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Editor's Note

A Note On Terminology

In establishing the *Harvard Journal of Hispanic Policy* (HJHP) at the John F. Kennedy School of Government at Harvard University in 1985, our founding editors were cognizant of the importance of terminology and naming. They sought to form a credible publication that would bring the US Latina/o community to the forefront of policy debates, and that would name new priorities, challenges, and opportunities for policy-makers to consider.

Naming the journal itself proved to be an important endeavor. For decades, the terms used to define US Latina/os fluctuated greatly, creating much dissonance within the policy discourse. Ethnic origin (e.g., “Mexican”) and regional labels (e.g., “Central American”) were not inclusive enough to capture HJHP’s mission as a publication. Similarly, emerging pan-ethnic constructs (e.g., “Latin American”) implied homogeneity where incredible diversity and fluidity exists. Even with these limitations, our founding editors knew that a common language was needed to bridge conversations across disciplines.

Our founding editors thus reached consensus around “Hispanic,” a term that reflected national trends at the time. The term’s adoption by the federal government reflected the growing prominence of US Latina/os in domestic policy. In 1968, President Johnson announced the observation of Hispanic Heritage Week, an important step in recognizing the population’s presence and history. In 1976, Congress passed legislation requiring the federal government to collect and analyze data on “Americans of Spanish origin or descent” in order to understand how this subgroup was impacted by federal policies and programs. The following year, the Office of Management and Budget developed standards for this data collection, hoping to create coherence across educational, health, and human service agencies. Finally, and perhaps most significantly, the US Census Bureau added a Hispanic question in 1980 in an effort to obtain more accurate population estimates with which to inform national policy-making.

Since the journal’s founding in 1985, the lexicon has only continued to evolve. In 2000, the US Census Bureau introduced survey language that used “Hispanic” and “Latino” interchangeably. Similarly, many national advocacy, leadership, research, and civic organizations continue to use “Hispanic” in their name, while adapting their communications to be inclusive of the term “Latino.” Today, we too have adapted. Standing at the eve of our 30th anniversary, we are proud to carry our name and legacy with us while remaining forward-looking. For this reason, we have begun to intentionally use “Latina/o” and the plural term “communities” within our publication, social media sites, and website.

Our Editorial Board remains committed to inclusivity and will continue to publish works from individuals and organizations who may use different terms. It is our firm belief that, in the difficult work of naming the policy needs of our community, no singular term may ever be comprehensive enough for the complexity at hand.

An Open Letter from Undocumented Immigrants: Why Comprehensive Immigration Reform Still Matters to All of Us

Stephen Balkaran

While on a recent trip to the Ellis Island museum, I had an opportunity to reflect on the 12 million immigrants that shaped and continue to define this great nation we call America. I am always disappointed when critics pose the dueling question: Why do we need comprehensive immigration reform? Seldom do I argue with such critics, but given the interrelatedness of immigration and our nation, I feel compelled to inform everyone of our sad history with regard to the treatment of immigrants. The national dilemma of securing our borders has been one of our fundamental policies during the last twenty years, not only for national security interest and the war on terror, but also in reducing the inflow of immigrants whom we often deem “*illegals*” or “*undocumented*.” The conclusion of the forty-fourth, and

the commencement of the forty-fifth, presidency have again left a nation of immigrants scrambling to come to terms with comprehensive immigration reform and its ramifications. The American values and rich tradition in welcoming immigrants has been tested as our democracy now seeks to reach common ground on this ever important, but controversial, public policy. Yet, this debate has taken away our best and the ambivalence of what we can become as a society.

Comprehensive immigration reform has implications for America’s future that most of us cannot foresee—socially, culturally, and economically. The status of some twelve million undocumented immigrants, who have already shaped and defined a new American landscape, remains in limbo as our politicians try to reach

a compromise on how we address immigration reform. The question remains: How do we address this issue without accumulating backlash from human rights activists, American citizens, and politicians? And more so, can Congress pass legislation in a constitutional and humane manner? There has never been a time in our country's great history a debate on immigration has so greatly divided the nation as it has recently done, leaving us searching for an American identity as to whom we are and what we stand for as a nation of immigrants. This debate has left the United States divided along racial, ethnic, and political lines never before seen and has touched the conscious of a healing and battered nation. Not only has the debate gone beyond the boundaries of our socio-economic-political spectrum, but its lack of humanism has become pertinent and indicative of our reform immigration policy. The debate has become such a divisive issue that policymaking and our political process went hand in hand in the 2008, 2012, and 2016 presidential elections.

As history reminds us, undocumented immigrants have become the most convenient scapegoat for America's social problems, thus anti-immigrant rhetoric has become a norm throughout our political spectrum. The center of the immigration debate revolves around amnesty that

serves as a pathway to citizenship for the twelve million human beings, who are often referred to as "illegals" or "undocumented immigrants." Yet, despite this abrasive terminology, no human being is illegal. The issue of comprehensive immigration reform has become the focal point of all immigrants and Americans alike, but none more important than America's flourishing Hispanic population and their socio-economic-political importance. The "Browning of America" and the continued reshaping of America by Hispanics both continue to define who we are and enhance the best of what we can become as a nation of immigrants.

The comprehensive immigration reform debate goes far beyond the typical discussions on the loss of jobs, draining on our social system, criminals, etc. It has now vested in "building a wall." The economic, political, and social clout of current immigrants is far more beneficial than portrayed to the nation by our media, immigration critics, and politicians. Whatever the debates, our values, tradition of welcoming immigrants, and Americanism will be tested with how we approach and legislate the new comprehensive immigration reform laws. This complicated, but imperative public policy must be achieved by the new presidential administration for a number of reasons. It is imperative this legislation be passed in a humanistic, sensitive,

and compelling way that illustrates our American values of embracing diversity and inclusion of all. Embodied in this reform legislation, one must be cautious, compassionate, and not forget the watchwords of our immigrant history and our nation: “Give me your tired, your poor, your huddled masses yearning to breathe free.”

First and foremost, comprehensive immigration reform must be conducted in a humanistic way that champions human rights and diversity. As the leader of the democratic free world, history reminds us of our vast atrocities of human rights violations: slavery, the Trail of Tears, the Mexican Repatriation Act, and last, but definitely not least, Japanese internment. Can we conclude, then if American history doomed to repeat itself? If human rights becomes the center of the debates, how do we address families who have lived here undocumented for decades, and their children growing up in American communities, who have established friends, loyalty, and community relationships? This legislation must be done in a humanistic way that takes precedence over our recent abrasive political rhetoric emanating mostly from frustrated Americans. We must be cautious and vigilant on how we plan to address immigrants, America’s greatest resource; it must be done with an approach filled with love and compassion. The breaking up and

removal of families who have solidified their roots here is un-American, unconstitutional, and it is not what we stand for as a country that professes tolerance, diversity, and acceptance.

As we delve deep into the waters of American patriotism, the cultural backlash that takes credence is founded on the philosophy many undocumented immigrants are unpatriotic toward America’s culture and refuse to be American. Hence, one would question what is or is not American? Is there a threshold to gauge our Americanism? This debate has not only generated dialogue about the continued role Americanism plays in our society, but has also posed the question of whether undocumented immigrants are truly committed to the “land of the free and the home of the brave.” The issue should *not* be whether undocumented immigrants are loyal to America. That question was answered when undocumented men and women signed up and served in America’s military, fighting to protect and promote democracy throughout the world for a country that has remained uncommitted to them. It must be noted that some 38,000 military officials serving in both the Iraq and Afghanistan wars were not American citizens. In fact, history has forgotten that Lance. Cpl. Jose Gutierrez became one of the first casualties in Iraq. He illegally came to America and died serving

America's cause. Hence, the question is not if undocumented immigrants are loyal to America, but rather, can America live up to its rich tradition of welcoming immigrants in a fair and impartial way?

Secondly, the debate has turned to the economic impact of undocumented immigrants on American society. These economic arguments have been debunked by many economic pundits on the grounds that undocumented immigrants do not undercut wages, are not a drain on social services, and don't take jobs that would otherwise go to Americans. The majority of undocumented immigrants are unskilled and thus never pose any economic threat for skilled jobs secured by legal residents or American citizens. In fact, economists have stated that undocumented workers actually compliment the economy and it's the driving force behind our nation's economic growth and prosperity.

In an interesting report released by the Social Security Administration in 2013, Stephen Goss, chief actuary, claimed undocumented workers contribute about \$15 billion a year to social security through payroll taxes. On the flip side, Goss also commented these undocumented immigrants only receive about \$1 billion since many of them are not eligible to receive benefits into which they paid. What is more astonishing, Goss noted in an interview for the

New York Times that undocumented immigrants have contributed up to \$300 billion, or nearly 10 percent, of the \$2.7 trillion of the nation's social security trust fund. In other words, their economic contribution and benefits to society far outweigh many of the criticism undocumented immigrants face. The need to reach a humane solution on this immigration nightmare will ultimately benefit all Americans. Hence, there is a need to create a legal path to twelve million residents enabling them to come out of the shadows of despair in order to continue contributing to the American economic pie in a fair and just way that benefits all.

Last, and by no means least, the center of the argument is the breaking and outright disregard of American laws about undocumented immigrants—after all, we are a nation of laws. I do concur that our laws are to be respected, acknowledged, and obeyed by all. As American patriot, reverend, and civil rights activist Dr. Martin L. King Jr. noted, there are two types of laws: just laws and unjust laws. King further elaborated one has not only a legal, but also a moral responsibility to obey just laws, “but conversely, one has a moral responsibility to *disobey* unjust laws.” I must remind the American masses that slavery, racism, the removal of Native Americans from their land, and Jim Crow segregation in Amer-

ican society were all *legal*. King, his non-violence movement for civil rights, and the abolitionist movement in southern states were considered *illegal* in the eyes of the law.

Seldom do I ever pause and critique our legal process, but Americans openly voiced their disgust on undocumented immigrants' willingness to break our laws. Yet, we refuse to critique unjust laws and customs that haunt our national history. It becomes paradoxical in our society when many of our laws that have perpetuated our ignorance and hatred toward others are obeyed and respected throughout our history. When we openly advocate obeying and disobeying laws in place to maintain law, order, and stability, but fail to question the validity of those laws, we ultimately become immune to the hatred we create.

As long as we have double standards in our society, and as long as President Donald J. Trump and other billionaires insist they avoid paying taxes by legally exploiting tax loopholes, our legal integrity and our laws must be examined. As long as

there is criticism on undocumented immigrants for not paying their fair share of taxes, while Americans remain silent as our president and other billionaires fail to pay federal taxes, we have the right to question the integrity of our laws.

America is only as great as the doors and opportunities we open to others. Comprehensive immigration reform matters because America matters. Our nation's trajectory is at stake. Immigration and America go hand in hand and without each other, there can be no true immigrant nation. Success in America is not determined by our ethnic background or our native language, but rather, our commitment and dedication that is so much part of our past and present immigrants. American history will remind us oppression takes away the best of who we are and what we can become as a nation. America's passion of including all that choose to come here is the cornerstone of our history, democracy, and constitutionalism. Without this inclusiveness of all ethnic groups, the American Dream would not be possible.

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Inclusive Innovation: Latino Entrepreneurs Hold the Key to America's Economic Future

Alejandra Castillo

America is at an interesting inflection point. We are witnessing the convergence of three tectonic plates that are redefining our nation's economic and business landscape.

The first is the changing demographics of America. According to the US Census Bureau, by 2044 minority populations, driven in large part by Latinos, will be the majority cohort of the US population.

Second, we are seeing rapid changes to industries caused by innovation and technology, followed by automation. And third, the forces of globalization continue to accelerate the almost unfettered flow of capital, talent, and products. As these tectonic shifts dramatically disrupt industries of yesteryear, reshape major public and private systems, and redefine modes of production and its workforce, while in turn generating billions of

dollars in revenue, unanswered is the question of the economic fate of minority communities, especially Latinos in an innovation-driven economy.

Along with Blacks, Latinos over index in terms of early adoption of technology, but are seldom at the center of driving innovation or owning high-growth science, technology, engineering, and mathematics (STEM)-based companies. Even when we consider employment in these industries, Latinos significantly lag in their participation of the STEM workforce, and are virtually invisible in terms of ownership of leading-edge STEM-related companies.

For example, in California's Silicon Valley, where Latinos are 26 percent of residents in San Mateo and Santa Clara counties—the core of the tech industry—they comprise barely 3 percent of all workers in the booming sector,

let alone make a mark on the entrepreneurial radar screen. This example illustrates the gap between the cohort of the population creating the future businesses in STEM industries and those who comprise the workforce in STEM industries.

Undoubtedly, this entrepreneurship/workforce gap has implications far beyond consumer purchases of the latest tech or digital devices, and hits straight at the core of the twenty-first century innovation-driven economy. If we are concerned with the current state of income and wealth inequality in the US economy, then this calls for our attention. How do we bridge the gap between the next generation of entrepreneurs driving job and wealth creations in STEM industries and the growing Latino population?

As the technology industry continues to generate record-breaking profits, the absence of inclusion and the creation of wealth and jobs only serves to widen the gap. Hence, in order to ensure the US economy isn't further driven by income and wealth inequality as the twenty-first century marches on, we must focus our attention on this entrepreneurship/workforce gap.

A host of economic realities, now and in terms of what today's business environment portends for the future, drives an urgent need for deep changes in policy affecting business, access to capital, technical assistance, and capacity-building in support of minority

entrepreneurs. Given the low participation of Latinos in key technology hubs across the country, I am convinced of the need to build requisite innovation eco-systems in education, and within the business environment that supports full inclusion of America's rising, new majority populations, if we are to remain a globally competitive and economically sustainable nation.

During my tenure at the US Department of Commerce, I designed programs and initiatives to support minority entrepreneurs. I've had a front-row seat on the triple paradigm shifts, the swift technological evolution, the growing ethnic minority populations, and the globalization movement. Overall, I have been immersed in the flow of data that continues to provide the tell-tale signs beginning to sound the alarm that if Latinos and minority populations remain locked out from the pathways toward ownership of STEM-based enterprises, we may soon also be left out from the largest wealth creation wave our nation has ever witnessed.

Fortunately, however, Latinos possess the right ingredients of entrepreneurial spirit, ingenuity, and understanding of global trade to play an excellent role in the technology ecosystem. I also have been exposed to the synergistic opportunities that can emanate from the collaboration and partnership between government, universities, and businesses: they do exist, and it is imperative policymakers, business

leaders, educators, and elected officials prioritize efforts to bring forward these opportunities for Latinos and other minority populations. There is growing evidence that these colliding shifts must be addressed, especially as we see the widening economic and income gaps. I have a sense of urgency on this topic. The big challenge is beginning to sound the alarm in order to build wider consensus that will create the necessary changes to ensure conditions, resources, and opportunities are available in a timely manner to stimulate STEM entrepreneurship among Latinos.

Technology is Driving Industrial Change at the Speed of Light: Can We Afford to Leave Latino Innovators Behind?

It is important to unpack and appreciate how these parallel developments are playing out, and assess what they imply for the future of America's economic competitiveness, both in general and for Latinos.

To start, let's examine how the rapid changes in technology interact with and affect the nation's overall economic competitiveness. Next, I'll show why inclusion, diversity, and a thorough integration of minority entrepreneurs into the innovation ecosystem is inextricably linked to America's global competitiveness and national economic security. I will make the case for why fresh thinking and a commitment to action is required

from public- and private-sector actors in the United States.

Under President Obama's administration, the US was the 2016 partner country at the world's largest industrial and technology trade fair, Hannover-Messe. Traveling as part of the official US government representatives, I watched disparate pieces of a vast, powerful technological framework taking shape — the Internet of Things (IoT).

