the U.S., as in the past 20 years Hispanics are frequently identified as a subpopulation of VR in studies or a covariate. However, most studies focus on race and ethnicity in terms of rehabilitation outcomes (Wilson & Senices, 2005) but a growing number are focusing on access to services (application and eligibility). Some researchers have concluded that Latinos are at higher risk of disability because of the interplay of poverty, low educational attainment, lack of access to primary health care and disproportionate representation in manual labor (LeBlanc & Smart, 2007; Leydorf, 2006; Wilson, 2005). With the passage of the 1992 amendments to the Vocational Rehabilitation Act, VR has been mandated to improve outreach and service for minorities, including Hispanics (Giesen, Cavenaugh, & Sansing, 2004).

What is surprising in light of these dynamics, along with the growing Hispanic population, is the paucity of research on application for services (Moore, Giesen, & Cavenaugh, 2005). Cultural differences in beliefs about disabilities as well as language barriers could potentially impact access to VR services (Moore et al., 2005; Datti, Conyers & Boomer, 2013; Smart, 1994; Wilson, 2005). In addition, knowledge of VR as a community resource impacts the utilization of VR services for certain subgroups of Hispanics (Datti & Conyers, 2010; Datti, Conyers, & Boomer, 2013; Wilson & Senices, 2005).
Only a handful of studies exist that compare disability rates to application rates. The first was Dziekan and Okacha (1993), who in a Midwestern state, concluded that minorities did apply for services at a higher rate which in turn reflected higher disability rates in minority populations. Giesen (1995) concluded that African Americans in two Southeastern states who had vision impairments applied for services at a higher rate than the percentage of African Americans in the states, but in 2004 found contradictory evidence using Census data (Giesen et al., 2004).

To date, only one study has examined application rates of Latinos to general rates of disabilities (Moore, Giesen, & Cavenaugh, 2005). Moore and colleagues (2005) assessed application rates by four impairment types, blind and visually impaired, deaf and hearing impaired, substance abuse, and intellectual disability for white, African-American and Latino groups. Whites had the highest proportion of application, followed be African Americans, then Latinos. The representation of Latinos in VR was higher for vision and hearing impairments and the same for substance abuse and intellectual disability when compared to the general disability population. None of the existing studies look at the issue of VR application rates over a period of time or in terms of a disability the impedes the ability to work.

Eligibility. Typically, the vocational rehabilitation counselor has 60 days to gather information to make an eligibility determination (Maki & Riggar, 2004) unless there are documented extenuating circumstances (34 CFR § 361.41 (b), 2013). The vocational rehabilitation eligibility process is individualized and should be assessed using existing data to the extent possible (34 FCR §361.42 (d), 2013). Federal regulations provide state agencies broad but uniform criteria for determining eligibility for services.
To be determined eligible for services, the applicant must have a physical or mental impairment and the physical or mental impairment is a substantial impediment to employment (34 CFR § 361.42, 2013). In addition, the applicant must be determined to need VR services to work and therefore benefit from such services (34 CFR § 361.42, 2013).

VR eligibility is based on impairments that are caused by an underlying health condition. The types of impairment are divided into three general categories, physical, mental, and sensory impairments. Following the identification of the impairment and underlying diagnosis, the rehabilitation counselor will assess the level of functional impairment in a variety of areas but with a focus on work limitations. If the counselor determines the person’s disability inhibits the ability to work, the counselor then has to determine if the person needs VR services to return to work and as such, can benefit from VR services (34 CFR §361.42, 2013). After determining eligibility, and as a separate issue than eligibility, the counselor must determine the significance of disability. Significance of disability plays an important role in states with an order of selection process as severity of disability determines whether or not the eligible applicant is placed on a waiting list or receives services.

Access or eligibility for services, is a fairly new area of research for disparities research (Wilson & Senices, 2005), as most still focus on rehabilitation and employment outcomes. The two earliest seminal studies that included Hispanics concluded that they were less likely to be eligible for VR services (Dziekan & Okacha, 1993; Herbert & Martinez, 1997. Kolakowsky-Hayner (2010) found Hispanics be the least likely to be accepted for services. Two more contemporary seminal works that focused specifically
on eligibility of Hispanics concluded that VR accepted Hispanics with a higher frequency than non-Hispanics (Wilson, 2005; Wilson & Senices, 2005). However, the issue of eligibility and minority status for Hispanics can become complex as Hispanic is not a race but an ethnicity (Wilson, 2010). For example, Wilson (2008) found that Latinos who identified as black were less likely to be accepted for services than Latinos who self-identified as white.

Within the application and eligibility process the rehabilitation counselor and individual must discuss the consumer’s employment goals and the knowledge, skills and abilities that the individual has to achieve that goal. This information, once eligibility is established, become goals that are formalized into a service plan - the Individual Plan for Employment (IPE).

**Services.** The services stage of the VR process includes the development of the Individual Plan for Employment and the implementation of the IPE. Each of these sub-phases has federal policies that define and guide the activities. However, similar to defining the individual with most significant disability, the practice can vary from state to state.

**Individual Plan for Employment.** Following a thorough vocational assessment, and eligibility determination, the Individual Plan for Employment is created. The IPE includes the desired employment outcome and what services are required to achieve that employment outcome, as well as the method to obtain services and the provider of services. The IPE will include a timeline and the criteria for evaluating progress (Hager & Sheldon, 2006). The IPE must be reviewed annually and can be amended. Services variables include the type of services, consumer goals, counselor knowledge and abilities,
and community resources (e.g. medical diagnosis and treatment, mental health counseling, GED classes, college and university training).

**Specific services.** Some researchers argue that service variables are better predictors of employment outcomes than personal characteristics (Keyser-Marcus et al., 2002). Common services that VR consumers receive once determined eligible include diagnostic and restorative services for physical and mental disabilities, adjustment training, postsecondary education, vocational or occupational training, miscellaneous training, job search services, and job placement services (Hayward & Schmidt-Davis, 2003; Poppen, 2014; U.S. Department of Education, 2013). Most service research is state-specific (Martin, 2010) and geographic location can impact services available (LeBlanc & Smart, 2007).

However, like many areas of vocational rehabilitation, the various combinations of personal characteristics like impairment type, functional limitations, age, gender, education and work experience interact with agency and macro variables for a successful rehabilitation outcome. The remainder of this subsection discusses salient research on five human capital building services and two social capital building services.

Few comprehensive studies on VR services received by ethnic minorities and none examines changes over a period of time. The few studies that do examine services by race not ethnicity and concluded that that African-Americans, typically by disability type, receive different services than whites and have less money spent on services (Dutta, 2008; Feist-Price, 1995; LeBlanc & Smart, 2007; Olney & Kennedy, 2002).

**Human capital building services.** As health is considered an important aspect of human capital in the form of ability to perform work (Dulude, 2012), diagnostic and
treatment services and adjustment services are reviewed, followed by services that build education and job skills, college and university training, vocational training, and miscellaneous training. In the only study to compare human capital building services to social capital building services within that conceptual framework, Dulude (2011) concluded that consumers with visual impairments received human capital building services more frequently than social capital building services.

Diagnosis and treatment services. In a longitudinal study of VR services and outcomes, Hayward and Schmidt-Davis (2003b) determined that consumers receive diagnostic and treatment services (medical or psychological treatment) In their study, they found this service to be a negative predictor for an employment outcome. Other studies concluded receipt of diagnosis and treatment services as a predictor of a successful rehabilitation outcome (Dutta et al., 2008; Feist, 2011; Moore, 2002; Vaugh & Boston, 2010; Wheaton, Wilson, & Brown, 1996). Chronister and colleagues (2008) found diagnosis and treatment services to be important if a person does not receive job placement services.

Adjustment training services. Adjustment or augmentative training services is often the least received services (Dutta, 2008; Inge, Cimera, Revell, Wehman, & Seward, 2015), as well as the least examined in the literature. For consumers with visual impairments the rate of competitive employment was lower for those that did not receive the service (Dulude, 2012). Several studies reported African Americans were more likely to receive adjustment training than whites (Hannotte-Eagan, 1998; Romero-Ramirez, 2010; Wheaton, Wilson, & Brown, 1996). Studies to date have not examined this service for Hispanic consumers.
Miscellaneous training. Miscellaneous training is typically the category for assisting consumers complete secondary training or a General Education Diploma (Dutta et al., 2008), and like adjustment training services, has received little attention in the literature. Vaughn and Boston (2010) did find it to be one of the predictors of employment outcomes for consumers with hearing impairments as did Dutta and colleagues (2008) for consumers with mental impairments.

College and university training. Gilmore and Bose (2005) reported that VR consumers accessed post-secondary education less frequently than the general population, even though studies have demonstrated that consumers that have college educations have better quality employment outcomes (Chan et al., 2006; Gamble & Moore, 2003; Sabo & Thornburg, 2015; Vaughn & Boston, 2010). Whites have been reported to receive post-secondary services more frequently than other races and Hispanics (LeBlanc & Smart, 2007).

Vocational and occupational training. Vocational and occupational training has been found to a predictor of successful rehabilitation outcomes (Bolton, Bellini, & Brookings, 2000; Dutta, 2008; Sabo & Thornburg, 2015). A few older studies have indicated that minorities are more likely to receive vocational training compared to whites (Saxon, Spitznagel, & Schellhorn-Schutt, 1983; Wheaton, Wilson, & Brown, 1996). However, Wilson, Turner and Jackson (2002) determined there was not a difference for minorities compared to whites.

Social capital building services. Job search and job placement services build social capital to connect job seekers with employers (Dulude, 2012).
Job search services. A number of studies determined job search services as effective service for consumers with a variety of impairments (Catalano, Pereira, Wu, Ho, & Chan, 2006; da Silva Cardoso, Romero, Chan, Dutta, & Rahimi, 2007; Dutta et al., 2008). Feist (2014) determined job search services predicted employment outcomes of Hispanic women with hearing impairments. Studies have not compared job search services of racial and ethnic minorities to whites for comparison of rates of receipt.

Job placement services. Of the wide range of services a consumer can receive through VR, job placement appears to have the greatest impact on an employment outcome (Bolton et al., 2000; Bradley et al., 2013; Catalano et al., 2006; Chan et al., 2006; Dutta et al., 2008; Feist, 2011; Moore, 2001; Sabo & Thornburg, 2013) regardless of type of disability.

Rehabilitation and Outcomes. As the previous sections provides a brief discussion of personal characteristics and services that predict rehabilitation outcomes, the following section gives a summary of the combined factors that contributes to a successful VR closure.

A longitudinal study conducted by Hayward and Schmidt-Dave (2003a) determined that a person was more likely to achieve an employment outcome if he or she was working at application, had a vision impairment, hearing impairment, orthopedic impairment or intellectual disability, had higher gross motor function and had more dependents than other consumers. In the same study, consumers were more likely to exit VR with competitive employment if the person was working at application, had higher earnings in most recent job prior to VR application, had higher cognitive and gross motor function, greater knowledge of different jobs, and had greater knowledge of nonmonetary
benefits. Individuals were less likely to have any type of employment outcome if he or she received Social Security Insurance (SSI) or Social Security Disability Insurance (SSDI), were motivated by a desire to obtain postsecondary education services (i.e., financial assistance for college), and if their race or ethnicity was non-white. Individuals who were older, had a vision impairment, mental illness or intellectual disability or their disability was identified as significant or most significant were less likely have a competitive employment outcome. Other studies support these findings (Capella, 2003; Dutta, 2008; Feist, 2011; Martin, 2010; Moore, Feist-Price, & Alston, 2002; Wilson, Alston, Harley, & Mitchel, 2002).

The impact of race and ethnicity on all aspects of the vocational rehabilitation have been documented since 1938 (Martin, 2010), but rehabilitation and employment outcomes for African-Americans have received the most attention (LeBlanc & Smart, 2007). While some of the research is contradictory, racial minorities, particularly African-Americans, do not exit VR rehabilitated as often as whites (LeBlanc & Smart, 2007; Wilson, 2001; Wilson, 2004). While outcomes for blacks have been most often studied, a growing number of scholars are recognizing the impact of ethnicity, in general, on employment opportunities. Wheaton and Hertzfeld (2002) concluded that Hispanics were rehabilitated less often, and Martin (2010) reported that Hispanic women earned less if they became employed, in contrast to other findings (Capella, 2002). Feist (2013) concluded that receipt of public supports was the most important predictor of an employment outcome for Hispanic women who were deaf, and in a study of transition youth, Gonzalez (2011) reported that Hispanic women had lower employment outcomes
compared to whites and African-Americans. Hispanics who identified as black were less likely to be accepted or closed as rehabilitated (Wilson, 2005).

**Impact of culture and immigration status.** Community based vocational rehabilitation professionals and researchers have concluded all minorities tend to underuse rehabilitation services, are often treated differently than nonminority clients in terms of their rehabilitation plans and goals, have higher dropout rates, and experience lower success rates (Leydorf, 2006; Smart, 1994; In studies that examine barriers to mental health services, researchers concluded that the lack of culturally relevant forms and materials, untrained staff, and physical access were three barriers (Leung, 1993; Leydorf, 2006). Under each of these broad categories came issues such as materials unavailable in Spanish or at a low enough literacy level in Spanish or English, lack of interpreter services, and agencies being located in neighborhoods that were inaccessible by the client (Leung, 1993; Leydorf, 2006; Reed, Holloway, Leung, & Menz, 2005; Smart & Smart, 1994; Wilson, 2005).

All of the issues mentioned above combine to create an even greater overall structural barrier of less access to services, fewer employment outcomes, and fewer dollars spent on minorities (Smart & Smart, 1997; Wilson, 2005). Cultural differences in help-seeking behaviors and beliefs about disability are often identified as a reason for disparities in services (Dzeikan & Okocha, 1993; Moore et al., 2005). In addition, the U.S. social services and health care systems can be direct conflict with values of a number of Hispanic subpopulations (Andrade & Viruell-Fuentes, 2011; Lara, Gamboa, Kahramanian, Morales, & Bautista, 2005). According to Engstrom (2006) one in seven Hispanic families is headed by a foreign born adult and Hispanics have difficulty in
accessing public services because of mixed immigration families. While a person must have documentation to work in the U.S. and to receive many services, the impact of mixed status families may still be a factor.

**Community level variables.** Whether or not a VR office or surrounding community based organizations has bilingual bicultural staff is considered as environmental factors that could impact VR services and outcomes. Just as states or regions may vary in the type and quantity of community based organizations and government institutions that have bilingual and bicultural infrastructures, economic conditions can also vary. Local unemployment rates, prevailing wages, and types of employers can impact rehabilitation rates for VR consumers (Hayward & Schmidt-Davis, 2004; Pi, 2006). Other environmental factors that could impact VR experiences and outcomes include rural versus urban location of the local VR office (Ipsen et al., 2014), if the state uses a waiting list due to lack of resources (Pi, 2006), and has broad access to community partners (Hayward & Schmidt-Davis, 2003b)

In addition to whether or not a VR consumer obtains a job, and the predictors associated with that likelihood, researchers and policy makers are also interested in the types of jobs and the wages that people obtain. Even though 60% of consumers obtain employment for 90 days or more (U.S. Department of Education, 2013), consumers exit the system in mostly low wage, low skill jobs (Martin, et al., 2012) in the service industry (Boutin, 2010) that do not pay enough to achieve true self-sufficiency and independence from public benefits. People with disabilities frequently make less than people without disabilities in the same position (Martin et al., 2012). In a ten-year trend analysis of employment and wages for consumers with developmental disabilities, Migliore and
Butterworth (2008) concluded that wages were rising but remained lower than people without developmental disabilities, and, in this study, the wages were close to the poverty threshold for people with disabilities.

There are few trend studies using the RSA-911 data overall and to date there are no studies that focus specifically on how personal characteristics and services affect employment outcomes for Hispanics over time. The studies that have examined Hispanic experiences and outcomes with the VR system use data for a single state or nationwide (LeBlanc & Smart, 2007; Martin, 2010). Only one study has examined outcomes for Hispanics in a state with a cultural and historical presence (Martin, 2010). As many Hispanics migrated to the South in response to a booming economy and better job prospects in low wage/low skill jobs (Crowley et al., 2005; Massey & Capoferro, 2008) that carry higher risks of illness, injury, and disability (Gleave & Wang, 2013), vocational rehabilitation may be a service from which Hispanics could benefit, should they become disabled. However, the lack of bilingual bicultural community and VR infrastructures may keep those benefits from being realized.
Figure 2.1 Vocational Rehabilitation Process

1. Case Closed
   - Eligibility for Services
     - Yes: Develop Individual Plan for Employment (IEP)
     - No: Referred to OVR

2. Apply to OVR for Services
   - Yes: Implement IEP (Receive Services)
   - No: Continue IEP and services

3. Employed less than 90 days
   - Yes: Employed more than 90 days (Rehabilitated)
   - No: Continue IEP and services

4. Employed more than 90 days (Rehabilitated)
   - Yes: Case Closed
   - No: No

- Yes: Case Closed

Chapter 3: Methodology

This study examined vocational rehabilitation trends in key program performance indicators from 1996 to 2013 for Hispanics with disabilities in new immigration destinations of the Southeast compared to Hispanics in traditional immigration destinations of the Southwest. Conceptually, human and social capital theory as it applies to vocational rehabilitation services guided the investigation. The chapter outlines the methodology of the investigation. Before discussing data sets and variables a brief review of trend analysis as a longitudinal method to study changes over time is provided.

Research Questions

Under the regulations of the Vocational Rehabilitation Act of 1973 and its subsequent amendments, the Rehabilitation Services Administration collects data on key performance indicators from all state agencies and agencies in U.S. territories (Bruyère & Houtenville, 2006). In practice, these performance indicators reflected the steps in the vocational rehabilitation process described in Chapter 2: application, eligibility and services, and employment outcome (Walls, Misra, & Majumder, 2002). The questions that guided the study are outlined below. The conceptual models for the study are located in Figures 1.2 and 1.3.

Q1. Do consumers’ characteristics differ in 1997 and 2013 for Hispanics within new immigration destinations of the Southeast and within traditional immigration destinations of the Southwest?

- Sex
- Age
- Race
- Referral source
- Disability
- Educational attainment at application
- Employment status at application
- Earnings at application
Q2. Do trends exist in the rates of Hispanics applying for vocational rehabilitation services in new immigration destinations of the Southeast compared to traditional immigration destinations of the Southwest from 2002 to 2012?

Q3. Do trends exist in the rates of eligibility for vocational rehabilitation services for Hispanics in new immigration destinations of the Southeast compared to traditional immigration destinations of the Southwest from 1997-2012?

Q4. Do trends exist in vocational rehabilitation services for Hispanics determined eligible in new immigration destinations of the Southeast compared to traditional immigration destinations of the Southwest from 1997 to 2013?

Q4.1: Do trends exist in human capital building services (diagnosis and treatment services, adjustment training, miscellaneous training, college training, and vocational training)?

Q4.2: Do trends exist in social capital building services (job search, job placement)?

Q5. Do trends exist in rehabilitation and employment outcomes for Hispanics who receive vocational rehabilitation services in new immigration destinations of the Southeast compared to traditional immigration destinations of the Southwest from 1997 to 2013?

Trend Analysis

Trend analysis evaluates social change using aggregate data gathered at different points in time from the same population but different people (Hagenaars, 1990) where time is a predictor variable of a particular outcome or indicator (Rosenberg, 1997). Social scientists and policy analysts used trend analysis to monitor and evaluate social policy or program impact to explore overall patterns of change (Singer & Willet, 2002). In addition to an examination of trends over time, researchers generally explored changes
across geographic areas, changes across time periods, or compared change between
groups of people (Rosenberg, 1997). Identified patterns of change are evaluated for an
increase or decrease in the rates of the outcome, for how rapidly or slowly the outcome
changes over time and the shape of the pattern of change over time (e.g., linear,
curvilinear, quadratic) (Singer & Willett, 2003). Researchers then used statistical
techniques to test for the statistical significance of the trend or if the trend is mere chance
(Ely et al., 1997). Rosenberg (1997) suggested that the results of a trend analysis (and
significance of statistical trends to be useful for policymakers and professionals in the
human services the trend analysis should be conceptually linked to a program or policy
issue.

This trend study followed that suggestion as it clearly links vocational
rehabilitation program services to Hispanics with disabilities to the performance
Under the mandate of the Act the Rehabilitation Services Administration collected data
from state agencies to create a cross-sectional aggregate annual performance report for
Congress, the President, and the U.S. public. This study used the data collected by the
RSA for those annual reports as its primary dataset which was called the Case Reporting
System (RSA-911). Analysis used all cases closed between September 30, 1996 and
September 30, 2013 for Hispanic consumers ages 18 to 64 at application in two
geographic regions of the United States with differing Hispanic immigration and
settlement patterns. At a practical level this information meant that the entire population
of cases closed in a given year is available for analysis. Population parameters suggests
certain techniques for analysis of trends.
Some researchers might suggest that any trend analysis beyond a descriptive count and plotting of counts across years would be sufficient to understand any trends because population parameters are known and would therefore be theoretically free from sampling or random error (Ely et al., 1997; Rosenberg, 1997). However, other researchers argue this is not the case as these population numbers and rates are representative of samples in time and space; samples taken from multi-year, multi-area populations rather than absolute population parameters (Ely et al., 1997; Rosenberg, 1997; Singer & Willet, 2003). Analysis using multi-year, multi-area population can have different outcomes in a given time or place for numerous confounding reasons (Rosenberg, 1997). Viewing RSA-911 data in this manner means fluctuations in rates can be termed random error instead of sampling error and suggests that inferential statistical methods are preferred to descriptive trend analysis methods such as simply plotting the number of cases with the desired attribute of the outcome variable on a line graph (Rosenberg, 1997).

**Considerations and Limitations of Trend Studies.** Rosenberg (1997) identified four important conceptual considerations for trend analysis. The first, and potentially the most crucial, is identifying the denominator for creating the type of rate used for analysis. The other conceptual issues are sample size, extreme values or outliers, and confounding variables. With the exception of identifying the denominator for creating the rates to be evaluated, the other three conceptual issues are important for research to reduce error and bias to the extent possible. Trend analysis, particularly the kind for this project, was not designed to attribute time or region as a cause of any dependent variable. Trend analysis can help determine if such further investigation was warranted (Ely et al., 1997).
In trend analysis, the conceptualization and subsequent measurement the denominator is of critical importance and will determine if a researcher uses a simple count, proportion or person-time data as rates. All three of these data types have important assumptions about the denominator the researcher should consider (Ely et al. 1997). The count is simply that, the total number of cases that had the desired attribute of the outcome variable. Using a simple count as the rate of a particular outcome means the number of total people in the population is unknown (Ely et al., 1997). However, if a simple count is used, the researcher assumes that the number of people who would potentially be included in the rate is unknown but stable and consistent across the time interval (e.g., years).

If the denominator is known (e.g., total population parameters), or could be reasonably estimated, simple proportions are used for rates (Ely et al., 1997; Rosenberg, 1997). The numerator is the count of the interest; the denominator is the entire population which could have had the outcome variable being examined. The denominator may or may not be constant from one time interval to the next, it simply has to be known or reasonably estimated. Whether or not the denominator is known and a proportion can be determined will then suggest specific statistical tests. In this study, population parameters of the denominator were known in most tests, as the entire population of Hispanics with cases closed in the VR system between 1997 and 2013 were used. As such, the resulting rates suggested OLS Linear Regression as the appropriate statistical test for the trend analysis portion of the study.

To estimate the rates of applications for Hispanics to the VR system in the identified regions, population estimates were used, drawn from the Current Population
Survey conducted annually by the U.S. Census Bureau and U.S. Department of Labor. This data set was used to obtain an estimate of Hispanics with work limitations by state (grouped into study regions) by year as the denominator for calculating rates of applications for VR services (question 2). The other rates within the study drawn from population data extracted from the RSA-911 datasets, so concerns about the validity of these denominators were minimal. Another way of capturing rates of a phenomenon is by calculating person-time data when the amount of time a person “at risk” for the outcome variable is different for each person (Ely et al., 1997). For this study, person-time data does not conceptually align with the research questions, and as a result simple proportions were used to compare rates by region.

In addition to rate conceptualization, the researcher has three other important considerations for trend studies, sample size, outliers, and confounding variables. Since this trend study was conducted at the ecological level, the sample size is the number of time periods being examined, not the count of individuals within each time period (Rosenberg, 1997). This study anticipated having 17 years of aggregate data to analyze, which met the minimum criteria for 10 years of data to use linear regression (Rosenberg, 1997). If viewing the rates of interest as estimated samples in time and space narrowed (i.e., the number of time periods evaluated), then potential for error increases, suggesting the importance of using statistical methods that can account for the potential for error.

Extreme values or outliers are important considerations to identify, also. Careful screening was conducted using standard statistical methods to evaluate if an outlier existed and if so, if it is due to random chance or different from the trend (Rosenberg,
This study used population data and as such reflected real and not sampled parameters, another important consideration when evaluating outliers.

A final consideration for this trend study involved considering potential confounding variables. Confounders are other variables that could impact the patterns of change other than the passage of time (Singer & Willet, 2003). In trend analysis, some common confounders are changes in reporting definitions of an indicator and changes in sociodemographic characteristics of a population (Rosenberg, 1997). Both of these types of confounding variables were considerations in this study, particularly the changing definitions of indicators, as the RSA-911 dataset evolved over the 17 year period of the study.

The changing nature of variables and definitions were a substantial challenge to conducting a trend analysis using the RSA-911 datasets. For example, the defining of disability, the impairment and cause of impairment, changed substantially beginning in 2002 (U.S. Department of Education, 2000). Some variables were reconcilable in a meaningful manner, others were not. As a result of the importance of definition consistency across time for a meaningful analysis, a detailed codebook that identifies transformations and subsequent coding practices were created to augment the final definitions of the variables provided in the reminder of this chapter. Even with extensive recoding, a potential limitation of this study was the analysis and subsequent interpretation providing misleading results (Rosenberg, 1997).

Another important potential confounding variable to consider the role of sociodemographic changes in a population (Rosenberg, 1997). In response to this
challenge, Question 1 of this investigation comprised a limited number of personal characteristics (sociodemographic variables) between 1997 and 2013 for VR consumers. Even though numerous variables can contribute to changing migration and patterns of social service use, this study was focused on exploration of changes in the performance of VR agencies to provide services to a growing Hispanic population in the Southeast and does not incorporate exogenous variables, like state and local agency characteristics or larger community variables like education services and outcomes, labor market opportunities and state unemployment.

Datasets and Variables

This project drew on two secondary datasets, both developed and maintained by the federal government. The first was the Current Population Survey (CPS) and the second was the Case Service Report (RSA-911). In this subsection, I described the datasets and the variables used from each for this study.

Current Population Survey (CPS). To examine application rates population estimates from the Current Population Survey (CPS) was used. The CPS captures a wide range of economic and social data using a multi-stage stratification sampling process that encompasses all states and U.S. territories of civilian noninstitutionalized people 16 years of age and older (Burkhauser & Houtenville, 2006). The U.S. Census Bureau and the U.S. Bureau of Labor Statistics collaborate to collect and analyze information on a monthly basis from 60,000 randomly selected households on topics such as employment, unemployment, wages, health benefits, disability, race and ethnicity, among other variables (Bruyère & Houtenville, 2006). In addition to the monthly survey, the Census Bureau and Bureau of Labor Statistics conducts an annual survey called the Annual
Social and Economic Supplement to the Current Population Survey, known as the March CPS (Burkhauser & Houtenville, 2006). For this cross-sectional survey, researchers annually interview approximately 200,000 non-institutionalized civilians (Burkhauser & Houtenville, 2006). In 1981, the U.S. Census Bureau and the U.S. Bureau of Labor Statistics added a question about work limitation due to a health condition or disability to the March CPS (Burkhauser & Houtenville, 2006), making it now the longest running data collection effort that asks about disability and employment (Bruyéne & Houtenville, 2006).

The Current Population Survey began in the 1930s as an unemployment registration document during the Great Depression (U.S. Census Bureau, 2006). What started as a survey to capture unemployment status and wages from people looking for work has become a complex national survey with a multistage stratified sample design of U.S. households that represented non-institutionalized civilians over the age 16 (U.S. Bureau of Labor Statistics, 2006). The CPS sampling process was based on primary sampling units (PSUs) that were developed from the most recent census and can be a metropolitan area, a county or a group of small counties (that will not cross state lines) (Burkhauser & Houtenville, 2006). Groups of PSUs were created and assigned to strata based on similarities of characteristics of the population, then one PSU was selected from each strata. The selection of the PSU was not random, but rather proportional to its population size. Then a sample of housing units were identified within the selected PSU and a single responder from the household responds for all the members.

**Obtaining Data.** Electronic data for years 2002 to 2012 were electronically available for Hispanics ages 18 to 64 for the study studies and were downloaded as yearly
tables with population estimates and estimates for Hispanics with work limitations as defined by the Current Population Survey question regarding this variable. The data for each region was aggregated by year and state and then incorporated into the overall aggregate dataset for analysis of question 2, trends in the rates of vocational rehabilitation applications by Hispanics with disabilities in the two regions.