A combination of data, industry sector, and governmental collaboration, Hannover-Messe showcased a small window into some of the most innovative technologies shaping industry 4.0. A new world of artificial intelligence (AI), advanced manufacturing, big data, direct digital manufacturing (DDM), and how the interaction of devices and sensors are reshaping entire industries at a breakneck pace.

Undoubtedly, this unfolding realm of innovations, created in part by US entrepreneurs, holds a range of implications for America's business community, and for our overall economic status. There are still many unknown variables and unanswered questions about the full long-term impact not just on industry and business, but also on jobs and workforce development. These innovations are already providing clues to help some social researchers develop predictions informed by historic knowledge and contemporary data.

One school of thought holds that

the rapid automation of manufacturing and production systems signals a major workforce reduction. Darrell M. West of the Brookings Institution warns the shift will impact millions globally, as AI, and other iterations of advanced manufacturing and distribution will displace massive numbers of workers.

On the other hand, some technologists, including LinkedIn founder Reid Hoffman, envision a different kind of industrial growth that includes positive new opportunities for entrepreneurs and workers alike. Hoffman, during a conversation with columnist and CNN program host Fareed Zakaria, said he anticipates entire new sectors, entrepreneurs, ideas, and occupations will sprout from the rise of IoT.

The formation of entirely new businesses will in turn “create interesting jobs,” Hoffman said. While the concerns of West and other futurists about increased unemployment caused by IoT and robotics are legitimate, my perspective more closely tracks Hoffman’s glass half-full scenario—though with a twist.

For several years, while directing the only federal agency that focuses on strengthening minority business enterprises (MBEs), I learned the best way for the US to realize the full economic benefits of this powerful industrial transformation is by building a twenty-first century economy that is willing and capable of engaging more women and minorities in the innovation ecosystem.

As the daughter of immigrants (my parents arrived in the US from the Dominican Republic in the 1960s and opened a business in the Bronx) I am intimately familiar with the positive economic power and community-wide influence of MBEs. I know firsthand Latinos and ethnic minorities bring dynamism, resilience, and robustness to micro- and macro-economies, not just from a workforce development or consumer perspective, but as creators, founders, and owners.

Why is all of this important?

Numbers tell the tale, and make the case for welcoming Latinos and other ethnic minorities squarely into the innovation ecosystem, placing them at the forefront of the innovation and technological pipeline. Demographics data, global and domestic economic statistics from US commerce department agencies—the Census Bureau, the Economic Development Administration (EDA), the Small Business Administration (SBA)—as well as from academic researchers all point toward the same direction: minority-owned businesses are becoming an increasingly important piece of America’s overall GDP, and will only become more so in the future.

For example, by mid-2016, the United States was home to 8 million MBEs, up from 5.8 million in 2007, a 38.1 percent increase, according to the 2012 survey of business owner’s (SBO) report. Receipts for minority-owned firms climbed

from \$1.0 trillion to \$1.4 trillion during the 2007-2012 period (34.7 percent). MBEs are more likely to export than non-MBE companies, according to the US Census Bureau's 2012 SBO special report on ownership characteristics of classifiable US exporting firms, which reviewed 2007 data. These data-sets, in particular the explosive rate of growth of minority entrepreneurs and MBEs between 2007 and 2012, represents a strong rationale for increased investment in their sustainability and growth.

Yet, despite the dramatic demographic changes driving their growth, MBEs are not, to date, major players in the supply chain of new technological opportunities. The escalating US population and global demographic changes make the case for why they should be—and for why an inclusive innovation ecosystem with MBEs fully engaged in the creation, management, and ownership of these amazing new products and systems is imperative.

A 2015 McKinsey & Company study gives clues as to why. The economics and management research and consulting firm analyzed nine IoT categories, including factories, vehicles, and cities, among other pillar environments. McKinsey estimated the total economic impact of new applications of products and services will increase from \$4 trillion to \$11 trillion by the year 2025. It is this wealth creation potential that highlights the glaring absence of diversity in this technological arena.

Proactively, the United States must build an inclusive innovation ecosystem of entrepreneurs that can navigate and excel along the parallel tracks of these two major shifts: new populations creating and leveraging IoT-driven industrial reinventions and those who can be critical supporters of global supply chains in an innovation-driven economy.

Doing so will mean increased productivity, reduction of income inequality, and the creation of greater social and upward financial mobility in communities that historically have been economically isolated, according to a 2015 report by the Brookings Institution.

These parallel shifts—an increasingly ethnically diverse US population, and the rapidly-transforming tech and STEM-oriented industries—present a wealth of opportunities for all-American companies, including MBEs. The question remains: Are American institutions bold, creative, and proactive enough to widen access for Latinos and other minorities to seize these opportunities?

More Than Just Consumers: Latinos Are Starting Businesses Faster Than Any Other Population Segment

Additional data from a report by the Small Business Administration at the US Commerce Department shows Latinos comprise the fastest-growing segment of entrepreneurs in the US, with Latino and Black women business owners in the lead. It is especially urgent for our

future economic health that MBEs, especially Latino-owned companies, fully access the pipelines of creation and ownership in IoT sectors.

Since 2008, coinciding with the increase in the US's minority populations, more objects than people have been connected to the Internet through "smart" devices. In the near future there will be, by some estimates, 4.9 billion objects connected. This figure is expected to increase to 50 billion by 2020. For America to stay competitive worldwide in this century and beyond, the creators and owners of these devices and services must include robust numbers of MBEs.

Here is why: there are several factors unique to MBEs that make many particularly suited for innovation environments and for shaping the IoT. MBEs are organic disruptors. They are adaptable, and create multiplier effects of job gains and positive community mobility, according to Michael S. Barr, a former US Treasury Department official who studied the topic for the Hamilton Project at the Brookings Institution.

These traits translate into competitive advantages in business environments, and position MBEs to succeed in the global innovation ecosystem. Consider that the emergence of blockchain technology, 3D printing (3DP), advanced manufacturing, and other innovations are creating decentralized production models comprised of small or mid-sized companies, a size designation that skews heavily toward MBEs.

According to Magnus Rentzhog, senior advisor of the Swedish Board of Trade, twenty-first century manufacturers and related supply chains are increasingly defined by their ability to achieve quick technological adaptability, and nimble responsiveness to market needs. The nineteenth century fixture of quarter mile-long manufacturing or assembly plants, like those once dotting the American Midwest, is fast disappearing.

In a recent article published by the World Economic Forum, Rentzhog wrote, "... 3DP will slowly, but surely transform manufacturing from large, centralized production facilities that are hierarchically managed to smaller, individual or cooperative-type operations."

The decentralized, technologically advanced manufacturing environment outlined by Rentzhog offers significant opportunities for small and medium-sized businesses, including MBEs. As technological innovations continue remaking entire aspects of manufacturing, the decentralization of systems can benefit entrepreneurs by eliminating the need for large-scale brick-and-mortar plants and high-cost infrastructure.

America's Economic Competitiveness Depends on Latino and Other Ethnic Minority Entrepreneurs

Looking at these factors, along with the nearly unlimited potential of commercial applications that comprise the IoT and other advance technologies,

reinforces my sense of urgency that STEM-oriented MBEs must play a key role in this fast-moving tech ecosystem. Further, an inclusive innovation ecosystem recognizes minorities are far more than just consumers and users of products and services. And due to the increasingly urgent need for nimbleness, dynamism, and technological flexibility within our industrial sectors, America's MBEs are uniquely well-positioned to play an essential role in the next industrial revolution, not just as members of the workforce, but, importantly, as innovators, founders, and owners.

Given these expert assessments and data sets it is clear that America's particular demographic makeup gives us a critical competitive advantage on the global economic stage.

Still, while I envision a future of increased prosperity and wealth significantly fueled by minority communities' gaining full access to the innovation ecosystem, the historic reality is that MBEs, particularly those with STEM-based models swiftly remaking industries, face a host of challenges, including limited access to capital and research and development.

Policy-driven, economic, and technical business solutions are needed in order to short-circuit long-standing impediments to MBEs. Without the full inclusion of minority entrepreneurs in the IoT and other components of the evolving advance technology/innovation ecosystem, existing disparities in

employment, education, health care, and income that presently characterize America's population will only increase.

Government and Private Partnerships Offer Innovative Solutions

The most persistent barrier MBEs have historically faced is limited resources, including access to capital, contracts, and markets.

Now, while sectors including construction and retail boast healthy numbers of MBEs, their comparatively low visibility within the growing sphere of companies shaping the IoT, advance manufacturing, precision medicine, etc. are out of proportion with MBE total numbers, and with their growth potential. This underrepresentation is due to a lack of access to capital, including reliable institutional lending necessary for research and development, and of limited access to capital for market expansion, acquisition of the equipment, and workforce needed to enter the global supply chain of advance manufacturing.

The historic barriers continue, and they inhibit the ability of many STEM-based MBEs to scale up and achieve sustainability. Though institutions from colleges and universities to foundations and corporations have in recent years advocated for increased funding for inclusive STEM education programs in K-12 and above, much more is required in order to

leapfrog MBEs into the fast-moving, industrial innovation stream. This is why I participated in the development of service-oriented solutions designed to more directly support minority entrepreneurs, and speed their inclusion into this ecosystem.

One such effort is the Inclusive Innovation Initiative (I-3) a partnership between the commerce department's Minority Business Development Agency (MBDA) and the Federal Labs Consortium (FLC), the network of scientific and research institutions that accounts for some \$140 billion of the US's investment in research and development. The FLC historically has sourced game-changing technologies such as GPS and other products that have revolutionized communication and other systems worldwide.

By linking MBEs to the FLC, and by drawing from STEM centers within historically Black colleges and universities (HBCUs), other minority serving institutions (MSIs), and corporate partners, the I-3 was designed to connect minority-owned companies to developmental and support resources that previously had primarily benefitted a small and highly connected community of inventors and founders. Further, President Obama's lab-to-market initiative — the tech transfer process of commercializing products and services born in federal labs — represents a viable means of

short-circuiting several key barriers faced by many MBEs that have solid technology models, but struggle to locate necessary capital and other resources to allow them to achieve sustainability.

It is no longer a question of if, but rather, when Latinos and other ethnic minority populations will comprise a significant share of the nation's GDP in terms of productivity and growth. Now, more than ever, it is imperative the innovation ecosystem become genuinely and holistically inclusive. It is not a question of whether Latinos have the capacity, energy, intellect, and business expertise to succeed in these high-growth sectors.

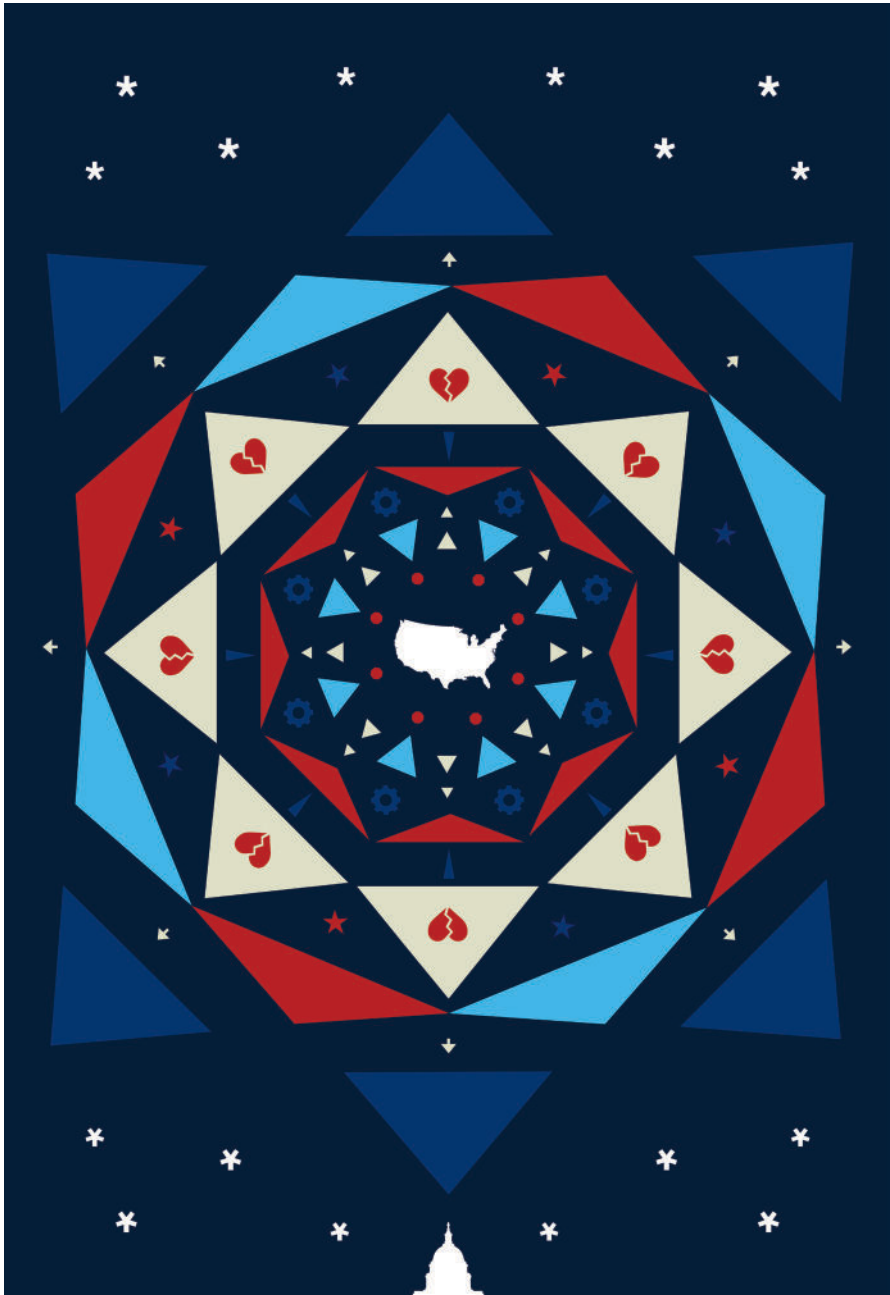
Instead, the most pressing question is whether Latinos—America's looming new majority—will achieve the necessary access to capital, research and development, and markets in order to create the types of enterprises of size and scale needed to drive US economic growth and global competitiveness. The answer demands a comprehensive and timely engagement of public-private partnerships. I am confident the time is right and the conditions are ripe to create an inclusive business ecosystem able to bridge the entrepreneurship/workforce gap by engaging Latinos as important economic agents that hold the key to America's economic future in a twenty-first century innovation-driven economy.

Steve Alfaro

Bio

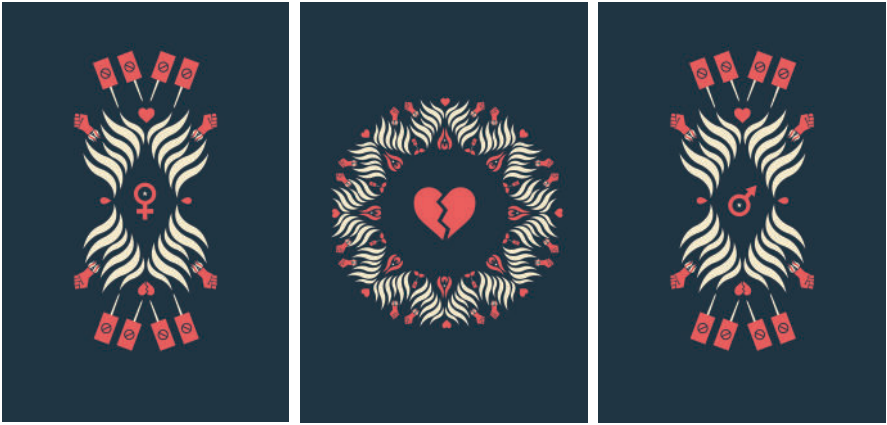
Steve Alfaro is the son of Immigrant parents from Guatemala. A graphic artist and also a Senior Advisor at Voto Latino. As an art student, he interned as a motion graphics designer at LaTV, a bilingual music, and entertainment network. Steve went on to work at SíTV (now Fuse), a leading cable channel for bicultural Latinos, where Steve helped develop brand identities for reality shows such as Model Latina. In 2008 he moved to Washington, DC to join Voto Latino.