**Variables.** Data for four variables from the March CPS for years 2002-2012 were analyzed: Hispanic ethnicity, age, work limitation and state. A composite regional variable was then calculated to determine estimates by year for the two study regions.

*Hispanic ethnicity.* This variable classified people as Hispanic/Spanish/Latino in origin. It was the population characteristic of interest and all data from the March CPS were for people of Hispanic origin.

*Work limitation.* Inability to work because of a health condition or disability. This dichotomous variable was extracted as an aggregate number of Hispanics by state by year whether the response. The count of Hispanics with a work limitation was used by state and year to provide the denominator of the proportion for rates of application.

*Age.* Age was determined by subtracting birthdate from current date or the person provided his/her best guess. This variable was necessary to extract information for Hispanics 18 years of age and older by year by state.

*CPS state.* The CPS state was the geographic state of the U.S. where the household answering the survey was located. Data extracted from the March CPS included for Arkansas, Louisiana, Mississippi, Alabama, Georgia, South Carolina,
North Carolina, Virginia, Tennessee and Kentucky California, Texas, New Mexico and Arizona.

*CPS Region.* The CPS state variable was recoded to create a new variable CPS Region which divided the 14 identified states into two regions based on the historical and cultural presence of Hispanics and subsequent immigration patterns. Arkansas, Louisiana, Mississippi, Alabama, Georgia, South Carolina, North Carolina, Virginia, Tennessee and Kentucky was categorized as new region and California, Texas, New Mexico and Arizona was categorized as traditional region. The comparison of rates was based on the conceptualization of these regions.

**Case Service Report System (RSA-911).** The U.S. Department of Education Rehabilitation Services Administration developed and manages the administrative database known formally as the Case Reporting System, or more commonly, as RSA-911. RSA-911 is a national archived database where vocational rehabilitation staff in each state uniformly enter demographic and caseload information at the individual level throughout the VR process: application, service, and outcome (Bruyéne & Houtenville, 2006). Though client data were updated regularly at the local level throughout all phases of the VR process, data were reported annually at the end of each federal fiscal year only consumers whose cases closed in that fiscal year. The Rehabilitation Services Administration then uses the information to monitor the VR system’s progress toward meeting the Evaluation Standards and Performance Indicators mandated by the Vocational Rehabilitation Act of 1973 and its subsequent amendments (Walls et al., 2002). Like the larger system of disability services, the RSA collection system has evolved in response to changes in social, cultural, economic, and political dynamics.
(Gilmore, Schuster & Butterworth, 2001; Walls et al., 2002). State agency personnel have facilitated RSA-911 changes through feedback at the direct service level to improve clarity and practical application and advances in technology and the science of data management have generated changes, too. Other modifications have occurred in response to shifts in underlying philosophical assumptions, theories of disability, and best practices. Every year since 1975 RSA staff aggregate all the state agency data to create its annual reports for Congress. The Vocational Rehabilitation Act of 1973 and its amendments mandate the annual report to Congress to assess if the program has met evaluation standards identified by laws and administrative. Scholars have used RSA-911 extensively to investigate predictors of employment outcomes, disparities in key aspects of service, and overall agency performance (Bruyéne & Houtenville, 2006).

RSA-911 is considered the longest running national database for information on employment services for people with disabilities (Kiernan et al., 1997 as cited by Gilmore, et al, 2001). Systematic reporting began for all state agencies with the Vocational Rehabilitation Act Amendment of 1954 and additional reporting requirements were added in 1966 (Walls et al., 2002). The regulations adopted after the passage of the Vocational Rehabilitation Act Amendment of 1973 began the era of contemporary program evaluation practices for the state-federal vocational rehabilitation system (Kundu & Schiro-Geist, 2007).

To facilitate the systematic collection of data mandated in the Vocational Rehabilitation Act Amendments of 1973 the Rehabilitation Services Administration released a three-part form in 1974 called the SRS-RSA-300 (Walls et al., 2002). In 1984 Rehabilitation Services Administration requested modifications to the data tool Case
Service Report System including renaming the instrument to Form RSA 911 (Gilmore, et al, 2001). RSA made significant changes to RSA-911 again that became effective in 1988, 1995, and again in 2002 (Walls et al., 2002). Since 2002 revisions have included renaming elements, changing definitions for elements, and altering coding for attributes (see Appendix A for listing of revisions by policy directive name). In addition, in 2002 RSA delineated variables covering a broad range of possible answers into different elements with greater specificity in the coding. Changes in formatting and ordering of elements has occurred, too.

The majority of data in the RSA-911 is categorical with explicit definitions and coding processes. Scholars generally group the variables into three groups: application variables, process variables, and outcome variables (Bruyéne & Houtenville, 2006). Policy Directives from RSA act as codebooks and instruction manuals. A new Policy Directive is distributed when RSA makes revisions to the reporting system or has important reminders about its use. In all, there were 13 sets of changes to reconcile in this study for consistency in conceptual and operational definitions. Changes in variable definitions create unique challenges for trend analyses, but they can often be addressed with careful review and recoding decisions (Rosenberg, 1997).

**Obtaining Data.** RSA-911 data were publicly available in several ways. The most commonly used access method was through internet applications sponsored by the RSA or www.disabilitystatistics.org. These sites provided pre-calculated statistics on a variety of evaluation and performance indicators from 2003 forward. Scholars and students may access raw data was as electronic comma delimited files which could be opened easily in a common software like Microsoft Excel and then imported into a more
sophisticated statistical software. To obtain the raw data the person contacts RSA, completes a simple form identifying the fiscal years desired with a brief explanation of the intended use for the data. RSA staff burns the data to CDs by fiscal year and sends it the requester via postal mail (Center for Rehabilitation Research using Large Datasets, 2013). Data for this study was received in this manner for years 1997 and 2013.

**RSA-911 Variables.** The following subsection provides the final definitions of the primary variables of interest for this study drawn from the RSA-911 datasets. Any important notes about the reconciliation process was included in the definitions below. It should be noted that all cases used in the study were for Hispanics that were 18 to 64 years of age at time of application whose VR cases were located in one of the 14 study states.

*Hispanic.* The vocational rehabilitation system uses the same definitions as the U.S. Census Bureau to identify ethnicity. Hispanic or Latino refer to a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race.

*State.* RSA-911 uses the term Agency Code to represent state and was defined as the state the individual resided in to apply for and/or receive services. The 14 states were extracted from the datasets were Arkansas, Louisiana, Mississippi, Alabama, Georgia, South Carolina, North Carolina, Virginia, Tennessee, Kentucky, California, Colorado, Texas, New Mexico and Arizona. In 2002, the coding system for the states in the dataset changed. The states were recoded across both datasets. For states that have separate offices for people who are blind, these state agencies were collapsed under the general disability code so that all states in the study included consumers with vision disabilities.
Kentucky, North Carolina, South Carolina, Virginia and New Mexico had separate offices specifically for people who are blind in the 17-year period of the study.

**Region.** Geographic location of consumer grouped by Hispanic immigration and settlement patterns as outlined in Chapter 2. Once the RSA 911 element Agency Code was reconciled across years to consistently identify state agencies, a categorical variable named Region was created with two attributes, new region and traditional region. States categorized as new region were Arkansas, Louisiana, Mississippi, Alabama, Georgia, South Carolina, North Carolina, Virginia, Tennessee and Kentucky. California, Colorado, Texas, New Mexico and Arizona were categorized as traditional region. The comparison of rates was based on the conceptualization of these regions.

**Sex.** Attributes for sex were male or female.

**Age.** Consumers between the ages of 18 and 64 years at application were included in the study. With the exception of datasets for fiscal years 2004 to 2006, age was calculated using elements Date of Application subtracted from Date of Birth, rounded to the closest year. For years 2004 to 2006 the age was pre-calculated and included with the case record and Date of Birth excluded.

**Race.** Race data was gathered in accordance with the same standards as the U.S. Census Bureau and have evolved with those categorizations. In years 1997-2001 RSA captured race as a single category with the attributes of white, black, American Indian or Alaska Native, and Asian, Native Hawaiian or Other Pacific Islander. In 2002 RSA began to capture race using five racial categories with yes/no attributes to allow for identification of multiple races, white, black, American Indian or Alaskan Native, Asian, and Hawaiian or Pacific Islander. Analysis of race reflects the two subdatasets of
definitions from 1997-2001 and 2002-2013 though a broad composite variable for white Hispanics and black Hispanics was created across the 17-year period that included single and multi-race identification.

**Referral source.** Referral source indicated a category of individual, agency or other entity that referred the individual to the state VR agency. Referral source as operationalized in this study included nine attributes, elementary or secondary educational institution, post-secondary educational institution, welfare agency, community rehabilitation program, Social Security Administration, self-referral, and other sources.

**Disability.** Substantial but reconcilable differences existed in the 1997-2001 and 2002-2013 subdatasets. Final definition of impairment across all 17 years were collapsed to no impairment, sensory and communicative impairments, physical impairments, orthopedic impairments and mental and cognitive impairments. Final definition for causes of impairment included 32 attributes. Examples include cancer, mental illness, and spinal cord injury. The composite variable had 256 attributes that were mathematically possible, of which 193 appeared in the dataset.

** Significant disability.** A significant disability, or severe disability, meant the consumer 1) had a physical or mental impairment that seriously limits one or more functional capacities (e.g., mobility, work skills, interpersonal skills) in terms of employment, 2) had such impairment from a condition that can be determined on the basis of an assessment, and 3) expected to require multiple vocational rehabilitation services over an extended period of time. In 2002 the term “severely disabled” was
changed to significant disability though definition remained consistent. The item consisted of two attributes, no significant disability and significant disability.

*Education at application.* RSA captured education at application differently in the 1997-2001 and 2002-2013 subdatasets. In 1997-2001 education was captured as years completed and in 2002-2013 as highest level completed. Final definition reflected highest level completed with years converted to reflect typical achievement in U.S. school system. The final definition of education at application had eight attributes: no formal schooling, elementary education (grades 1-8), high school without a diploma or GED (9th-11th grade), high school diploma or GED (12th grade or GED), Special Education certificate, some post-secondary education (Associates degree, vocational certificate or some college credit), a Bachelor’s degree (completed 16th year), and higher than a Bachelor’s degree (17 years or more).

*Employment at application* The final definition of employment at application had nine attributes, all of which could be collapsed into three broader categories. The first category, wage or salaried worker, included the attributes of employment in an integrated setting with and without supports and extended employment (commonly referred to as sheltered workshop). Workers no for wage or salary included the attributes of self-employment, homemaker, unpaid family worker, and a person employed with a state-agency managed business enterprise (BEP). The third and final category, people who were unemployed at application, had three attributes, not working due to being a student, not working due to being a trainee for non-competitive employment (e.g., sheltered workshop), and not working for any other reason. The definitions between the 1997-2001 and 2002-2013 subdatasets were different, but reconcilable.
Earnings at application. Consumers reported earnings as application in a irreconcilable manner in the 1997-2001 and 2002-2013 subdatasets, and as such, analyses of earnings at application reflect these differences. In 1997-2001 consumers reported their cash earnings in the week prior to application. Cash earnings included total wages, salaries, tips and commissions received as regular income before payroll deductions. The system capped earnings at $999 and higher per week. For years 2002-2013 consumers reported their average weekly cash earnings of wages, salaries, tips and commissions and capped at $9999 per week. Though analyses were conducted separately due to the desperate definitions of earnings, earnings from the 2002-2013 subdataset was recoded to cap at $999 and higher.

Application. An applicant met three criteria set by RSA, 1) submitted an application by completing and signing an agency application form or otherwise requested services, 2) provided information necessary to initiate an assessment to determine eligibility and 3) completes an assessment process. Application was indicated by a date that includes year of application, month and day. In this study all consumers in the RSA-911 were considered applicants.

Eligibility. To be determined eligible for services, the applicant had a physical or mental impairment and the physical or mental impairment was a substantial impediment to employment. In addition, the applicant must be determined to need VR services to work and therefore benefit from such services. Eligibility was indicated by a date that includes year of application, month and day. Eligibility was transformed to have yes/no attributes.
Services. In the broadest sense, services meant the individual, regardless of eligibility status, received at least one service. Differences exist in the number and definitions of services across the 1997-2001 and 2002-2013 subdatasets. Data from 1997-2001 has a dichotomous received service/did not receive service attribute for each service. In 2002 a service became a four digit code, with the first two digits indicating received service/did not receive and the second two tied to a code for funding and vendor providing services. Service data from the 2002-2013 subdataset was transformed back to a two attribute received service/did not receive service definition.

Assessment. Assessment services was defined as the complex of services to determine eligibility for services and/or determine the nature and scope of services to be provided. Evaluation could be medical, psychological, social or vocational in scope. Receipt of assessment services were captured with two attributes, received service/did not receive service.

Vocational counseling and guidance. A consumer received vocational counseling when discrete and substantive therapeutic counseling be provided that was necessary for a consumer to achieve an employment outcome. The service could include vocational, personal adjustment, medical, or family counseling. Data were captured with two attributes, received service/did not receive.

Diagnosis and treatment. Diagnosis and treatment services, also called restoration services, were defined as any medical or medically related services required to correct or mitigate a physical or mental condition for employment. Examples of services include corrective surgery, therapeutic treatment, dentistry, nursing services, physical
therapy, and drugs and supplies. Diagnosis and treatment service was categorized as a human capital building service and captured as received services/did not receive services.

*Adjustment training.* The final definition of adjustment training included services such as vision aids, Braille, speech reading, sign language instruction, and cognitive or occupational training/retraining like work conditioning, and literacy training. Adjustment training service was categorized as a human capital building service and captured as received service/did not receive service. In the 2002-2013 subdataset that this category was broken out into three categories called disabilities related augmentative skills training, job readiness training, and basic academic remedial and literacy training. In this study these three variables were collapsed to the broader definition of the 1997-2001 definition.

*Miscellaneous training.* Miscellaneous training services meant any training not recorded in one of the other categories listed, including GED or high school training leading to a diploma. It was categorized as a human capital building service and captured as received services/did not receive services.

*College and university training.* College training services defined as any post-secondary training provided by a four-year college or university, community college, junior college, or technical college that could lead to an academic degree or certification. College and university training was categorized as a human capital building service and captured with two attributes, received service/did not receive service.

*Vocational training.* Vocational training services was referred to occupational, vocational, or job skill training provided by a community college and/or business, vocational/trade or technical school to prepare students for gainful employment in a
recognized occupation, that would not lead to an academic degree or certification. Vocational training was defined as a human capital building service and captured as received service/did not receive service.

**Human capital building services.** A composite variable was calculated from the five human capital building services evaluated in the study: diagnosis and treatment services, adjustment training, miscellaneous training, college and university training and vocational training. The variable was transformed to received service/did not receive service attributes if the consumer received at least one of the five services identified as human capital building services.

**Job search services.** Job search services meant the consumer received assistance in locating job opportunities through either receiving job search skills training and was categorized as social capital building service. Job search skills included identifying appropriate job opportunities, making contacts with companies, and developing interview skills. Included in this definition were services when the VR staff made contacts for the consumer or made interview referrals, whether or not the consumer obtains the job. Job search was captured as received service/did not receive service.

**Job placement.** Job placement services meant VR staff provided a consumer given a direct referral that resulted in a job. As the two sudatasets have differing definitions of job placement, cases were identified and counted based on answers to other variables in order to make the job placement comparable across the two datasets. For example, in the 2002-2013 subdataset, job placement was counted if a direct referral results in an interview. In 1996-2001 job placement means the consumer obtains the job from the referral, even if the person does not keep it more than 90 days. By cross-
referencing employment outcomes for 2002 and later, cases where the person received job placement and became employed can be located, giving conceptual parity between the two datasets. Job placement was captured as received service/did not receive service and categorized as a social capital building service.

*Social capital building services.* A composite variable was calculated from the two social capital building services evaluated in the study: job search services and job placement services. The variable was transformed to received service /did not receive service attributes if the consumer received at least one of the two services.

*Rehabilitation outcome.* In this study, rehabilitation outcome was defined as a dichotomous rehabilitated/not rehabilitated variable transformed from the RSA-911 variable Type of Closure. To be considered rehabilitated the consumer had to meet the following criteria: a) declared eligible for services, b) received appropriate assessment and related services, c) had a plan for VR services formulated, d) completed the plan for services, e) was provided counseling, and f) suitably employed for a minimum of 60 days. All six criteria needed to be met to exit with a closure status of rehabilitated. RSA-911 element Type of Closure has different attributes in the 1997-2001 and 2002-2013 datasets. The elements were recoded to allow consistency across datasets.

*Employment at closure.* Employment status at closure varied across the two data subsets and was reconciled and recoded for consistent definition. The final categorical definition meant the person was identified as a wage or salaried worker, a worker without wage or salary, and unemployed. Wage and salaried worker was a person who worked in an integrated setting with or without supports or extended employment. Workers not earning a regular wage or salary meant people who left VR self-employed, working for a
state-agency-managed business enterprise (BEP), a homemaker, or an unpaid family worker.

*Hours worked at closure.* This interval variable was the number of hours reported by the consumer they worked on average or the week prior to closure.

*Minimum wage at closure.* Minimum wage at closure meant the person earned at least state or federal minimum wage, whichever was higher. It was a dichotomous yes/no variable determined by recoding based on state and year of case and the weekly earnings divided by the year.

*Employment outcome.* For purposes of this study, a successful employment outcome meant the person worked in an integrated with or without supports and earned at least minimum wage.

**Human Subjects Protection.** The general public can access the Current Population Survey data as raw data via several electronic methods. The RSA Case Report System can be accessed for legitimate research purposes through a simple request process as described in the RSA-911 subsection. Neither datasets have any identifying information. A protocol was submitted to the University of Kentucky’s Institutional Review Board prior to beginning study. An exempt status was provided as the study meets criteria number four for the consideration of exempt status (University of Kentucky, 2012):

Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator
in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects (p.3).
Chapter 4: Analyses and Results

Chapter 4 contains information about the analyses and results for this study. The chapter begins with a brief overview of the dataset and a description of the population analyzed. After these two sections, the remainder of the chapter is organized by research questions.

Dataset Description

The United States Department of Education Rehabilitation Services Administration manages the secondary archived administrative database of the state-federal vocational rehabilitation system (RSA-911) used to analyze trends in application, eligibility, services and employment outcomes from 1997 to 2013 for Hispanic vocational rehabilitation consumers. The 469,257 vocational rehabilitation cases analyzed from RSA-911 included Hispanic consumers of any race between the ages of 18 and 64 at application living in the states identified as new immigration destinations of the Southeast (Arkansas, Louisiana, Mississippi, Alabama, Georgia, South Carolina, North Carolina, Virginia, Tennessee and Kentucky) or traditional immigration destinations of the Southwest (California, Texas, Arizona, New Mexico, and Colorado). Two iterations of RSA-911 were merged into a final dataset with applicable variables transformed to have uniform coding and definitions. The first subset of data included federal fiscal years 1997 to 2001 (30% of cases, n=143,096) and the second included 70% (n=326,331) of total cases. Table 4.1 highlights the proportion of cases by dataset and type of immigration region.
**Fiscal year and region.** In fiscal years 1997 to 2013 the vocational rehabilitation system closed 469,257 cases for Hispanic consumers between the ages of 18 and 64 in the states identified for the study. The traditional region contributed 441,298 (94%) cases to the study population and new immigration region contributed 28,129 (6%).

For the 28,129 cases for Hispanic consumers in the new destinations region, VR closed the most cases for consumers in 2013 (.5%, n=2,306) followed by 2010 (.5%, n=2,062). VR closed the fewest cases in 2005 (0.3%, n=1,372) in the new immigration region. In 2010 North Carolina offices exited 739 (0.2%) Hispanic consumers, the highest number of closed cases in the new region for a state in a single year. In 1999 Mississippi contributed the fewest number of cases to the overall study population in a fiscal year with two cases closed with Hispanic consumers.

VR exited the fewest Hispanic consumers in 2012 with 21,095 (4.5%) cases in the traditional immigration region and the most in 2004 (n=32,104, 6.8%). Arizona contributed the fewest cases to the study population from the Southwest with 18,665 4% cases and Texas contributed the most cases to the dataset with 221,781(47.2%). By state and year, Arizona contributed the fewest cases in 1997 with 6,820 (0.2%) Hispanic cases closed while Texas closed the most in 2004 with 19,210 (4.4%) cases. Table 4.2 lists the contribution of each state in the fiscal year.

**Population Description**

**Sex.** Vocational rehabilitation closed more cases for males (57.1% n=268,029) than females (42.9%, n=201,342).

**Age.** Ages ranged from 18 to 64 years with an average age of 34.94 median age of 34 (σ=12.87, Mdn=34, n=469,257). More consumers applied for services at age 18 than
any other age (10.2%, n=47,832), followed by 19 year olds (5.4%, n=25,520). Almost 25% (n=102,893) of the population was between the ages of 18 and 21 at time of application. Females applied for services at an older age ($\mu=35.73$, $\sigma=12.9$, Mdn=35, n=201,342) than males ($\mu=34.36$, $\sigma=12.71$, Mdn=33, n=268,029). A non-parametric Mann-Whitney U test indicated that females did apply for vocational rehabilitation services at a significantly older age (U=2.53, p<.001, z=-36.38, r=.053).

**Race.** For years 1997 to 2001 RSA captured race as a single variable using the U.S. Census Bureau categories of that time of white, black, American Indian or Alaskan Native, and Asian or Pacific Islander. Between 1997 and 2001 consumers in the study identified predominately as white (96.4%, n=137,886) followed by black (2% n=2,905). Table 4.3 provides a breakdown of the four categories captured in this data subset.

From 2002-2013 captured race as five separate variables, each with a “yes/no” response, following changes in the standards of the U.S. Census Bureau. This change allowed for multi-racial identification: white, black, American Indian or Alaskan Native, Asian, and Hawaiian or Pacific Islander. From 2002-2013 84.8% (n=276,858) of consumers identified as white in some combination and 1.9% (n=6,054) as black. Table 4.4 lists the frequencies for each of the five categories of race in their original yes/no form.
When the five variables were transformed to identify racial identity by single race or multi-racial, Hispanics predominately identified as white only, 94.9% (n=274,965) in the 2002-2013 dataset. Consumers who identified as only American Indian or Alaskan Native made up the next largest racial group (1.9 %, n=5,218), followed by consumers who identified themselves as black (1.8%, n=5,218). Table 4.5 has the distribution of all racial categories of the transformed variable.

**Referral Source.** As can be seen in Table 4.6 the majority of consumers applied for VR services through the sources not specified in the list options (i.e., other sources), (28.6%, n=133,999). Almost 30% (26.9%, n=126,435) of consumers referred themselves for services, and medical personnel or institutions referred another 14.5% (n=68,259). Primary and secondary educational institutions (K-12) referred 12.8% (n=59,871) of all consumers. However, for 18 and 19 year old consumers educational institutions (i.e., schools) was referred 67.8% (n=49,710). In comparison, 20 to 64 year olds, schools referred 2.6% (n=10,161) of this age group. Other sources referred consumers in the older age group most commonly (31.9%, n=126,241), while other sources referred only 10.6% (n=7,758) of 18 and 19 year old applicants. In addition, 30.4% (n=120,257) of older consumers self-referred, compared to 8.4% (n=4,178) of 18 and 19 year old consumers. A chi-square test for independence estimated these differences in distribution of referral source as significant by age group ($\chi^2 (7, n=469,298) = 241377.73$, p<.001, Cramer’s $V=.72$).

**Disability.** Disability coding changed substantially from the 1997-2001 subdataset to the 2002-2013 subdataset. At application VR identified 76% (n=340,271) as having a severe disability. As seen in Table 4.7, 48% (n=222,918) of consumers had a
mental or cognitive disability, followed by 23.3% with an orthopedic disability (n=108,099). Consumers most frequently had an orthopedic impairment from an accident or injury (not a traumatic brain injury or spinal cord injury) (12.4%, n=57,489), a mental or cognitive impairment from a learning disability (11.7%, n=54,317), and a mental or cognitive impairment from a neurotic disorder (10.6%, n=49,248). If a consumer had a secondary impairment identified, they had a mental or cognitive impairment from a neurotic disorder (7%, n=32,631) or a mental or cognitive impairment from a mental illness not elsewhere classified (5.9%, n=27,748). Table 4.8 lists causes of impairments and Table 4.9 details select combinations of impairments and causes.

**Education at application.** A majority of consumers completed 12 years of high school, earned a high school diploma or GED when they applied for VR services (37%, n=173,084) and 24% (n=112,472) of consumers started high school but did not complete it at application. Another 8.1% (n=37,751) received a special education certificate. Almost half (48.5%, n=23,179) of 18 year old consumers that applied for services fell into the high school with no diploma category and another 23% (n=10,985) in the special education category. For 19 year old consumers 30.9% (n=7,821) had high school experience without a diploma and 22.1% (n=5,640) were in the special education category. A chi-square test for independence indicated these age distributions were significant ($\chi^2 = (322, n=467,909) 110354.25, p<.001, \text{Cramer’s } V=.184$) Table 4.10 has the distribution of all educational categories for the population.

**Employment status at application.** A small percentage of consumers (1.9%, n=8,129) identified themselves as employed under VR definitions but not for wages or salary (referred to gainfully occupied). The gainfully occupied category included
homemakers (.9%, n=4,021), unpaid family worker (.2%, n=937), self-employed
consumers (.7%, n=3,110), and people who worked for the Business Enterprise Program
managed by their state vocational rehabilitation agency (0.01%, n=61). Of the 20.1%
(n=87,663) consumers who identified themselves as employed for regular wages, 19.4%
(n=84,826) worked in an integrated setting, of which 84% (n=74,432) earned at least
minimum wage. A small percentage of consumers (.6%, n=2,837) worked in extended
employment. The highest percentage of consumers reported unemployment at application
78.1% (n=340,997). RSA-911 captured three subcategories of unemployment: trainee for
extended employment (.7%, n=3,007), student (11.8%, n=51,595) and all other reasons
(66.6%, n=286,395). Of the 11.8% who reported unemployment due to student status,
66.8% (n=34,483) were 18 to 19 year olds ($\chi^2$ (184, n=426,789) =13562.96, p<.001,
Cramer’s V= .279).

**Earnings at application.** Overall 79.7% (n=347,000) of applicants reported no
income from wages. For years 1997 to 2001 RSA collected data as “earnings the week
before application” and in 2002 changed the data definition to “average weekly
earnings”. Due to the different definitions of income, earnings at application remained
divided into the two subdatasets.

In years 1997 to 2001, 19.3% (n=21,459) of consumers who earned wages
reported an average weekly amount of $206.19 (σ=$151.58) and a median weekly
income of $182. Consumers reported working an average of 30.75 hours per week
(σ=11.68, Mdn=35) making an average of $6.95 (σ=$8.07, Mdn=$5.73). In this
subdataset, 73.6% (n=18,803) of applicants working for wages reported making the
federal minimum wage or state minimum wage, whichever was higher.
In the 2002 to 2013 data subset, 79.3% (n=257,077) of applicants stated they did not earn any income from wages. For the 20.7% (n=67,209) that reported wages, they earned an average of $274.25 (σ=$196.39, Mdn=$230) per week, working an average 30.25 hours per week (σ=11.66, Mdn=33) for an average hourly wage of $8.94 (σ=$6.64, Mdn=$7.53). More than 87% (87.2%, n=58,629) of those reporting wages earned at least the federal or state minimum wage at time of application, whichever was higher.

**Application for services.** In the study states 469, 427 Hispanics between the ages of 18 and 64 applied for services and had their cases closed in fiscal years 1997 to 2013. Fiscal year of application ranged from 1978 (n=1) to 2013 (n=6,729).

**Eligibility for services.** Overall, VR determined 79.3% (n=372,215) of consumers eligible for services. VR accepted for services a higher percentage of 18 and 19 year olds (84.3%, n=61,801) than 20 to 64 year olds (78.4%, n=310,414) ($\chi^2$ (1, n=469,247) = 1303.21, p<.001, phi=.06). The percentage of consumers eligible for services if VR identified the consumers as a person with a severe disability went up to 86.4% (n=321,594) compared to the 13.6% (n=50,621) without a severe disability determined ineligible. ($\chi^2$ (1, n=469,247) = 23074.2, p<.001, phi=.54).

**Services.** Regardless of eligibility, 87.5% (n=380,538) of consumers received at least one service of the 14 services analyzed for this study with an average of 3.2 (σ=2.26, n=438,849) services per consumer. Consumers received assessment services to determine eligibility most frequently (74.2%, n=323,421), followed by vocational rehabilitation counseling (68.5, n=298,384). For eligible consumers, 97.1% (n=358,867) received at least one service, with an average of 3.7 services (σ=2.1, n=369,552). Assessment (82.6%, n=306,117) and vocational counseling (77.2%, n=285,971)
remained the most common services. A small percent of eligible consumers received assessment services only (6.1%, n=22,483). After assessment and vocational counseling, consumers received diagnosis and treatment services (42.1%, n=156,076) and job search services (26.6%, n=98,580) most frequently. Table 4.11 details frequencies for the 14 services analyzed in this study.

More than half (60.5%, n=224,307) of eligible consumers received at least one of the five human capital building services evaluated in this study (diagnosis and treatment, adjustment training, miscellaneous training, college or university training, and vocational training). Consumers received diagnosis and treatment services the most frequently (42.1%, n=156,079), followed by adjustment training (16.3%, n=60,487). Approximately 21% (20.9%, n=75,231) of consumers received two or more of the five human capital building services of interest.

Most eligible consumers did not receive job search or job placement services (67.9%, n=251,758), the services identified as social capital building services. Approximately 32% (32.1%, n=118,837) received one or the other or both services. More consumers received both services together (17%, n=62,859), than just one of the services (15.1%, n=55,978).

Rehabilitation and employment. RSA captured successful outcomes in two ways, rehabilitated and employment status. VR closed 33.6% of its 469,427 cases as rehabilitated between 1997 and 2013. However, the rehabilitation rate increased to 42.4% (n=157,688) for eligible consumers that received services. Almost 24% (23.8%, n=88,609) of eligible consumers exited VR before an Individual Plan for Employment (IPE) was written and 32.9% (n=122,409) existed after an IPE was written. Employment
status at closure consisted of two categories, working for regular wages or salary and working but not for regular wages or salary (also referred to as gainfully occupied). At close, 94.3% (n=150,855) of rehabilitated consumers exited as employed in an integrated setting for regular wages, of which all but 3% (n=9,026) earned at least minimum wage.

**Consumer Characteristics**

Question 1: Do consumers characteristics differ in 1997 and 2013 for Hispanics in new immigration destinations of the Southeast and in traditional immigration destinations of the Southwest?

This question analyzes selected consumer characteristics in year 1997 compared to 2013 of all cases closed in these two years. Following these results, additional trend analyses were conducted for within a region and across a region. Consumer characteristics examined included sex, age, race, disability, referrals source, education status, employment status at application and earnings at application.

**Sex.** Overall, vocational rehabilitation closed more cases for males (57.1% n=268,029) than females (42.9%, n=201,342).

**New region.** In the new immigration region men made up 57.1% (n=16,050) of the cases and females 42.9% (n=12,079). However, in comparing distribution of men and women in 1997 and 2013, the percentage changed from 61.6% (n=908) men and 38.4% women (n=567) in 1997 to 55.3% men (n=1,276) and 44.7% women (n=1,030) in 2013 ($\chi^2 (1, n=3,781) = 14.29, p<.001, \phi=.06$). A simple linear regression revealed a slight and gradual increase in the proportion of women in the new immigration destinations regions from 1997 to 2013 ($F (1, 15) = 4.86, p=.04, B=.5, R^2=.25$).
**Traditional region.** Men made up 57.1\% (n=251,979) of cases in the traditional region and 42.9\% were women (n=189,263). In 1997 VR closed 14,098 (57.8\%) cases for men and 9,966 (42.2\%) cases for women. In 2013 the distribution changed to 58.4\% (n=14,756) men and 41.6\% (10,495) women. Comparing 1997 to 2013, the percentage of men to women did not change significantly ($\chi^2 (1, n=49,315) = .111, p=.739, \phi=.002$). However, an analysis of the trends in proportion of men to women from 1997 to 2013 in the traditional region indicated that the proportion of men significantly increased over the 17-year period ($F (1, 15) = 6.36, p=.02, B=.55, R^2=.3$).

**Comparison of regions.** Overall, the two regions had the exact same distribution of men to women: men were 57.1\% of consumers, women were 42.9\% of consumers ($\chi^2 (1, n=469,371, p=.877$). However, the two regions differed significantly in the trends in male to female consumers between 1997 and 2013 ($F (1, 15) = 27.68, p<.001$). The proportion of women in the new region increased at a more rapid rate than the proportion of women decreased in the traditional region.

**Age.** As mentioned in the population description, ages ranged from 18 to 64 at time of application for services. Consumers averaged 34.95 years ($\sigma=12.8$) with a median age of 34.

**New region.** In the new immigration destinations, applicants averaged 33.3 years ($\sigma=12.53, \text{Mdn}=32$). In 1997 consumers averaged 33.18 years ($\sigma=10.68; \text{Mdn}=32$) and in 2013 it dropped to 31.9 years ($\sigma=13.48, \text{Mdn}=28$). Since age data were not normally distributed, a Mann-Whitney U test was conducted to test differences between median ages in 1997 and 2013. The test revealed a significant difference between the ages in
Women applied for VR services in the new region at an average age of 34.03
\((\sigma=12.56)\) with a median age of 33 years \((n=12,079)\). Men applied at a slightly younger average age of 32.73 \((\sigma=12.84)\) years and with a median age of 31 \((n=16,050)\). A Mann-Whitney U test determined the difference in median ages between men and women in the new region at application as significant \((U=90693040.5, z=-9.26, p<.001, r=.06)\).

In 1997 women applied for services at an average age of 33.9 years \((\sigma=11.39)\) and a median age of 33 \((n=567)\). In 2013 the average age of women at application dropped to 32.6 \((\sigma=13.48)\) with a median age of 30 \((n=567)\) \((U=262646, z=-3.33, p=.001, r=.09)\). A significant difference in median ages for men between 1997 and 2013 existed, as well. Men applied for services at an average age of 32.7 years \((\sigma=10.18)\) and a median age of 32 \((n=908)\) in 1997, which dropped to an average of 31.4 \((\sigma=13.63)\) years and a median age of 27 \((n=1,276)\) in 2013 \((U=498247, z=-5.59, p<.001, r=.12)\).

In the Southeast 12.3\% \((n=3,459)\) of consumers applied at 18 years at and 6.4\% \((n=1,798)\) at 19 years, for a total of 18.7\% \((n=5,257)\) of all consumers in the region. In 1997 the percentage of consumers ages 18 and 19 combined was 11.6\% \((n=171)\) and in 2013 the percentage increased to 27.7\% \((n=638)\). A simple linear regression (see Figure 4.1) revealed a significant upward trend in the percentage of 18 and 19 year old consumers in the new region over the 17-year period of the study \((F (1, 15) =78.39, p<.001, \beta=.92, R^2=.84)\).

**Traditional region.** In the traditional immigration destinations, consumers applied for services at an average age of 35.05 years \((\sigma=12.81)\) and a median age of 34. In 1997
consumers averaged 34.51 years ($\sigma=12.11$) with a median age of 34 (n=24,064). In 2013 consumers averaged 34.31 years ($\sigma=13.61$) with a median age of 32 (n=25,255). A Mann-Whitney U test for non-parametric data revealed a significant change in median age from 1997 to 2013 ($U=295048407$, $Z=-5.59$, $p<.001$, $r=.03$).

Like in the new immigration region, women applied for services at an older age than men ($U=2.24$, $z=-35.23$, $p<.001$, $r=.052$). Women applied for services at an average age of 35.84 ($\sigma=12.91$) and a median age of 36 (n=189,263), while men applied at an average age of 34.47 ($\sigma=12.71$) and a median age of 34 (n=251,979). In 1997 women applied at an average age of 35.3 years ($\sigma=12.46$) and a median age of 34 (n=9,966). In 2013 women applied at an average age of 35.02 years ($\sigma=13.77$) and a median age of 34 (n=104,49) ($U=50794557$, $z=-3.56$, $p<.001$, $r=.02$). In 1997 men averaged 33.95 years ($\sigma=11.83$) with a median age of 33 (n=14,098) and in 2013 the averaged 33.81 years ($\sigma=13.47$) with a median age of 32 (n=14,756), ($U=100920509.5$, $z=-4.38$, $p<.001$, $r=.026$).

In the traditional region, overall, 15.4% of consumers applied at 18 and 19 years, with 18 year olds making up 10.1% (n=44,373) and 19 year olds making up 5.4% (n=23,722). In 1997 13.5% (n=3,258) of consumers applied at age 18 and 19 and in 2013 20.2% (n=5,092) applied from this age group. A simple linear regression indicated a significant upward trend existed in the proportion of 18 and 19 year old consumers applying for services from 1997 to 2013 ($F (1, 15) =101.12$, $p<.001$, $\beta=.93$, $R^2=.86$) (Figure 4.2).

**Comparison of regions.** Consumers tended to be younger in the new region than in the traditional region. In the new region, consumers had a median age of 32 years
overall, 33 years for women, and 31 years for men. In the traditional region the median age overall was 34 years, 36 years for women, and 34 years for men. A Mann-Whitney U test estimated the median age differences between the two regions as significantly different (U=571491885, z=-22.33, p<.001, r=.03).

In the Southeast more consumers applied at 18 and 19 years of age (18.7%) than in the Southwest (15.4%). A comparison of the upward trends of the proportion of 18 and 19 year old consumers in the two regions revealed significantly different trend lines (F (1,15) = 7.62, p=.015) with the new region Figure 4.2 illustrates this comparison.

**Race.** As described in the population description, in the 1997-2001 subdataset, applicants identified themselves as white (96.4%, n=137,886), followed by self-identification as black (2%, n=2,905). In the 2002-2013 subdataset most consumers identified themselves as white only (94.9%, n=274,965). People who identified themselves as American Indian or Alaskan Native made up the next largest racial group (1.9%, n=5,551), followed by consumers who identified themselves as black only (1.8%, n=5,218). A small percentage of consumers identified themselves with multiple races (.7%, n=1,893).

**New region.** Overall, from 1997 to 2001, consumers in the new immigration destination identified themselves as white (71%, n=5,418), followed by black (20%, n=1,535) and Asian or Pacific Islander (5.8%, n=446). Approximately 3% (n=229) of consumers identified as American Indian or Alaskan Native. In 1997 67.3% (n=993) of the population study identified themselves as white and in 2001 71.3% (n=1,242) did. The percentage of consumers that identified themselves as black changed from 25.7% (n=379) in 1997 to 17% (n=296) in 2001. A comparison of distributions between 1997
and 2001 designated the change as significant ($\chi^2 (3, n=3,216) =50.03, p<.001, \text{Cramer’s V}=.13$). In the 1997-2001 data a person selected the race with which he or she most identified. This definition of race meant that a person could be multi-racial as well as identify a single race. 

In 2002 73.9% (n=804) of consumers identified as white only and 14.1% (n=153) identified as black only. In 2013 the percentage of white Hispanics went up to 79% (n=1,822) and black Hispanics went down to 12.2% (n=282) in the new immigration region. The differences in racial identification for consumers changed significantly between 2002 and 2013 ($\chi^2 (5, n=3,394) =41.734, p<.001, \text{Cramer’s V} =.11$).

Overall in the Southeast, 15.4% (n=4,338) consumers identified as black (primarily black, black only or black bi-racial) The new immigration region experienced a significant drop in black Hispanic consumers from 1997 (25.7%, n=379) to 2013 (14%, n=323) ($\chi^2 (1, n=3,781) = 81.28, p<.001, \phi=-.15$). Even with this more than 10% drop, a significant trend did not exist for the 17-year period overall (F (1, 15) = 2.5, p=.135, $\beta=-.38, R^2=.14$). However, from 1997 to 2004 a precipitous drop occurred, from the 25.7% to 7.5% (n=285), the proportion goes back up gradually and results in a less dramatic trend line, as Figure 4.3 illustrates.

**Traditional region.** In the traditional immigration region from 1997 to 2001, consumers 97.8% (n=132,468) of consumers identified as white, and 1% (n=1,370) identified as black. In 1997 97.7% (n=25,561) of consumers identified as white and the percentage remained unchanged in 2001 (97.8%, n=132,468). The percentage of Hispanic consumers in the traditional immigration region that identified as black increased from .7% (n=163) in 1997 to 1.1% (n=327) in 2001. A chi-square test for independence
indicated these changes as significant ($\chi^2 (3, \text{n}=54,208) = 61.72, \text{p}<.001, \text{Cramer’s V}=0.03$).

In 2002 96.1% (n=14,231) of consumers in the traditional region identified as white and no other race. In 2013 the percentage decreased slightly to 94.4% (n=23,974). Hispanic consumers identifying as black only decreased from 2.1% (n=305) to 1.6% (n=321). A chi-square test for independence indicated significant differences in these percentages ($\chi^2 (5, \text{n}=40,056) = 219.35, \text{p}<.001, \text{Cramer’s V}=0.07$).

In the Southwest 1% (n=4,621) of all consumers identified as black between 1997 and 2013. In 1997 .7% (n=163) of applicants in the Southwest identified as black, and in 2013 that number rose to 1.6% (n=396) ($\chi^2 (1, \text{n}=49,313) = 87.18, \text{p}<.001, \phi=0.04$). A simple linear regression confirmed an upward trend in the proportion of consumers identifying as black (black only or multi-racial) ($F (1, 15) = 8.84, \text{p}=0.01, \beta=0.61, R^2=0.37$).

**Comparison of regions.** In the 1997-2001 data subset consumers identified themselves as white less frequently in new immigration destinations, 71% (n=5,418), compared to the traditional destination, 97.8% (n=132,468). In the new region more Hispanic consumers identified as black (20%, n=1,535) than in the traditional region (1%, n=1,370). Consumers in this study also identified themselves as American Indian or Alaskan Native more frequently in the Southeast (3%, n=229) than in the Southwest (0.6%, n=1,074). A chi-square test for independence indicated these differences as significant ($\chi^2 (3, \text{n}=143,090) =16417.589, \text{p}<.001, \text{Cramer’s V}=0.34$).

For the cases in the 2002-2013 data subset a comparison of the percentage distribution of the two regions revealed significant differences ($\chi^2 (4, \text{n}=289,882) = 18224.05, \text{p}<.001, \text{Cramer’s V}=0.25$). In the new immigration region, 78.8% (n=15, 016)
of consumers identified as white only and 13.2% (n=2,523) as black only. A larger percentage of Hispanics in the Southeast identified as multi-racial (2.4%, n=452) compared to consumers in the Southwest (.6%, n=1,720) (χ² (1, n=469,406) = 29188.07, p<.001, phi=.25).

**Referral source at application.** Overall, most referrals came from other sources 28.9% (n=133,999), self-referral (26.9%, n=126,435), and medical personnel or institutions (14.5%, n=68,258).

**New region.** In the Southeast the same percentage of referrals came from other sources (27.6%, 7,849) and self-referral (27.6%, n=7,167). Medical personnel and institutions referred 18.6% (n=5,218) of consumers and K-12 educational institutions referred 14.7%, n=4,136). Analysis revealed significant differences in referral sources between 18 and 19 year old consumers and 20 to 64 year old consumers (χ² (7, n=28,127), 14651.01, p<.001, Cramer’s V=.72). In the new region K-12 education institutions referred 67.8% (n=3,561) 18 and 19 year old consumers, followed by other sources (11.8%, n=620). Most consumers 20 to 64 at application self-referred (31.3%, n=7,167). Other sources referred 31.2% (n=7,129) of consumers in this age group.

**Comparison of 1997 and 2013.** In 1997 other source referred 34.6% (n=511) of consumers, then 23.2% self-referred (n=342). Medical personnel or institutions referred 22.2% (n=328). This distribution changed significantly in 2013 (χ² (7, n=3,780), =26.43 p<.001, Cramer’s V=.26). The largest percent change occurred in referrals from K-12 educational institutions, going from 9.4% (n=138) in 1997 to 23.9% (n=550) in 2013. Self-referral increased to 33.1% (n=762) in 2013 and referrals from other sources dropped to 19.7% (n=455).
Analysis by age showed that referrals increased from K-12 educational institutions for 18 and 19 year olds by 7.3% from 1997 (67.3%, n= 115) to 2013 (74.6%, n=476). Referrals from other sources decreased from 14% in 1997 (n=24) to 6.7% (n=43) in 2013 ($\chi^2 (7, n=809) = 25.94, p<.001, \text{Cramer's V}=.18$) for this age group. Older consumers changed in referrals sources significantly as well between 1997 and 2013 ($\chi^2 (7, n=2,971) = 129.93, p<.001, \text{Cramer's V}=.21$). Self-referral increased from 25.2% (n=329) in 1997 to 41% (n=684) in 2013 while referrals from other sources decreased from 37.3% (n=487) to 24.7% (n=412). Referrals from medical personnel or institutions decreased from 24.5% (n=319) in 1997 to 18.2% (n=303) in 2013.

Trends in referral sources. As suggested by the changes between 1997 and 2013, an upward trend in the proportion of consumers referred by K-12 educational institutions increased ($F (1,15) =53.25, p<.001, \beta= .88, R^2 = .78$) although referrals from schools varied significantly different by age ($F (1,15) = 11.87, p=.004$). A significant upward trend occurred for 18 and 19 year olds, as in 1997 65.7% (n=115) of referrals came from schools and in 2013 74.6% (n=476) did ($F (1,15) =14.83, p=.002, \beta= .71, R^2 = .50$). Referrals from schools for consumers 20 to 64 years old at application increased as well, but not at the same rate ($F (1,15) =9.5, p=.008, \beta= .62, R^2 = .39$). In 1997 1.8% (n=23) referrals came from schools for this age group, and in 2013 4.4% (n=74) did.

A significant upward trend existed for self-referrals ($F (1,15) =55.75, p<.001, \beta= .88, R^2 = .79$). Referrals from medical personnel or institutions significantly decreased over the 17-year period ($F (1,15) = 81, p<.001, \beta= -.92, R^2 = .84$), as overall rates dropped from 22.2% (n=328) to 13.9% (n=321). The proportion of consumers referred by other sources decreased significantly ($F (1,15) = 5.61, p=.032, \beta= -.52, R^2 = .27$).
Traditional region. Other sources referred the greatest percentage of consumers (28.6%, n=126,250) in the traditional immigration region, followed by self-referral (26.9%, n=118,660). Medical personnel and institutions referred 14.3% (n=63,040) consumers and K-12 educational institutions referred 12.8% (n=55,735). Like in the Southeast, significant differences existed between 18 and 19 year old consumers and those 20 to 64 at application ($\chi^2 (7, n=441,171), 226713.61, p<.001, \text{Cramer’s V=.71}$). Schools referred 18 and 19 year old consumers most frequently (67.8%, n=46,169), followed by other sources (10.5%, n=7,138). Other sources (31.9%, n=119,112) referred 20 to 64 year old consumers at application most commonly, followed by self-referral (30.4%, n=120,257). Table 4.6 lists frequencies of all referral sources.

Comparison of 1997 and 2013. Significant changes in frequency occurred between 1997 and 2013 for consumers in the traditional immigration region ($\chi^2= (7, n=49,304) 1788.49, p<.001, \text{Cramer’s V=.19}$). In 1997 20.8% (n=5,005) of VR referrals came from medical personnel and institutions but dropped to 9.8% (n=2,709) in 2013. The percentage of consumers in the traditional region referred by community rehabilitation programs increased from 3.9% (n=950) in 1997 to 8.4% (n=2,108). Self-referrals increased from 24.3% (n=5,854) to 28.4% (n=7,180).

Like in the Southeast, changes occurred in distribution of referral sources in the Southwest between 1997 and 2013 for 18 and 19 year old consumers ($\chi^2 (7, n=8,344) = 238.62, p<.001, \text{Cramer’s V=.16}$) and 20 to 64 year old consumers ($\chi^2 (7, n=40,960) = 1504.23, p<.001, \text{Cramer’s V=.19}$). Post-secondary educational institutions referred 12.3% (n=627) of 18 and 19 year olds in 2013, an increase of 7.8% from 1997 (4.5%,
n=145). Other sources referred fewer 18 and 19 year olds in the traditional region in 2013 (9.7%, n=493) than in 1997 (14.5%, n=473).

*Trends in selected referral sources.* In the Southwest, significant upward trends existed for referrals from K-12 educational institutions (F (1,15) =74.11, p<.001, \(\beta=0.91\), \(R^2 = 0.83\)) and a significant difference did not exist for 18 and 19 year olds and 20 to 64 year olds (F (1,15) = 4.28, p=.056) like in the Southeast.

Overall, a significant trend did not exist for referrals form post-secondary institutions (F (1,15) =.49, p=.496, \(\beta=-0.18\), R2 =-.03), but when separated by age, the trends became significant and in different directions (F (1,15) = 55.96, p<.001). A significant upward trend occurred for 18 and 19 year olds (F (1,15) =16.7, p=.001, \(\beta=0.73\), \(R^2 = 0.53\)) while a significant downward trend happened for 20 to 64 year olds (F (1,15) =6.53, p=.022, \(\beta=-0.55\), R2 = .55).

Self-referrals had an overall upward trend self (F (1,15) = 5.77, p=.03 \(\beta=0.53\), R2 = .28). Significant downward trends existed for referrals from medical personnel and institutions (F (1,15) =140.8, p<.001, \(\beta=-0.95\), R2 = .9), community rehabilitation centers (F (1,15) =37.35 p<.001, \(\beta=0.85\), R2 = .71), welfare agencies (F (1,15) = 47.87, p<.001, \(\beta=-0.87\), R2 = .76), and other sources (F (1,15) = 26.75, p<.001, \(\beta=-0.8\), R2 = .64).

*Comparison of regions.* The two regions differed in referral sources between the two regions (\(\chi^2 (7, n=469,298) = 1721.14, p<.001, \text{Cramer’s } V=0.06\)). The most prominent differences between the two regions occurred between referrals from community rehabilitation programs and medical personnel and institutions. In the traditional region 7.5% of referrals came from community rehabilitation agencies, while in the new region, 3.9% did. Medical personnel or institutions referred more consumers in the new region at
18.6% of referrals compared to 14.3% in the traditional region. However, the two regions remained equal in the percentage of consumers referred by other sources (27.6% in new region compared to 28.6% traditional region) or self-referral (27.6% in new region compared to 26.9% in traditional region). In both regions a significant upward trend existed for all consumers referred by schools and the trends differed significantly (F (1,15) = 11.75, p=.004). The trend differed for referrals from schools for the 18 and 19 year olds (F (1,15) = 5.81, p=.029), with the change in rates occurring at a steeper rate in the new region. The trend for post-secondary referrals differed (F (1,15) =27.15, p<.001) for 18 and 19 year old consumers between the two regions, as well. A significant trend did not occur in the Southeast, but a significant increase existed in the Southwest.

Consumers increasingly self-referred in both regions and differed in rate of change (F (1,15) = 34.24, p<.001), as the new region increased at a steeper rate. Both regions experienced downward trends in referrals from medical personnel and institutions but they did not differ in rates of change (F (1,15) = .837, p=.375). A new trend line for the combined regions remained significant decline (F (1,15) = 145.6, p<.001, β=-.95, R²=.91).

Disability. At application VR identified 76% (n=340,271) consumers as having a severe disability. More consumers had primary mental and cognitive impairments (45%, n=222,718), followed by orthopedic impairments (23.3%, n=108,099). Of the 44.2% (n=195,101) that did have a secondary impairment, 22.4% (n=99,004) had mental or cognitive impairments. Table 4.7 details population frequencies for impairments, as well as for the new region and traditional region. Table 4.8 lists causes in the same manner, and Table 4.9 identifies combinations of select impairments and causes.
New Region.

Impairments. In the new immigration destinations, overall, VR identified 76.4% (n=20,288) of consumers to have a severe disability. As viewed in Table 4.7, 53.2% (n=14,121) of consumers reported a mental or cognitive impairment. Almost 18% (17.7%, n=4,710) of consumers had orthopedic impairments and 11.9% (n=3,744) had a physical impairment. Most consumers did not have a secondary impairment overall (70.4%, n=16,772). More consumers had a secondary mental or cognitive impairments (14.4%, n=3,418), or physical impairments (9%, n=2,149) than any other type.

Causes. Neurotic disorders (e.g., anxiety and mood disorders) caused more impairments (11.9%, n= 3,153), followed by learning disabilities (9.7%, n=2,564). Impairments caused by other physical conditions (9.5%, n=2,526) and accident or injury (not spinal cord injury or traumatic brain injury) (8.9%, n=2,374) rounded out the top four causes. Neurotic disorders again (6.5%, n=1,688) caused most secondary impairments, then other physical conditions and diseases (2.7%, n=695) or drug abuse or dependence (2.6%, n=674).

Combination of impairments and causes. Overall, more Hispanic consumers in the Southeast had mental or cognitive impairments due to a neurotic disorder (11.9%, n=3,150), learning disabilities (9.6%, n=2,548), or an intellectual disability (8.5%, n=2,248). Orthopedic impairments due to an accident or injury (7.7%, n=2031) was the fourth leading combination of impairments and causes.

Comparison 1997 to 2013. In comparing the frequency distribution of primary disability impairments in 1997 to 2013, the biggest change occurred in mental and cognitive impairments. In 1997 51.5% (n=759) consumers had this impairment, and in
2013 that number increased to 60.4% (n=1,322). Consumers with sensory or communicative impairments increased from 8% (n=118) to 15% (n=329). Consumers identified as having no impairment decreased from 12.7% (n=187) in 1997 to 1.3% (n=28) in 2013. The percentage of consumers with orthopedic impairments also went down, 18.1% (n=267) in 1997 to 12.3% (n=270). A chi-square test for independence identified these changes as significant ($\chi^2 (4, n=3,664) = 264.42$, $p<.001$, Cramer’s $V=.27$). In the Southeast mental and cognitive impairments due to neurotic disorders increased the most from 6% (n=88) in 1997 to 15.9% (n=347) in 2013 for all ages ($\chi^2 (12, n=3,664) =551.73$, $p<.001$, Cramer’s $V=.39$).

*Trends in impairments and causes.* As suggested by chi-square analysis, an upward trend existed in the proportion of consumers with mental and cognitive impairments over the 17 year period of 1997 to 2013 ($F (1, 15) =62.08$, $p<.001$, $\beta=.9$ $R^2=.67$) as did sensory and communicative impairments ($F (1, 15) =17.09$, $p=.01$, $\beta=.73$ $R^2=.53$). Orthopedic impairments decreased ($F (1, 15) =21.59$, $p<.001$, $\beta=-.76$ $R^2=.59$). Analysis did not reveal a significant trend for physical impairments ($F (1, 15) =24.76$, $p=.97$, $\beta=.01$ $R^2=.0$). The number of consumers identified as not impaired decreased significantly in the new region ($F (1,15) =47.3$, $\beta=-.87$, $p<.001$, $R^2=.76$).

A simple linear regression analysis of combinations of impairments and causes revealed upward trends for mental and cognitive impairments due to neurotic disorders ($F (1, 15) = 171.82$, $\beta=.96$ $p<.001$, $R^2=.92$), mental and cognitive impairments due to learning disabilities ($F (1,15) =41.03$, $\beta=.86$, $p<.001$, $R^2=.73$), and mental and cognitive impairments due to intellectual disability ($F (1,15) =5.16$, $\beta=.56$, $p=.038$, $R^2=.27$).
Orthopedic impairments due to accident and injuries also had a downward trend from 1997 to 2013 in the Southeast ($F (1,15) = 42.64, \beta = .86, p < .001, R^2 = .74$).

**Traditional Region.**

**Impairments.** In the Southwest 76% VR identified 76% ($n=319,983$) of consumers as having a significant disability. More consumers reported mental or cognitive impairments ($47.7\%, n=208,797$), orthopedic impairments ($23.6\%, n=103,389$) or physical impairments ($7\%, n=61,290$). Most consumers did not have a secondary impairment in the traditional region ($55.3\%, n=229,803$), but if they did, they reported a mental or cognitive impairment ($22.5\%, n=12,464$).

**Causes.** Accidents or injuries (not TBI or SCI) ($14.5\%, n=63,498$) caused most impairments, followed by learning disabilities ($12\%, n=52,484$) and neurotic disorders ($10.6\%, n=46,340$). Across all ages, neurotic disorders ($7.5\%, n=31,277$) and accidents or injuries (not TBI or SCI) ($4.3\%, n=17,799$) caused secondary impairments most frequently.

**Combinations of impairments and causes.** Most consumers in the Southwest had an orthopedic impairment due to an accident or injury (not TBI or SCI) ($12.7\%, n=55,458$), followed closely by mental or cognitive impairments due to learning disabilities ($11.8\%, n=51,769$) and mental or cognitive impairments due to neurotic disorders ($10.5\%, n=46,098$).

**Comparison 1997 to 2013.** Comparison of frequency of impairment types in 1997 to 2013 indicated significant changes, particularly for the percentage of consumers with mental and cognitive impairments ($\chi^2 (4, n=48,845) = 2063.64, p < .001$, Cramer’s $V = .21$). In 1997, $40.3\% (n=9,651)$ of consumers reported this type of impairment, and in 2013, it
increased to 56.4% (n=14,040), an increase of 13.1%. Orthopedic impairments dropped from 27% (n=6,478) in 1997 to 16.4% (n=4,070). The numbers of consumers identified as not impaired decreased too, from 2.5% (n=605) in 1997 to 0.2% (n=44) in 2013.