He oversaw the design of Voto Latino's award-winning initiatives from 2008 - 2015. His social media designs have gone viral multiple of times, and his work has garnered awards and recognitions including a Webby Honoree Award, and a MySpace Impact Award for Online Organizing. In 2015 Steve was invited to speak at the Millennial Impact Conference hosted by Achieve at the Museum of Contemporary Art in Chicago with Amy and Jennifer Hood from Hoodzpah Design Company. Steve continues to do his art and has displayed his work at multiple art exhibits across the country including Manifest Hope in Washington DC, Re:form School in New York, Manifest Equality & Manifest Justice in Los Angeles and the CrossLines exhibit at the Smithsonian Arts and Industries Building in Washington D.C.



America Must Be Kept America - 2015

Commissioned by Smithsonian Asian Pacific Center and inspired by the immigration act of 1924. During that time, Congress had set quotas for who could enter our country, fast forward to the 21st century and we now have deportation quotas. America Must Be Kept America was featured at Smithsonian Arts and Industries Building during the CrossLines: A Culture Lab on Intersectionality exhibition in Washington D.C.



Fire Fist - 2017

Inspired by the Women’s March. Over 65 million people felt disappointed after the 2016 election, but it was Women who stepped up and organized and said they wanted to do something. The broken heart represents how we all felt after election day, and everything around it, the smoke, the flames the protest signs and the healed hearts describes what happened at the Women’s March.



Dignity / Dignidad - 2015

Dignity is one those things that can’t be taken away. I wanted to show that in a way that was visually appealing and still able to be direct. Dignity / Dignidad was featured at the 2015 Manifest Justice art exhibit in Los Angeles. This exhibition addressed the issues of Justice, Human Rights, Power, and Action.



Rocket Pencil - 2010

Inspired by the idea that education reform is possible if our Congress acts on it. I wanted to show in a fun way what legislation look like for the whole country. Rocket Pencil was featured at the 2010 Re:Form School art exhibit in New York. This exhibition addressed the issues of education reform in our country.



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Voter Justice: Why Latinos Must Be a Key Part of the New Coverage Formula for the Voting Rights Act

Christina Fletes

Introduction

In August 2015, when President Barack Obama delivered his speech “Remarks on the 50th Anniversary of the Voting Rights Act,” he acknowledged the country had made “huge progress, a normative shift in how we think about our democracy.” But he also said that:

In practice, we’ve still got problems. On the ground, there are still too many ways in which people are discouraged from voting. Some of the protections that had been enshrined in the Voting Rights Act itself have been weakened as a consequence of court decisions and interpretations of the law. State legislatures have instituted procedures and practices that, although on the surface may appear neutral, have the effect of

discouraging people from voting, may have disproportional effect on certain kinds of folks voting.

Just like in 1965, voting laws continue to disproportionately restrict, discourage, and punish the Black vote. In the decades since 1965, Latinos have joined Black Americans as a voting bloc that represents a threat to the establishment, to power, and to a White America. In particular, Latinos have become a threat in areas like Texas that have historically maintained a strong Republican presence, but are now vulnerable to lose some of their party power as Latinos grow in numbers. It is perhaps then no coincidence that opponents of Section 5 of the Voting Rights Act (VRA), one of the most powerful litigation tools to protect Black and Latino voters against discrimination and

voter suppression, fought hard against Section 5. They eventually received a favorable ruling in *Shelby County v. Holder*, where Section 4(b) of the VRA was found to be unconstitutional and essentially rendered Section 5 ineffective. Since *Shelby*, it has been easier to implement tactics that repress minority votes, such as redistricting efforts to drown out Black and Latino votes, voter identification laws, and enacting at-large seats.

The VRA, and in particular Section 5, has been a forceful tool to protect Latinos' voting rights. It is estimated that over 15 million Latinos were "safeguarded" under Section 5 and that 32 percent of Latinos lived in jurisdictions covered by Section 5. Specific examples of how Section 5 has protected Latino voting rights include a 2002 discriminatory redistricting plan that was blocked in Arizona after the plan did not meet the preclearance requirements of Section 5. Similarly, a strict 2012 Texas voter ID law would have disproportionately affected Latinos, but the "preclearance provision [of Section 5] successfully blocked the law." However, after *Shelby* and without an effective Section 5, Texas lawmakers went ahead and implemented the strict voter ID law. Without Section 5, the Latino vote, along with the vote of other people of color, is under heavy attack.

But *Shelby* did not entirely eliminate this crucial voter protection

provision of the VRA. *Shelby* created an opportunity for the creation of a new coverage formula. As Congress develops a new coverage formula, they must prioritize the needs and rights of Latino voters who are not only the fastest-growing demographic, but are also targets of voter suppression tactics across the United States. Latinos can no longer be secondary stakeholders or beneficiaries of civil rights laws.

This paper (1) delves into the history of the VRA, the role Latinos have played from the VRA's inception, and the protections the VRA has afforded Latino voters; (2) provides demographic information about the Latino electorate and the different ways Latino votes are suppressed; (3) summarizes the *Shelby* decision and the impacts it has had on Latino voters; and (4) explains why it is imperative a new coverage formula protect the Latino vote and move beyond a Black-White binary.

The Voting Rights Act

The impetus for the VRA is rooted in the plight of Black Americans, Jim Crow, and the violent restrictions to disenfranchise and subordinate Black Americans. Disenfranchisement attempts came in all forms: from poll taxes, literacy tests, White primaries, and disqualification for crimes of moral turpitude. The VRA served to end the voting practices that deprived Black Americans of their

vote by codifying the 15th Amendment's "permanent guarantee that, throughout the nation, no person shall be denied the right to vote on account of race or color."

Many of the VRA protections operate through the preclearance system of Section 5 and Section 4(b). Section 5 is known as "our country's most effective civil rights law." Recognizing some areas of the United States were particularly nefarious and racist when it came to voting rights, Congress implemented conditions for those areas, not allowing any revisions to their voting laws until the Justice Department or the District Court for the District of Columbia reviewed the proposed change, found it to be non-discriminatory, and approved it. This is known as Section 5. Jurisdictions that must get preclearance must prove proposed changes are not discriminatorily motivated and would not diminish the opportunities of minority voters to elect a candidate of their choice. Section 5 outlines the preclearance requirement and procedures, while Section 4(b) provides the formula for determining which jurisdictions must obtain preclearance. The original coverage formula in the 1965 VRA included jurisdictions that used a test or device, such as a literacy test or establishing good moral character, "as a barrier to voting" and had either less than 50 percent of persons of voting age registered to vote by a certain

date or that less than 50 percent of persons of voting age voted in the 1964 presidential election.

Section 2 of the VRA is another advocacy tool that "provides a permanent nationwide ban on voter prerequisites that would stifle the right to vote based on race, color," or "language minority" status." Plaintiffs can bring a claim if they can demonstrate that "based on the totality of the circumstances . . . members of a racial minority [group] 'have less opportunity than other members of the electorate to participate in the political process and to elect representatives of their choice.'" While Section 2 is also an important venue to protect voting rights, it is not as effective for plaintiffs as Section 5. In Section 2 claims, plaintiffs carry the burden of proof and must demonstrate the disparity in opportunity among racial groups, whereas in Section 5 the burden is on the state to demonstrate if their proposed laws fall within the legal boundaries. Relative to Section 5, Section 2 is "expensive, cumbersome, and almost wholly ineffective at blocking changes before they take effect." Section 5 has been considered effective because it prevents "case-by-case litigation in situations in which a discriminatory practice was [already] prohibited in one instance." Yet, after the Shelby decision, Section 2 has become one of the only venues advocates have to protect the voting rights of millions of Americans.

*The Voting Rights Act and the Black and White Binary*¹

While the VRA was primarily established to protect Black voters against disenfranchisement mechanisms, the VRA has purposefully, not just inadvertently, protected other racial and ethnic groups from its inception. Although other people of color, specifically Latinos, have been part of the VRA since the beginning, their role has been minor because the VRA has generally operated within a Black and White paradigm.

At the time of the VRA's creation, almost all social science data was focused on Black and White relations and tensions, leaving academics and politicians with little understanding about Latinos, the plight of Latinos, and the importance of such a law for this demographic. Because Latinos were not the subjects of research and lacked a seat at the decision-making table, Latinos were bypassed when it came to creating and enacting laws that impact the political participation of their communities. Further exacerbating the lack of data was the difficulty and confusion surrounding how to classify Latinos in the US census. Almost each census since the 1930s has had changing categories for Latinos ranging from Mexican, White, persons of Spanish surname, to Hispanic. The census is rather obscure about how Latinos should fill out the race and ethnicity categories in order

to be accurately captured.

The Black and White binary has dominated legislative and empirical efforts well into today's more diverse reality. But now more than ever the VRA and other laws must take into account the current and future state of racial and ethnic diversity in the United States. Since the original VRA was enacted, the racial and ethnic composition of the United States has dramatically changed with most non-Whites, not just Black voters, confronting voter repression tactics.

This Black and White paradigm "threatens to render the specificity of discrimination against other minority groups opaque, if not altogether occluded." The Black and White binary classifies other racial/ethnic groups into "limited, shortsighted roles," such as Latinos stereotypically only caring about language minority provisions. This binary also creates the erroneous notion Latinos do not care or are not affected by the viability and necessity of Section 5 of the VRA. Latino and Asian American voters and communities cannot be *secondary* considerations for voting rights legislation; the demographic landscape today is sufficiently different where Latino, Asian, and Black voters must all be taken into account.

Going beyond the Black and White binary can be a tricky task that could carry unintended consequences. Latinos and Asian Americans are

outpacing the growth of the Black population. This is true even in areas where the Black community arduously fought for and won majority-minority districts. Careful consideration is needed to balance the voting rights of Black and Latino voters, particularly if voting behaviors diverge between the two groups. However, these changing demographics do not necessarily carry negative and unintended consequences for Black Americans; when minority coalitions have formed, Black, Latino, and Asian American voters have been successful in obtaining and enforcing voting rights protections.

Latinos and the Black & White Binary: Latino Voters are Differently Situated than Black Voters

While Black and Latino Americans both have histories of political exclusion and repression, these stories do not completely mirror each other in terms inclusion and representation. It is crucial to point out that Black and Latinos are not always separate and distinct groups—a larger portion of Latinos not only have African ancestry, but many Latinos are Afro-Latino, identify as such, and are often racialized as African Americans. But politics and society do not always recognize these shared roots and experiences.

A History of Voter Suppression
Black and Latino Americans have

been subjects of a racist America. Like Black Americans, many Latino communities have seen a widespread abuse of their voting rights. During Congressional hearings for the 1975 VRA Amendment, one testifier, Vilma Martinez, the president of the Mexican American Legal Defense and Education Fund (MALDEF), told Congress about the “pattern of abuse in Uvalde County” that was “strikingly reminiscent of the Deep South in the early 1960s.” Martinez testified about the voter suppression tactics being used against Latino communities, including refusal to place registered Latino voters on voting lists, the deliberate invalidation of ballots, and a refusal to aid those who were illiterate in English. Other testifiers spoke about how voter suppression against Latinos was carried out in other places in Texas and California through English language registration materials, poll taxes, and annual voter registration requirements up to eleven months before the general election. Mexican Americans were subject to poll taxes as early as 1901 when Texas required a \$1.75 payment to vote.

Mexican Americans in the Southwest, particularly in Texas, faced “numerous discriminatory practices,” which “took on forms closer to the *de jure* discrimination that confronted the nation’s African American population.” This included a “government-sponsored reign of terror and

exclusion of Mexican Americans from Texas' political spheres that included vigilante mobs, poll taxes, White primaries, intimidation at the polls, and denial of interpreters." Texas rangers were deployed to terrorize Mexican Americans and prevent them from voting. In 1919, the rangers embraced the task of the "evaporation" of about 5,000 Mexicans and Texans of Mexican origin "whose lands in the Rio Grande Valley were coveted by Anglo settlers." In 1918, the Texas governor deployed a "Loyalty Ranger Force" of 1,000 men to help the rangers "intimidate and investigate" Mexican American voters throughout Texas. This government-sponsored act was followed by a group of 3,000 White men intended to stop Mexican Americans from voting in Weslaco, Texas, by carrying shotguns and yelling, "Don't let those Mexicans in to vote."

Representation

Political representation has been a huge issue for Black Americans, particularly because of the history of segregation and the need to have representative elected officials. Similarly, Latinos have a history of segregation, but relative to Black Americans, Latinos have not been as heavily segregated as Black Americans. Further, although Latino elected officials were very rare prior to 1975 and continue to be so, Latinos "were never absolutely excluded from elected office."

There were Latino elected officials in Florida, Texas, Illinois, New Mexico, and California in the early 1900s. Although these elected officials still faced a grave amount of adversity, including a legislator in Texas who was openly called the "Greaser from Brownsville" on the legislature floor, they were still able to achieve a level of political power.

While Latinos have not reached the same levels of gross exclusion from elected office relative to Black Americans, Latinos are broadly excluded from office even in present day. For example, Whittier, California's population is over 65 percent Latino, but in the city's 115-year history there has never been a Latino elected to the city council. So, while Latinos were not completely excluded from office, Latinos' history of being abused and politically repressed, and the ongoing disenfranchisement efforts, warrants stronger voting protections.

Inclusion

Historically, Black Americans only achieve a level of inclusiveness if Democrats are in power. If Republicans are in power, Black Americans are foreclosed from political inclusiveness. Latinos, on the other hand, are not entirely deprived of political inclusion when Republicans are in power. This is particularly true in certain parts of the country and for certain racial and ethnic groups

of Latinos. For example, in Florida there is a large constituency of Cuban Republicans. George W. Bush won the Florida Latino vote both in 2000 and 2004. However, even in places like Florida, the Democratic share of Latinos is beginning to grow and overshadow the Republican share of. The majority of Latinos are Democrats and the national Latino agenda is better aligned with the Democratic Party. Since the 1980s, on average, 65 percent of Latinos support Democratic candidates.

Latinos have not been entirely excluded from political agendas, but they have been largely shunned due to their race and ethnicity. Today, Latinos and the variety of needs of the Latino community continue to be widely overlooked and discounted by political parties.

Latinos and the VRA

The common narrative around Latinos and the VRA is that voting protections for Latinos did not emerge until the 1975 VRA. But that is not entirely true. Despite the Black and White binary that has dominated the VRA from its inception, the VRA has brought great protections to Latino voters. However, in the early era of the VRA, because Latinos were almost completely excluded from the conversations that went into the creation of the 1965 VRA, the impact of the original VRA was not as effective as it

could have been. Congress failed to develop “voter empowerment strategies to meet the unique needs of [the Latino] population.”

While the 1975 language access amendment did serve to specifically protect monolingual Latinos, the history of protection for Latinos under the VRA pre-1975 is important to demonstrate that the Black-White narrative of the VRA is not as strong as many believe it to be. Further, Latinos must be reckoned with, not only because they are a growing part of our electorate and because their votes are repressed, but because they, in one form or another, have always been part of the VRA protections.