Mental and cognitive impairments due to learning disabilities changed the most from 1997 (8.7%, n=2,086) to 2013 (16.1%, n= 4,017). Mental and cognitive impairments from neurotic disorders increased to 13.6% (n=3,386) of all consumers in 2013 from 7.2% (n=1,718) ($\chi^2$ (12, n=48,845) =2803.1, p<.001, Cramer’s V=.24). Mental and cognitive impairments due to learning disabilities increased by 9.2%, from 42.5% (n=1,379) in 1997 to 51.7% (n=2,617) in 2013 ($\chi^2$ (12, n=8,303) =920.03, p<.001, Cramer’s V=.33).

Trends in impairments and causes. Mental and cognitive impairments increased from 1997 to 2013 (F (1,15) = 382.47, p<.001, $\beta$=.98, $R^2=.96$), as did sensory and communicative impairments (F (1,15) = 26.49, p<.001, $\beta$=.8, $R^2=.64$). Orthopedic impairments decreased significantly (F (1,15) = 122.71, p<.001, $\beta$=-.94, $R^2=.89$) along with physical impairments (F (1,15) = 111.53, p<.001, $\beta$=-.94, $R^2=.88$). The number of consumers identified as not having an impairment had a downward trend as well (F (1,15) = 38.99, p<.001, $\beta$=-.85, $R^2=.72$).

Analysis of combinations of impairments and causes revealed significant trends. Mental and cognitive impairments due to learning disabilities increased from 1997 to 2013 (F (1,15) = 403.42, p<.001, $\beta$=.98, $R^2=.96$) as did mental and cognitive impairments due to neurotic disorders (F (1,15) =54.78, p<.001, $\beta$=.89, $R^2=.77$). Orthopedic impairments due to accident or injury (not TBI or SCI) decreased over the 17-year period of the study (F (1,15) = 17.53, p<.001, $\beta$=-.73, $R^2=.54$).
**Comparison of regions.** The percentages of consumers in the two regions with severe disabilities were not significantly different as VR staff in the Southeast identified consumers to have a severe disability at an overall rate of 76.4% and in the Southwest it was 76% ($\chi^2 (1, n=447, 480) = 2.56, p=.109$). However, a chi-square test of independence revealed the distribution of types of impairments differed significantly ($\chi^2 (1, n=447, 480) = 2769.33, p<.001, \phi=.08$). Consumers in the Southeast were more likely to have a mental or cognitive impairment (53.2%) compared to the Southwest, (47.7%) and in the Southwest more consumers had an orthopedic impairment (23.6%) compared to the Southeast (11.9%). The new region also had a higher percentage of consumers identified as “not impaired (4.1%) overall than the traditional region (1%).

Consumers with physical impairments decreased significantly in the traditional region compared to the new region ($F (1,15) = 22.23, p<.001$) as the rate of consumers with physical impairments decreased at a steeper rate in the traditional region. Sensory and communicative impairments ($F (1,15) = 44.73, p<.001$) increased at a faster rate in the traditional region compared to the new region.

Trends in the consumers identified as not having any impairment were different as well. The new region declined at a faster rate than the traditional region in the proportion of consumers identified as not having any impairment ($F (1,15) = 41.17, p<.001$). Trends in orthopedic ($F (1,15) = 1.38, p=.259$) and mental and cognitive impairments ($F (1,15) = 1.31, p=.28$) were not significantly different. A new trend line for orthopedic impairments of the combined regions remained a downward trend ($F (1,15) = 113.87, p<.001, \beta=-.94, R^2=.88$). The new trend line for consumers with mental or cognitive impairments remained an upward trend ($F (1,15) = 400.61, p<.001, \beta=.98, R^2=.96$).
Analysis of selected combinations of impairments and causes indicated significant differences in overall distributions, as well as trends. In a comparison of the top ten combinations of impairments and causes, a number of differences were revealed ($\chi^2(12, n=464,380) = 3949.56, p<.0021, \text{Cramer's } V=.10$). More consumers had orthopedic disabilities due to an accident or injury (not TBI or SCI), in the traditional region (12.7%) than the new region (7.7%). A greater percentage of consumers in the Southwest had a mental or cognitive impairment due to a learning disability, 11.8%, compared to the Southeast (9.6%), as well. The new region also had higher percentages of consumers with mental and cognitive impairments caused by alcohol abuse or dependence (8.5% compared to 6.2%) and mental illnesses not elsewhere specified (6.6% compared to 3.9%).

While both regions had a significant increase in the proportion of consumers who had mental or cognitive impairments due to neurotic disorders, the new region experienced as faster rate of increase ($F(1,15) = 32.98, p<.001$). Trends in mental and cognitive impairments due to intellectual disability differed between the two regions ($F(1,15) = .5.2, p=.038$), with the new region seeing an increase at a more rapid rate than the traditional region.

**Education at application.** To merge the two data subsets, the education variables in each subset were transformed to create a 17-year composite variable indicating highest level of education achieved. As described in the population description, analysis of this transformed variable showed that most consumers completed a high school degree or GED (37%, n=173,084) or attended high school but did not graduate or obtain a GED (24% n=112,472). Almost 16% (15.8%, n=73,927) of consumers had some post-
secondary education. Table 4.10 provides education information for the total population and each region.

**New Region.** In the new immigration destination 33.4% of consumers (n=9,384) earned a high school diploma or GED and 26.7% (n=7,499) went to high school but did not graduate. More than 18% (n=5,111) of consumers in the new region received some post-secondary education but did not earn a Bachelor’s degree. Slightly over 4% (4.2%, n=1,167) had earned a Bachelor’s degree at application.

**Comparison between 1997 and 2013.** Comparing educational attainment in 1997 and 2013 revealed a significant change in the distribution of educational attainment ($\chi^2 (7, n=3773) = 86.914, p<.001, \text{Cramer’s } V=.15$). The proportion of consumers who earned high school diplomas or GEDs declined from 38.6% (n=569) in 1997 to 29.9% (n=686) in 2013 but the number of consumers with some post-secondary education or training increased. In 1997, 12.7% (n=187) of applicants reached this level of education and in 2013, 19.9% (n=458) had. In addition, a substantial decrease occurred in the percentage of consumers with less than an 8th grade education or no formal schooling at all, 11% (n=143) in 1997 and 6.9% (n=114) in 2013. A chi-square test of independence estimated these changes as significant ($\chi^2 (5, n=2,965) =76.81, p<.001, \text{Cramer’s } V=.17$).

Trends in selected education categories. Consumers with an 8th education or less declined over the 17-year period of the study in the Southeast (F (1, 15) =25.5, p<.001, $\beta =-.795, R^2=.63$). Consumers who earned a high school diploma or GED significantly decreased (F (1, 15) = 17.51, p=.001, $\beta = -.73, R^2=.51$). However, the proportion of consumers with at least some post-secondary education increased (F (1, 15) =60.86, p<.001, $\beta =.80, R^2=.79$). In addition, the proportion of Hispanic consumers applying for
services who held a Bachelor’s degree significantly increased ($F (1, 15) =4.65, p=.048, \beta=.49, R^2=.24$) in the new region as well.

The proportion of consumers that attended high school but did not earn a degree or GED rose over the 17-year period ($F (1,15) =13.67, p=.002, \beta=.69, R^2=.44$). However, when analyzed by age groups, the trend disappeared for 20-64 year olds disappeared ($F (1,15) =3.96, p=.065, \beta=-.46, R^2=.21$) and the trend for 18-19 year olds remained significant ($F (1,15) =46.07, p<.001, \beta=.87, R^2=.75$).

**Traditional Region.** Overall, Hispanic consumers earned a high school diploma or GED with the most frequency (37.2%, n=173,084), followed by high school without a diploma or GED (23.9%, n=112,472). Some college experience (15.6%, n= 68,816) rounded out the top three education categories in the traditional region.

Like in the new region, distribution of educational attainment changed significantly when analyzed by age groups 18 and 19 years versus 20-64 ($\chi^2 (7, n=439,802) = 52486.86, p<.001, \text{Cramer's } V=.35$). Eighteen and 19 year olds were more likely to report high school without a diploma or GED (41.5%, n=28,195 versus 20.7%, n=76,778) and special education certificate (23.1%, n=15,709 versus 5.4%, n= 20,015). More 20 to 64 year olds had a high school diploma (38.2%, n=142,119) than 18 to 19 year olds (31.7%, n=21,581).

**Comparison of 1997 and 2013.** Like in the new region, the distribution of educational attainment significantly changed between 1997 and 2013 ($\chi^2 (7, n=49,725) =2567.70, p<.001, \text{Cramer’s } V=.23$). The largest increase came in the percentage of consumers who had at least some college education (did not complete a 4-year degree). In 1997 10.8% (n=2,588) of consumers in the traditional region reported some college as
their highest level of education, in 2013 22.1% (n=5,577) did. In 1997 the percentage of consumers in the traditional region with less than an 8th grade education decreased from 18% (n=4,325) to 6.8% (n=1,710) in 2013. Consumers who reported high school without a diploma changed from 25.2% (n=6,061) in 1997 to 23.2% (n=5,861).

*Trends in selected education categories.* As suggested by the changes from 1997 to 2013, a sharp downward trend in consumers with an 8th grade or less education (F (1, 15) = 1856.54, p<.001, $\beta=-.99$, $R^2=.99$) occurred. The proportion of consumers with special education certificates went up (F (1, 15) = 55.09, p<.001, $\beta=.89$, $R^2=.77$) as did the proportion of consumers with at least some college (F (1, 15) = 538.23, p<.001, $\beta=.99$, $R^2=.97$). Analysis also revealed a significant upward trend in the proportion of consumers who applied for services with a Bachelor’s degree or higher (F (1, 15) = 87.95, p<.001, $\beta=.92$, $R^2=.85$). A downward trend in the proportion of consumers who earned a high school diploma or GED existed, too (F (1, 15) = 13.77, p=.002, $\beta=-.69$, $R^2=.48$).

Unlike the Southeast, a significant trend did not exist in the proportion of consumers in the Southwest who did not complete high school or a GED (F (1, 15) = .019, p=.893, $\beta=.04$, $R^2=.00$). When separated by age, however, the older age group experienced a downward trend in the proportion applying to VR who had not complete high school or earn a GED (F (1, 15) = 6.17, p=.025, $\beta=-.54$, $R^2=.29$). A trend did not exist for 18-19 year olds (F (1, 15) = .019, p=.893, $\beta=.04$, $R^2=.00$). Changes in direction or significance of trends did not exist for any other educational categories in the traditional region.

*Comparison of regions.* Overall, significant difference in educational attainment existed between the two regions ($\chi^2 = (7, n=467,909) = 1179.63$, p<.001, Cramer’s
Consumers tended to have higher levels of education in the Southeast, compared to the Southwest. Almost a quarter (23.6%, n=2,011) of applicants in the Southeast had beyond a high school education, while in the Southwest 18.3% (n=80,797) had beyond a high school education. The new region had a higher percentage of consumers that did not have a high school diploma or GED (26.7%, n=7,499) compared to the traditional region (23.9%, n=104,973). Of the 26.7% in the new region, 54.3% were in the 18 and 19 year old age group (n=2,855) and in the traditional region was 41.5% (n=28,195) ($\chi^2=(7, n=73,262)=431.47$, p<.001, Cramer’s V=.08).

Both regions had significant decreases in the rates of consumers whose highest level of education was 8th grade or less, but their rates of change were different (F (1,15) = 28.86, p<.001), with a faster decrease in the Southwest. Special education differed between the two regions, as well (F (1,15) p<.001). A trend did not exist in the new region and an upward trend existed in the traditional region.

Both regions had upward trends in the consumers who applied with some post-secondary education or a Bachelor’s degree or higher and neither trend differed when regions were compared (F (1, 15) = 1.17, p=.297) and (F (1,15) = 1.1, p=.31) respectively). New trend lines of combined regions estimated an upward trend for applicants with some college education (F (1, 15) = 501.2, p<.001, $\beta=.98$, $R^2=.97$), as well as with a four-year degree or higher (F (1, 15) = 78.43, p<.001, $\beta=.92$, $R^2=.84$).

Both regions saw a decrease in the rates of consumers applying with high school diplomas or a GED and they did not differ ion rate of change (F (1,15) =.527, p=.479). The new region had an overall upward trend in the rates of consumers applying who had high school experience but did not graduate. However, in the new region, when separated
out by age, only 18 and 19 year olds had an upward trend and a trend did not exist for consumers 20 and older at application. In the traditional region, a downward trend occurred when separated by age and a significant downward trend existed only for consumers 20 and older. No trend existed for 18 and 19 year old in the traditional region.

When the trends in the two regions were compared, the trends for 18 and 19 year olds who had high school experience and no diploma differed between the Southeast and Southwest (F (1,5) = 25.57, p<.001), Trends for 20 to 64 year old applicants were not different (F (1,15) = .044, p=.837), suggesting a single trend line could represent the decrease in the proportion of consumers older than 19 who did not have a high school diploma or GED when they applied for VR services (F (1, 15) =19.037, p=.001, $\beta$=-.75, $R^2=.56$).

Employment status at application. As identified in the population description, most consumers identified as unemployed at (78%, n=340,997), and 20.1% (n=87,663) identified themselves as working for wages or gainfully occupied, of which 19.4% (n=84,826) were employed in an integrated setting for regular wages

New region. In the new region, 20.7% (n=5,401) reported employment at application, of which 20.4% (n=5,322) worked in an integrated setting and .3% (n=79) in extended employment (more familiarly known as sheltered workshops). Most consumers were unemployed at application (77.9%, n=20,271). Almost 13% (12.8%, n=3,339) reported unemployment due to student status but most identified unemployment for other reasons (64.6%, n=16,828). A small percentage identified themselves as unemployed due to being a trainee or worker in non-competitive employment (.4%, n=104).
Analysis by age indicated that 18 and 19 year olds experienced significantly different employment statuses than consumers over 20 and older at application ($\chi^2 (4$, $n=26,030) = 7951.69$, $p<.001$ Cramer’s $V=.55$). Consumers in the 18 and 19 year old category reported unemployment due to education at a higher percentage (50.3%, $n=2,511$) compared to consumers 20 to 64 (3.9%, $n=828$). Twenty to 64 year olds reported unemployment due to reasons other than education or training in extended employment more frequently (72.9%, $n=15,324$) than 18 and 19 year olds (30.1%, $n=1,504$).

**Comparison 1997 and 2013.** A chi-square test for independence did not reveal any significant changes between 1997 and 2013 for applicants in a dichotomous comparison of employed versus not employed ($\chi^2 (1$, $n=3,327) = 1.23$, Cramer’s $V=.02$). In 1997 18.6% ($n=193$) of applicants reported employment or gainful occupation and in 2013 and 17.1% ($n=392$) did. Approximately 81% (81.4%, $n=847$) of consumer reported unemployment in 1997 and in 2013 82.9% ($n=1,895$) did.

However, analysis of significant changes across types of employment subcategories existed ($\chi^2 (5$, $n=3,327) = 88.79$ Cramer’s $V=.16$). In 1997 17.7% ($n=184$) reported employment, of which 17.5% ($n=182$) worked in an integrated setting for regular wages. In 2013 16.1% ($n=368$) worked in an integrated setting and two worked in extended employment (.2%). Between 1997 and 2013 unemployment due to other reasons changed from 72.6% ($n=755$) to 60.6% ($n=1,387$), while employment due to education changed from 8.6% ($n=89$) to 21.8% ($n=499$).

Analysis by age group indicated significant changes existed between 18 and 19 year olds distribution of employment status in 1997 and 2013 ($\chi^2 (4$, $n=758) = 11.49$, $p=.022$, Cramer’s $V=.12$). Eighteen and 19 year old consumers who reported
unemployment due to education increased from 48% (n=60) in 1997 to 63% (n=400) in 2013, while employment of any kind went down from 19.5% (n=24) in 1997 to 11.2% (n=71) 2013.

Distribution of employment status for 20 to 64 year olds at application changed significantly as well between 1997 and 2013 ($\chi^2 (4, n=2,569) = 11.4, p=.022$, Cramer’s V=.07). For consumers 20 to 64 years at application, unemployment due to student status increased from 3.2% (n=29) in 1997 to 6% (n=99) in 2013. Consumers in this age group reported unemployment due to other reasons less frequently in 2013 (74.6%, n=1,232) than 1997 (78.4%, n=719). A small increase in the percentage of consumers who worked for wages existed between 1997 (14.4%, n=160) and 2013 (18.2%, n=300).

Selected trends in employment statuses. Contradictory to results of comparing 1997 and 2013 for employment/no employment statuses of applicants, a slight upward but significant trend existed for unemployment overall (F (1, 15) = 27.91, p<.001, $\beta=.81$, $R^2=.65$), with the reciprocal downward trend in employed applicants (F (1, 15) = 8.32, p=.001, $\beta=-.58$, $R^2=.36$). Analysis by categories of employed/unemployed statuses and age groups revealed significant trends for several categories, including employment in integrated setting and unemployment due to education.

A simple linear regression revealed a slow downward trend in the proportion of applicants employed in an integrated setting for wages from 1997 to 2013 (F (1,15) = 6.31, p<.001, $\beta=-.54$, $R^2=.3$). When analyzed by age, a significant difference existed between 18 and 19 year olds and applicants 20 and older (F (1,15) = 29.43, p<.001). A steep decline in proportion of 18 and 19 year olds employed in an integrated setting at
application (F (1,15) =25.94, p<.001, β=-.8, R²=.63) while applicants 20 and older saw a slight downward trend that was not significant (F (1,15) = 1.51, p=.24, β=-.3, R²=.09).

The proportion of consumers unemployed due to education increased overall (F (1, 15) = 37.99, p<.001, β=.85, R²=.72). Unemployment due to student status differed between 18 and 19 year old applicants and applicants over 20 and older (F (1,15) 17.04, p=.001). Eighteen and 19 year olds applying for services as unemployed students increased more rapidly (F, 15) =46.3, β=.86, R²=.76) than for 20 to 64 year old applicants (F, 15) = 7.85, β=.59, R²=.34). A slight downward trend existed for unemployment due to other reasons (F (1,15) =4.73, p=.046, β=-.49, R²=.24.

**Traditional region.** Of the 21.9% (n= 90,033) of applicants in the traditional region that reported working for wages or being gainfully occupied 20.5% (n=79,504) worked for wages in an integrated environment. Like in the new region, most consumers reported unemployment (78.1%, n=320,726). Almost 12% (11.7%, n=48,256) reported unemployment due to student status and .4% (n=104) reported working as a trainee in extended employment. The majority of consumers reported unemployment for reasons other than education or training (65.6%, n=269,567).

Analysis by age revealed significant differences in employment statuses (χ² (4, n=410,759) = 104767.36, p<.001, Cramer’s V=.51). Eighteen and 19 year olds reported unemployment due to education with more frequency (49.1%, n=31,972) than 20 to 64 year olds (4.7%, n=16,284). Consumers in the older age group reported unemployment due to other reasons 71% (n=245,830) compared to 18 and 19 year olds (36.5%, n=23,737). Consumers that were 20 to 64 also reported working for wages at a higher frequency (21.3%, n=73,613) compared to younger consumers (113.3%, n=8,649).
Comparison 1997 to 2013. In 1997 22.8% (n=4,347) of applicants met VR’s general definition of employment (employed for wages or gainfully occupied) and in 2013 16.6% (n=4,179) did. Unemployment (student, trainee or other reasons) was 77.2% (n=14,742) in 1997 and 83.4% (n=21,006) in 2013 ($\chi^2 (1, n=35,748) = 266.64$, $p<.001$, Cramer’s V=.08). Further analysis of types of employment statuses revealed additional significant changes from 1997 to 2013, as well ($\chi^2 (5, n=) = 795.79$, $p<.001$, Cramer’s V=.13). In the Southwest 18.2% (n=3,478) of consumers reported working for wages at application in an integrated setting and in 2013, 14.9% (n=3,760) did. Most consumers reported unemployment in 1997 (77.2%, n=14,742) with the majority not working for other reasons (66.6%, 12,716). In 2013 the unemployed category for other reasons remained relatively the same at 65.4% (n=17,972) in 2013. The largest change between 1997 and 2013 occurred in the unemployed student category, with a 6.9% increase. In 1997, 9.9% (n=1,884) of consumers reported being a student and in 2013, 16.8% (n=4,223) did.

Significant changes occurred by age groups as well ($\chi^2 (4, n=7,845) = 229.61$, $p<.001$, Cramer’s V=.17). For 18 and 19 year olds the number of consumers who reported unemployment due to education rose more than 15.5% between the 1997 (45%, n=1,241) and 2013 (60.5%, n=3,078) while the percentage working for wages decreased (15.8%, n=435 versus 7.8%, n=397 respectively). The largest change in percentages for 20 to 64 year olds occurred in the employed for wages category, which decreased 3.5% decrease from 1997 (20.6%, n=3,369) to 2013 (17.1%, n=3,446) ($\chi^2 (4, n=36,429) = 234.55$, $p<.001$, Cramer’s V=.08).
Selected trends in employment statuses. As suggested by the comparison of the end points of 1997 and 2013, several significant trends emerged from an analysis of all 17 years of data. A steep downward trend existed for the proportion of consumers employed (wages or gainfully occupied) at application from 1997 to 2013 (F (1, 15) = 37.41, p<.001, \( \beta = -.85, R^2 = .71 \)) and a reciprocal upward trend in unemployed applicants occurred, regardless of reason (F (1, 15) = 60.72, p<.001, \( \beta = .89, R^2 = .80 \)). In the specific subcategories of reasons for unemployment, unemployment due to education rose dramatically (F (1, 15) = 75.13, p<.001, \( \beta = .91, R^2 = .83 \)) while a trend did not exist for applicants unemployed for other reasons (F (1, 15) = .9, p=.359, \( \beta = .24, R^2 = .06 \)).

However, when divided by age groups differing trends existed for the 18 and 19 year old applicants and 20 to 64 year for unemployment due to other reasons (F (1,15) 24.04, p<.001). For 18 and 19 year old applicants, a steady downward trend occurred (F (1,15) =17.31, p=.001, \( \beta = -.73, R^2 = .54 \)) while the trend for 20 to 64 year olds rose slightly from 1997 to 2013 (F (1,15) 26.8, p<.001, \( \beta = .80, R^2 = .64 \)).

Trends differed by age for unemployment due to student status, as well ((F (1,15) = 33.49, p<.001). The trend for 18 and 19 year olds who applied in unemployed student status increased at sharper rate (F (1, 15) = 46.29, p<.001, \( \beta = .87, R^2 = .76 \)) than the trend for 20 to 64 year olds (F (1, 15) = 34.15, p<.001, \( \beta = .83, R^2 = .7 \)). A reciprocal difference in trends in applicants being employed did not differ between age groups (F (1,15)= .5, p=.49).

Comparison of regions. A chi-square test for independence indicated the two regions varied by distribution of employment statuses (\( \chi^2 \) (8, n=436,789) = 171.25, p<.002, Cramer’s V=.02). Overall, the percentage of consumers employed for wages in
an integrated setting was slightly higher in the new region (20.4%) compared to the traditional region (19.4%). The same difference existed for consumers who were unemployed due to student status at application, 12.8% in the new region, 11.7% in the traditional region.

Both regions had significant changes in consumers employed for wages at application, though for the new region the trend disappeared for consumers ages 20 to 64 years. In the traditional region there was an overall downward trend in employed applicants. The trends in employment status in the two regions for 18 and 19 year old applicants are the only ones that differed significantly (F (1,15) = 12.98, p=.003). The trend in the new region for 18 and 19 year olds was a significant decrease in the proportion applying who were employed for wages at application.

Trends in unemployment from student status differed significantly between the two regions (F (1,15) = 6.45, p=.023), with the rate of increase steeper in the new region. An analysis of unemployment due to student status for 18 and 19 year olds revealed a significant difference did not exist between the new immigration region and the traditional settlement area.(F (1,15) =2.03, p=.175). A new trend line remained significant in the increase in 18 and 19 year olds who were unemployed due to being a student (F (1,15) = 44.17, p<.001, β=.86, R²=.75) when regions combined.

Rates of change in applicants who were unemployed due to other reasons differed between the two regions as well (F (1,15) = 7.19, p=.017). A trend did not exist overall for either region, but in the traditional region, the trend in 18 and 19 year olds applying as unemployed for other reasons decreased significantly, while it went up for 20 to 64 year old consumers.
Earnings at application. RSA captured earnings at application with different definitions between 1997 and 2001 and 2002 and 2013. From 1997-2001, applicants reported their average weekly gross earnings and the data were truncated at $999 or more. In 2002 to 2013 applicants reported their gross earnings for the week before application and data were truncated at $9999 or higher. For this analysis the 2002-2013 subdataset was truncated to $999. Consumers reported hours worked similarly in the two data subsets, in the earlier as a weekly average, in the latter the week before application. Hourly wages were computed from weekly wages and hours worked per week. A Mann-Whitney U test was used to compare years as the data in neither set is normally distributed and was population data. A trend analysis was omitted due to the differing definitions of earnings between the two datasubsets and the changes in minimum wage made the interpretation of results of questionable applicability.

New region.

Earnings 1997 to 2001. From 1997 to 2001 consumers employed for wages or gainfully occupied without regular wages, reported weekly average earning of $224.52 (σ=157.78, Mdn=$200), with an average of 31 hours a week (σ=11.89, Mdn=35). Consumers earned an average of $7.08 an hour (σ=3.99, Mdn=$6.05) at application. In this dataset 96.1% (n=1,211) of consumers employed for wages worked in an integrated setting and 80.2% (n=971) earned at least minimum wage.

A non-parametric Mann-Whitney U test to compare weekly earnings between 1997 ($190, n=187) and 2001 ($200, n=323) did not estimate a significant change (U=28174.5, z=-1.26, p=.06). However, a significant change did occur in the hourly wages for employed and gainfully occupied consumers that changed from $5.48 in 1997
(n=187) to $6.25 in 2001 (n=323) (U=20621, z=-5.98, p<.001, r=.26). Hours changed from 39 (n=187) in 1997 to 30 (n=323) in 2001 (U=25909, z=-2.77, p=.006, r=.12).

**Earnings from 2002 to 2013.** Beginning in 2002, RSA began collecting application earnings as the gross earnings the week before application, as well as the number of hours worked the week before application. Employed and gainfully occupied consumers reported an average of $285.27 (σ=$197.57, Mdn=$240) in earnings over a 30.2-hour work week (σ=12.08, Mdn=32) with a median hourly wage of $8. In this subdataset, 94.7% (n=4,138) of applicants who worked in an integrated setting reported earning wages the week before application and 89.3% (n=3,811) reported making minimum wage.

In 2002 consumers had a median income of $206 per week with a median hourly wage of $6.86 in a 35 hour work week, while in 2013 working consumers earned a median of $250 over a 30 hour work week making a median hourly wage of $8.57. A Mann-Whitney U test estimated significant differences in weekly income (U=57050, z=-3.96, p<.001, r=.14), hours worked per week (U=61178, z=-2.59, p=.009, r=.10), and hourly wage (U=39364, z=-10.03, p<.001, r=.37).

**Traditional region.**

**Earnings 1997 to 2001.** From 1997 to 2001 consumers employed for wages or gainfully occupied without regular wages reported weekly average earning of $205.55 (σ=$151.02, Mdn=$181), with an average of 30.84 hours a week (σ=11.59, Mdn=35). Consumers earned an average of $6.93 an hour (σ=$5, Mdn=$5.71) at application. In this dataset 93.6% (n=21,565) of employed for wages worked in an integrated setting, the other 6.4% (n=1,476) worked in extended employment. Analyzing earnings for only
consumers in integrated settings for regular wages increased results to a weekly average of $169.59 over an average 25.44-hour work week (σ=15.74, Mdn=30). Hourly wage wages did not change.

A non-parametric Mann-Whitney U test of earnings for employed and gainfully occupied consumers estimated a significant increase in weekly earnings from $150 (n=3924) in 1997 to $200 (n=5,1110) in 2001 (U= 7997343.5, z=-16.51, p<.001, r=.17). The median hourly increase from $6.00 in 1997 (n=3,924) to $7.22 in 2001 (n=5,110) (U=6847352, z=-25.86, p<.01, r=.41) was significant as well. The median hours were 35 hours in both 1997 and 2001.

Earnings 2002-2013. Employed and gainfully occupied consumers reported an average of $274.68 (σ=$196.84, Mdn=$230) in earnings over a 30.25 hour work week (σ=11.6, Mdn=33). Consumers earned a wage of $8.94 an hour on average (σ=$5.87, Mdn= $7.55). In this subdataset, 94.7% (n=4,138) of applicants who worked in an integrated setting reported earning wages the week before application and 87.4% (n=53,502) earned at least minimum wage.

Consumers reported a weekly median income of $206 (n=7,225) in 2002 and $292 (n=3,969) in 2013. The median hourly wage for employed and gainfully occupied consumers increased between $6.25 in 2002 (n=7,225) to $9.32 (n=3,970) in 2013. The work week reduced from a median 35 hours (n=7,707) in 2002 to 30 (n=4,268). A Mann-Whitney U test showed a significant difference in weekly income (U=10129775, z=-25.73, p<.001, r=.24) median hourly wages (U=6044932.5, z=-50.71, p<.001, r=.48) as well as the reduction in hours worked per week (U=13148172, z=-7.5, p<.001 r=.07).
Comparison of regions. In the new region in the 1997 to 2001 data subset, the median weekly income was $200 with a median work week of 35 hours, and a $6.05 median hourly wage for those working upon application. In the traditional region the weekly median income was $181 in a 35-hour work week and a median hourly wage of $5.71. A Mann-Whitney test indicated significant differences in weekly earnings (U=11367394.5, z=-4.64, p<.001, r=.03) and hourly wages (U=10956599.5, z=-6.62, p<.001, r=.05). Hours worked per week were not different (U=12254476, z=-.364, p=.716).

In the 2002 to 2013 data subset, consumers in the new region reported $240 over a 32-hour week at application, with an hourly wage of $8. In the traditional region consumers that were employed and gainfully occupied at application reported median weekly earnings of $230 over a 33-hour work week and a median hourly wage of $8.94. Mann-Whitney U tests estimated significant differences in weekly earnings (U=12564149.5, z=-4.2, p<.001, r=.16) and hourly wage (U=121669556, z=-7.52, p<.001, r=.03) Hours worked per week were not estimated as significantly different (U=129531523, z=-.974, p=.33).

Trends in Application

Question 2: Do trends exist in the rates of Hispanics applying for vocational rehabilitation services in new immigration destinations of the Southeast compared to traditional immigration destinations of the Southwest from 2002 to 2012?

There were 469,427 Hispanics consumers between the ages of 18 and 64 who applied for services and had their cases closed in fiscal years 1997 to 2013. Fiscal year of application ranged from 1978 (n=1) to 2013 (n=6,729). Proportion of Hispanics with
disabilities to application rates were evaluated from 2002-2012 due to limitations in available Current Population Survey data.

**New region.** In 1997 the U.S. Census Bureau estimated the Hispanic population (all ages) in the new immigration destination states of this study at 943,294 people, or 1.9% of the total population. In 2013 estimated population increased to 3,926,828 (6.6% of the total population). Table 4.13 details Hispanic population estimates for all ages from 1997 to 2013 by calendar year.

The Hispanic population ages 18 to 64 also increased between 2002 to 2012 from 5.2 % (n=1,561,000) of the population in the Southeast to 6.6% (n=2,126,000) in 2012 according to the U.S. Current Population Survey (years data publicly available electronically that can be matched with RSA data). Experts estimate that in 2002 5.9% (n=92,000) Hispanics in the Southeast ages 18 to 64 had a disability that impacted their ability to work. In 2012 that number rose to 6.5% (n=154,000).

In the calendar year 1997, 1,278 Hispanics between the ages of 18 to 64 years applied for VR services in the new immigration region. In 2002, 1,280 applied for services and in 2012 that number decreased slightly to 1,241. In comparison to the estimated number of Hispanics with work disabilities in this age range, the percent applying for services dropped from 1.4% in 2002 to .9% in 2012. Tables 4.14 details population estimates for Hispanics with disabilities in the study states for all years between 2002 and 2012 and rates of application for vocational rehabilitation services.

**Trends in population estimates and application rates.** A simple linear regression revealed a significant and sharp increase in the proportion of Hispanics (all ages) living in the new immigration region from 1997 to 2013 (F (1, 15) =398.54, p<.001, β=.99,
Estimates from the Current Population showed a significant upward trend from 2002 to 2012 in the proportion of Hispanics ages 18 to 64 years (F (1, 9) =10.62, p=.01, \( \beta =.74, R^2=.54 \)). While there was a significant upward trend in the actual numbers of Hispanics with disabilities ages 18 to 64 years (F (1, 9) =8.05, p=.019, \( \beta =.69, R^2=.47 \)), a significant trend did not occur for proportion of Hispanics with disabilities to the overall Hispanic population ages 18 to 64 years (F (1, 9) = 2.04, p=.187, \( \beta =.43, R^2=.18 \)).

A non-significant upward trend occurred in the new region for the actual numbers of Hispanics applying for services 1997 to 2013 by calendar year (F (1, 14) =.535, p=.477, \( \beta =.19, R^2=.04 \)). The trend downward in proportion of Hispanics with disabilities applying for VR services 2002 to 2012 was not significant (comparable years due to availability of estimates of Hispanics with work disabilities) (F (1, 9) = 1.19, p=.34, \( \beta =-.25, r^2=.12 \)).

**Traditional region.** In the traditional immigration region of the Southwest U.S, the U.S. Census Bureau estimated that in 1997, 17,676,317 Hispanics (all ages) lived in the area and the number grew to 29,055,036 in 2013. As a percentage of total population, the Hispanic population grew to 36.8% of total population in 2013 from 28.6% in 1997. In 2002 an estimated 13,363,000 Hispanics 18 to 64 years lived in the traditional immigration region, which was 29.5% of the total population. In 2012 that number increased to 17,885,000 Hispanics, or 36.4% of the population. The Current Population Survey estimated that in 2002, 9.2% (n=1,231,600) of Hispanics 18 to 64 in this region had a work disability and in 2012, 9.1% (n=1,629,000) did.

In 1997 27,376 Hispanics applied for services, in 2002 30,425 applied and in 2012 13,364 applied. Comparing number of applicants to number of estimated number of
Hispanics with disabilities in the region showed a decrease in percentage applying for services from 1.4% in 2002 to .8% in 2012 (years available to match). Table 4.14 population estimates for Hispanics ages 18 to 64 with work disabilities as well as application rates to vocational rehabilitation.

*Trends in population estimates and application rates.* The proportion of Hispanics to total population sharply increased between 1997 and 2013 for all ages (F (1, 9) = 596.05, p<.001, $\beta= .99$, $R^2=.99$) as did the proportion of Hispanics ages 18-64 only from 2002 to 2012 (F (1, 9) = 89.26, p<.001, $\beta=.95$, $R^2=.91$). The number of Hispanics with disabilities in the region significantly rose between 2002 and 2012 (F (1, 9) = 8.05, p=.019, $\beta=.69$, $R^2=.47$) as did the proportion of Hispanics with disabilities in relation to the total Hispanic population (F (1, 9) = 19.76, p=.002, $\beta= .83$, $R^2=.69$).

Application rates for VR services from 1997 to 2013 in actual numbers had a significant downward trend (F (1, 9) = 33.89, p<.001, $\beta=-.89$, $R^2=.79$). The proportion of Hispanics with disabilities applying for VR services decreased steeply from 2002 to 2012, as well (F (1, 9) = 96.16, p<.001, $\beta=-.96$, $R^2=.91$).

*Comparison of regions.* Both types of immigration regions had rapid upward trends in Hispanic population for all ages and the trends were significantly different (F (1,15) = 693.04, p<.001) as the rate of change was steeper in the traditional region than in the new region. A significant trend did not exist in the new region in the proportion of Hispanics between 18 and 64 years with a work disability but a significant one did exist in the traditional region. However, when compared, these trends were not significantly different (F (1,9) = .062, p=.81), though. A single regression line of the combined regions estimated a significant upward trend in the proportion of Hispanics with disabilities.
overall \((F(1,9) = 6.1, p=.036, \beta=.64, R^2=.40)\). Both regions had downward trends for the proportion of Hispanics with disabilities applying for VR services from 2002 to 2012 but only in the traditional region was the trend significant. The trends did not differ significantly between the two regions \((F(1,9) = .2.95, p=.12)\). A new regression line for the combined regions indicated a steep decline in application rates for Hispanics with disabilities in the study states \((F(1,9) =61.39, p<.001, \beta=-93, R^2=.87)\). Figure 4.2 illustrates the original region trend lines.

### Eligibility Trends

Q3: Do trends exist in the rates of eligibility for vocational rehabilitation services for Hispanics in new immigration destinations of the Southeast compared to traditional immigration destinations of the Southwest from 1997-2013?

Overall, VR determined 79.3\% \((n=372,215)\) of consumers eligible for services. The percentage of consumers eligible for services if VR identified the consumers as a person with a severe disability went up to 86.4\% \((n=321,594)\) compared to the 13.6\% \((n=50,621)\) without a severe disability.

**New region.** In the Southeast VR determined 78.6\% \((n=22,123)\) of applicants eligible for services. A consumer identified as eligible was more likely to have a severe disability (86.1\%, \(n=19,053\)) compared to consumers without one (13.9\%, \(n=3,070\)) \((\chi^2(1, n=26,538) = 691.36, p<.001, \phi=.51)\).

Comparing percentage of eligibility to impairment types, significant differences in the percentage of eligibility determination existed \((\chi^2(4, n=26,549) = 5797.25, p<.001, \phi=.47)\). Consumers with mental and cognitive impairments were accepted the most frequently (56.5\%, \(n=12,503\)), then individuals with physical impairments (18.1\%,
n=4,006). The percentage of consumers with orthopedic impairments determined not eligible for services (13.2%, n=585) was higher than those determined eligible (11.7%, n=2,585), the only category with this difference. In the new region 24.7% (n=1,092) of consumers determined ineligible were identified to not have any impairment.

Significant differences existed by age group by impairment type for those determined eligible ($\chi^2 (3, n=22,122) = 1543.77$, p<.001, phi=.26). Almost 83% (n=3,593) of 18 and 19 year old consumers had a mental or cognitive impairment, while 50.1% (n=8,910) in the 20 to 64 age group did. Physical and orthopedic impairments were more prominent in the older age group compared to 18 and 19 year olds, 21.2% (n=3,776) compared to 5.3% (n=230) and 13.2% (n=2,343) and 5.6% (n=242), respectively.

**Trends in eligibility.** In 1997 VR determined 70.4% (n=1,039) applicants eligible compared to 2013 when VR determined 84.8% (n=1,955) applicants eligible for services, a steep upward trend ($F (1,15) = 268.4$ p<.001, $\beta=.97$, $R^2=.95$). The trend for consumers with severe disabilities substantially increased from 1997 (84%, n=731) to 2013 (99%, n=1,716) ($F (1,15) = 42.1$, p<.001, $\beta=.86$, $R^2=.74$).

Between 1997 and 2013 the rate of eligible consumers with a mental or cognitive impairment did not change significantly, from 61.6% (n=640) in 1997 to 61.9% (n=1,211) in 2013 ($F (1,15) = 2.31$ p=.149 $\beta=.366$, $R^2=.13$). Changes in rates of eligibility for consumers with orthopedic impairments did not have a statistically significant trend ($F (1,15) = .29$, p=.597, $\beta=.14$, $R^2=-.05$) either, going up less than 2% from 1997 (9.1%, n=95) to 2013 (10.9%, n=213). Eligibility for consumers with physical impairments decreased from 1997 (19.3% n=201) to 2013 (12.5% n=244) ($F (1,15) = 27.99$, p<.001, $\beta=-.81$, $R^2=.65$) A slight upward trend occurred in the rates of consumers with sensory
impairments determined eligible for services ($F(1,15) = 9.33, p=.008, \beta=.62, R^2=.38$), as in 1997, 9.9% (n=103) of eligible consumers had sensory impairments, and in 2013, 14.7% did (n=287).

Even though there was not a difference in eligibility rates between 18 and 19 year old applicants and 20 to 64 year old applicants ($F(1,15) =3.7, p=.075$), a comparison of trends by impairment type revealed significantly differing trends for applicant with sensory impairments ($F(1,15) =16.01, p=.001$). The older age group of 20 to 64 years had a moderate increase ($F(1,15) = 17.62, p=.001, \beta=.74, R^2=.51$) going from 10.7% (n=98) to 18.1% (n=252). A trend did not exist for 18 and 19 year old consumers ($F(1,15) = .16, p=.694, \beta=.10, R^2=.01$) whose rates of eligibility for this impairment category went from 4.1% (n=5) to 6.3% (n=35).

**Traditional region.** Overall, VR determined eligible 79.3% (n=350,092) of applicants eligible for services in the traditional immigration region. VR declared he 76% (n=319,983) of applicants to have a severe disability. However, the percentage of consumers with a severe disability determined eligible was higher, 86.4% (n=302,541) ($\chi^2 (1, n= 120,942) = 123435.58, p<.001, \phi=.54$).

Significant differences existed in eligibility determination in the traditional region by impairment type ($\chi^2 (1, n= 437,831) = 18340.27, p<.001, \text{Cramer’s } V=.21$). Almost half (49.3%, n=172,434) of consumers accepted for services had a mental or cognitive impairment and 23% (n=83,639) had a physical impairment. Like in the Southeast, consumers with orthopedic impairments had a higher percentage not accepted for services, 15.6% (n=13,577) compared to 13.6% (n=47,713).
When analyzed by age groups eligibility by impairment type occurred ($\chi^2 (4, 350,091) = 27511.38, p<.001, \text{Cramer’s V}=.28$). The majority of 18 and 19 year olds determined eligible had mental or cognitive impairments (80.4%, n=46,192) and only 43.1% (n=126,242) of consumers 20 and older did. The second most common impairment for 20 to 64 year old consumers was physical impairments (27.1% (n=84,177) and for 18 and 19 year olds, 8% (n=4,936) it was sensory and communicative impairments.

**Trends in eligibility.** In 1997 81.6% (n=21,700) of applicants were determined eligible for services. In 2013 that number rose to 86.4% (n=10,381), suggesting an upward trend. However, a simple linear regression revealed the trend as not significant ($F (1,15) = 1.26, p=.28 \beta=.28, R^2=.08$). Eligibility for consumers with a severe disability did have a considerable upward trend from 1997 (80.8%, n=14,709) to 2013 (99.1%, n=9,677) ($F (1,15) = 26.28, p<.001, \beta=.81, R^2=.65$).

Eligibility rates increased sharply for consumers with mental or cognitive impairments between 1997 (42.7%, n=8,151) and 2013 (57.2%, n=12,318) ($F (1,15) = 417.49, p<.001, \beta=.98, R^2=.97$). Eligibility rates for consumers with sensory impairments also increased, going up to 15.7% (n=3,386) in 2013 from 11.5% (n=2,200) in 1997 ($F (1,15) = 93.05, p<.001, \beta=.92, R^2=.86$). Eligibility for consumers with physical impairments dropped rapidly, from 28.5% (n=3502) in 1997 to 16.3% (n=5,442) in 2013 ($F (1,15) = 260.23, p<.001, \beta=-.98, R^2=.95$). Orthopedic impairments had a steady decline from 1997 (17.3%, n=3,293) to 2013 (10.8% (n=2,315) ($F (1,15) = 110.28, p<.001, \beta=-.94, R^2=.88$).
Analysis by age group did not reveal any significant differences for eligibility in the traditional regions for applicants with mental or cognitive impairments (F (1,15) = 1.89, p=.19). However, a comparison of 18 and 19 year old consumers to 20 to 64 year old consumers revealed significantly different trends for sensory impairments (F1,15) = 19.82, p=.001). Eighteen and 19 year olds with sensory impairments experienced a slight increase in eligibility from 7.1% (n=195) in 1997 to 8.6% (n=391) in 2013 (F (1,15) = 35.54, p<.001, β=.84, R²=.70). A more moderate and rapid increase occurred for consumers 20 years and older going from 12.3% (n=2,033) in 1997 to 17.7% (n=2,995) in 2013 (F (1,15) = 90.56, p<.001, β=.93, R²=.86).

Eligibility for consumers with physical impairments decreased at different rates based on age (F (1,15) = 81.58, p<.001). Eligibility for consumers 20 to 64 years old decreased from 32% (n=5,222) in 1997 to 19.6% (n=3,324) in 2013 (F (1,15) = 90.56, p<.001, β=.93, R²=.86), while eligibility for 18 and 19 year olds declined from 8% (n=220) in 1997 to 3.9% (n=178) in 2013, but with a more moderate trend line (F (1,15) = 112.92, p<.001, β=-.93, R²=.88). The opposite occurred with orthopedic impairments by age, as 18 and 19 year olds experienced a decrease in eligibility at much sharper rate than consumers 20 years and older (F 1,15) = 13.15, p=.19). In 1997 16% (n=442) were determined eligible for services while in 2013 2.6% n=120) (F (1,15) = 38.8, p<.001, β=-.85, R²=.72). For 20 to 64 year old consumers with orthopedic impairments went down as well, from 17.5% (n=2,851) to 12.9% (n=2, 95). However, the drop was at a less considerable rate (F (1,15) = 80.14, p<.001, β=-.92, R²=.84) compared to 18 and 19 year old consumers.
Comparison of regions. Eligibility rates in the two regions were similar, 78.6% in the new region, 79.3% in the traditional region, although a chi-square test for independence estimated the rates as significantly different ($\chi^2 = (1, n=469,427) = 7.53$, $p=.006$, phi=.004). Both regions accepted more consumers with mental or cognitive impairments than other types but the rates were significantly higher in the new region (56.5%) than the traditional region (49.3%) ($\chi^2 = (4, n=372,213) = 578.11$, $p<.001$, Cramer’s V=.04). The eligibility rates for consumers with severe disabilities did not significantly vary, between the new region (86.1%) and the traditional region (86.4%) ($\chi^2 = (1, n=372,215) = 1.54$, $p=.217$).

Both regions had significant upward trends in eligibility rates, as well as eligibility rates for consumers with severe disabilities. However, the trend lines for overall eligibility between the two regions were different (F (1,15) = 13.73, $p=.002$), as the new region increased more quickly than the traditional region (see Figure 4.3). The trends for the proportion of consumers with severe disabilities determined eligible did not differ significantly (F (1,15) = 2.52, $p=.134$), suggesting a single trend line, which still had a significant upward trend (F (1,15) = 23.44, $p<.001$, $\beta=.78$, $R^2=.61$).

The new region did not have a significant upward trend for eligibility of consumers with mental or cognitive impairments, while the traditional region did. The trends were in fact different (F (1,15) = 9.93, $p=.007$). Differences in the trends for orthopedic impairments between the two regions differed, as well (F (1,15) = 9.93, $p=.007$). Trends for sensory and physical impairments did not differ ((F (1,15) = 1.72, $p=.209$ and (F (1,15) = 2.47, $p=.137$) respectively).
Trends in Services

Q4: Do trends exist in vocational rehabilitation services for Hispanics determined eligible in new immigration destinations of the Southeast compared to traditional immigration destinations of the Southwest from 1997 to 2013?

Q4.1: Do trends exist in human capital building services (restoration services, adjustment training, miscellaneous training, college and university training, and vocational training)?

Q4.2: Do trends exist in social capital building services (job search, job placement)?

Overall, 87.5% (n=380,538) applicants received at least one of the 14 services analyzed for this study and 97.1% (n=358,867) of eligible consumers did. Most applicants received assessment services (74.2%, n=323,421) and counseling services (68.5%, n=298,384) while 82.6% (n=306,117) of eligible consumers received assessment services and 77.2% (n=285,971) received vocational counseling services.

This study analyzed services that build human capital and social capital. Consumers determined eligible received diagnosis and treatment services the most frequently (42.1%, n=156,079). Approximately 21% (20.9%, n=75,231) of consumers received two or more of the five human capital building services of interest. Only a third of eligible consumers (32.1%, n=118,897) received one of the two social capital building services analyzed in this study.

New region. Regardless of eligibility, from 1997 to 2013, 79.6% (n=20,732) of consumers received at least one service in the new region. Consumers received assessment (54.5%, n=14,198) and vocational counseling 51.7% (n=13,479) more
frequently. If determined eligible, 86.7% (n=19,161) of consumers received at least one service, with an average of 2.9 services (σ=2.18, n=22,104). For consumers determined eligible 92.7% (n=20,483) received vocational counseling and 59.5% (n=13,152) received assessment services. Table 4.12 details the frequencies of the 14 services assessed in this study for the new region. Overall percentages for the services analyzed are discussed within the following subsections on trends.

**Trends in services.** A downward trend existed for the receipt of at least one service for eligible consumers (F (1,15) = 65.27, p<.001, β=-.90, R²=.81), going from 95.2% (n= 2,725) of consumers receiving services in 1997 to 80.8% (n=4,577) in 2013. Significant differences did not exist in trend lines for consumers with severe disabilities and without severe disabilities in the new region (F (1,15) =3.04, p=.102) or by age group (F (1,15) =3.9, p=.099). Figure 4.4 illustrates the 17-year trend line of proportion of eligible consumers receiving any services.

**Human capital building services.** Of the human capital building services assessed, consumers received diagnosis and treatment services most commonly (34.9%, n=7,715) and 12.4% (n=2,844) of eligible consumers in the new region received adjustment training services. Approximately 9% (8.8%, n=1,763) received miscellaneous training. Fewer consumers received college or university training (7.3%, n=1,621) and even fewer received post-secondary vocational training (5.1%, n=1,217). A composite variable of the five services assessed in this study indicated that 51.7% (n=11,425) of eligible consumers received at least one human capital building service and 37.4% (n=8,265) received only one of the five human capital building services. In 1997, 55.7% (n=573) received at least one the human capital building services and in 2012 44.9%
The 10.8% reduction did indicate a downward trend in the overall receipt of at least one of the human capital building services analyzed (F (1,15) = 7.35, p=.016, β=-.573, R^2=-.33).

**Diagnosis and treatment services.** A slight upward trend existed for receipt of diagnosis and treatment services in the new immigration region (F (1,15) = 6.4, p=.023, β=.55, R^2=.30) going from 31.3% (n=322) in 1997 to 32.1% (n=627) 2013. While the change is not large from 1997 and 2013, a sharp increase occurred between 2004 and 2008, then began a moderate decline (see Figure 4.6)

**Adjustment training.** Adjustment training services decreased from 19.8% (n=204) in 1997 to 14% (n= 241) in 2013, but was not a significant downward trend (F (1,15) = .71, p=.41, β=-.21, R^2=.05). Figure 4.7 illustrates the trend for the 17-year period.

**Miscellaneous training.** In the Southeast 10.6% (n=109) of eligible consumers received miscellaneous training services in 1997 and 7.7% (n=150) in 2013 did. A steady downward trend occurred, though there was a great deal of variance year to year (F (1,15) = 11.33, p=.004, β=-.66, R^2=.43).

**College and university training.** In 1997, 7.1% (n= 73) of Hispanic consumers eligible for services in the new immigration region received university or college training services and 2013, 6.8% (n=133) did (see Figure 4.9). Analysis estimated a significant downward trend (F (1,15) = 8.85, p=.009, β=-.61, R^2=.37).

**Vocational training.** A significant downward trend existed for vocational training services (F (1,15) = 14.774, p=.002, β=-.70, R^2=.5) for eligible consumers in the new
immigration region. In 1997, 7.4% (n=59) of eligible consumers received vocational training and in 2013, 5.4% (n=105) did.

**Social capital building services.** VR provided job placement services to 25.9% (n=5,731) eligible consumers and job search services to 22.4% (n=4,959) to build social capital in the new region. A composite variable for social capital building services indicated 31.9% (n=7,042) received at least either job search or job placement and 16.5% (n=3,648) received both. A trend did not exist between 1997 (34.7%, n=357) and 2013 (29.7%, n=580) in the proportion of consumers in the new region receiving social capital building services (F (1,15) = .052, p=.822, β=-.05, R²=.00) (see Figure 4.4).

**Job search.** In 1997 34.7% (n=357) of eligible Hispanic consumers in the Southeast received job search services, and in 2013, 14.6% received (n=286) received them, a significant downward trend (F (1,15) = 12.65, p=.003, β=-.68, R²=.46).

**Job placement.** In 1997 22.2% (n=228) of eligible consumers received job placement services and 25.3% (n=494) received this type of service in 2013 (see Figure 4.12).

**Traditional region.** Between 1997 and 2013, 88% (n=359,806) of consumers in the traditional region received at least one service. VR provided assessment services to 75.5% (n=409,836) of all consumers and vocational rehabilitation counseling to 69.5% (n=284,905) of consumers. For the 79.3% (n=350,092) of consumers determined eligible in the region, 97.8% (n= 339,706) received at least one services with an average of 3.7 services per eligible consumer (σ=2.08, n=347,448). For eligible consumers 84.1% (n=292,965) of Hispanic consumers received assessment services, and 78.4%
received vocational counseling. Table 4.12 lists frequencies for the traditional region of the fourteen services analyzed.

**Trends in services.** For consumers determined eligible 95.2% (n=17,743) received at least one service in 1997 and 80.8% (n=20,099) did in 2013. The 14.4% decline represented a slow downward trend for the region that is illustrated in Figure 4.4 (F (1,15) = 6.34, p=.024, β=-.55, R²=.30. In 1997 99.7% (n=13,287) of eligible consumers received at least one service and in 2013 that percentage had dropped to 93.3% (n=19,647).

**Human capital building services.** Of the five human capital building services evaluated in this study, VR provided diagnosis and treatment the more frequently to eligible consumers (42.6%, n=148,364), followed by adjustment training (16.5%, n=57,643), then miscellaneous service training (9.5%, n=25,871) in the Southwest. More consumers received college or university training (9.1%, n=33,074) than vocational training (7.7%, n=40,836). A composite variable of the five services indicated 61.1% (n=212,882) of eligible consumers received at least one human capital building services with 40.4% (n=140,669) receiving only one of the five services. A substantial upward trend occurred between 1997 (43.4%, n=8,188) and 2013 (59.9%, n=12,884) in the proportion of consumers receiving at least one of the human capital building services analyzed for this study (F (1,15) =.496, p=.042, β=.5, R²=.25). Figure 4.5 illustrates this trend.

**Diagnosis and treatment.** In 1997 19.5% (n= 3,672) eligible Hispanic consumers received diagnosis and treatment services and in 2013 the percentage increased to 42.5% (n=9,149). A simple linear regression estimated a steep upward trend in receipt of
diagnosis and treatment services ($F(1,15) = 8.45, p=.011, \beta=.5, R^2=.36$) and can be seen in Figure 4.6.

**Adjustment training.** The receipt of adjustment training services remained stable from 1997 (11%, $n=2,074$) to 2013 (13.9% ($n=2,986$)) ($F(1,15) = .033, p=.859, \beta=.05$, $R^2=.00$) (see Figure 4.7).

**Miscellaneous training.** In 1997 21.1% ($n=3,981$) of eligible consumers in the Southwest received miscellaneous training, which includes elementary and secondary education services. In 2013, 4.4% ($n=953$) of eligible consumers received the service in the region, a downward trend ($F(1,15) = 8.38, p=.011, \beta=-.6, R^2=.36$) and the trend lines between consumers with and without severe disabilities did not differ ($F(1,15) =2.96, p=.151$) Figure 4.8 illustrates the trend for miscellaneous training in the traditional region.

**College and university training.** The rate of consumers receiving college and university training services in the traditional region did not change from 1997 (11.3%, $n=2,139$) to 2013 (12%, $n=2,589$) ($F(1,15) = .35, p=.562, \beta=.15, R^2=.02$) (See Figure 4.9).

**Vocational training.** Even though the percentage of consumers receiving vocational training dropped from 16% ($n=3,1014$) in 1997 to 10.6% ($n=2,193$) in 2013, a statistically significant trend did not occur in the traditional region ($F(1,15) = .39, p=.540, \beta=-.16, R^2=.03$). Figure 4.10 illustrates the overall trend line.

**Social capital building services.** VR provided social capital building services to 31.1% ($n=111,795$) of eligible consumers in the Southwest, of which 17% ($n=59,211$) received both and 15.1% ($n=52,584$) received one of the services. Between 1997 (53%,
n=9,992) and 2013 (38.2%, n=8,225). However, a simple linear regression did not estimate a statistically significant trend for the region despite the 14.8% drop in the percent of eligible consumers receiving at least one of the social capital building services. (F (1,15) = .36, p=.557, β=.15, R²=.03)

**Job search.** In the Southwest VR provided job search services to 22.2% (n=271,106) of consumers determined eligible. In 1997, 53% (n=9,992) of consumers received job services in the Southwest, which went down to 32.9% (n=7,082) in 2013, yet the trend was not statistically significant (F (1,15) = .062, p=.807, β=-.06, R²=.00). Figure 4.11 depicts the overall regional trend for consumers that received job search services.

**Job placement.** Almost 30% (26.9%, n=254,870) of eligible consumers received job placement services between 1997 and 2013 in the Southwest. After a sharp drop between 1997 and 1999 (see Figure 4.12), the trend in job placement services for consumers in the Southwest leveled off, and, in fact, a trend did not exist (F (1,15) = .348, p=.564, β=-.15, R²=.02) between 1997 (49.4%, n=9,312) and 2013 (18.8%, n=4,046).