Section 4(e): Latinos and the VRA pre-1975

A forgotten story of the 1965 VRA is that of Section 4(e), which was specifically included to protect Puerto Ricans against disenfranchisement attempts. The history and purpose of Section 4(e) reminds us that although the Black and White binary dominates the story of the VRA, and rightfully so, Latinos, or at least a part of the Latino community, were a key group the original VRA sought to protect. Section 4(e) originated in New York. Puerto Ricans have had a strong presence in New York and in the early-to-mid-1900s were starting to gain political power. When the VRA was being formulated, Section 5 was creat-

ed to protect against literacy tests, but its scope was limited to southern states. Yet, literacy tests had also been used in New York since 1922. The New York literacy test mandated English literacy, preventing about 330,000 Puerto Ricans from voting. This test was the “ultimate target” of Section 4(e). Congress “explicitly declared that it enacted Section 4(e) ‘to secure the rights under the fourteenth amendment of persons educated in American-flag schools in which the predominant classroom language was other than English.’” The Supreme Court found that “the persons referred to include those who have migrated from the Commonwealth of Puerto Rico to New York.” Section 4(e) of the 1965 VRA states:

¹ Congress hereby declares that to secure the rights under the fourteenth amendment of persons educated in American-flag schools in which the predominant classroom language was other than English, it is necessary to prohibit the States from conditioning the right to vote of such persons on ability to read, write, understand, or interpret any matter in the English language.

This section was “touted as an important remedy to the exclusion of Puerto Rican voters” by both parties. A group of registered voters brought suit to attack Section 4(e) because it enabled several hundred thousand

citizens and New York City residents who migrated from Puerto Rico to New York to vote. The US Supreme Court, in *Katzenbach v. Morgan*, 384 U.S. 641, 652 (1966), upheld the validity of Section 4(e) and reaffirmed the importance of Section 4(e) for protecting the Puerto Rican vote. The court held that Section 4(e) is “an enactment to enforce the Equal Protection Clause,” and that it “may be viewed as a measure to secure for the Puerto Rican community residing in New York nondiscriminatory treatment by government—both in the imposition of voting qualifications and the provision or administration of governmental services, such as public schools, public housing, and law enforcement.”

After the passage of the VRA, there was an uptick in the number of Puerto Rican elected officials, particularly in Bronx County, which was covered by Section 5. The inroads the Puerto Rican community was able to make with elected officials in New York, Chicago, and Hartford were made possible by the VRA. Further, Section 4(e) did not just protect Puerto Rican voters, but also all monolingual Latinos and Chinese American voters, and helped secure Spanish or Chinese assistance at polls, ballots printed in Spanish, and properly trained interpreters. Aside from protecting the voting rights of Puerto Ricans, Section 4(e) took the protections of Section 5 beyond

the south and into a major metropolitan area. Finally, Section 4(e) laid the groundwork for the 1975 VRA amendment that extended “Section 5’s coverage to language minority citizens in all Section 5 jurisdictions.”

Latinos and the 1975 VRA Extension

The role of Latinos in the extension of the VRA was particularly salient in 1975 when Latinos joined forces with the Black community to fight for the extension and expansion of the VRA. By this time, areas in California and Arizona, largely populated by Latinos, were preclearance geographies. The united front was successful, and the VRA was extended, expanded to include “language minorities,” and preclearance was now triggered in areas that had a high number of language minorities, yet was solely using English voting materials. The VRA now required the provision of bilingual election materials if a jurisdiction had at least 5 percent of its adult citizens as non-English monolingual speakers and if that minority group’s illiteracy rate was greater than the national average. The VRA revision “increased Latino electoral empowerment” through the availability of bilingual voting materials, creation of districts that typically elected Latino officials, and elimination of anti-Mexican voter dilution attempts.

The Latino Electorate Today

Latinos are a critical part of our electoral system. Latinos are the second-largest racial and ethnic demographic group in the United States and the largest minority group. They are the fastest-growing and youngest demographic. Eight hundred thousand American Latinos turn eighteen each year. The average American Latino is twenty-seven years old, “a whole fourteen years younger than the average White American.” The implications of such a young electorate relative to the largest racial and ethnic voting demographic means the number of eligible Latino voters will continue to increase, these voters will vote for decades to come, and as the older White voting bloc continues to age, Latinos will eventually be an even more potent electorate.

Currently, Latinos make up 30 percent of the US population and 10 percent of the electorate. Latinos saw the largest growth in eligible voters between 2012 and 2016, more than any other ethnic group. In some states, Latinos make up a larger portion of all eligible voters. For example, Latinos make up 21.5 percent of eligible voters in Arizona, 28 percent in California, 28.1 percent in Texas, and 40.4 percent in New Mexico. The Latino electorate is diverse: over half of Latino voters are of Mexican origin, about one-fifth is South American, 14 percent is Puerto Rican, and almost 7

percent is Central American. Cuban Americans have the highest voter turnout rate with close to 40 percent. Latinos are increasingly becoming a key presidential constituency group as their numbers grow and concentrate in the states with a large quantity of electoral college votes. For example, in the 2008 presidential election, 90 percent of eligible Latino voters lived in fifteen states. President Obama won thirteen out of those fifteen states. Latino voters and the Latino community in general cannot and should not be ignored as their vote becomes increasingly decisive.

As Latinos continue to gain political capital, they become key targets of voter suppression tactics. For example, Republicans in Texas, Arizona, and Alabama have sought to “revoke birthright citizenship for the children of undocumented immigrants or to repeal laws granting them in-state tuition.” Others have referred to Latinos as “an invasion” that must be stopped. Louie Gohmert (Republican, Texas) said President Obama was encouraging undocumented immigrants to illegally vote in order to ensure “Republicans don’t ever get elected again” and to turn Texas blue. The solution, he explained, are voter ID laws to prevent illegal voting or send them “back to where to came from” in order to avoid any potential diseases they have brought with them.

Shelby v. Holder: An Assault to Voting Rights

In *Shelby Co. v. Holder*, 133 S.Ct. 2612 (2013), the Supreme Court held that Section 4 of the VRA was unconstitutional because the coverage formula was based on outdated data. Although the court did not find Section 5 to be unconstitutional, without a preclearance formula it is ineffective. The court found the Section 4 coverage formula was irrational and no longer relevant because the tests and devices used to preclude Blacks from voting are no longer a part of today’s reality, and because there has been an increase in voter registration and turnout. The court found today, “blatantly discriminatory evasions of federal decrees are rare.” But the court failed to consider that while some of these laws are not blatantly racist, they are created with an explicit racial, anti-Latino, agenda that uses a “racial shield,” or the use of coded words to replace racial and ethnic descriptors. Even with this coded language, these plans still achieve the creation of a “negative image of that group to the general public” and are effective at suppressing Latino votes.

Further, the court dismissed the new wave of voter restrictions facing Black and Latino voters, including voter ID laws, proof of citizenship, a decrease in access to absentee and early voting, and a decrease in polling places. The court ruled Section 4 ineffective

because “Congress did not use the record it compiled to shape a coverage formula grounded in current conditions. It instead reenacted a formula based on forty-year-old facts having no logical relation to the present day.” The court did not foreclose the opportunity for Congress to “draft another formula based on current conditions.”

The Repercussions of *Shelby* on Latino Voters

Less than twenty-four hours after the *Shelby* decision was handed down, five states enacted voter ID laws, “some of which had already been rejected as discriminatory under the Voting Rights Act.” Four of these states have “some of the highest and fastest-growing Latino populations.” One of those states is North Carolina, where legislators “waited until after preclearance was gone to move forward” with establishing a strict voter ID law, reducing the timeframes for early voting and registering to vote. North Carolina senator Tom Apocada was quoted by local news stating that without the “legal headaches of having to go through preclearance . . . ‘now we can go with the full bill.’” Alabama and Mississippi also went ahead with a strict voter ID law after the *Shelby* ruling that was known to likely negatively impact Black voters.

In 2011, Texas enacted a redistricting plan and a new voter ID law to suppress Latino voters. The Department of Justice denied preclearance in March

2012. In August 2012, the US District Court for the District of Columbia upheld the Department of Justice’s decision, stating Texas “failed to prove that its ID law was non-discriminatory and would not leave underrepresented voters with less access to elections than they previously enjoyed.” Within two hours of the *Shelby* decision, Texas attorney general Greg Abbott said he would move forward with the voter ID law and immediately implement it. The voter ID law is one of the most restrictive laws in the nation. It placed restrictions on the types of identifications allowed for registration and also limited who could issue the necessary identifications. The voter ID law was estimated to “disenfranchise more than 600,000 registered voters.” This law particularly affects young Latino voters by barring student ID cards as an acceptable form of identification for registration. Defendants in the case challenging the law were two young Latinas who, unable to use their student ID cards, were no longer able to register to vote. They were not able to get a driver’s license, an acceptable form of voter registration ID, because their families could not afford car insurance needed to get a driver’s license. Several studies have shown the Texas voter ID law has disproportionately affected Latinos. Other states continue to implement restrictions. For example, in 2013 Florida began going through voter registry

lists to attempt to “purge” voter registry lists of non-citizens attempting to vote. This program disproportionately targeted Latinos. A county supervisor of elections stated the Florida governor’s office was “sending [them] names of people to remove because they were born in Puerto Rico.” Puerto Ricans, of course, are US citizens. This program was part of a federal lawsuit for violating the VRA, but after *Shelby* the governor restarted his efforts to implement the program. This program was eventually suspended as the list of suspected non-citizens decreased from over 180,000 to less than 200, proving it frivolous.

Since *Shelby*, nine out of the twelve states with the largest Latino population growth have new voting restrictions. Nineteen states have implemented new laws that made it difficult for Latinos and other vulnerable groups to vote in 2016. It is estimated that eight million Latino voters will be susceptible to restrictive voter laws and “changes in election administration because they live in jurisdictions that have been freed from oversight, in spite of their documented histories of adopting practices that discriminate against minority voters.” Over 875,000 Latinos were in serious risk of having their vote impeded in the 2016 presidential election.

Voter suppression laws have taken several forms. Some states require people register to vote much more

in advance than ever before. Studies have shown the more difficult the voter registration processes is, the lower the voter turnout. Arizona, like Kansas, has imposed citizenship verification procedures before allowing people to register to vote. Latinos are less likely than other Americans to have access to proof of citizenship due to the costs associated with the necessary documentation like birth certificates, passports, and Certificates of Naturalization or Citizenship. Certificates of Naturalization or Citizenship can cost between \$346 and \$600. In 2006, the Brennan Center released data showing that 7 percent of, or 13 million, Americans did not have access to US passports, naturalization papers, or birth certificates. The populations least likely to have these documents are the elderly, Black and Latino Americans, and low-income individuals. Other laws make it difficult for people to vote in-person or by mail by reducing early voting periods, reducing some people’s ability to deliver absentee ballots for those physically unable to send or submit their own ballots, or implementing strict voter identification laws.

Voter ID laws have continued to spread across the United States after the *Shelby* decision and are one of the biggest threats against the Latino vote. Voter ID laws take different forms, but generally reduce the number of types of identification that someone can present to register or vote, require

that the identification have a photo, and sometimes do not provide an alternative for those who do not have an acceptable form of identification. Millions of Americans across the United States either do not have one of the acceptable forms of identification under these laws, the documentation to obtain one of these identifications, or the money to pay for the documents or identification.

Conclusion: Congress Must Create a New, More Inclusive, Coverage Formula

Latinos are a growing force in American politics. As their potential power increases, voter suppression tactics also increase. This is the reality of America today. A new coverage formula must consider how it can best safeguard the voting rights of Black, Latino, and Asian Americans, as well as the elderly and low-income communities. Congress must enact a new coverage formula sufficiently sophisticated to encompass areas that not only enact laws that blatantly attempt to disenfranchise non-White, low-income, and elderly voters, but also those that hide under colorblind rhetoric and yet are just as venomous.

To create a successful coverage formula, Congress should have an understanding of the tools used to suppress Black *and* Latino votes and use that information to define what constitutes voting rights violations. Such

a definition should include not just voter ID laws, but also proof of citizenship requirements, reduction in polling places, reductions in the time frame to register to vote, restrictions on absentee ballots, and “barriers to community groups trying to register voters.” Further, Congress should pay close attention to the difficulties with collecting data on Latinos. Because the census does not categorize Latinos as a racial group but as an ethnicity, Congress must be mindful that Latinos self-identify their race in a variety of ways including, White, Black, Native, or mixed-race.

Finally, Congress must adopt a more sophisticated way of understanding the type of racism plaguing the country today. While blatant racism is still part of the country’s reality, other forms of racism and biases operate in a covert way that nonetheless continue depriving Black, Latino, and other groups of their civil and political rights. Only a new coverage formula that does this can uphold voting principles of inclusion, participation, and representation.

Endnotes

- 1 The purpose of this section is to contextualize the conditions of the Latino electorate into the Black and White paradigm that is more widely understood by most. Because most policymakers understand that Black Americans have a history of, and continue to be, disenfranchised and therefore warrant voting rights protections, this section hopes to draw parallels with Latinos’ similar history and presence of disenfranchisement.



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People of the Sun: Ensuring Latino Access and Participation in the Solar Energy Revolution

Jorge Madrid

There is a solar energy revolution happening in this country, but will Latinos have full access to the benefits?

Introduction: The Solar Energy Revolution and US Latinos

The US Department of Energy’s recent report, “Revolution . . . Now”, boldly declares that “today, the clean

energy future has arrived.” Nowhere is this more evident than the growth of US solar energy: in the last decade, solar has experienced a compound annual growth rate of nearly 60 percent (see Figure 1). Last year (2016) was record-breaking for US solar power, with a new installation added every 84 seconds in the third quarter.

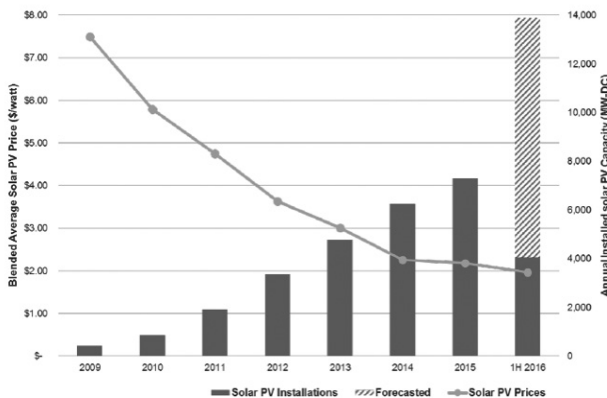


Figure 1: US Solar Energy Growth Rate, 2009-2016

This growth has been largely driven by a dramatic decrease in prices. Since 2008, the cost of photovoltaic (PV) panels has declined by over 80 percent according to the National Renewable Energy Laboratory. The price of a solar module has fallen by 33.8 percent since the first half of 2016 alone.

Price decrease has been coupled with clear public policy signals at the local, state, and federal levels. These include policies aimed at reducing carbon emissions; policies to accelerate adoption of clean energy; policy tools to allow customers to produce energy and receive a credit on their utility bill and third-party energy companies to monetize this value to finance solar; and financial

incentives for households and business to purchase solar energy systems.

California is a strong example of a state setting clear public policy signals to drive maturity in the solar market. The state's aggressive goal to reduce greenhouse gasses 40 percent from 1990 levels by 2030, paired with an equally aggressive renewable portfolio standard of 50 percent renewable energy by 2030, has resulted in more solar installations and workers than the rest of the country combined (see Figure 2). What's more, solar in California has been accessible to middle- and working-class homeowners. The median income of California households installing solar in 2012 was between \$40,000 and \$50,000.