**Comparison of regions.** More eligible consumers in the traditional region were likely to receive at least one service, as the percentage was 86.7% in the new region and 97.8% in the traditional region ($\chi^2 (1, n=369,542) = 9109.35$, p<.001, phi=.16). Eligible consumers in the Southwest received assessment services (84.1%, n=292,965) more frequently than in the Southeast (59.5%, n=13,152) ($\chi^2 (1, n=370,595) = 8728.48$, p<.001, phi=.15). A similar pattern existed in receipt of vocational rehabilitation counseling
services, 78.4% (n=273,147) in the Southwest, 58%, n=12,824) in the Southeast ($\chi^2$ (1, n=370,595) =4891.5, p<.001, phi=.12).

In the new region an overall downward trend in receipt of services existed for the new region, as it did for the traditional region though the differed in rate of decline (F (1,15) =19.85, p<.001). Figure 4.4 demonstrates the differences between the two regions. Service rates declined more rapidly in the new region than the traditional from 1997 to 2013.

**Human capital building services.** Consumers were more likely to receive at least one of the five human capital building services analyzed in this study in the traditional region (61.1%, n=212,882) than the new region (51.7%, n=11,425) ($\chi^2$ (1, n=370,595) =768.61, p<.001, phi=.05). The differed between the two regions (F (1,15) = 7.22, p=.017) as the changes occurred in opposite directions. A considerable upward trend in receipt of human capital building services occurred in the traditional region and a slight downward one in the new region. Figure 4.5 compares the receipt of human capital building services for both regions.

**Diagnosis and treatment.** Eligible consumers in the Southwest received diagnosis and treatment services more than in the Southwest (42.6%, n= 7,715 compared to 34.9%, n=148,364) ($\chi^2$ (1, n=370,595) =501.6, p<.001, phi=.04). Both regions experienced increases in the percentage of consumers receiving diagnosis and treatment services and the rates of change differed (F (1,15) =5.08, p=.039). Changes occurred at a sharper rate in the traditional region than in the new immigration region. In 2001 the Southwest experienced more than doubling of eligible consumers receiving this service, then began
to decline, whereas the trend in the Southeast was a steady increase. Figure 4.6 illustrates the comparison between the two regions.

Adjustment training. In the Southeast 12.9% (n=2,844) consumers received adjustment training services, and in the Southwest 16.5% (n=57,643) did \( (\chi^2 (1, n=370,595) = 205.46, p<.001, \phi=.02) \). Neither type of immigration region experienced a significant change in provision of adjustment training services for eligible consumers from 1997 to 2013 \( (F (1,15) = .43, p=.523) \) and a new regression line of the combined regions remained relatively stable, indicating no changes in this service over the 17-year period \( (F (1,15) = .01, p=.922, \beta=.03, R^2=.00) \). Figure 4.7 illustrates comparison of the two regions in trends for this service.

Miscellaneous training. The two regions were relatively similar in the overall percentage of consumers that received miscellaneous training services, 8.8% (n=1,941) in the Southeast and 7.4% (n=25,871) in the Southwest \( (\chi^2 (1, n=370,595) = 55.18, p<.001, \phi=.01) \). Both regions experienced downward trends in the receipt of miscellaneous services for eligible consumers (see Figure 4.8). A comparison of slopes indicated there were not differences between the two regions \( (F (1,15) = 1.5, p=.24) \). A new declining regression line represented the combined regions and remained statistically significant \( (F (1,15) = .8.54, p=.011, \beta=-.60, R^2=.36) \).

College and university training. In the Southeast 7.3% (n=1,621) of consumers received college and university training services, while in the Southwest 0.5% (n=33,074) did Southwest \( (\chi^2 (1, n=370,595) = 113.98, p<.001, \phi=.02) \). The Southeast experienced a gradual downward trend, while the Southwest had a slight and non-significant upward trend. (see Figure 4.9). A comparison of regression lines indicated the two regions did not
have differences in trends though (F (1,15) = 2.93, p= .107) and a single trend line best represented the changes in the provision of this service over the 17-year study period, which was not statistically significant (F (1,15) = .19, p=.671, β=.11, R²=.01)

**Vocational training.** More people in the Southwest received vocational training (11.7%, n= 40,836) than in the Southeast (5.5%, n=1,217) (χ² (1, n=370,595) = 797.37, p<.001, phi=.05). Both regions had downward trends, although only in the new immigration region did a statistically significant trend occur. However, trend differences did not exist between the two regions when compared (F (1,15) =.376, p=.549). A new trend line for the combined regions was not significant (F (1,15) = .393, p=.54, β=-.16, R²=.03). As Figure 4.9 illustrates, the Southwest varied greatly between 1997 and 2003 then had levels off gradually, whereas the Southeast shows a more constant declining trend line, though at a similar overall rate.

**Social capital building services.** The percentage of eligible consumers receiving job search or job search services did not vary significantly between the two regions, with 31.1% (n=111,795) in the traditional region and 31.9% (n=7,042) in the new region (χ² (1, n=370,595) =.467, p=.494). Trends in social capital building services remained constant in both regions and when compared did not differ (F (1,15) = .398, p=.537), either. A new trend line combining the two regions did not estimate significate changes in receipt of social capital building services over the 17-year period either (F (1,15) .335, p=.51, β=.15 R²=.02). See Figure 4.5 for illustration.

**Job search.** In the new immigration region, 22.4% (n=4,959) received job search services, while 26.9% did in the traditional region χ² (1, n=370,595) =.208.91, p<.001, phi=.03). A downward trend in job search services existed in the new immigration region
and a nonsignificant one occurred in the traditional region. A comparison of trend lines confirmed that different trends occurred in receipt of job search services from 1997 to 2013 in the two regions ($F (1,15) = 5.93$, $p=.028$). Figure 4.10 illustrates the moderate decline in job search services in the Southeast, while the Southwest remained stable following a sharp drop from 1997 to 1998.

**Job placement.** The Southeast had a slightly higher percentage of consumers receiving job placement services (25.9%, $n=5,731$) compared to the (Southwest 22.2%, $n=77,385$) $\chi^2 (1, n=370,595) = .165.48$, $p<.001$, phi=.02). In the new region a non-significant upward trend existed, while in the traditional region a non-significant downward trend existed. However, comparison of regression lines did not indicate significant differences between the two regions ($F 1,15) = 2.6$, $p=.128$). A new regression line of the combined regions did not estimate significant changes in rates of job placement services as they remained relatively stable over the 17-year period ($F (1, 15) = .233$, $p=.637$, $\beta=-.12$, $R^2=.02$).

**Trends in Rehabilitation and Employment**

Q5: Do trends exist in rehabilitation and employment outcomes for Hispanics who receive vocational rehabilitation services in new immigration destinations of the Southeast compared to traditional immigration destinations of the Southwest from 1997 to 2013?

As described previously, RSA captured successful outcomes in two ways, closure type (rehabilitated) and employment status. An employment outcome, sometimes referred to as employment or competitive employment, means the person worked in an integrated
setting (with and without supports) for at least state or federal minimum wage, whichever was higher.

Overall, VR closed 33.6% of its 469,427 cases as rehabilitated between 1997 and 2013. At close, 94.3% (n=150,855) of rehabilitated consumers exited as employed in an integrated setting for regular wages, of which all but 3% (n=9,026) earned at least minimum wage.

**New region.**

In the new immigration of the Southeast U.S., 42.8% (n=9,459) of eligible Hispanic consumers between the ages of 18 and 64 at application exited VR as rehabilitated and 39.7% (n=8,771) exited as employed in an integrated setting making minimum wage. Of the consumers rehabilitated, 49.2% (n=9,433) received at least one service, meaning that slightly more than half (50.8%, n=9,728) of consumers that received at least one service did not exit VR as rehabilitated ($\chi^2 = (1, n=22,104) = 2435.85, p<.001, \phi=.33$). Almost 46% (45.7%, n=8,749) of eligible consumers that received services exited VR with an employment outcome while 54.3% (n=10,412) received services and did not have an employment outcome ($\chi^2 (1, n=22,104) = 2150.03, p<.001, \phi=.31$). Overall, 34.9% (n=6,012) of consumers eligible for services that entered the VR system as unemployed existed as employed in an integrated setting making at least minimum wage ($\chi^2 (2, n=22,123) = 821.13, p<.001$, Cramer’s $V=.19$).

**Trends in overall outcomes.** For eligible consumers that received at least one service, the rehabilitation trend from 1997 (48.9%, n=479) to 2013 (41.5%, n=655) remained stable and was not statistically significant ($F (1, 15) =.96, p=.343, \beta=-.25, R^2=.06$). Even though the percent change between 1997 (42.1%, n=413) and 2013
(38.9%, n=614) suggested a downward trend this trend remained stable as well (F (1,15) = .56, p=.467, β=.19, R²=.04). A gradual downward trend occurred in consumers eligible for services entering VR as unemployed and exiting as employed in an integrated setting making at least minimum wage (F (1,15) =15.13, p=.001, β=-.71, R²=.50), with 36.6% (n=310) exiting employed in 1997 and 26.6% (n=430) in 2013. Figure 4.13 illustrates rehabilitation outcomes for the new region and Figure 4.12 for employment in an integrated setting earning at least minimum wage.

**Human capital building services.** In the new region, 51.7% (n=11,425) of eligible consumers received at least one of the five human capital building services analyzed in this study, diagnosis and treatment, adjustment training, miscellaneous training, college and university training, and vocational training. Rehabilitation rates were higher for eligible consumers who received at least one of these services (61.7%, n=7,045) compared to consumers who did not receive one of the five services (22.6%, n=2,414) ($\chi^2 (1, n=22,104) = 3439.63, p<.001, \phi=.39$). Consumers exited VR with an employment outcome at similar rates, as 56.9% (n=6,505) exited as competitively employed after receiving human capital building services while 21.2% (n=2,266) exited as employed who did not receive one of the five services ($\chi^2 (1, n=22,104) = 2941.97, p<.001, \phi=.37$).

In the new region a slow downward trend occurred between 1997 (64.4%, n=369) and 2013 (56%, n=502) in rehabilitation rates for consumers based on receipt of one of the five human capital building services (F (1,15) = 8.73, p=.01, β=-.61, R²=.37). This trend differed from the overall rehabilitation trend (F (1,15) = 11.66, p=.004). A change in the rate of employment outcomes based on receipt of human capital building services
did not occur between 1997 (55.5%, n=318) and 2013 (51.8%, n=465) (F (1,15) = .027, p=.871, β=-.04, R²=.0). Trends in rehabilitation rates and employment rates differed based on receipt of human capital building services (F (1,15) = 19, p=.001).

**Diagnosis and treatment.** Consumers who received diagnosis and treatment services had a rehabilitation rate of 63% (n=4,869) compared to the 39.9% (n=4,590) who did not receive the service ($\chi^2 (1, n=22,104) = 1998.49, p<.001, \phi=.31$). Consumers that received diagnosis and treatment services had an employment outcome at a rate of 58% (n=4,472) compared to 29.9% (n=4,299) who did not receive diagnosis and treatment services ($\chi^2 (1, n=22,104) = 1655.4, \phi=.27$). The trend for rehabilitation rates for consumers that received diagnosis and treatment services moderately decreased from 1997 (67.4%, (n=217) to 2013 (56%, n=352) (F (1,15) =16.64, p=.001, β=-.73, R²=.53). Though employment rates decreased from 58.1% (n= 187) in 1997 to 50.9% (n=319), a statistically significant trend did not occur (F (1,15) = 1.89, p=.189, β=-.34, R²=.11). The trend lines were, in fact, statistically different (F (1,15) =13.99, p=.002).

**Adjustment training.** The rehabilitation rate for consumers receiving adjustment training services was higher (58.2%, n=1,654) for consumers receiving the service than those who did not receive it (40.5%, n=7,805) ($\chi^2 (1, n=22,104) =314.72, p<.001, \phi=.12$). A greater difference also existed in employment outcomes between those who received adjustment services (53% (n=1,507) and those who did not 37.7% (n=7,264) ($\chi^2 (1, n=22,104) =241.52, p<.001, \phi=.11$). While the employment trend remained stable from 1997 (51%, n=104) to 2013 (49.4%, n=119) (F (1,15) = .39, p=.540, β=-.16, R²=.03), a gradual decline occurred in rehabilitation rates, 62.3% (n=127) in 1997 to
53.1% (n=128) in 2013 (F (1,15) = 6.75, p=.02, β=-.56, R²=.31). The two trend lines were statistically different (F (1,15) = 27.85, p<.001).

**Miscellaneous training.** Consumers that received miscellaneous training services had a rehabilitation rate of 62% (n=1,204) compared to the 40.9% (n=8,255) (χ² (1, n=22,104) = 321.65, p<.001, phi=.12) for consumers that did not receive the service. A successful employment outcome was more likely, as well, if a consumer received miscellaneous training services (57.8%, n=703) compared to consumers did not receive it (38.6%, n=8,068) (χ² (1, n=22,104) = 175.98, p<.001, phi=.09). A gradual and statistically significant decline in consumers exiting VR as rehabilitated occurred between 1997 (67%, n=73) and 2013 (54.7%, n=82) (F (1,15) = 6.55 p=.022 β=-.55, R²=.30). However, the trend for employment outcomes was different (F (1,15) =23.09, p<.001, as the trend in employment outcomes remained stable between 1997 (57.8%, n=63) and 2013 (52.7%, n=79) (F (1,15) = .5, p=.492, β=-.18, R²=.03).

**College and university training.** Consumers that received college and university training services exited VR rehabilitated (61%, n=988) more often than consumers that did not receive the service (41.4%, n=8,471) (χ² (1, n=22,104) = 235.57, p<.001, phi=.10). Employment had a similar distribution with 59.3% (n=961) of consumers exiting competitively employed who received the service compared to the 38.1% (n=7,810) that did not. A steady downward trend occurred for rehabilitation rates of consumers receiving college and university training services between 1997 (63%, n=46) and 2013 (49.6%, n=66), (F (1,15) = 6.1, p=.026, β=-.54, R²=.29). In contrast, employment rates went from 58.9% (n=43) in 1997 to 49.6% (n=66) in 2013, but had a
statistically non-significant gradual increase (F (1,15) = .3.77, p=.07, β=.45, R²=.20). The two trends were different (F (1,15) =13.55, p=.002).

**Vocational training.** Consumers exited VR rehabilitated at a rate of 61.5% (n=749) compared to the 41.7% (n=8,710) that did not receive vocational training services ($\chi^2 (1, n=22,104) = 184.99, p<.001, \phi=.09$). Consumers that received vocational training services exited VR competitively employed (57.8%, n=703) more often than consumers that did not receive the service (38.6%, n=8,068) ($\chi^2 (1, n=22,104) = 175.98, p<.001, \phi=.09$). A steady downward trend occurred for rehabilitation rates of consumers receiving college and university training services between 1997 (63%, n=46) and 2013 (49.6%, n=66), (F (1,15) = 6.1, p=.026, β=-.54, R²=.29). In contrast, employment rates went from 58.9% (n=43) in 1997 to 49.6% (n=66) in 2013, but had a statistically non-significant gradual increase (F (1,15) = .3.77, p=.07, β=.45, R²=.20). The two trends were statistically different (F (1,15) =8.02, p=.013).

**Social capital building services.** Overall 31.8% (n=7,042) of eligible consumers in the new region received either job search or job placement services (15.4%, n=3,394), or both (16.5% (n=3,648). Consumers exited VR at a rehabilitation rate of 69% (n=4,860) if they received a social capital building service, compared to 30.5% (n=4,599) that exited as rehabilitated if they did not receive the service ($\chi^2 (1, n=22,104) = 2902.49, p<.001, \phi=.36$). Employment outcomes followed a similar pattern as 65.2% (n=4,594) of consumers exited as employed after receiving a social capital building service and 27.7% (n=4,177) exited as employed who did not receive the service ($\chi^2 (1, n=22,104) = 2820.03, p<.001, \phi=.36$).
In 1997, 74.5% (n=266) of consumers receiving any social capital building service exited as rehabilitated and in 2013, 60.9% (n=353) did. The change represented a significant decrease in the rehabilitation rates of consumers receiving these types of services (F (1,15) = 29.92, p<.001, β= -.81, R²=.65). Rates in employment outcomes did not change significantly between 1997 (65%, n=232) and 2013 (59%, n= 342) (F (1,15) = 3.53, p=.08, β= -.44, R²=.19), although the trend differed from the changes in rehabilitation rates (F (1,15) = 23.41, p<.001).

**Job search.** Almost 69% (68.8%, n=3,410) of consumers that received job search services existed as rehabilitated, while 35.3% (n=6,049) existed as rehabilitated that did not receive the service (χ² (1, n=22,104) = 1761.59, p<.001, phi=.28). Employment followed a similar pattern with 64.3% (n=3,189) exiting with an employment outcome compared to the 32.6% (n=5,582) who did not receive the service χ² (1, n=22,104) = 1619.96, p<.001, phi=.27). A gradual decline occurred in rehabilitation rates from 1997 (74.5%, n=266) to 2013 (63.3%, n=181) for consumers receiving job search services (F (1,15) = 31.86, p<.001, β= -.82, R²=.68). However, the employment outcomes did not have a statistically significant trend and remained steady throughout 1997 (65%, n=232) to 2013 (61.9%, n=177) (F (1,15) = 5.7, p=.03, β= -.52, R²=.28). These two trends were, in fact, statistically different (F (1,15) = 23.72, p<.001).

**Job placement.** The rehabilitation rate for consumers receiving job placement services was higher (71%, n=4,069) for consumers receiving the service than those who did not receive it (32.9%, n=5,390) (χ² (1, n=22,104) = 2514.52, p<.001, phi=.34). Employment outcomes between those who received job placement services (67.2%, n=3,850) were better than for those who did not (30.1% 4,921) (χ² (1, n=22,104) =
A gradual decline occurred in rehabilitation rates for job placement services between 1997 (86%, n=196) and 2013 (60.5%, n=299) (F (1,15) = 31.86, p<.001, β=−.83, R²=.68). The same decline occurred for employment outcomes, going from 75.4% (n=172) in 1997 to 58.5% (n=289) in 2013 (F (1,15) = 5.7, p=.03, β=−.53, R²=.28). The two trend lines were statistically different (F (1,15) = 23.86, p<.001).

**Traditional region.** In the traditional immigration region 42.5% (n=147,642) of eligible consumers exited VR as rehabilitated and 38% (n=131,925) exited as competitively employed. Of the consumers rehabilitated 43.3% (n=147,141) received at least one service, and 56.7% (n=192,565) received services and were not rehabilitated ($\chi^2 = (1, n=347,438) = 4109.30, p<.001, \phi=.11$). Approximately 39% (n=131,446) of eligible consumers that received services exited VR with an employment outcome while 61.3% (n=208,260) received services and did not have an employment outcome ($\chi^2 (1, n=22,104) = 3390.1, p<.001, \phi=.10$). Approximately a third of eligible consumers (32.3%, n=88,539) that entered the VR system as unemployed exited as competitively employed ($\chi^2 (2, n=22,104) = 19973.05, p<.001, \phi=.24$).

**Trends in overall outcomes.** A downward trend existed for rehabilitation rates from 1997 (47.1%, n=8,356) to 2013 (38.9%, n=7,819) (F (1, 15) =13.6, p<.002 β=−.69, R²=.48). A significant downward trend occurred from 1997 (40.1%, n=7,113) to 2013 (35.5%, n=7,144) in employment outcomes as well (F (1,15) = 7.38, p=.016 β=−.57, R²=.33). These trends were statistically different, as the rehabilitation rates dropped more rapidly (F (1,15) = 4.83, p=.044). In addition, a downward trend occurred between 1997 (34.8%, n=5,126) and 2013 (28.1%, n=5,074) in the proportion of consumers that entered
VR as unemployed and exited as competitively employed ($F (1, 15) = 22.2, p < .001, \beta = -.77, R^2 = .6$).

**Human capital building services.** In the traditional region 61.1% ($n=212,882$) of eligible consumers received at least one of the five human capital building services analyzed in this study. Consumers exited as rehabilitated more frequently (51.4% and $n=109,468$) who received one of these services than consumers who did not (28.6%, $n=38,741$) ($\chi^2 (1, n=370,595) = 1770.8, p < .001, \phi = .23$). Approximately 46% (45.9%, $n=97,815$) of consumers exited VR employed compared to the 25.4% employment rate for consumers that did not receive one of the five services ($\chi^2 (1, n=22,104) = 14814.86, p < .001, \phi = .21$).

A significant downward trend occurred between 1997 (52.8%, $n=5,965$) and 2013 (52.3%, $n=4,093$) in rehabilitation rates for consumers based on receipt of one of the five human capital building services ($F (1,15) = 8.56, p = .01, \beta = -.61, R^2 = .36$), but it did not differ significantly from the overall rehabilitation trend for the traditional immigration region ($F (1,15) = 007, p = .935$). Significant changes in the rate of competitive employment did not occur in the traditional region between 1997 (40.1%, $n=7,113$) and 2013 (35.5% ($n=21,521$) ($F (1,15) = .867, p = .367, \beta = -.23, R^2 = .06$). The trend for employment outcomes was different than the rehabilitation trend for the region ($F (1,15) = 30, p < .001$).

**Diagnosis and treatment.** Consumers exited the VR system rehabilitated if they received diagnosis and treatment services (51.8%, $n=76,894$) compared to those who did not receive the service (35.6%, $n=71,315$) ($\chi^2 (1, n=348,491) = 9140.45, p < .001, \phi = .16$). The same occurred for employment outcomes, as 46.7% ($n=69,295$) that received the
service exited as employed, while only 31.5%, (n=62,999) did who did not receive the service ($\chi^2 (1, n=348,491) =8387.64, p<.001, \phi=.16$). A substantial downward trend existed for rehabilitation rates for diagnosis and treatment services, going from 57.4% (n=2,108) in 1997 to 46.9% (n=4,289) (F (1,15) =14.54, p=.002, $\beta=-.49$, $R^2=.49$).

Employment rates did not change significantly, with an employment rate of 43.1% (n=1,581) in 1997 and 43.3% (n=3,961) in 2013 (F (1,15) =3.65, p=.075, $\beta=-.44$, $R^2=.19$).

**Adjustment training.** Adjustment training services resulted in a higher rehabilitation rate (57%, n= 32,831) for consumers that received the service compared to consumers who did not (39.7%, n=115,378) ($\chi^2 (1, n=348,491) =5881.5, p<.001, \phi=.13$). Employment outcomes were similar for the service, with 46.7% (n=26,910) of consumers achieving competitive employment after receiving the service, compared to the 36.2% (n=105,384) that exited with an employment outcome who did not receive the service ($\chi^2 (1, n=348,491) =2230.96, p<.001, \phi=.08$). The trend in rehabilitation outcomes did not change significantly despite going from 48.9% (n=1,014) rehabilitation rate in 1997 to 54.3%(n=1,620) in 2013. However, a moderate upward trend occurred between 1997 (31.8%, n=660) and 2013 (46.6%, n=1,390) for adjustment training services in the Southwest (F (1,15) = 7.35, p=.016, $\beta=.57$, $R^2=.33$).

**Miscellaneous training.** Rehabilitation rates were higher for consumers receiving miscellaneous training services in the traditional region than those who did not receive the service, 56.8% (n=14,706) compared to 41.4% (n=133,503) ($\chi^2 (1, n=348,491) =2342.88 p<.001, \phi=.08$). Similar rates of employment outcomes existed, as well, with 44.6% (n=11,536) achieving an employment outcome after receiving the services
compared to the 37.4% (n=120,758) that did without out ($\chi^2$ (1, n=348,491) =521.36, p<.001, phi=.04). The trend in rehabilitation outcomes remained stable from 1997 (52.4%, n=2,086) to 2013 (49.3%, n=470) (F (1,15) = .07, p=.796, $\beta$=-.07, $R^2$.00).

Employment trends did not change significantly either (F (1,15) = 3.78, p=.071, $\beta$=.45, $R^2$.20). In 1997 44% (n=1,751) of consumers had a competitive employment outcome, compared to 44.3% (n=422) in 2013.

**College and university training.** Consumers exited as rehabilitated at slightly higher rate after receiving college and university training services (46.3%, n=15,309) compared to those who did not (42.1% 132,900) ($\chi^2$ (1, n=348,491) = 211.18, p<.001, phi=.03). A greater difference existed between employment outcomes based on receipt of service, with 44% (n=14,557) of consumers exiting as employed, while 37.3%, n=117,737) did who did not receive the service ($\chi^2$ (1, n=348,491) =568.21, p<.001, phi=.04). Even though rehabilitations dropped by almost 10% from 1997 (45%, n=962) to 2013 (35.9%, n=930), a statistically significant decline did not exist F (1, 15) =2.37, p=.057, $\beta$=-.47, $R^2$.22). Employment outcomes decreased from 41% (n=876) in 1997 to 34.2% (n=885) in 2013, but a statistically significant did not exist (F (1, 15) =2.37, p=.144, $\beta$=-.37, $R^2$.14).

**Vocational training.** Consumers were more likely to have their cases closed as rehabilitated if they received vocational training services (54.2%, n=22,113) than if they did not receive the service (41%, n=126,096) ($\chi^2$ (1, n=348,491) =2556.21, p<.001, phi=.09). A greater difference existed in employment outcomes for consumers that received the service (51.1%, n=20,884) than those who did not (36.2%, n=111,410) ($\chi^2$ (1, n=348,491) =3411.47, p<.001, phi=.1). A significant trend did not exist for changes in
rehabilitation rates for receipt of vocational training services, going from 46.1% (n=1,389) in 1997 to 44.7% (n=980) in 2013 (F (1,15) =1.8, p=.2, β=-.33, R²=.11). Employment outcomes remained relatively stable over the time period as well, 43.1% (n=1,299) in 1997 and 43% (n=942) in 2013 (F (1,15) =.93, p=.351, β-.24, R²=.06).

**Social capital building services.** Overall 32.1% (n=111,795) of eligible consumers received either job search or job placement services (15.1%, n=52,584), or both (17%, n=59,211). Consumers were more likely to exit VR as rehabilitated if they received social capital building services, as 61.3% (n=68,502) exited as rehabilitated compared to the 33.7% (n=79,707) rehabilitation rate of those who did not receive this service (χ² (1, n=348,491) = 23664.68, p<.001, phi=.26). Employment outcomes were similar, with 54.9% (n=61,403) exited as competitively employed after receiving job search or job placement services compared to 30% (n=70,891) that exited as employed that did not receive these services (χ² (1, n=398,491) = 21111.65, p<.001, phi=.25).

In 1997 59.7% (n=5,965) of consumers receiving any social capital building service exited as rehabilitated and in 2013 49.8% (n=4,093) did, a decrease in rehabilitation outcomes (F (1,15) = 12.1, p=.003, β=-.67, R²=.45). However, the trend was not different than overall rehabilitation trend in the new region (F (1,15) = 596, p=.452). Rates in employment outcomes based on receipt of social capital building services changed significantly between 1997 (65%, n=232) and 2013 (59%, n= 342) (F (1,15) = 5.3, p=.036, β=-.51, R²=.26) and were not different than rehabilitation rates for consumers receiving social capital building services (F (1,15) =4.23, p=.057).

**Job search.** In the traditional region 61.1% (n=57,215) of consumers exited VR as rehabilitated after receiving job search services, compared to the 35.7% (n=90,994)
that did not receive the service ($\chi^2 (1, n=348,491) = 18089.27, p<.001, \phi=.23$).

Employment outcomes varied similarly, with 55.2% (n=51,665) of consumers exiting VR a competitively ($\chi^2 (1, n=348,491) = 16124, p<.001, \phi=.22$). From 1997 (59.7%, n=5,965) to 2013 (48.7%, n=3,447) a gradual and statistically significant decline in rehabilitation outcomes occurred ($F (1,15) = 8.0, p=.013, \beta=-.59, R^2=.35$). However, the employment rate did not change from 1997 (52.7%, n=5,264) to 2013 (46.5%, n=3,294) ($F (1,15) = 1.88, p=.198, \beta=-.33, R^2=.11$).

**Job placement.** Rehabilitation rates were almost double for consumers that received that job placement services (66.1%, n=51,190) than if the consumer did not (35.8%, n=97,019) ($\chi^2 (1, n=348,491) = 22707.63, p<.001, \phi=.26$). The difference for employment outcomes was substantial, as well (57.9%, n=44,823 compared to 32.3% (n=887,471) ($\chi^2 (1, n=348,491) = 16827.86, p<.001, \phi=.22$). Even though the rehabilitation rates went up from 60.7% (n=5,656) in 1997 to 63.1% (n=2,554) in 2013, the trend line was downward overall ($F (1,15) = 4.36 p=.05, \beta=-.47, R^2=.23$). The same type of trend occurred for employment outcomes but the trend was not statistically significant and the trend line relatively flat ($F (1,15) = .411, p=.531, \beta=-.16, R^2=.03$). In 1997 53.6% (4,994) exited VR with an employment outcome compared to 59.1% (2,393) in 2013.