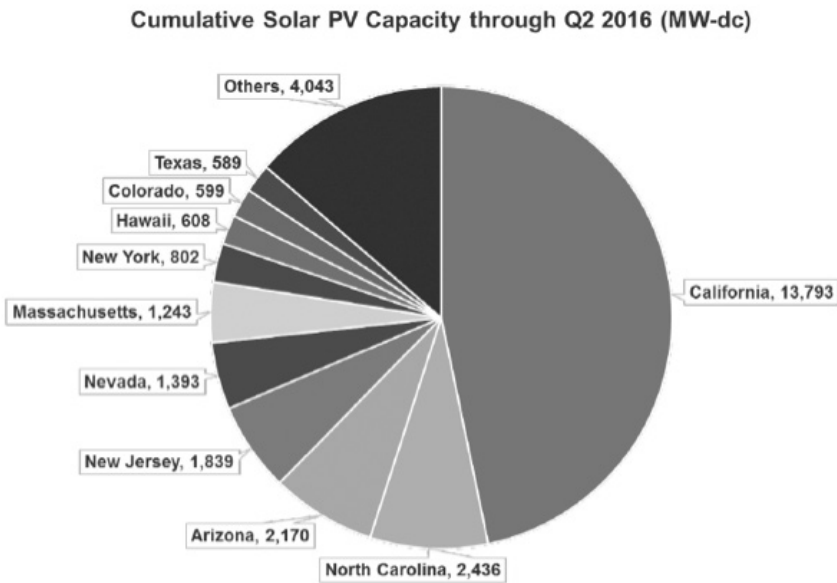


Figure 2

Robust growth in the solar industry will continue to be driven by even greater price decreases as the industry matures (see Figure 3). In fact, according to recent market analysis, solar power is now the cheapest form of new energy generation in most parts of the country—even without subsidies. Likewise, the International Renewable Energy Agency anticipates a further drop to 65 percent (a decrease of 43 percent) for solar costs by 2025, making it the “Cheapest Power on Earth.”

And while comprehensive climate and clean energy policy may be

uncertain at a federal level, growth will be reinforced by policy at the state and local levels. Several major US cities like Los Angeles, Las Vegas, and San Diego are aiming to be powered by 100 percent clean energy in the coming decades. Likewise, international clean energy markets are thriving, attracting twice as much global funding as fossil fuels did in 2016. Furthermore, many experts believe the clean energy market will continue to see accelerated growth despite political support at the federal level.

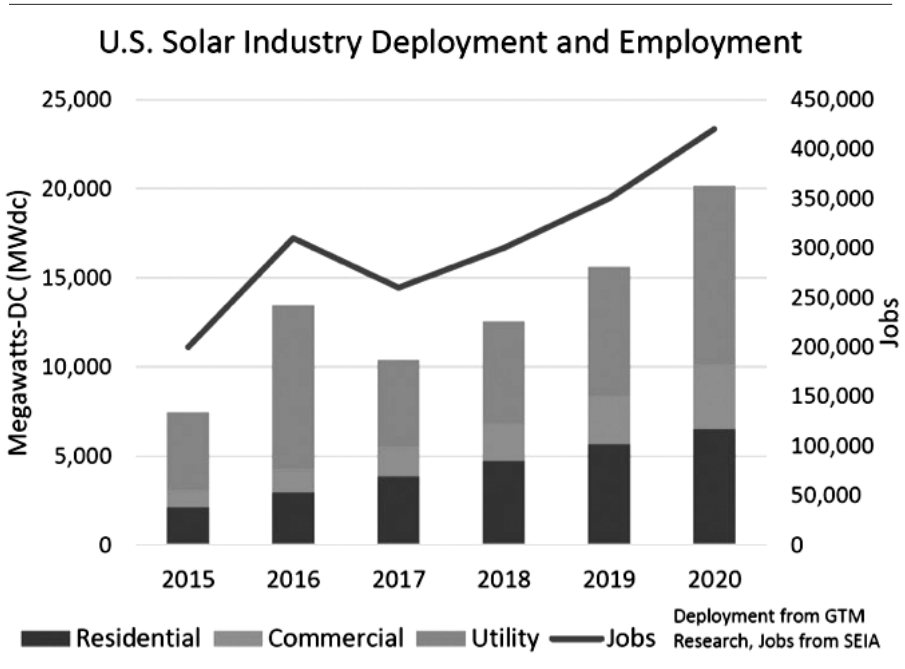


Figure 3

Despite all these impressive gains, rooftop solar power is still inaccessible to many segments of the US population. The National Renewable Energy Laboratory found that between 22 and 27 percent of residential rooftops are capable of hosting a solar system because of structural challenges, tree shading, or ownership issues (renters instead of owners). Likewise, US households earning less than \$40,000 per year account for less than 5 percent of all solar installations. This matters because 40 percent of the US households make less than \$40,000.

US Latinos make a particularly compelling case study on the benefits and barriers to accessing solar energy in their homes and places of business. As one of the fastest-growing demographic groups in the country, solving these barriers for Latinos can help shape future solar policy and accelerate clean energy growth for all communities. Alternatively, this analysis argues that neglecting barriers will substantially limit the success of truly scaling clean energy and achieving climate goals.

Barriers to Accessing Benefits and Opportunities of Solar Energy for US Latinos

As previously mentioned, the growth of solar energy in the US can be attributed to a dramatic decrease in costs, targeted policies, and financial incentives for purchasing clean ener-

gy. While these policies and incentives ushered in an impressive first wave of solar deployment in this country, they also reveal some systemic barriers to access for Latinos, particularly low-income households, renters, and small businesses. These barriers stem from some common characteristics of the US Latino population:

- ***Most US Latinos rent their homes.*** More than half of US Latino households are renters (compared to only 25 percent of White households), and cannot install solar panels on roofs they don't own. The share of renters is even larger (74 percent) among young, immigrant households.
- ***Most Latino-owned businesses in the US are small businesses.*** Small businesses—the fastest-growing segment of Latino-owned businesses in the US—typically face similar barriers to solar access as low-income households. Many of these businesses have less access to capital and traditional sources of financing and usually rent their place of business. Likewise, small and minority-owned businesses are less likely to capture contracts with energy companies than larger firms.
- ***More than half of US Latino households are low-income.*** With 55 percent of Latino households qualifying as low-income, they

are unlikely to be able to afford large upfront capital costs of a home solar array (which can range from \$10,000 to \$20,000 for a typical household system) or pay a premium price for utility-offered solar programs.

- ***US Latinos face information and outreach barriers.*** According to a number of case studies, low-income energy programs often experience a lack of enrollment, even from customers who qualify for low-cost or no-cost programs. These studies cite a lack of adequate or effective marketing, an overly complicated or lengthy application process, and “a lack of trusted messengers” as some programs are met with a sense of mistrust toward the utility or private company selling energy services or offering a financial agreement.

Critics, some backed by the fossil fuel industry and the monopoly-driven utilities, have argued rooftop solar energy feeds “cost-shifting” among customers — meaning low-income energy customers are subsidizing solar panels for wealthier populations via financial incentives unavailable to them. This analysis rejects the wholesale argument on the basis that solar provides societal benefits, even to households without solar installed. However, to access the full benefits of distributed solar, some policy in-

terventions and specialized financing models are needed, along with programs that ensure Latinos and other communities of color will capture job and entrepreneurial opportunities offered in the solar industry.

Solar Benefits and Opportunities for US Latinos

Benefits of solar energy for US Latinos can be understood in terms of direct benefits like cost savings, as well as co-benefits to society. Co-benefits include reducing greenhouse gasses and mitigating climate impacts, clean air and health benefits, jobs and entrepreneurial opportunities, and more resilient energy infrastructure. The following are examples of both direct benefits and co-benefits.

Energy Savings

Latinos spend a higher portion of their income on energy than the average US household: between 5 and 20 percent, depending on income and regional conditions. Targeted solar programs, paired with energy efficiency, could create significant savings and serve as a hedge against rising energy prices.

Resilience

Western and southwestern states (including California, Nevada, Colorado, New Mexico, and Texas) have the largest concentrations of Latinos in the country and are experiencing more intense and frequent heat waves as a

result of climate change. Heatwaves cause energy demand to spike, which can lead to high energy bills and potential for power outages. This is critical as 2016 was the hottest year in recorded history after record-breaking years in 2014 and 2015. Solar power could offset some or all of this accelerated demand, as well the costs and risks associated with it.

Jobs and Economic Opportunity

The solar industry has created jobs twenty times **faster than the overall economy, growing by 123 percent in the past six years.** In general, jobs in solar and other clean energy sectors pay a higher wage, offer career mobility, and many do not require an advanced degree. The solar industry is a strong employer of Latinos. In California, for example, the state with the most installed solar power, Latinos make up 29 percent of the solar workforce. A report from the National Council of La Raza also found a “strong overlap between the major occupations that make up a local clean economy and the top occupations that employ Latinos.”

Entrepreneurship

The solar industry could be a lucrative international business opportunity for new and existing US-based, Latino-owned firms, many of which say they prefer to operate in Latin

America over other international markets. Recent market analysis indicates the solar industry is growing fastest in emerging markets like Latin America, with a higher rate of return on investment than projects in more established markets like Europe and the United States. An entire supply and distribution chain will be needed to bring these markets to maturity.

Improved Air Quality

In 2014 alone, solar power across the country helped avoid an estimated twenty million metric tons of harmful carbon dioxide emissions by displacing demand for fossil fuels, the equivalent of taking four million cars off the road. Solar energy can eventually help make dirty power plants obsolete. This is critical because a disproportionate number of Latinos and other people of color live within close proximity of a power plant, and Latinos are 51 percent more likely than non-Hispanic Whites to live in counties with unsafe air quality.

These examples illustrate how US Latinos can benefit, or in some cases are already benefiting, from the growth of solar energy in the US—even if they themselves do not have solar on their roof. These benefits and opportunities partially explain why an overwhelming majority of Latinos surveyed in 2015 (86 percent) say the US should

mandate more clean energy sources like solar power.

However, it is important to note that US Latinos will not receive the full benefits of solar energy in the current “business as usual” landscape. To bring these benefits to life we need policy interventions, new business and finance models, and additional programs that prepare Latinos to capture these opportunities.

Policy Principles and Objectives

The following framework was developed for Green Latinos, a national non-profit coalition of Latino environmental professionals. It serves as a set of guiding principles for evaluating solar policies with a critical eye toward equity, access, and participation in solar benefits. These can be considered aspirations for driving policy objectives.

Access and Affordability

Clean, affordable energy shouldn't be a privilege — it should be available to everyone, whether they're rich or poor, rural or urban, renters or owners. Policies to promote solar growth should address barriers such as cost and home ownership. Potential solutions can include financing tools for low-income households and businesses, as well as community or shared solar programs for renters.

Good Jobs and Entrepreneurial Opportunities

The clean energy economy should be an equitable economy. Policies to promote and procure solar should include job training and placement programs, which can be achieved via partnerships with local workforce development agencies, labor, or nonprofit organizations. Likewise, procurement by utilities and energy companies should include goals to increase participation of women, minority, and veteran-owned firms.

Consumer Protection

Policies to promote solar and other clean energy technologies should include strong consumer protections for both new and existing customers. These protections could help to avoid instances of predatory lending and financing, and also include clear and understandable information on return-on-investment, bill impacts, and energy or monetary savings.

Land Conservation

Solar policies should limit impacts on undeveloped land. Already-developed land (like cities) or degraded land (like brownfields) should be prioritized for siting solar and other clean energy projects while preserving farmland, green space, wildlife habitat, and ecosystems. For example, California's cities could generate enough solar to meet the state's power needs three to

five times over without developing a single additional acre of the state's natural areas. These protections should also be included for tribal lands and sacred sites. A recent study found 93 percent of Latino voters believe the government should protect public lands for recreation and the overall wellbeing of the environment.

Clean Air

Policies to spur investment in solar and other forms of clean energy technology (including zero emissions vehicles) should prioritize communities most impacted by air pollution and other environmental hazards. US Latinos, and other communities of color, have the highest exposure to pollution and also have the highest rates of asthma. Climate change will only exacerbate existing health disparities.

Advocates can utilize this framework to evaluate clean energy policies; it can help inform their decision to support, or support if-amended, federal, state, and local clean energy policies. The framework is designed to be flexible based on local and regional needs, and should be regularly revisited to account for new advances and potential new barriers.

Solutions

While costs associated with solar power will continue to decrease, there is still a need for targeted programs and policy interventions that can address

access and affordability gaps, as well as other systemic barriers. The following section will discuss a number of potential solutions.

Energy Efficiency

Latino households pay more for utilities per square foot than the average household, indicating they live in less efficient housing. Pairing energy efficiency improvements with solar can greatly reduce energy costs. A new report finds that upgrading the energy efficiency of Latino households to the level of the average US home could cut their excess energy burdens by as much as 68 percent.

Gap Financing

Many Latino households and businesses lack upfront capital and access to traditional financing options due to low creditworthiness, and could benefit from private and public financing models designed to fill the gaps. These models include on-bill repayment and on-bill financing, in which customers can finance clean energy upgrades and repay the loan with their monthly energy savings; Property Assessed Clean Energy (PACE), which finances 100 percent of a project's costs upfront and is repaid for up to twenty years with an assessment added to the property's tax bill; and public funds that can enhance creditworthiness, or "buy down" the risk calculated in lending to Latino households or businesses.

Public Funds

Public dollars can fill some gaps when financing solar is unavailable or doesn't fit project needs. States like New York and Connecticut have established "Green Banks," which are publically funded entities that finance clean energy projects, and in some cases, partner with private financing entities as described above. California has established a "Greenhouse Gas Reduction Fund," which allocates a portion—currently a minimum of 25 percent—of the state's cap and trade proceeds to investments in clean energy. Part of this fund is used for no-cost solar installations on low-income homes. Likewise, federal programs like the Clean Energy Incentive Program (CEIP) are designed to provide financial incentives and help states and tribes remove barriers to investment in energy efficiency and solar measures in low-income communities.

Community Solar

An emerging model, community or shared solar eliminates the need for the upfront purchase or financing of a rooftop system, or even the need for a roof altogether. A utility company or a third party (like a nonprofit or co-op) covers the cost of building a larger, shared system in a nearby region, to which local residents can subscribe. Further, many programs allow customers to "lock-in" a rate

(ideally, a discounted rate for low-income customers), and many allow customers to transfer their benefits if they move to a new apartment or home within the program's jurisdiction. Community solar is a promising option for households who rent or live in multifamily housing.

Community Partnerships

To overcome the "information and outreach" barriers discussed in the previous sections, programs and agencies tasked with deploying clean energy in Latino communities need trusted messengers, cultural competency (beyond just Spanish translation of materials), and partnerships with local community groups and nonprofit organizations. This will help build the trust needed to achieve enrollment goals.

Access to Data

Open data and the expansion of "smart meters," which communicate energy information to utilities in real time via the Internet, will help customers, policymakers, and energy providers understand the unique energy needs of different households and businesses. This granular level of energy data can inform innovative solutions for clean energy programs at all income levels.

Equity Indicators

It is imperative to benchmark the current state of clean energy deployment,

set strong goals for improving equity, and report regularly with transparency. The Los Angeles Department of Water and Power, for example, has introduced the country's first Equity Metrics Data Initiative (EMDI) to track, measure, and report how departmental programs serve residents equitably; it will examine service and infrastructure disparities to better allocate resources.