**Comparison of regions.** Consumers in the Southeast were more likely to exit VR as rehabilitated and employed compared to the Southwest. In the Southeast 49.2% (n=9,433) exited VR as rehabilitated after receiving services and in the Southwest 43.3% (n=147,141) exit VR as rehabilitated after receiving services ($\chi^2=(1, n=370,595) = 6258.45, p<.001, \phi=.13$). Percentage of employment outcomes were similar, with
45.7% (n=8,749) consumers exiting as employed in an integrated setting earning at least minimum wage in the Southeast, and 38.7% (n=131,446) of consumers in the Southwest exited in the same status after receiving services.

The new region did not have an overall trend, while the traditional region had a downward one. However, when compared the trend lines did not differ significantly (F (1,15) = 3.34, p=.088), suggesting a single trend line for the combined regions was appropriate (F (1,15) =25.24, p<.001, β=-.79, R²=.63). The trends in employment outcomes though were different between the two regions (F (1,15) =4.83, p=.044) as the traditional region had a significant downward trend and the new region a non-significant slight upward trend. The trends in the proportions of consumers that were unemployed at application exiting as competitively employed did not differ (F (1,15) = 2.5, p=.135). A new single trend line representing the combined regions remained significant (F (1, 15) = 28.83, p<.001, β=-.81, R²=.66).

**Human capital building services.** The new region had a higher percentage of consumers exit as rehabilitated after receiving at least one human capital building service than the traditional region (61.7% versus 51.4% respectively) (χ²= (1, n=370,595) = 20536.22, p<.001, phi=.24). In the new region diagnosis and treatment services had a higher percentage of rehabilitated consumers (63.1%, n=4,869) than in the traditional region (51.8%, n=76,894) (χ²= (1, n=370,595) = 10683.07, p<.001, phi=.17). The same was true for employment outcomes, with 58% (n=4,472) of consumers exiting with an employment outcome in the Southeast, and 46.7% (n=69,295) in the Southwest (χ²= (1, n=370,595) = 9676.64, p<.001, phi=.16).
Both regions had significant downward trends in rehabilitation rates for consumers that received at least one of the five human capital building services evaluated in this study. Rehabilitation trends between the two regions did not differ significantly ($F(1, 15) = .767, p = .395$) and a single trend line can represent changes in rehabilitation outcomes based on receipt of human capital building services ($F(1, 15) = 13.83, p = .01, \beta = -.60, R^2 = .36$). Employment trends did not differ between the two regions ($F(1, 15) = .324, p = .577$) and the regression line representing the combined regions was not significant ($F(1, 15) = .845, p = .373, \beta = -.23, R^2 = .05$)

**Social capital building services.** Both regions had significant decreases in the rehabilitation outcomes of consumers that received social capital building services analyzed in this study. When compared, the trends did not differ ($F(1, 15) = .528, p = .479$) and a new regression line representing the combined regions remained a significant downward trend ($F(1, 15) = 12.75, p = .003, \beta = -.68, R^2 = .46$). Employment trends were different between the two regions with the new region having a non-significant downward trend and the traditional region a significant downward trend. When compared, the two trends were not statistically different ($F(1, 15) = 3.11, p = .098$). Employment outcomes had a significant downward trend for the combined regions ($F(1, 15) = 5.37, p = .035, \beta = -.51, R^2 = .26$).
Table 4.1

*Number of Cases by Destination and Dataset*

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*Number of Cases by State and Fiscal Year*

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Table 4.3

Consumer Racial Identification 1997-2001 (Fiscal Years)

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Table 4.5
*Consumer Multi-Racial Identification 2002-2013 (Fiscal Years)*

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*Referral Sources for Consumers 1997-2013 (Fiscal Years)*

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<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
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<td>Community rehabilitation agency</td>
<td>35,087</td>
<td>7.5</td>
<td>906</td>
<td>3.2</td>
<td>34,181</td>
<td>7.7</td>
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<tr>
<td>Educational institution (post-secondary)</td>
<td>24,091</td>
<td>5.1</td>
<td>682</td>
<td>2.4</td>
<td>23,409</td>
<td>5.3</td>
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<td>Welfare agency</td>
<td>13,056</td>
<td>2.8</td>
<td>1,085</td>
<td>3.9</td>
<td>11,971</td>
<td>2.7</td>
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<tr>
<td>Social Security Administration</td>
<td>8,501</td>
<td>1.8</td>
<td>576</td>
<td>2</td>
<td>7,925</td>
<td>1.8</td>
</tr>
<tr>
<td>Total</td>
<td>469,298</td>
<td>100</td>
<td>28,127</td>
<td>100</td>
<td>441,171</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 4.7

*Primary and Secondary Impairment Types 1997-2013 (Fiscal Years)*

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>New Region</th>
<th>Traditional Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary Impairment</td>
<td>Secondary Impairment</td>
<td>Primary Impairment</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>No impairment</td>
<td>5,333</td>
<td>1.1</td>
<td>246,578</td>
</tr>
<tr>
<td>Blind/Visual impairment</td>
<td>32,075</td>
<td>6.9</td>
<td>3,838</td>
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<tr>
<td>Deafness/Hearing Impairment</td>
<td>28,431</td>
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<td>3,938</td>
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<tr>
<td>Deaf-Blindness</td>
<td>252</td>
<td>0.1</td>
<td>226</td>
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<tr>
<td>Communicative Impairment (e.g., speech)</td>
<td>2,811</td>
<td>0.6</td>
<td>5,258</td>
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<tr>
<td>Orthopedic Impairments</td>
<td>108,099</td>
<td>23.3</td>
<td>30,054</td>
</tr>
<tr>
<td>Physical Impairment</td>
<td>64,461</td>
<td>13.9</td>
<td>52,783</td>
</tr>
<tr>
<td>Mental or Cognitive</td>
<td>229,918</td>
<td>48</td>
<td>99,004</td>
</tr>
<tr>
<td>Totals</td>
<td>464,380</td>
<td>100</td>
<td>441,679</td>
</tr>
<tr>
<td>Condition</td>
<td>Total n</td>
<td>%</td>
<td>New n</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>---------</td>
<td>-----</td>
<td>-------</td>
</tr>
<tr>
<td>Accident or injury</td>
<td>65,872</td>
<td>14.2</td>
<td>2,374</td>
</tr>
<tr>
<td>Learning disabilities</td>
<td>55,048</td>
<td>11.9</td>
<td>2,564</td>
</tr>
<tr>
<td>Neurotic disorders</td>
<td>49,493</td>
<td>10.7</td>
<td>3,153</td>
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<tr>
<td>Other physical conditions and diseases</td>
<td>45,780</td>
<td>9.9</td>
<td>2,526</td>
</tr>
<tr>
<td>Unknown cause</td>
<td>46,117</td>
<td>9.9</td>
<td>1,504</td>
</tr>
<tr>
<td>Intellectual Disability</td>
<td>29,744</td>
<td>6.4</td>
<td>2,250</td>
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<tr>
<td>Drug abuse or dependence</td>
<td>23,178</td>
<td>5</td>
<td>1,323</td>
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<tr>
<td>Mental illness not elsewhere specified</td>
<td>18,964</td>
<td>4.1</td>
<td>1,756</td>
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<tr>
<td>Psychotic disorders</td>
<td>16,619</td>
<td>3.6</td>
<td>1,383</td>
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<tr>
<td>Congenital condition or birth injury</td>
<td>16,264</td>
<td>3.5</td>
<td>1,234</td>
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<tr>
<td>Accident spinal cord injury</td>
<td>12,328</td>
<td>2.7</td>
<td>487</td>
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<tr>
<td>Alcohol abuse or dependence</td>
<td>11,165</td>
<td>2.4</td>
<td>840</td>
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<tr>
<td>Diabetes Mellitus</td>
<td>9,566</td>
<td>2.1</td>
<td>529</td>
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<tr>
<td>Digestive conditions</td>
<td>8,257</td>
<td>1.8</td>
<td>186</td>
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<tr>
<td>Traumatic brain injury</td>
<td>7,910</td>
<td>1.7</td>
<td>555</td>
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<tr>
<td>Genitourinary conditions or End-Stage Renal Disease</td>
<td>7,672</td>
<td>1.7</td>
<td>233</td>
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<tr>
<td>Arthritis and rheumatism</td>
<td>7,534</td>
<td>1.6</td>
<td>458</td>
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<tr>
<td>No Impairment</td>
<td>5,333</td>
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<td>1,092</td>
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<tr>
<td>Cardiac and circulatory system</td>
<td>4,423</td>
<td>1</td>
<td>537</td>
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<tr>
<td>Epilepsy</td>
<td>4,397</td>
<td>0.9</td>
<td>259</td>
</tr>
<tr>
<td>Cerebral palsy</td>
<td>3,317</td>
<td>0.7</td>
<td>175</td>
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<tr>
<td>Stroke</td>
<td>2,497</td>
<td>0.5</td>
<td>151</td>
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<tr>
<td>Amputee (years 2002-2013 only)</td>
<td>2,142</td>
<td>0.4</td>
<td>126</td>
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<tr>
<td>Polio</td>
<td>1,968</td>
<td>0.4</td>
<td>85</td>
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<tr>
<td>Autism</td>
<td>1,370</td>
<td>0.3</td>
<td>174</td>
</tr>
<tr>
<td>Cancer</td>
<td>1,485</td>
<td>0.3</td>
<td>123</td>
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<tr>
<td>Respiratory disease not Cystic Fibrosis or Asthma</td>
<td>1,405</td>
<td>0.3</td>
<td>75</td>
</tr>
<tr>
<td>Asthma or Allergies</td>
<td>948</td>
<td>0.2</td>
<td>107</td>
</tr>
<tr>
<td>Blood Disorders</td>
<td>1,141</td>
<td>0.2</td>
<td>94</td>
</tr>
<tr>
<td>Multiple Sclerosis</td>
<td>946</td>
<td>0.2</td>
<td>88</td>
</tr>
<tr>
<td>Muscular Dystrophy</td>
<td>753</td>
<td>0.2</td>
<td>35</td>
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<tr>
<td>Parkinson's</td>
<td>530</td>
<td>0.1</td>
<td>57</td>
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<tr>
<td>Congenital and adventitious combined (Deaf-blind only)</td>
<td>30</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cystic Fibrosis</td>
<td>125</td>
<td>0</td>
<td>11</td>
</tr>
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<td><strong>Total</strong></td>
<td>464,321</td>
<td>100</td>
<td>26,544</td>
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Table 4.9  
*Selected Combinations of Primary Impairments and Causes 1997-2013 (Fiscal Years)*

<table>
<thead>
<tr>
<th>Impairment Description</th>
<th>Total n</th>
<th>Total %</th>
<th>New n</th>
<th>New %</th>
<th>Traditional n</th>
<th>Traditional %</th>
</tr>
</thead>
<tbody>
<tr>
<td>No impairment</td>
<td>5,333</td>
<td>1.1</td>
<td>1,092</td>
<td>4.1</td>
<td>4,241</td>
<td>1</td>
</tr>
<tr>
<td>Orthopedic impairments due to accident or injury (not traumatic brain injury or spinal cord injury)</td>
<td>57,489</td>
<td>12.4</td>
<td>2,031</td>
<td>7.7</td>
<td>55,458</td>
<td>12.7</td>
</tr>
<tr>
<td>Mental or cognitive impairments due to learning disabilities</td>
<td>54,317</td>
<td>11.7</td>
<td>2,548</td>
<td>9.6</td>
<td>51,769</td>
<td>11.8</td>
</tr>
<tr>
<td>Mental or cognitive impairments due to neurotic disorders</td>
<td>49,248</td>
<td>10.6</td>
<td>3,150</td>
<td>11.9</td>
<td>46,098</td>
<td>10.5</td>
</tr>
<tr>
<td>Mental or cognitive impairments due to intellectual disability</td>
<td>29,584</td>
<td>6.4</td>
<td>2,248</td>
<td>8.5</td>
<td>27,109</td>
<td>6.2</td>
</tr>
<tr>
<td>Mental or cognitive impairments due to drug abuse or dependence</td>
<td>22,798</td>
<td>4.9</td>
<td>1,317</td>
<td>5</td>
<td>21,481</td>
<td>4.9</td>
</tr>
<tr>
<td>Mental or cognitive impairments due to mental disorders not elsewhere specified</td>
<td>18,708</td>
<td>4</td>
<td>1,748</td>
<td>6.6</td>
<td>16,960</td>
<td>3.9</td>
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<tr>
<td>Physical impairments due to other physical conditions</td>
<td>16,996</td>
<td>3.7</td>
<td>663</td>
<td>2.5</td>
<td>16,333</td>
<td>3.7</td>
</tr>
<tr>
<td>Blindness or other visual impairments due to other physical conditions</td>
<td>16,411</td>
<td>3.5</td>
<td>952</td>
<td>3.6</td>
<td>15,459</td>
<td>3.5</td>
</tr>
<tr>
<td>Mental or cognitive impairments due to psychotic disorders</td>
<td>16,584</td>
<td>3.6</td>
<td>1,383</td>
<td>5.2</td>
<td>15,201</td>
<td>3.5</td>
</tr>
<tr>
<td>Deafness or hearing impairments due to unknown cause</td>
<td>14,703</td>
<td>3.2</td>
<td>750</td>
<td>2.8</td>
<td>13,953</td>
<td>3.2</td>
</tr>
<tr>
<td>Mental or cognitive impairments due to alcohol abuse or dependence</td>
<td>10,809</td>
<td>2.3</td>
<td>831</td>
<td>3.1</td>
<td>10,205</td>
<td>2.3</td>
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<tr>
<td>All other combinations of impairments and causes</td>
<td>151,400</td>
<td>32.6</td>
<td>7,836</td>
<td>29.5</td>
<td>143,564</td>
<td>32.8</td>
</tr>
<tr>
<td>Totals</td>
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<td>100</td>
<td>26,549</td>
<td>100</td>
<td>437,831</td>
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Table 4.10

Educational Attainment 1997-2013 (Fiscal Years)

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<tr>
<th>Level of Education</th>
<th>Total</th>
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<th>New</th>
<th></th>
<th>Traditional</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>No formal schooling</td>
<td>5,111</td>
<td>1.1</td>
<td>244</td>
<td>0.9</td>
<td>4,867</td>
<td>1.1</td>
</tr>
<tr>
<td>Elementary Grades 1-8</td>
<td>52,083</td>
<td>11.1</td>
<td>2,342</td>
<td>8.3</td>
<td>49,741</td>
<td>11.3</td>
</tr>
<tr>
<td>High School No Diploma (Years 9-11)</td>
<td>112,472</td>
<td>24.0</td>
<td>7,499</td>
<td>26.7</td>
<td>104,973</td>
<td>23.9</td>
</tr>
<tr>
<td>Special Education</td>
<td>37,751</td>
<td>8.1</td>
<td>2,027</td>
<td>7.2</td>
<td>35,724</td>
<td>8.1</td>
</tr>
<tr>
<td>High school Diploma or Completed Year 12/GED</td>
<td>173,084</td>
<td>37.0</td>
<td>9,384</td>
<td>33.4</td>
<td>163,700</td>
<td>37.2</td>
</tr>
<tr>
<td>Associate's Degree, Vocational Certificate, or Some</td>
<td>73,927</td>
<td>15.8</td>
<td>5,111</td>
<td>18.2</td>
<td>68,816</td>
<td>15.6</td>
</tr>
<tr>
<td>College</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor's Degree or Completed Year 16</td>
<td>10,659</td>
<td>2.3</td>
<td>1,167</td>
<td>4.2</td>
<td>9,492</td>
<td>2.2</td>
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<tr>
<td>Higher than a Bachelor's Degree</td>
<td>2,822</td>
<td>.6</td>
<td>333</td>
<td>1.2</td>
<td>2,489</td>
<td>0.6</td>
</tr>
<tr>
<td>Total</td>
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<td>100</td>
<td>28,107</td>
<td>100</td>
<td>439,802</td>
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Table 4.11
Receipt of Selected Services by Eligible Consumers 1997-2013 (Fiscal Years)

<table>
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<tr>
<th>Service</th>
<th>Total Received</th>
<th>Did Not Receive</th>
<th>New Received</th>
<th>Did Not Receive</th>
<th>Traditional Received</th>
<th>Did Not Receive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Assessment</td>
<td>306,117</td>
<td>82.6</td>
<td>64,478</td>
<td>17.4</td>
<td>13,152</td>
<td>59.5</td>
</tr>
<tr>
<td>Vocational rehabilitation counseling</td>
<td>285,971</td>
<td>77.2</td>
<td>84,624</td>
<td>22.8</td>
<td>12,824</td>
<td>58</td>
</tr>
<tr>
<td>Diagnosis and treatment (restoration)</td>
<td>156,079</td>
<td>42.1</td>
<td>214,516</td>
<td>57.9</td>
<td>7,715</td>
<td>34.9</td>
</tr>
<tr>
<td>Job search services training</td>
<td>98,580</td>
<td>26.6</td>
<td>272,015</td>
<td>73.4</td>
<td>4,959</td>
<td>22.4</td>
</tr>
<tr>
<td>Transportation</td>
<td>96,710</td>
<td>26.1</td>
<td>273,885</td>
<td>73.9</td>
<td>3,996</td>
<td>18.1</td>
</tr>
<tr>
<td>Other services</td>
<td>94,985</td>
<td>25.6</td>
<td>275,610</td>
<td>74.4</td>
<td>4,352</td>
<td>19.7</td>
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<td>Job placement services</td>
<td>83,116</td>
<td>22.4</td>
<td>287,479</td>
<td>77.6</td>
<td>5,731</td>
<td>25.9</td>
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<td>Adjustment Training</td>
<td>60,487</td>
<td>16.3</td>
<td>310,108</td>
<td>83.7</td>
<td>2,844</td>
<td>12.9</td>
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<tr>
<td>Vocational or business school training</td>
<td>42,053</td>
<td>11.3</td>
<td>328,542</td>
<td>88.7</td>
<td>1,217</td>
<td>5.5</td>
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<tr>
<td>College or university training</td>
<td>34,695</td>
<td>9.4</td>
<td>335,900</td>
<td>90.6</td>
<td>1,621</td>
<td>7.3</td>
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<td>Maintenance</td>
<td>34,604</td>
<td>9.3</td>
<td>335,991</td>
<td>90.7</td>
<td>2,758</td>
<td>12.5</td>
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<td>Rehabilitation technology</td>
<td>28,051</td>
<td>7.6</td>
<td>341,501</td>
<td>92.4</td>
<td>1,342</td>
<td>6.1</td>
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<td>Miscellaneous services training</td>
<td>27,812</td>
<td>7.5</td>
<td>342,783</td>
<td>92.5</td>
<td>1,941</td>
<td>8.8</td>
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<td>On the job training</td>
<td>14,635</td>
<td>3.9</td>
<td>355,960</td>
<td>96.1</td>
<td>474</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>New Region</td>
<td>Traditional Region</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>------------</td>
<td>--------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Population All Ages</td>
<td>Hispanic Population All Ages</td>
<td>Percent Hispanic Population All Ages</td>
<td>Total Population All Ages</td>
<td>Hispanic Population All Ages</td>
<td>Percent Hispanic Population All Ages</td>
</tr>
<tr>
<td>1997</td>
<td>47,708,169</td>
<td>943,294</td>
<td>1.9</td>
<td>61,739,574</td>
<td>17,676,317</td>
<td>28.6</td>
</tr>
<tr>
<td>1998</td>
<td>48,170,683</td>
<td>1,010,791</td>
<td>2.1</td>
<td>62,764,962</td>
<td>18,289,157</td>
<td>29.1</td>
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<td>1999</td>
<td>48,623,177</td>
<td>1,080,752</td>
<td>2.2</td>
<td>63,763,571</td>
<td>18,901,285</td>
<td>29.6</td>
</tr>
<tr>
<td>2000</td>
<td>49,885,022</td>
<td>1,757,674</td>
<td>3.4</td>
<td>66,241,187</td>
<td>20,619,090</td>
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</tr>
<tr>
<td>2001</td>
<td>50,232,573</td>
<td>1,926,939</td>
<td>3.7</td>
<td>67,329,934</td>
<td>21,304,695</td>
<td>31.6</td>
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<tr>
<td>2002</td>
<td>50,564,350</td>
<td>2,092,532</td>
<td>4.2</td>
<td>68,304,138</td>
<td>21,994,974</td>
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<tr>
<td>2003</td>
<td>50,890,943</td>
<td>2,254,268</td>
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<td>69,200,760</td>
<td>22,669,370</td>
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<td>51,352,107</td>
<td>2,435,366</td>
<td>4.8</td>
<td>70,099,824</td>
<td>23,326,034</td>
<td>33.3</td>
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<td>2005</td>
<td>51,850,223</td>
<td>2,635,633</td>
<td>5.2</td>
<td>71,009,305</td>
<td>23,995,362</td>
<td>33.8</td>
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<tr>
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Table 4.13
Population Estimates for Hispanics 18 to 64 Years and Vocational Rehabilitation Application Rates 2002-2012 (Calendar Years)

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<th>Year</th>
<th>Total Population</th>
<th>Hispanic Population</th>
<th>Percent Hispanic</th>
<th>Hispanic with Work Disability</th>
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<th>Hispanic Applications to VR</th>
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Table 4.14 Continued??
Population Estimates for Hispanics 18 to 64 Years and Vocational Rehabilitation Application Rates 2002-2012 (Calendar Years)

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<th>Traditional Region</th>
<th>Total Population</th>
<th>Hispanic Population</th>
<th>Percent Hispanic</th>
<th>Hispanic with Work Disability</th>
<th>Percent of Hispanics with Work Disability</th>
<th>Hispanic Applications to VR</th>
<th>Percent of Hispanics Applying to VR</th>
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Figure 4.1
Comparison of Trends in Proportions of 18 and 19 Year Old Consumers in New and Traditional Regions 1997-2013

R² = 0.85
R² = 0.77
Figure 4.2
Comparisons of Trends in Proportion of Hispanics with Disabilities Applying for Vocational Rehabilitation Services 2002-2012

R² = 0.12

R² = 0.92
Figure 4.3
Comparison of Trends in Proportions of Eligibility in New and Traditional Regions 1997-2013 (Fiscal Years)

- New Region
- Traditional Region

R² = 0.95
R² = 0.48
Figure 4.4
Comparison of Trends in Proportion of Eligible Consumers Receiving at Least One Service in New and Traditional Regions 1997-2013 (Fiscal Years)

$R^2 = 0.81$

$R^2 = 0.30$
Figure 4.5
Comparison of Trends in Proportions of Receipt of Human and Social Capital Building Services in New Region and Traditional Region 1997-2013 (Fiscal Years)
Figure 4.6
Comparision of Trends in Proportion of Eligible Consumers Receiving Diagnosis and Treatment Services in New and Traditional Regions 1997-2013 (Fiscal Years)
Figure 4.7
Comparison of Trends in Proportion of Eligible Consumers Receiving Adjustment Training Services in New and Traditional Regions 1997-2013 (Fiscal Years)
Figure 4.8
Comparison of Trends in Proportion of Eligible Consumers Receiving Miscellaneous Training in New and Traditional Regions 1997-2013 (Fiscal Years)
Figure 4.9
Comparison of Trends in Proportion of Eligible Consumers Receiving College and University Training in New and Traditional Regions 1997-2013 (Fiscal Years)
Figure 4.10
Comparison of Trends in Proportion of Eligible Consumers Receiving Vocational Training in New and Traditional Regions 1997-2013 (Fiscal Years)

- New Region
- Traditional Region
Figure 4.11
Comparison of Trends in Proportion of Eligible Consumers Receiving Job Search Services in New and Traditional Regions 1997-2013 (Fiscal Years)

New Region

Traditional Region

R² = 0.46

R² = 0.00
Figure 4.12
Comparison of Trends in Proportion of Eligible Consumers Receiving Job Placement in New and Traditional Regions 1997-2013 (Fiscal Years)
Figure 4.13
Trends in Proportions of Consumers Exiting as Rehabilitated in New and Traditional Regions 1997-2013 (Fiscal Years)

R² = 0.69

R² = 0.62
Figure 4.14
Trends in Proportions of Consumers Exiting as Employed Making Minimum Wage in New and Traditional Regions 1997-2013 (Fiscal Years)
Figure 4.15
Trends in Proportions of Consumers Exiting as Rehabilitated in New and Traditional Regions by Receipt of Human Capital and Social Capital Services 1997-2013 (Fiscal Years)
Figure 4.16
Trends in Proportions of Consumers Exiting as Employed in Integrated Setting with Minimum Wage in New and Traditional Regions by Receipt of Human Capital and Social Capital Services 1997-2013 (Fiscal Years)
Chapter 5: Discussion and Future Directions

This study aimed to evaluate differences in vocational rehabilitation experiences for Hispanic consumers ages 18 to 64 between the traditional Hispanic settlement area of the Southwest (Texas, California, Arizona, Colorado and New Mexico) and the new immigration destination states of the Southeast (Arkansas, Louisiana, Mississippi, Alabama, Georgia, South Carolina, North Carolina, Virginia, Tennessee and Kentucky).

In this final chapter a summary of major findings is discussed in terms of the regional differences and vocational rehabilitation research reviewed in Chapter 2. Due to the uniqueness of this study as a trend study, implications for future research are discussed, in addition to implications of this study for VR policy and practice.

Consumer Characteristics

The first question of this study aimed to understand how the demographic profile of the Hispanic VR population changed over the 17-year period between the two regions. The question examined was: Do consumers characteristics differ in 1997 and 2013 for Hispanics within new immigration destinations of the Southeast and within traditional immigration destinations of the Southwest? Demographics variables that were examined included sex, age, race of Hispanic consumers, referrals source, impairment type, educational attainment at application and employment status at application. The results suggest that Hispanic consumers have changed over the 17 year period in terms of the demographic and human capital they bring to the VR endeavor and differences exist between the two regions. The Southeast was decidedly more different in the earlier years of the study, and in some aspects began to resemble the traditional immigration destinations of the Southwest in the later years of this study.
**Sex and age.** The changes in the new region for sex and age reflect the larger immigration literature of the ‘settling out’ process (Hernandez-Leon & Zuniga, 2000). In the new immigration region, the gender proportion changed from predominately men in 1997 (62%) to be exactly the same as the traditional region in 2013 (42.9% male in both regions). As the young male “trailblazers” (Farmer & Moon, 2011; Hernández-León & Zúniga, 2000) settled and began having children, a decrease in age at VR entry became more pronounced. While the average age decreased in the Hispanic population in the Southwest as well, both regions had sharp increases in the 18 to 19 age populations that could explain the overall age decrease.

The Southeast had a significantly greater rate in the growth of Hispanic consumers in this age group, as well as a higher percentage of 18 and 19 year old consumers overall. In the traditional region, consumers in this age group went from 13.5% in 1997 to 20.2% in 2013. The new immigration region of the Southeast had an even greater increase of 11.6%, going form 6.4% in 1997 to 18.7% in 2013. The overall percentages were different, too, 18.7% in the new region, 15.4% in the traditional region. Changes in the Individuals with Disabilities Education Act (IDEA) in 2004, as well as the No Child Left Behind legislation, may have had an impact on this age distribution in VR, as these laws try to purposefully link student with disabilities with vocational rehabilitation services for transition planning. Figure 4.1 demonstrates the differences in the trends in this age group between the two regions.

**Race.** A significant difference existed in racial diversity of Hispanics in the Southeast compared to the Southwest. Using the racial categories for the 1997 to 2001, 71% of Hispanics identified themselves as white, while in the traditional region it was
almost 98% white. Using the 2002-2013 race variable, the difference is not as large, but still significant, with 79% in the new region and 96% in the traditional region identifying as white. The VR Hispanic population in the Southeast was overall more racially diverse, including a higher percentage of American Indians as well as Asians and Pacific Islanders than the traditional region. Considering the presence of large communities of American Indians, Asians, and Pacific Islanders in the traditional region compared to the Southeast (U.S. Census Bureau, 2012), the finding that a higher percentage of these groups appear in the VR system of the Southeast was surprising and warrants additional exploration as a better understanding of racial disparities within regions may be gained.