Conclusion

The solar energy revolution is here, creating multiple benefits for US Latinos, both direct benefits in the form of energy savings, and co-benefits

like cleaner air, mitigating climate impacts, and creating jobs and economic opportunities. US Latinos have expressed an overwhelming support for the continued advancement of solar energy, and should continue to do so in federal, state, and local policymaking. However, Latinos still face multiple barriers to capture the full scope of benefits from solar energy. Thus, the US needs an expansion of policy tools, financing strategies, and targeted programs at all levels, in order to overcome barriers and ensure full access and participation of the US Latino community in the solar energy revolution.

Computer Science for All: Opportunities Through a Diverse Teaching Workforce

Alejandra Montoya

Abstract

Leaders in education and industry have long emphasized the need for high school graduates to improve knowledge and skills in science, technology, engineering, and mathematics (STEM) fields. Given the immense impact of technology on both the domestic US job market and the global economy in the twenty-first century, computer science preparation will be critical for students to receive a quality education and gain the skills needed to pursue careers in cutting-edge fields. Access to quality computer science education, particularly for low-income, Latina/o students, hinges on the recruitment and preparation of a diverse teaching workforce. This paper examines the current STEM educational landscape for all students, particularly

Latina/os, as well as the career and college readiness opportunities that exist in computer science. In addition, this paper explores the need to recruit well-prepared, culturally competent teachers if we are to meet the demands for STEM knowledge and skills for the coming century.

Computer Science Career Opportunity

As society becomes more dependent on technology, a student's understanding of basic technology knowledge, such as the use of social media or word processing software, proves inadequate. The skills acquired in computer science education, as opposed to basic technology literacy, can be applied to many areas in STEM fields, which are necessary for maintaining scientific and innovative stature in

the global market. The Bureau of Labor Statistics (BLS) projects that by the year 2020, 4.2 million new jobs will exist in computing and information technology in the United States, making these fields among the fastest-growing occupations. Further, these jobs pay 75 percent more than the national median annual salary. Moreover, according to the BLS, Latinos will account for three-quarters of the growth in the nation's labor force by that same year. With national focuses on STEM and STEM education, we must also distinguish the importance of computer science and the increase in computing jobs—67 percent of all new jobs in STEM are in computing; yet, only 8 percent of STEM graduates major in computer science. Finally, the wide range of jobs requiring computing professionals varies—two-thirds of computing jobs are in sectors outside information technology. Computational skill continues to prove necessary for schools to prepare students, regardless of their ultimate field of study or career path.

As the role of technology in our society has increased, computer science education in our K-12 school systems has declined, or never started. Despite this drastic need for computing skills, only one in four schools teaches computer programming, with lower-income students and students of color having the least access. According to a Google survey, 49 percent

of Black students and 53 percent of Latino students reported having access to class where only computer science is taught, compared to 62 percent of White students. Further, even when schools offer computer science education, evidence exists that it often lacks the core elements in its coursework: programming and coding. According to recent studies by the Computer Science Teacher Association (CSTA), computer science courses have decreased by 17 percent since 2005 and made up only 30,000 of the 3.2 million Advanced Placement (AP) tests taken in 2013. Only fourteen states have adopted computer science curriculum standards to any significant degree. Even more startling, fourteen states do not include any computer science standards in their curriculum. In thirty-two states and the District of Columbia, computer science can count toward math or science requirements for high school graduation. This number has risen from nine states in 2013, primarily due to campaigns from nonprofit organizations like Code.org; however, none of the fifty states require computer science courses as a condition of graduation. These statistics represent a significant burden in our education system, influenced by nation and statewide focus on high-stakes testing in K-12 education.

Across the United States, much of K-12 education has become preoccu-

pied with high-stakes test scores and curricula that can ensure success on such tests. School systems have “allowed [their] instructional effectiveness to be determined by students’ scores on tests that were never built to be determiners of school success.” Because schools are frequently evaluated almost exclusively on the basis of students’ scores on these tests, disciplines outside of the scope of these tests—history, computer science, art—have been relegated to elective courses with little importance or funding offered for these course areas. The burden placed on schools to ensure students perform well on tests primarily stems from the No Child Left Behind Act (2001) and only recently has been scaled down through the Every Student Succeeds Act (2015). The remaining burden to perform well all but assures computer science will not garner significant resources without wide-scale educational reforms.

Improving STEM Outcomes

Targeting all students, not just those who will pursue postsecondary education or careers in STEM or STEM-related fields, will better prepare our children to face the challenges of a science- and technology-driven society. Career readiness and job market needs, however, are not the sole reason we must educate all students in computer science. Gaining a deeper understanding

of computer science can help students develop problem-solving and critical-thinking skills that can be transferred to and/or integrated with other disciplines. Moreover, STEM classrooms present greater challenges for disadvantaged students, frequently low-income and of color. A majority of Latino youth does not receive an adequate education in math and science, which limits their academic success overall in K-12 and these challenges are compounded in the more demanding postsecondary education. The initial step in helping students achieve success in STEM and closing the achievement gap increasingly depends on K-12 math and science proficiency.

Computer science offers another opportunity to improve outcomes across the STEM fields. In one study by Brigham Young University, middle school students studying Bootstrap, a code-based curriculum to teach algebraic concepts, saw significant increases in understanding as evidenced by better math test scores after a few months. Teachers used students’ excitement around gaming and aimed it toward mathematics and more advanced computer programming. Beyond simply expanding students’ interest in math, Bootstrap proves to be among the first coding-based mathematics curriculum to demonstrate real improvement in students’ algebra.

Diversity and Access to Computer Science

Minorities and women are underrepresented in computing and information technology careers, which can limit academic and economic success. Though Latinos make up 16 percent of the overall US workforce, Latinos make up only 7 percent of the computing workforce and Latinas only 1 percent. Recent reports from leaders in the technology industry, including Facebook, Google, and Apple, have shown a drastic lack of women and people of color, particularly in leadership, and therefore, many companies have committed to recruiting a more diverse workforce. These companies have even committed to funding STEM education to better prepare underrepresented students for these careers. Since 2000, the total number of bachelor's degrees and the number of STEM-related degrees rose for all racial and gender groups, except in computer science. According to the National Science Foundation (NSF), women received only 18 percent and Latinos accounted for only 8 percent of computer and information science undergraduate degrees in 2013. Success in computer science degree programs and related careers requires substantial pre-college education and skills development, particularly in mathematics and science. A lack of proper preparation and encouragement at the middle school and

even elementary levels continues to result in a lack of interest in computer science programs further along in the education process. Women who enroll in AP computer science in high school are ten times more likely to major in it in college, and Latino students are seven times more likely. Despite these statistics, in 2014, only 20 percent of AP computer science test takers were women, even though women represented 57 percent of all AP test takers. Further, in 2013, only 3.7 percent of AP computer science test takers were Black and 8.1 percent were Latino.

Compounding the issue of lack of diversity is the fact that learners from low-income communities and underserved minority groups are still less likely to have access to computers and cable broadband—as opposed to cellular—and have fewer people in their social circles with the skills to support technology-based learning at home. Due to the lack of access to technologies and technology education, too many young people will go through school without fully developing the skills that give them a fair shot in the digital age or the exposure to role models or mentors who can inspire a future in technology fields.

A recent study by the Pew Research Center found that more than half of teachers in low-income communities said their students' lack of access to online resources at home presented

a major challenge to integrating technology into their teaching. Moreover, these low-income communities are disproportionately Black and Latino, meaning that the “digital divide”—the gap between demographics that have access to modern information and communications technology—further exacerbates educational opportunity gaps. According to a report by Google, Latino students are less likely than White or Black students to use computers at school daily or have exposure to computers with broadband access at home. One in four Latino students does not have a computer at home that they can use to access the Internet, compared with only 2 percent of White students. For students in households without broadband, simply completing homework and applying for a scholarship or admission to postsecondary education creates a challenge. While low-income families adopt smartphones with Internet access at high rates, a phone is not sufficient for researching and typing a paper, let alone applying for jobs or colleges. Not only are students who lack broadband access at home struggling to stay ahead of the digital divide, but their lack of access is also holding our education system back as educators struggle to teach in classrooms with such uneven family resources.

While schools have less control over exposure to technology at home, ensuring all students have access to

computer technology at school is vital to providing the technological foundation for computer science learning. However, over 40 million students in K-12 public schools remain behind the learning curve of technology and its ever-changing implications. Today, 63 percent of schools do not have enough bandwidth to meet the current needs for digital learning. Through efforts from the White House initiative ConnectEd, the Federal Communications Commission’s (FCC) e-rate modernization, and state’s public-private partnerships, schools are closing the connectivity gap, but low-income schools still remain behind. Access to computers and other technologies, however, simply does not do enough to close the digital divide. Low-income students of color are less likely to have access to computer science learning opportunities in school as well as at home or in their neighborhoods. According to Professor Linda Darling Hammond, “today’s students will need to use a variety of technologies in their future lives as workers and citizens, thus schools must play a role in closing the gaps in access to this knowledge represented by the current ‘digital divide’ in home and community access.” As affluent, mostly White schools integrate computer science into their curricula, schools serving low-income and minority students must provide quality computer science education—with well-prepared, highly

skilled, diverse teachers—so as not to exacerbate further opportunity and achievement gaps both in STEM and non-STEM related subjects.

Formal Education Broadens Participation

Nonprofit organizations like CODE.org, Girls Who Code, and Black Girls Code have made it their mission to provide computer coding education to all students, have developed curricula, and are attempting to “reach gender parity in computing fields.” By providing resources and technology education to girls in schools, libraries, and community centers, these organizations are attempting to mitigate the increasing racial and gender gaps in STEM careers. Though these organizations are having encouraging results, K-12 schools must shoulder the responsibility for educating all students in computer science skills to ensure proper preparedness. Because of negative perceptions, stereotypes, and an unwelcoming technology culture, girls and students of color are less likely to seek out afterschool computing clubs or summer computing camps. Formal computer science education pathways, particularly in public schools serving students of color, are the best chance to broaden participation in computing. Though Latino students are more likely than any other group, only 21 percent of them participate in afterschool pro-

grams. Formal education, particularly public education, broadens participation to be able to reach the remaining 80 percent. In order to properly integrate computer science into K-12 schooling, states must commit to recruiting, preparing, and retaining a diverse, culturally competent teaching workforce.

Computer Science Teacher Preparation and Retention

Currently, teacher preparation programs in the United States lag behind other countries in recruiting high-achieving students and maintaining rigorous standards for admission and completion. Across the teaching profession spectrum—from early childhood programs through doctoral programs—policymakers, educators, and community members demand better teacher preparation for teachers to increase student achievement and education quality across school systems, colleges, and universities. Within these conversations, including computer science and technology classes for all teachers, is a necessity for our technology-driven education and economic systems. By requiring technology classes, especially for all K-12 teachers, preparation programs can encourage students to become computer science educators and give them the skills necessary for certifications.

Students who are interested in

becoming computer science teachers lack the support and clarity for entering and completing teacher preparation programs and acquiring certifications. Within teacher preparation programs, many states do not have a clear definition or understanding of the field of computer science and exhibit a tendency to confuse it with other subject areas such as educational technology or even the use of computers to support learning in other subject areas. Without explicit programs for training computer science educators, interested students can get lost in the confusion and move on to other computing fields, where they can often make more money.

According to a CSTA report, current computer science teachers indicated that the ongoing battle for adequate resources, the lack of acceptance and understanding of computer science as a scientific discipline distinct from technology training, and increasing budget cuts in these times of fiscal restraint deterred many interested and qualified teachers from teaching computer science. Little motivation exists for those with the requisite skills to pursue a career teaching high school computer science. In most cases, teachers' salaries are much lower and the working conditions more challenging when compared to other career fields, making it impossible for education to attract individuals

with the appropriate skills. Even for those who consider a second career in computer science education or for whom salary issues may not be a primary factor, the lack of consistent and readily available information concerning certification requirements make it almost impossible to determine how one should go about preparing for such a career change.

Diversity in the Teaching Profession

The alarming lack of diversity in the teaching workforce and its negative impact on student achievement creates an issue that demands national attention and real solutions. Though Latino children comprise almost one in four students in our country's public schools, Latinos represent only 8 percent of the teacher workforce. Shortages of teachers of color can be linked to limited recruiting by universities and the lack of proper funding to Hispanic serving institutions (HSIs), and other minority serving institutions. Currently, HSIs award approximately 90 percent of all teacher education degrees earned by Latinos. Moreover, though research and policies have focused on substantially increasing the numbers of teachers of color, high levels of attrition offset these successes—teachers of color leave the profession at higher rates than their White counterparts. While the lack of proportional diversity exists

in several professions, because teaching increasingly focuses on leading a largely Black and Latino student population to academic and social success in a predominantly White society, race matters so much more.

Research clearly shows the impact of teacher diversity on student outcomes. According to a report from the Center for American Progress, when Black students had teachers of color, fewer were placed in special-education classes, suspended, or expelled and more were placed in gifted and talented programs and graduated from high school. Teachers of color are also more likely to be personally committed to the success of children of color. They affect a wide range of student academic outcomes serving as powerful role models for all students, and proving that teaching can be a viable career for people of color. In addition, teachers of color are more likely to work and remain in high-poverty, hard-to-staff, urban schools and districts than their White counterparts.

Diversifying the race, ethnicity, and gender of the teaching field will impact the nation's schools by shaping perspectives, curricula, and school culture in a transformational way that raises expectations for student learning and improves school climate. The Shanker Institute reports that "minority students derive academic benefits from having access to de-

mographically similar teachers," on a variety of outcomes, including increased test scores, graduation rates, college matriculation rates, school attendance, and enrollment in academically demanding classes. Racially diverse teachers also provide culturally relevant perspectives to all students, not just students of color, which is just as important in fostering a better understanding and appreciation for diversity.

Preparing Teachers in Cultural Competency

A diverse teaching workforce is not enough to bridge the cultural and linguistic gaps a growing number of educators struggle with to better serve students in response to dramatic demographic changes that have created culturally diverse schools. Moreover, this cultural gap between students and their teachers often factors into students' academic performance and contributes to achievement and opportunity gaps among different student groups. To close this cultural gap, teachers must be trained and well-versed in cultural competencies—the skills and awareness related to issues such as culture, language, race, and ethnicity. Professor Gloria Ladson-Billings states that cultural competence is present in classrooms where the teacher "understands culture and its role in education . . . takes responsibility for learning about

students' culture and community . . . uses student culture as a basis for learning . . . [and] promotes a flexible use of students' local and global culture." Students of color, and Latinos in particular, experience vast cultural and linguistic gaps between their home and school lives. Teachers must be well prepared to help students mitigate the challenges in bridging these gaps. Referred to as "equity pedagogy," teachers need to be prepared to employ methods and materials that support the academic achievement of students from diverse groups. However, building equity pedagogy is not necessarily as simple as enrolling in a single "diversity" or "multicultural education" course. Rather, teachers must examine how culture shapes all aspects of teaching and learning, including considerations of curriculum, assessment, learning materials, instructional strategies, classroom management, school conditions, community circumstances, and even one's understanding of the subject matter itself.

Culturally responsive teaching is a pedagogical strategy constructed to engage culturally and linguistically diverse youth. Unlike deficit thinking, which faults students' personhood, communities, backgrounds, and families, culturally responsive teaching views these factors as assets to learning. Culturally responsive educators develop and openly demonstrate their own

cultural competency about students' identities, use this knowledge as the foundation on which to build lessons, develop meaningful and sustainable relationships with students predicated on the notion they will succeed, and maintain a heightened sensitivity to the school's sociopolitical context as a place that can emancipate or oppress. Building on this framework, culturally responsive computing seeks to both diminish the separation between the worlds of culture and STEM and to ensure technology responds not only to identity issues, but also satisfies pedagogical demands of the curriculum.

Problems with Existing Policy

Many reasons exist why computer science education has not been more adequately implemented into our education system. Given today's dependence on technology, few educators and policymakers argue against computer science education. However, creating policies and properly implementing this coursework engenders many questions: *Where do we get the resources? How do we properly prepare teachers? How do we stay up-to-date with rapidly advancing technologies?* The high ambiguity in the implementation of computer science education makes policy difficult to implement in practice.

The framework for K-12 education policy starts with the Every Student Succeeds Act (ESSA), signed into law

in December 2015. The ESSA replaced the thirteen-year-old No Child Left Behind legislation as the nation's major K-12 education law. The act massively broadens state-level access to federal funding that can be utilized to support STEM education activities both in and outside the classroom. It contains more than a dozen significant STEM provisions that support professional development in STEM subjects and the establishment of a STEM master teacher corps. Notably, computer science was included with other core subjects, such as writing, science, and mathematics, in the ESSA's definition of a "well-rounded education."

The act, however, is only a framework, as most decision-making on policy is vested in the state and local level. For example, while the US Department of Education distributes billions of dollars in education aid across the country, it cannot specifically tell states what courses to teach or how to teach them. Additionally, the current divisive political orientation at the state level focuses on the local control of schools and the rejection of federal influence on curriculum and teaching methods.

Though several national and international organizations have created technology content standards, most US states do not have well-defined computer science standards. Without these standards, computer science

curricula frequently lack the necessary components—primarily, learning to code—and instead focus on basic aspects such as computer graphics and creating template-based websites. In a Google study, only 53 percent of the computer science opportunities offered in schools included computer programming. So, even the students who have access to computer science often lack essential learning elements. Computer science is not considered a "core" subject and its funding is frequently limited if not already non-existent. Despite roll-backs in testing under the ESSA, schools often cannot devote time and resources to teaching classes that are not evaluated by standardized testing measures and evaluation. Finally, despite a technology-driven economy and its continued inaccessibility in most schools, computer science is not considered a high-need subject, meaning there are few incentives to become a computer science teacher and limited reasons for schools to engage in the cumbersome processes to change their graduation requirements.

To encourage states to incorporate computer science into public education, former president Barack Obama announced the Computer Science for All (CSForAll) initiative. The initiative recognizes computing is a "new basic" skill necessary for economic opportunity and social mobility and hopes to build on the

effort of a growing movement led by parents, teachers, states, districts, and the private sector to expand computer science education. This initiative will provide \$4 billion in funding for states, and \$100 million directly for districts to increase access to K-12 computer science education. The funding will allow more states and districts to offer hands-on computer science courses across all of their public high schools, get students involved early by creating high-quality computer science learning opportunities in elementary and middle schools, and ensure all students have the chance to participate, including girls and underrepresented minorities. In addition, with more than \$135 million in investments by the NSF and the Corporation for National and Community Service (CNCS), the initiative seeks to properly support and train teachers—the “most critical ingredient to offering computer education in schools.” With a new administration, however, the future of the CSForAll initiative is unclear.

Many teacher preparation programs do not include technology or computer science requirements, and the pathways for those that do want to become computer science teachers are not clear. Both of the major federal education policies, the ESSA and the Higher Education Act (HEA), have specific provisions and regulations regarding teacher

preparation and quality, but neither specifically mentions computer science in these contexts.¹ Beyond federal policy, only a few states have pathways for teacher certification and preparation in computer science. When the New York City Department of Education unveiled a ten-year plan to make computer science education available in all public schools, mayor Bill de Blasio cited training teachers as a particular challenge because “there is no state teacher certification in computer science, and no pipeline of computer science teachers coming out of college.” Moreover, states frequently have requirements that their own preparation programs cannot meet. In Florida, for example, computer science teacher candidates have to take a K-8 computer science methods course not offered in any teacher preparation program in the state. Lastly, because computer science curricula are undefined and lack standards, it is difficult for teachers to be fully prepared to teach. Moreover, many current teachers often lack sufficient preparation to teach advanced classes.

Recommendations

Incorporate Computer Science into State Standards

Though included among core subjects, states must create a set of computer science standards that inculcate

excellence and clearly define skills and knowledge students should acquire during their K-12 education. Curricular standards act as both aspirational and operational and serve to define the skills and knowledge of the discipline to be acquired by every student. Though many organizations including the CSTA and ISTE have created computer science curriculum standards, states must create a set of well-defined K-12 standards that inspire and define computer science and can be adopted by all schools to ensure students are receiving quality computer science education. Further, these standards must not be solely developed for secondary schools. Students should start receiving computer science training at a young age in order to build on their skills throughout their K-12 education, much like in mathematics.

Make Computer Science a “Core” Subject

In addition, states and local districts must update laws and regulations to allow students to count computer science courses toward their graduation requirements. Currently, only thirty-two states allow students to count computer science courses toward high school graduation. Many computer science courses are counted toward elective credits for students' graduation requirements; however, these credits should instead count toward

core graduation credits, preferably in computer science or technology, but also in mathematics or science. Currently, little incentive exists for students to take or for schools to offer computer science because it is not considered a “core” subject. Further, schools are unable to introduce new courses or invest in current ones with their limited resources because computer science is not a requirement.

Designate Computer Science as High-Need

Computer science should be designated as a high-need subject, much like math and English as a second language. Though sixty-seven percent of parents believe students should be required to learn computer science and the demand is highest among parents of low-income students, low-income schools do not have the resources or teachers to provide this education. By designating computer science as a high-need subject, school districts and educator training programs can use funds specifically allocated for these subjects. Moreover, many scholarships, grants, and loan forgiveness programs, including AmeriCorps grants for Teach for America members and the TEACH grant, specifically target teachers instructing high-need subjects. In addition, alternative teacher preparation programs, which often recruit more diverse teachers, require teachers to teach high-need subjects.²

Recruit and Prepare a Diverse Teaching Workforce

Teacher preparation programs and school districts must be purposeful and intentional about recruiting teachers from diverse backgrounds. Other industries, including the tech industry, actively recruit to ensure diverse, high-achieving candidates are considered and granted employment in their companies. Federal policies should provide incentives and funding for states to address the high school computer science shortage by investing in teacher recruitment, preparation, and retention. By creating scholarships, grants, and student loan forgiveness programs as incentives, students from low-income backgrounds can study computer science and move on to teaching careers, instead of being forced into other fields. Scholarships and grants that target students of color and women can generate further incentives for studying computer science. By ensuring science classrooms in universities welcome and support students of color and women, and by changing perceptions of the computer science field, we can recruit and retain students in computer science and computer science education.

The computer science teacher shortage can also be addressed by exposing more pre-service teachers to computer science during their required coursework. Pre-service education technology courses could easily in-

tegrate computer science content. Students preparing to be mathematics, science, or broader technology teachers could be recruited to become computer science teachers in many states if they were exposed to relatively minimal computer science coursework in teacher preparation programs.

Further, by designating computer science as a high-need field, existing incentives for teacher endorsements in mathematics can be replicated for computer science teacher endorsements. Currently, teachers instructing on Federal Perkins loans—needs-based loans through the US Department of Education—are teaching high-need subjects, typically math, science, and ESL. They can begin to cancel loans after just one full year of teaching and receive full loan forgiveness after five years of teaching in a low-income school.³ The STEM K to Career Act amends the HEA to require the US Department of Education to forgive student loan obligations of borrowers employed as full-time teachers of STEM in low-income elementary or secondary schools, but this bill is still in legislative committee consideration.⁴ By forgiving these loans, students from low-income backgrounds—disproportionally, students of color—have the opportunity to go into teaching without worrying about finding a higher income to pay unreasonable amounts of loans.

Finally, states should create competitive programs for educator training programs to encourage pre-service teachers to take computer science courses, integrate computer science content in education technology courses, or create specific methods courses to prepare computer science teachers. Furthermore, by targeting HSIs, and other minority serving institutions, states can ensure schools of education are recruiting diverse cohorts and properly preparing them for computer science teaching. The shortage of Latino teachers correlates with the lack of funding for teacher education for HSIs serving the largest concentrations of Latino higher-education students. By increasing funds to HSIs, educator-training programs can prepare larger numbers of Latino teachers for both computer science and other subjects. Though federal policies have limitations, Congress has introduced legislation to include computer science in teacher training programs. The Computer Science in STEM Act of 2015, an attempt to amend current legislation, includes provisions that increase access to computer science teacher training programs and improve the teacher certification or licensure requirements and processes.⁵ While this bill awaits consideration in the legislative committee, the public should consider that, if passed, it would help states create pathways for computer science educators.

Create Clear Pathways for Computer Science Teachers

By creating clear, navigable, and rewarding professional paths tied to content knowledge for computer science teachers, we can build and retain them. By first developing state certifications, more pre-service students can be better prepared to become teachers. As certification requirements become developed, existing teachers should be grandfathered into any new classifications. After clarifying the certification process, states should also incentivize partnership opportunities between local school districts and schools of education to create direct pathways for teachers in high-need school districts. In addition, computer science professionals should be encouraged to become teachers through expedited certification processes, ensuring a transition to the classroom be as seamless as possible.

Career pathways represent critical strategies for recruiting and retaining quality teachers, not just within the computer science field. By first creating a clear pathway to the computer science teaching field and by ensuring teachers have career ladders to professionally lead and grow, students and young professionals interested in computer science can enter teaching instead of being enticed into high-tech, private-sector jobs. Moreover, states must invest in computer science teachers by providing competitive

wages that compensate for highly skilled, culturally competent training.

Train Teachers in Cultural Competency

Teacher preparation programs must include training teachers in cultural competency no matter the content subject matter. Because schools are becoming more culturally and linguistically diverse, teachers must be culturally aware and sensitive to the needs of each individual student. Given the excessive lack of representation in the technology sector and access to computing technologies, computer science education must be particularly designed to bridge access and opportunity gaps by incorporating real-world, culturally relevant curricula. Teachers should learn to design programs and curricula that take into account the Latino perspective on education issues, resources, and support systems in the communities. Teachers should be trained in culturally responsive teaching and culturally responsive computing. Programs such as COMPUGIRLS, a free technology program designed for minority girls at Arizona State University, exemplify the extraordinary need and success in intersecting computer science with culturally responsive teaching. COMPUGIRLS aims to increase the number of women entering computer science fields by offering adolescent girls from under-resourced school

districts a series of culturally relevant computer science courses. Supported by a grant from the NSF, COMPUGIRLS provides fun summer and after-school classes through which participants learn the latest technologies in digital media, games, and virtual worlds and become a voice for social justice and change in the world. By supporting programs like these and using them as examples for increased culturally responsive computer science, we can train teachers to best support all students, primarily those from disadvantaged backgrounds.

Conclusion

K-12 schools, particularly public schools, can no longer ignore computer science as a core discipline in the twenty-first century. Even for students who are not pursuing computing or other STEM-related careers, learning computer science offers students opportunities to increase critical thinking and problem-solving skills, improve math and science performance outcomes, and become producers, instead of solely consumers of ever-changing technologies. Before we can educate all students in computer science and prepare them for these careers, however, we must first recruit and train diverse teachers in computer science. Without diverse teachers armed with both high-level computer science knowledge and cultural competen-

cies, our schools will not be able to prepare our students for a twenty-first century global economy. Moreover, as affluent and predominately White schools steadily integrate computer science education into their curricula, schools serving low-income students of color must also keep up. Without the proper resources and diverse teaching workforce to match this integration, this chasm will further exacerbate achievement and opportunity gaps.

These six recommendations can help to promote diverse computer science teacher preparation: 1) incorporate computer science into state standards; 2) make computer science a “core” subject; 3) designate computer science as high-need; 4) recruit and prepare diverse computer science teachers; 5) create clear pathways for computer science teachers; and 6) train teachers in cultural competencies, particularly STEM teachers. In adopting these principles, the US can begin preparing and retaining a diverse teaching workforce that can solidify the critical understandings within computer science to better equip students for twenty-first century lives and careers.

Endnotes

- 1 Title II of the Higher Education Act pertains to teacher quality programs and regulations and includes teacher partnership grants, some institutional aid, and specific graduate fellowship programs.
- 2 In Teach for America’s 2014 cohort, 50 percent of newly recruited corps members identified as people of color, 47 percent received Pell Grants, and forty new teachers had DACA status.
- 3 Through the Federal Teacher Loan Forgiveness program, teachers can have up to \$17,500 of student loans forgiven after teaching in low-income schools for five years, but most teachers have only \$5,000 of loans forgiven.
- 4 HR2082: This bill amends the HEA to require the US Department of Education to forgive student loan obligations of borrowers employed as full-time teachers of STEM in elementary or secondary schools in which the number of low-income children exceeds a certain percentage. This bill is currently in both the House ways and means and House education and workforce committees.
- 5 HR2057: This bill amends the America COMPETES Reauthorization Act of 2010 to include computer science in that act’s definition of STEM as the academic and professional disciplines of science, technology, engineering, and mathematics, which was included in the STEM Education Act passed in 2015. Moreover, the bill includes 1) programs to increase disadvantaged students’ access to computer science courses, 2) computer science teacher training programs, 3) improved teacher certification or licensure requirements and processes, which were left out of legislation that has passed. This bill is currently in committee. The bill was introduced by Representative Tony Cárdenas, who is himself a Latino Congressman with a STEM background.

Beyond the Housing Crisis: Affordable Housing as a Platform to Address Issues Affecting Our Growing Senior Population

By Arnold López

Introduction

As the general population continues to rapidly grow and live longer, challenges and opportunities will arise for us as a nation to address the affordable housing crisis facing thousands of seniors in the United States. According to the Department of Health and Human Services Administration for Community Living (ACL), in 2014 there were over 46 million Americans 65-year-old and over—a 28 percent increase since 2004. In 2020, 16 percent of the nation's population will be 65 and over and that share will increase to comprise 19 percent of the total US population by 2030. Growth projections indicate as each day goes by an estimated 10,000 more Americans reach age 65.

This paper seeks to synthesize national data gathered from an

array of research focused on the 65+ population to provide a comprehensive snapshot of what the current economic, health, and housing conditions are available for the elderly. Data in this report highlights the negative externalities for ethnic minority groups, particularly the senior Latino community. Latino seniors have higher life expectancies despite high disability rates, earn less from their social security retirement, and disproportionately reside in rental housing as compared to their non-Hispanic White counterparts. As a result, it is imperative we prepare to address these challenges by acknowledging demographic changes and, as a result, utilizing housing policy as a strategic vehicle to address income and health vulnerabilities seniors face.

An Overview on the Challenges of Advanced Age

Growth in the Elderly Population and Demographic Changes

The 65+ population increased by 24.7 percent from 2003 to 2013, reaching 44.7 million in 2013. Overall, Americans aged 65 and older are projected to make up 21.7 percent of the total population by 2040, an expected increase from 40 million to 88 million, making them a fifth of the population. The racial composition of our nation's elderly population is dramatically changing, reflecting trends that have been underway since 1965. For example, in 2000, the non-Hispanic White elderly population made up 84 percent of those over the age of 65; this figure is expected to decline to 58 percent by 2050. In 2003, minorities made up 17.5 percent of the 65+ population, but rose to 21.2 percent in 2013. According to a report from the ACL, as of 2013 African Americans represented 8.6 percent of the 65+ age group, while Latinos made up 7.5 percent, Asian or Pacific Islander 3.9 percent, Native American 0.5 percent, and people who were of two or more races 0.7 percent. Collectively, the ethnic minority subgroup is projected to increase and amount to 28.5 percent of the 65+ population by 2030 and 39.1 percent by 2050.