Another surprising finding was the difference in the percentage of black Hispanic consumers in the Southeast compared to the Southwest. In the Southeast, 25.7% of Hispanic consumers identified themselves as black in 1997 and this dropped to 12.2% in 2013. The traditional region had a slight increase from 0.7% in 1997 to 1.1% in 2013. The race variable of the 1997-2001 dataset asked consumers to identify their “primary” race and did not allow for multi-racial identification. To compare the change in black Hispanic consumers in the two regions, a composite variable that collapsed “black only” and “multi-racial black” consumers in the 2002-2012 dataset and then merged with the 1997-2001 dataset (as it captured black only and multi-racial black in the same variable). The two regions did have different trends in the changing racial composition of Hispanics receiving VR services, as the Southeast decreased and the Southwest increased in racial diversity. However, as percentages of overall Hispanic population, the difference remained significant in the percentage of black Hispanic consumers in the Southeast in 2013 (14%) compared to the Southwest (1.6%).
Quite a bit has appeared in the immigration literature about the “racializing of brown” in the Southeast and the region’s history of discrimination against blacks (Lippard & Gallagher, 2011) as well as the tension between Hispanics and blacks in the Southeast (Marrow, 2008). Weise (2012) argued though that Hispanics coming to the Southeast saw an opportunity in social mobility because of that historical dynamic as Hispanics were deemed “white” in the larger social context of the South whereas in the Southwest, “Mexican” was the historically oppressed minority with a social experience similar to Southeastern blacks. The social mobility allowed by “whiteness” in the Southeast was as much a push factor for Hispanics out of the traditional settlement region as economic opportunity was a pull (Weise, 2012). However, only in the South did Latinos, mostly Mexicans, join majority black rural labor forces, where the Hispanic population in the Southeast has over 100 years of labor history (Weise, 2012). Records indicate that Mexican labor immigrants of post-Depression married black women and boarded with black families (Weise, 2008). These historical migration roots that are not as well researched or seen in the immigration or vocational rehabilitation literature may what is reflected in the racial diversity of Hispanic consumers in the Southeast.

Wilson and Senices (2005) found that Hispanic consumers who identified as black Hispanic were less likely to be determined eligible for services and many of the racial disparities studies on access use data from Southeastern states (Corey et al, 2005; Geisen et al, 2004; Feist-Price, 1995). However, there is not any research on outcomes for black Hispanics in general, or specifically between the two regions. Considering new interest in the effects of colorism (Wilson, 2008) for Hispanics in the VR literature and the historical place of race in the South (Weise, 2012), it may be an area for future
research that could yield more insight into the disparities experienced within the VR system for racial and ethnic minorities.

**Referral source at application.** Overall, most referrals came from the category of “other sources” which included anything that was not one of the other specified categories, followed by self-referral, and then medical personnel and institutions. While a chi-square test for independence identified the differences between the regions as significant, the effect size was small (Cramer’s V=.06), the bigger difference between the difference in referral sources could be seen in the changes between 1997 and 2013. Both regions had an increase in consumers self-referring, though in the Southeast it was at a more rapid rate. Both regions experienced a decrease in referrals from medical personnel and institutions. In addition, both regions had significant upward trends in referrals from K-12 institutions. When divided by age, a significant increase in the proportion of 18 and 19 year olds referred by K-12 institutions existed, but the increase was much sharper in the Southeast.

The substantial increase in 18 and 19 year olds being referred by the school system (presumably public school system) could also reflect the “settling” out process of labor immigrants staying and having children, who then became part of the school system (Stamper, 2009), as the general age and gender trends support (Frey, 2005; Hernández-León & Zuñiga, 2000; Kandel & Cromartie, 2004; Weise, 2008).

The age trend shows a sharp increase in 18 and 19 year olds in the VR system in the later years of the study. Most of these consumers would have been born at the latest in 1998. The increase of Hispanics in the Southeast was peaking between 1995 and 2000 (Frey, 2005; Kandel & Cromartie, 2004; Massey & Capoferro, 2008). These findings
also have important implications for the impact of changes in IDEA and No Child Left Behind, as well as the amendments to the Vocational Rehabilitation Act under the Work Force Innovation and Opportunity Act (WIOA) of 2014. These findings suggest that Hispanic youth with disabilities in both regions are being connected with vocational rehabilitation services (presumably for transition to career or college), as are the intents of those policy changes.

Disability. Both regions had the majority of consumers identified as having a significant disability (approximately 76%). The distribution of types of impairments changed in both regions with some variations in trends. The traditional region saw a decrease in physical impairments and an increase in sensory and communicative impairments at faster rates than the Southeast. Consumers with orthopedic disabilities declined as well in both regions over the 17 year period.

Almost half (47.5%, n=222,918) of all Hispanic consumers in the study had mental or cognitive impairments. More consumers had mental or cognitive impairments or no impairments in the Southeast (53.2%) than the traditional region (47.7%) but the effect size was negligible (Cramer’s V=.08), suggesting little practical application of this finding. Comparison of trends between the two regions of VR consumers with mental and cognitive impairments indicated there was not a difference, that across all states the rate of consumers with mental and cognitive impairments was increasing.

The most prevalent combination of impairment and cause was orthopedic impairment due to injury, but this was mathematically due to the distribution of cases, with 94% of them occurring in Southwest. When combinations of impairments and causes of impairments were analyzed, there were significant differences in distributions
and trend, though again, the effect size was small (Cramer’s V=.10). Orthopedic impairments from injuries (not TBI or SCI) were more prevalent in the traditional region, but cognitive impairments due to neurotic disorders were the highest (11.9%) in the new region. The rates of consumers with cognitive or mental impairments from alcohol abuse or dependence were slightly higher in the Southeast (8.5%) than the Southwest (6.2%).

Analysis of selected combinations of impairments and causes indicated significant trends between the regions as well. While both regions had a significant increase in the proportion of consumers who had mental or cognitive impairments due to neurotic disorders, the new region experienced a faster rate of increase. Trends in mental and cognitive impairments due to intellectual disability differed significantly between the two regions, with the new region seeing an increase at a faster rate than the traditional region.

The findings regarding the overall growth of mental and cognitive impairments garner particular attention as consumers with these types of impairments are generally found to be less likely to close with successful closures (Chan et al., 2011; Dutta et al., 2008; Hayward & Schmidt-Davis, 2003a) and vocational rehabilitation relies on community resources for providing services like mental health care (which would fall under diagnosis and treatment services) (Hayward & Schmidt-Davis, 2003b). As discussed previously, communities in the Southeast have struggled to respond to the social, economic, and housing needs (Singer, 2004; Stamps, 2006) of quickly growing Hispanic communities. The overall lack of bicultural and bilingual mental health care providers in new destinations (Andrade & Viruell-Fuentes, 2011) create specific challenges to building the infrastructure to provide the restorative services that can help Hispanic VR consumers obtain or retain employment. Another consideration of this
finding is variations in beliefs about disability in general and mental impairments specifically (Andrade & Viruell-Fuentes, 2011). Many of the assessment tools lack cultural congruence and as well as the personnel trained to appropriately assess mental and cognitive impairments (Andrade & Viruell-Fuentes, 2011). As mood disorders have become one of the most prevalent mental health concerns, the growing number of Hispanics diagnosed and receiving treatment will be a concern for VR into the future, regardless of the historical or cultural presence of Hispanic populations.

**Education, employment and wages at application.** Human capital theory indicates that a person’s educational attainment and employment skills and history predict economic opportunity in the labor market (Beck, 1964; Dulude, 2011). VR literature supports this same premise, as a number of studies have identified education, employment status, and wages as important predictors for rehabilitation outcomes (Dulude, 2011; Dutta, 2008; Feist, 2014; Hayward & Schmidt-Davis, 2003a).

Overall, Hispanics in the Southeast were more likely to have a higher level of education, to be working, and to earn more in weekly earnings and hourly wages, though some of the differences are slight. As a whole, but at different rates, educational levels were increasing, as evidenced by the rapid decline of consumers whose education level was less than 8th grade and the increase in consumers with some college or Bachelor’s degree or higher. These trends match national trends in education for Hispanics (Fry & Taylor, 2010). Considering the trends for age and referral status with changes to national disability, education and workforce policies (e.g., IDEA, No Child Left Behind, Work Force Innovation and Opportunity Act), it was not surprising to see that the Southeast had a faster increase in the proportion of 18 and 19 year olds who had high school experience
but did not have a diploma or GED. A significant trend existed for 18 and 19 year olds who reported unemployment due to educational status. This rise is further support that changes in educational and workforce development policies have had the intended impact, at least for Hispanics with disabilities in the two regions studied.

The education, employment, and wage findings reflect some of the earlier immigration literature that concluded the young men who were coming to the Southeast had greater human capital (Massey, 1997) and earned a higher wage in the Southeast as a result (Crowley, Lichter & Qian, 2005). These findings are in contradiction to the research that concluded immigrants to the Southeast had less human capital (Atiles & Bohon, 2002; Kohhar, 2005). Another factor is many earlier immigrants came to the Southeast for labor opportunities in manufacturing and other industries that paid more (Crowley, Lichter, & Turner, 2015; Parrado & Kandel, 2011). As immigrant communities stabilized in the Southeast, more people moved out of small manufacturing and meat processing into other low pay/low skill sectors (like retail and service industries) and are now not faring as well as in the mid to late 1990s (Crowley, Lichter, & Turner, 2015).

Again, the patterns of change in personal characteristics of Hispanic VR consumers in the Southeast reflect the larger patters of immigration “settling out.”

Trends in Access (Application and Eligibility)

This study examined two aspects of access, application and eligibility. The specific questions examined were:

- Do trends exist in the rates of Hispanics applying for vocational rehabilitation services in new immigration destinations of the Southeast compared to traditional immigration destinations of the Southwest from 2002 to 2012?
Do trends exist in the rates of eligibility for vocational rehabilitation services for Hispanics in new immigration destinations of the Southeast compared to traditional immigration destinations of the Southwest from 1997-2012?

Findings indicate that Hispanics had mostly similar trends in the two regions with the variation being in rates of change and not direction. Both regions experienced substantial growth of Hispanics of all ages and Hispanics between the ages of 18 and 64, though it was a faster rate of increase in the Southwest. With the proximity of the Mexican border and the nature of multi-generation transnational families on each side of the border (Falicov, 2007; Furuseth & Smith, 2006) more Hispanics immigrating to the area is not surprising. However, the interpretation of the data in this study is counter-intuitive, considering the considerable attention given in the media and in academia to the “exponential growth” of Hispanics in the Southeast (Weise, 2012). Some scholars have argued that the exponential growth is relative and the interest is because of the “newness” of the population (Weise, 2009; Weise, 2012) and that the Southwest remains the cultural center of Hispanic people from Mexico (Massey & Capoffero, 2008). However small the actual numbers in comparison of the Southeast to the Southwest, the impact of exponential growth in the communities of the Southeast continues to evolve.

Results raise concerns about the overall knowledge of VR in the Hispanic community, though trends in self-referrals suggest Hispanics are becoming familiar with VR and its services. Knowledge of VR has been identified as an important predictor of use of services for Hispanic men in a couple of studies (Datti et al., 2013). An overall upward trend occurred for Hispanics with work related disabilities, based on data from the Current Population Survey in years 2002 to 2012. Comparing these data to the
Hispanic VR population indicated there was a significant downward trend in application rates overall from 1997 to 2013. The results cannot be compared to the few existing studies that examine application rates to disability rates in the Hispanic population and can only be referenced in broad generalities and suggestions for future research. Corey, Giesen & Cavenaugh (2005) found that OVR was only doing an “okay” job in application for services for consumers with sensory impairments and less than okay in mental and cognitive and other types. In terms of eligibility, the same can be said of this study, as sensory impairment had the sharpest increase in eligibility while other impairment types remained stable. Age only had some influence in the type of impairments determined eligible for services, as can be seen by the lack of trends when analyzed by age groups or the result that differences in rates of changes did not exist in impairments with the exception of sensory impairments.

Eligibility rates in the two regions were similar, 78.6% in the new region, 79.3% in the traditional region. A chi-square test for independence found the difference significant, but the effect size was so small there is not practical significance (Cramer’s V=.004). Both regions experienced an increase in the rates of eligibility, with the Southeast having a much sharper increase. This finding, coupled with the sharp decline in consumers were identified as having “no impairment,” may suggest in the broadest sense an increase in the ability to use community resources for the vocational and medical and mental health assessments to determine eligibility in the Southeast in later years. In an evaluation of the impact of a total of 11 years of a VR outreach program to Hispanic migrant and seasonal farmworkers in Kentucky, counselors, administrative staff and outreach staff identified lack of access to medical records and bilingual medical facilities
as the number one barrier to determining eligibility for Hispanic consumers and how that had improved over the course of the two grants (Cinnamond, 2012).

**Trends in Services and Rehabilitation Outcomes**

This section combines the service and outcomes aspects of the VR process. The questions this study investigated regarding services and rehabilitation outcomes for Hispanics were:

- *Do trends exist in vocational rehabilitation services for Hispanics determined eligible in new immigration destinations of the Southeast compared to traditional immigration destinations of the Southwest from 1997 to 2013?*
  - *Do trends exist in human capital building services (restoration services, adjustment training, miscellaneous training, college and university training, and vocational training)?*
  - *Do trends exist in social capital building services (job search, job placement)?*

- *Do trends exist in rehabilitation and employment outcomes for Hispanics who receive vocational rehabilitation services in new immigration destinations of the Southeast compared to traditional immigration destinations of the Southwest from 1997 to 2013?*

There were a number of significant findings in the provision of services to Hispanic consumers with the most salient being that 1) despite consumers receiving services more frequently in the Southwest, consumers in the Southeast exited as rehabilitated and employed more often and 2) differences existed in the provision and outcomes based on
receipt of human capital or social capital services, though service provision and rates of rehabilitation/employment were going down overall.

A conceptual assumption of the study was that the historical and cultural presence of Hispanics in the Southwest would mean an infrastructure of services existed that were not available in new destinations and there was a lack of bilingual, bicultural staff in the new destinations as part of that infrastructure (Furuseth & Smith, 2011; Singer, 2004; Zerden, Taboada, & Hinson, 2013). Overall, more services were provided in the Southwest, but the Southeast had higher rates of rehabilitation and employment outcomes (see Figure 5.1).

The findings on assessment services, which are typically medical and vocational in nature to determine eligibility, support the quantity of resources available for such services in the Southwest. This finding is contradictory to the finding on eligibility. Assessment services went down in the new region, but eligibility rates went up. In addition, the disability category “no impairment” in eligible consumers dropped, too. Together, these trends suggest a better job of determining the need for services (i.e., a disability that impedes work that requires VR services). The difference in service provision overall and rehabilitation and employment outcomes between the two regions also suggests a difference of quality over quantity that the data in this study cannot explain. Even though rehabilitation rates went down overall, the Southeast experienced higher rates of rehabilitation. Employment outcomes, while higher in the Southeast, remained flat compared to the rate of decline in rehabilitation rates.

Case studies suggest that communities in new destinations, despite ongoing logistical and political struggles, have made concerted efforts to build infrastructure for
Hispanic immigrants (Zerden, Taboada, & Hinson, 2013) while others report that responses, particularly from the health sector, were ambivalent at best (Dunn, Aragonés & Shivers, 2005). Lower rates of service provision in the new region may be influenced by characteristics of Hispanic consumers in the Southeast as much as by larger economic variables. Hispanics in the Southeast are more likely to be foreign born and undocumented (Frey, 2005) or from mixed immigration families (Zerden, Taboada, & Hinson, 2013), and employment opportunities for Hispanics have remained better for Hispanics in the Southeast compared to the Southwest overall. In addition, findings suggest Hispanics enter the VR system in the Southeast possessing greater human capital (education, employment and earnings) than in the Southwest.

In this study, Hispanics in both regions exited rehabilitated and with employment outcomes more frequently if they received social capital building services, even though a downward trend in the provision of these types of services persisted across both regions, and consumers received these services less than human capital building services (see Figures 5.2 and 5.3). The data show a reliance on the provision of human capital services, which, in turn, emphasize individual knowledge skills and abilities (Dulude, 2012). The VR literature has shown human capital building skills services (e.g., restorative services, education, vocational training) to not be as effective as social capital building services (i.e., job placement) in consumers exiting successfully (Bolton et al., 2000; De Silva et al., 2005; Dutta et al., 2008; Feist, 2011; Ramero-Ramirez, 2009). Since the VR system operates from an economic model of disability (Smart, 2004), placing on emphasis on services with a greater return on investment, like social capital building skills, could maximize effectiveness of the VR system and well as have greater human capital
building impact for the consumer as job skills and wages are built with each successive period of employment (Beck, 2008).

**Synthesis and Implications**

The demography of the Southeast is changing and the changes in the VR consumers reflect this change, at least for Hispanic consumers. Findings in this study show low and decreasing application rates for Hispanics with disabilities with increasing eligibility rates, which creates a contradictory picture of access across both regions. Implications of the steep rise in Hispanic consumers with mental and cognitive impairments have long-term policy impact, as this is an area of health and health disparities research where scientists and practitioners struggle (Andrude & Viruell-Fuentes, 2011). The Southwest provided more services to consumers, but the Southeast, evidence suggests, has a better quality of outcomes in terms of rates of consumers exiting rehabilitated and working in an integrated setting making at least minimum wage. Regional variations in the self-selection process of immigration and the labor market economy may play a role in this dynamic (Crowley et al., 2006), just as much as the challenges of the VR system in a time of more emphasis placed on devolution of services and individual responsibility in social welfare policy.

The growing number of young Hispanic consumers, particularly in the Southeast, will require considerable attention in the next decade as the overall changing demography of the U.S. makes the Hispanic workforce vital to the U.S.’s economic and social well-being (Massey & Capoferro, 2008), particularly in light of new evidence that Hispanics in new destinations have lost the economic benefits of the early immigration years in the 1990s (Lichter et al., 2015). In addition, evidence from this study suggests that changes in
education policy that connect students with disabilities to vocational rehabilitation services have had the intended results, at least in rates of application and eligibility. What happens once within the VR system does not appear to be impacted, but those changes are really about the larger effectiveness for Hispanic consumers in VR overall. The downward trends in services provided and successful outcomes could be a reflection of larger national trends.

**Future Research**

The aim of this exploratory study was to describe the trends in vocational rehabilitation experiences and outcomes for Hispanic consumers through comparing two geographical regions with differing historical and cultural patterns. This study did not attempt to examine disparities for minorities within the VR system across access, services or outcomes. The next step in better understanding VR trends for Hispanics would be to examine these same questions across non-Hispanic and racial identities. The differences in oppression and racial discrimination histories between the Southwest and Southwest (De León & del Castillo, 2012; Lippard & Gallagher, 2011; Weise, 2012) and the racial diversity of the Southeast in the Hispanic VR population may provide new directions for minority disparities like implications of phenotype or colorism (Wilson, 2008; Wilson, 2010).

Additional research to analyze who is providing the various services to Hispanic consumers in the two regions may garner greater insight to the question of “quality versus quantity” raised by this study. Social, economic and educational institutions of the new immigrant destinations have had to respond to the “immigration crisis” (Dunn et al., 2005; Stamper, 2009; Zerden et al., 2013) in a relatively short period of time.
community partners are providing services in different immigration destinations types and how quickly they change (or don’t change) have implications for other immigrant groups that may grow quickly as even a description of those trends can provide insights for program changes.

A more complex and comparative analysis of the receipt on human capital and social capital services for Hispanics is suggested by study results, as well. For example, this study identified that Hispanics in the Southeast possess greater levels of human capital at application, so how do these factors combine with services to predict the best outcomes within the larger context of differing regional racial histories? Can the larger macro variables like unemployment rates, local industries and state vocational rehabilitation budgets help us maximize quality employment outcomes?

Limitations. Limitations to this study are not unique to secondary data analysis in general or using RSA-911 data specifically. Methodologically, using RSA data has the challenges of errors in data input, interpretation, and the data being collected with a purpose other than the intended research (Bruyère & Houtenville, 2006). This study also had limitations in ability to merge certain variables like race and earnings at application because of differences in variable definitions for those subdatasets. An additional imitation for this study was the substantial merging and transformation of variables as important distinctions may be lost in this process (Montcalm & Royse, 2001). The application of years conceptually and statistically in this study is an important consideration of generalizability of results due to the potential for lack of independence between years (Rosenberg, 1997). Denominators for the trends in applications of Hispanics with disabilities within the two regions also have methodological limitations in
that these numbers are the aggregate of the region, and in the Southeast there were years without an adequate sample size for estimations at the state level.

This study has several additional limitations with regard to interpretation and generalization of findings. These potential limitations include issues with the fact the study did not capture whether or not a person was verified as legally able to work in the U.S. A person does not need to have any kind of immigration documents to participate in the Current Population Survey even if she or she has to be able to legally work in the U.S. to receive services from VR. Some state agencies have adopted verification policies at application, while others do not verify consumer’s ability to legally work in the U.S., but rely on employers to verify documents and simply ask the consumer for identification and if they can work. Ability to legally work in the U.S. has implications for all aspects of the VR process.

There are several considerations regarding the use of a pan-Hispanic identification in this study as the RSA database did not capture nativity or nation of origin if an immigrant. Hispanic is a generic term that includes a wide variation in cultures and places of origin that impact sociodemographic and immigration experiences (Falicov, 2007). There is also the consideration that a number of consumer level variables were not assessed, such as consumer’s level of acculturation, disability acceptance, English proficiency, need for an interpreter, and years in the U.S. Previous research suggests these factors all have implications in the access, service patterns and employment outcomes for Hispanics with disabilities. These potential limitations are all important areas of future research to better understand how Hispanics fare in the VR system, as well
to improve the general economic and social well-being of Hispanics with disabilities in the U.S.

**Implications of methodology on future research.** This study is unique in that it merged 17 years of vocational rehabilitation data to explore overarching access, service and outcome trends for Hispanics in two distinct geographical regions. Using a methodology similar to the one in this study has the potential to answer how well changes in policies and practices are addressing disparities for minorities within the VR system and employment for people with disabilities in general. The same methodology can be used to examine the questions identified above for trends in comparative and predictive research that is the focus of most of vocational rehabilitation scholarship. Understanding past trends allows for greater accuracy in predicting future trends, which could even further maximize policies and practices to improve the economic and social well-being of people with disabilities in general, and minorities specifically.

The methodology of this study, by reconciling the 17 years of data across 12 RSA-911 codebooks, offers a unique opportunity to explore the performance of VR services and its impact on the lives of people it serves. A number of variables were difficult to transform and a few that would be helpful to better explore personal characteristics, agency and macro variable were simply not available. For example, if RSA-911 captured nation of origin, English proficiency, and years in the U.S., as well as work history by occupation or job title, additional research on specific immigration groups could be explored.

To really examine the impact of community services available, it would be helpful for future iterations of RSA-911 to include a combination of the 1997-2001 and
2002-2013 datasets way of capturing who provided services. In the 1997-2001 dataset the emphasis is on what type of community agency provided the service, while in the newer dataset the “what agency” is connected to budget considerations. As this study is predicated on the assumptions bilingual, bicultural services within the community were not available for growing Hispanic populations in the Southeast and that social services in the region had to quickly evolve with the changing demographic, a great deal of insight into social service evolution for immigrant groups could be explored. A similar statement could be made for the element for referral services, as reciprocal relationships or needs for new collaboration could be identified potentially with such analysis.
Figure 5.1
Comparison of Trends in Proportions of Eligible Consumers that Receive Any Service and Overall VR Outcomes Both Regions 1997-2013 (Fiscal Years)
Figure 5.2
Comparison of Trends of Rates of Receipt of Human and Social Capital Building Services and VR Outcomes New Region
### Appendix A

RSA-911 Reconciliation of Policy Directives & Codebooks

<table>
<thead>
<tr>
<th>Policy Directive #</th>
<th>Date of Policy Directive</th>
<th>Fiscal Years Covered</th>
<th>Begin Effective Date</th>
<th>End effective date</th>
<th>Changes</th>
<th>Other Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>PD-95-04</td>
<td>05/01/95</td>
<td>1995; assume 1996</td>
<td>09/30/95</td>
<td></td>
<td>Substantial changes</td>
<td>This policy directive replaces: RSA-IM-86-33; PPD-88-10; PD-91-10; PD-93-02. Do not have codebook/manual part of policy directive, but is the same as 1997 and 1999.</td>
</tr>
<tr>
<td>PD-97-02</td>
<td>03/12/97</td>
<td>1997; assume 1998</td>
<td>09/30/97</td>
<td></td>
<td>No</td>
<td>Same as PD-95-04. Option to submit on a diskette, but magnetic tapes still allowed.</td>
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<tr>
<td>PD-99-09</td>
<td>09/09/99</td>
<td>1999; 2000</td>
<td>10/01/00</td>
<td>09/30/01</td>
<td>No</td>
<td>Same as PD-95-04. State agencies had to submit data via diskette; magnetic tapes no longer allowed.</td>
</tr>
<tr>
<td>PD-00-06</td>
<td>03/16/00</td>
<td>2002</td>
<td>10/01/01</td>
<td>02/28/03</td>
<td>Substantial changes; when disability codes changed</td>
<td>Replaces PD-95-04. Implementation of changes delayed by PD-00-07 until 2002 due to time needed for agencies to make adjustments.</td>
</tr>
<tr>
<td>PD-00-07</td>
<td>04/17/00</td>
<td>2002</td>
<td>10/01/01</td>
<td>02/28/03</td>
<td>No</td>
<td>Amends PD-00-06 to allow for FY 2002 to be effective date for revisions to RSA-911 at state level.</td>
</tr>
<tr>
<td>Policy Directive #</td>
<td>Date of Policy Directive</td>
<td>Fiscal Years Covered</td>
<td>Begin Effective Date</td>
<td>End effective date</td>
<td>Changes</td>
<td>Other Information</td>
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<tr>
<td>TAC-01-03</td>
<td>08/30/01</td>
<td>2002</td>
<td>10/01/01</td>
<td>not specified</td>
<td>Clarifications to PD-00-06. amendment/technical assistance to PD-00-06 for clarifications in instructions and coding</td>
<td></td>
</tr>
<tr>
<td>PD-03-07</td>
<td>09/25/03</td>
<td>2003</td>
<td>09/25/03</td>
<td>05/31/04</td>
<td>Clarifications and one code for one element</td>
<td>same as PD-00-06; TAC 01-03</td>
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<tr>
<td>PD-04-04</td>
<td>09/30/04</td>
<td>2004</td>
<td>09/30/04</td>
<td>09/30/05</td>
<td>Clarifications on coding and instructions</td>
<td>same as PD-00-06; TAC 01-03</td>
</tr>
<tr>
<td>PD-06-01</td>
<td>10/24/05</td>
<td>2005; 2006; 2007; 2008</td>
<td>10/24/05</td>
<td>10/31/08</td>
<td>Occupation Codes changed from Dictionary of Occupational Title (DOT) codes to Standard Occupational Classification codes (SOC) for FY 2007</td>
<td>same as PD-00-06; TAC 01-03</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Data elements and record placement same for 2005-2008. Change is only to coding of occupations at closure.</td>
<td></td>
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<tr>
<td>PD-07-01</td>
<td>10/06/06</td>
<td>2007; 2008</td>
<td>10/06/06</td>
<td>10/31/08</td>
<td>Reminder of change in occupation codes with updated codebook that has new codes</td>
<td></td>
</tr>
<tr>
<td>Policy Directive #</td>
<td>Date of Policy Directive</td>
<td>Fiscal Years Covered</td>
<td>Begin Effective Date</td>
<td>End effective date</td>
<td>Changes</td>
<td>Other related Policy Directives/RSA-911 manuals</td>
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<tr>
<td>PD-09-01</td>
<td>12/09/08</td>
<td>2009; 2010; 2011</td>
<td>12/09/08</td>
<td>10/31/11</td>
<td>No</td>
<td>states same as PD-07-01; with the exception of occupation codes, database is still in format outlined first in PD-00-06</td>
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<tr>
<td>PD-12-05</td>
<td>02/08/12</td>
<td>2012; 2013; 2014</td>
<td>02/08/12</td>
<td>11/30/13</td>
<td>No</td>
<td>States same as PD-09-01, which is same as PD-07-01, which is the same as PD-00-06 with exception of occupation coding and clarifications in instruction.</td>
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</table>
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2006-2009  Kentucky Business Leadership Network, KY Office of Vocational Rehabilitation ($180,000)

2000-2001  Kentucky Court Appointed Special Advocate, National Court Appointed Special Advocate Inc., ($160,000)

Technical Reports
2013  Cinnamond, K. Kentucky farmworkers with Disabilities Employment Partnership: Final Report Frankfort, KY: Kentucky Office of Vocational Rehabilitation


2006  Kentucky farmworkers Rehabilitation Project: Final Report. Frankfort, KY: Kentucky Office of Vocational Rehabilitation

Peer Reviewed National and Regional Conferences

2011  Marketing for Job Placement. Association for People Supporting EmploymentFirst Annual Conference, Concurrent Workshop, Louisville, Kentucky

2010  Vocational Rehabilitation Services for Hispanic Consumers: Special Considerations. Kentucky Job Placement Conference, Lexington, Kentucky

2010  Overcoming Specific Challenges to Service Delivery Within Hispanic-American Communities, American Evaluation Association Annual Conference, San Antonio, Texas

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  - SW 222: Development of Social Welfare History
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    (Spring 2013; Fall 2013; Spring 2014; Fall 2014; Spring 2015; Fall 2015)
  - SW 650: Research I
    (Fall 2010)