Population growth trends reveal the elderly population is growing at

faster rates for Latinos than other race categories. US Census Bureau growth projections estimate the elderly Latino population will increase by 249 percent (17 million) from 2020 to 2050, whereas the non-Hispanic White population will grow by only 24 percent. During the aforementioned period, the 65+ African American population will increase to 9.9 million (103 percent change), Asian 7.4 million (208.7 percent change), Native American 645,000 (91.2 percent change), and those who are of two or two or more races, non-Hispanic, slightly over one million (157.2 percent change). Nonetheless, projections for the elderly still indicate the non-Hispanic White senior population will represent more than half the total well into 2060, while the Latino share of the senior population will double from 11 percent to 22 percent.

Life Expectancy and its Adverse Impact

While life expectancies have increased, there persists a marked variation among racial groups. The average American can expect to live up to 79 years, an increase from the life expectancy in 1950 at 68 years. The Social Security Administration (SSA) predicts that as of 2016, men who will turn 65 are expected to live until 84, while women will live until 86. Life expectancy growth will create a larger pool of seniors, allowing the 85

and over age group to exceed numbers well over 14 million by the year 2040, a 143 percent increase from 2013.

Life expectancy plays a significant role in contributing to the demographic change of the elderly, and by virtue, will further affect subgroups with scarce resources in later adulthood. SSA reports Latino life expectancy is higher than that of the general population. Latino males are expected to live until 85 and Latina females until 89. On the other hand, African American and Native American communities have a lower life expectancy of 65. These racial groups with shorter life expectancies and more limited economic resources demonstrate a need to retire early, but cannot because of SSA eligibility rules. Conversely, those with longer life expectancies will have to struggle with limited economic resources that dwindle as they age. Patterns in life expectancy also signify that female seniors will be living alone later into their retirement as more women outlive their spouses. In 2014, 39 percent of non-Hispanic White and African American elderly women lived alone, a figure that echoes across other races.

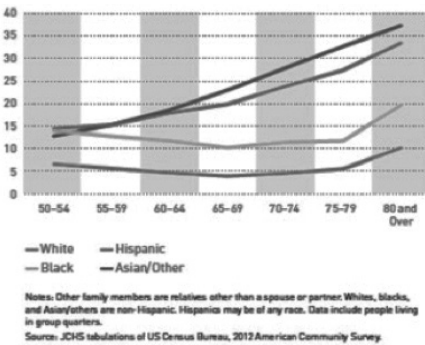
Cultural Difference in Housing Arrangements for the Elderly

Housing arrangements, however, are quite different when we look into cultural differences. For example, in Latino households, elderly family

members commonly live in a multifamily housing arrangement (*see Figure 1*). Latinos and Asians share this same housing arrangement, and it becomes more apparent as people age further. Over 30 percent of Latinos and Asians in the 80+ age group will live with a relative. For Latinos, 69 percent of elderly men had a spousal co-housing arrangement, 14 percent lived alone, 12 percent lived with other relatives, and only 5 percent lived with non-relatives. In contrast, elderly Latinas face a different reality: 39 percent lived with a spouse, 26 percent lived alone, 33 percent lived with other relatives, and only 2 percent lived with non-relatives. In part, this situation is attributable to the mainstream practices of assisted living facilities that fail to incorporate cultural values into their service delivery. For example, most Latino elderly report feeling most comfortable speaking with someone in their native language and/or from the same home country. Other factors, such as not having the financial resources to afford nursing home options, also prevent families or those living alone from seeking these housing arrangements. As a result, caregiving places a significant financial burden on low-income families who are left with few, if any, alternatives. Integrating policies that recognize these cultural dynamics, therefore, play a critical role in the successful planning for the future of

our elderly. The caregiver role, often assumed by a family member, will be essential in providing supportive services. Implementing policies, such as recent proposals to provide tax incentives for caregivers, can be an important step in enhancing the approach we take in elderly care.

Older Asians and Hispanics Are Much More Likely to Live with Relatives as They Age



Growing Rent Costs Outpace Income Levels

The income security of our elderly is persistently becoming a growing problem as rising housing prices continue to outpace the fixed income with which seniors are living. On average, seniors are spending more than 35 percent of their income on housing, leaving little of their budget for health care and other vital necessities. The retiring “Baby Boomer” population will be challenged by the economic pressures of rising rent prices amid competition for a limited stock of affordable housing. Projections show

that at this growth pattern, the rate of homeless seniors will increase by 33 percent from 2010 to 2020 and will increase 100 percent by the year 2050. An increasing number of low-income families are entering the rental housing market. Household income for very low-income renters saw a drastic 9.9 percent drop between 2001 and 2014. The rental market in 2014 saw a 44 percent increase in households burdened by housing costs (see Figure 2 for a “cost burdened” definition). Seniors who faced this economic hardship—11.4 million households—paid more than half of their income to cover housing costs. In that same year, 72 percent of renters utilized more than half of their income, as did 84 percent of those who earned less than \$15,000 a year. This statistic is alarming when we begin to connect the average social security income of \$15,528 a year (in 2014) to the likelihood of a senior being cost-burdened by rent prices.

This trend is creating fierce demand for affordable housing as more people fall into the housing cost-burden trap. The percentage of seniors who are renting has significantly grown over the last decade and so has the share of their income covering rent. In 2001, approximately 50 percent of individuals in the 65+ age group who rented were considered to be cost-burdened, and by 2014, that pool of renters grew to 55 percent;

both growth rates set new records. US Census Bureau figures for 2014 reveal that 30 percent of people 65+ are severely cost-burdened (those utilizing 50 percent of their income for housing). The severity of burden also tends to escalate as people go further in the life cycle and have less money saved to spend on an array of health issues. In fact, 33 percent of renters who were 75 years and older were estimated to fall into a severely cost-burdened category. This trend is expected to continue into the future according to JCHS projections, which estimate the number of people aged 75+ to grow from 6.9 million in 2015 to 13.4 million in 2035.

Renting Is a Growing Trend Among Seniors

A focus on rental housing is appropriate for this group, although studies show most seniors with the financial means to do so will transition into assisted living facilities once they are past 75 years old. At this point in their lives, elderly individuals will face health conditions that require more time and intensive care that relatives cannot afford to provide. Nonetheless, roughly 96 percent of our senior population resides in either a home or rental housing. Renting is the most feasible option for the elderly living in poverty. As incomes decrease with age and expenses increase with challenging health conditions, more

and more seniors will be seeking rentals with disability features and supportive services. Rentals with accessibility features will be appealing for homeowners with disabilities who cannot afford to retrofit their homes and thus will add to the growing rate of those transitioning from homeownership to renting. In fact, estimates show that within the next ten years, the number of renters who are 75 and over will grow from 250,000 to a little over one million by 2025. Harvard University's Joint Center for Housing Studies (JCHS) analysis of the rental market during a ten-year period (2005-2015) reveals that the number of renters in the 60-69 age group doubled from over two million to four million, making it the age group with the highest growth.

Disproportionate Demand for Rentals Grows For Latino Elderly

Additionally, when accounting for race, homeownership and rental housing data show key differences in housing arrangements for the ethnic elderly population. Within their own racial category, 85 percent of non-Hispanic Whites 65 and over in 2010 were homeowners. In contrast, the ethnic elderly disproportionately occupied rental housing compared to their non-Hispanic White counterpart. In the 65+ age group, Latinos had twice the amount of renters at 9.5 percent than the 4.7 that were

homeowners within their own racial category. African American elderly had similar figures—only 7.3 percent owned homes as opposed to the 15 percent who rented. These percentages tell us elderly minorities are twice as likely to rent within their age group. Given this trend, it seems likely minorities will continue to demand rental-housing opportunities. Further, the JCHS report points out Latinos contributed the most to the renter growth between 2005 and 2015, accounting for 29 percent of the growth. Projections show that in the next ten years the Latino population, regardless of age, will account for 40 percent of rental demand.

Seniors Rely Heavily on Social Security Benefits as Their Source of Income

The baby boomer population began to enter retirement in 2012, as the oldest in the cohort turned 66 and became eligible to withdraw from their social security retirement pensions. The youngest individuals in the cohort will be deemed eligible under SSA rules at 67 in 2031. Social security retirement functions as the main source of income for most seniors over the age of 65. The SSA estimates that nine out ten individuals 65+ (42.1 million) receive social security retirement funds. Out of those who receive the benefits, 36 percent rely on the retirement pension to make 90

percent of their income, and nearly a quarter exclusively rely on it. Elderly persons who are unmarried are also highly dependent on social security. Nearly 47 percent of elderly individuals who are unmarried depend on social security to make 90 percent of their income; out of those who are married, 22 percent rely on social security for 90 percent of their income.

Social security plays an important role in helping our seniors avoid homelessness. According to the Center on Budget and Policy Priorities, 44.4 percent of seniors (15.3 million) would have lived in poverty in 2012 without social security benefits. This strong reliance on social security benefits is concerning, especially given the limited amount of income these payments represent. As of January 2016, the average social security retirement payment was \$1,341 a month; while the maximum monthly benefit was only \$2,787.80.

Social Security Pensions and the “Hispanic Paradox”

It is increasingly difficult for the Latino elderly to financially prepare for their future for several reasons. Despite having longer life expectancies, Latinos have high disability rates that worsen as they move further in the life cycle. According to a 2013 SSA report, disability insurance provided 75 percent of income for more than half of Latinos receiving social security

benefits. Thus, social security and the disability insurance pension are imperative to Latino workers and, more so, to those who over-represent shares in the informal labor-intensive workforce where few opportunities for social security contributions exist.

Additionally, the low likelihood of a disability claim to be processed successfully impedes many Latino elders who have contributed to the social security fund from attaining their pension. According to SSA, on average, only 45 percent of all disabled worker applicants, regardless of race, were successful from 2001 to 2010 after having gone through appeals, while only 28 percent were awarded at the initial claim period. For a majority of Latino elderly, factors such as language barriers and lack of proper representation in the social security claims process creates delays and, most often, leads to ineligibility.

Latino Elderly are Among the Poorest in Their Age Group

Income data shows disproportionately higher rates of poverty for elderly minority subgroups. An SSA survey found that 19.8 percent of elders below the federal poverty line were Hispanic, double the amount of their non-Hispanic White counterparts, who made up 8.4 percent of those in poverty. More than a third of the income for the elderly came from SSA benefits across all race groups

last year; however, the reliance on social security for Latinos and African Americans is significantly higher. In 2013, 37 percent of elderly, married Latinos had virtually no income and relied on social security to comprise 90 percent of their income. Social security was especially crucial for 62 percent of unmarried Latinos, who also relied on it to make up 90 percent of their income. Social security benefits for Latinos 65+ was on average \$14,148, and less for Latinas, who received \$10,931. This same reliance held true for the African American 65+ population receiving social security. For the 22 percent of African Americans who were married, and 55 percent that were unmarried, social security was 90 percent of their income. Income for African American elderly women was also less than their male counterparts: African American men 65+ received \$14,800, while women received \$12,540.

Affordable Housing Development Efforts Fall Short

Affordable housing development continues to be an effort that slowly tries to keep pace with the growth of low-income households. Federal, state, and local housing agencies face challenges when attempting to balance appropriations for the different target populations and are adapting as demographics grow. A decline in much-needed funding

for senior development leaves more low-income seniors without assistance and perpetuating the housing cost burden trap. According to HUD's 2015 report on worst-case housing needs, 1.5 million seniors were paying more than half of their income and living in inadequate conditions, a figure that has not declined from the 2011 estimate.

LIHTC Challenges

The Low Income Housing Tax Credit (LIHTC) program has incentivized investments designed to produce housing for low-income families and individuals who cannot afford to pay market-rate rental prices. Since its inception in 1986, LIHTC deals have comprised up to 90 percent of all affordable housing developments in the US. To be eligible for LIHTC, financing developers must rent units to people whom earn at least 80 percent of the area median income and rent at least 20 percent of the units in the development project at below-market rates. Developers earn credit depending on the volume of units that fall below market rates and the income of the renters.

According to the US Department of House and Urban Development's (HUD's) recent LIHTC database from 1995 to 2013, a total of 27,557 development projects were constructed, producing 2,100,496 housing units. Out of the overall projects financed,

only 32 percent were projects dedicated to senior housing, with 66 percent of those dedicated to new construction (8,983 senior development projects totaling 320,800 units). This demonstrates that although a good percentage of LIHTC finance is devoted to senior housing, the supply has yet to catch up with the rising demand for senior housing development.

LIHTC finance thus will remain a critical tool to addressing the growth of housing cost burdened seniors. However, the lack of federal funding creates challenges for developers looking to provide rents for seniors on a limited income. As a result, developers seek help from localities in making projects financially feasible so they are able to build more units with deeper affordability levels. Financially strapped cities often find themselves unable to help due to the high subsidies necessary for senior housing.

HUD Section 202 Constraints

Appropriation for Section 202 has been stagnant since 2008, despite estimates indicating 65,000 units will have their subsidy contract expire by 2023. HUD's Section 202 program is important because it works as a funding source that exclusively finances the development of senior affordable housing. HUD's Section 202 program has managed to produce 400,000 units since 1959. Development sponsors

utilize capital advances from Section 202 effectively because, unlike bank loans, Section 202 funds bear no interest and repayment, so long as rental units remain available for low-income elderly residents for at least forty years. Moreover, funding can be utilized toward construction, rehabilitation, or the acquisition of a housing structure. Funds from Section 202 are also crucial during the operation period. Sponsors of the development project can utilize funding to match the tenant's contribution toward rent and, most importantly, provide supportive services to seniors. However, despite its revenue industry, experts mention that a key factor contributing to the decline in Section 202 finance use has been due to the difficulty in navigating varying revenue streams to work in compliance with LIHTC and other limited federal finance programs with eligibility criteria. In order to expand supportive services for new and existing senior housing developments, the Section 202 program will need to expand as a source of funding and work more effectively in tandem with LIHTC.

Accessibility Demands

Making housing affordable does not solve the overall housing issue for seniors. Seniors need adequate housing conducive to their physical demands. Rental housing that is affordable is often supplied in buildings not de-

signed for people with disabilities. As seniors further age they require adequate housing conducive to their physical demands, such as ramps, arm bars, extended hallways, and wheelchair-friendly doorways. According to JCHS, less than one percent of our current rental stock has appropriate accessibility design features that accommodate seniors. HUD estimates that in all four of its subsidy programs only 65 affordable units exist for every 100 individuals classified as extremely low-income, with only 39 percent actually available. Even when available, these units do not meet the accessibility requirements sufficient for elderly living; only 34 units out of 100 were found to be adequate for the extremely low-income.

Lack of Culturally Sensitive Models

State and federal funds to support affordable housing development have the ability to incentivize integrated services that accommodate the cultural values, languages, and lifestyles of tenants from diverse ethnic backgrounds. Developers often dismiss the cultural nuances that should be taken into account in senior housing, such as that Latino and Asian elderly are more likely to have care provided by family members, and African American elderly assume parental roles for grandchildren. Often it is these cultural patterns that unintentionally

marginalize elderly from housing opportunities. By being cognizant of these cultural differences, developers and government agencies can best make use of affordable housing funds in an effort to reduce costs in other government-funded sectors like health care and social services.

Recommendations

Expand Federal Agency / Department Efforts

Housing for the elderly demographic merits a comprehensive approach that draws in multiple stakeholders. HUD will have to expand Section 202 to catalyze senior housing developments into the market. Social security policies, on the other hand, will have to find ways to incorporate more individuals into retirement and disability claims, while also working alongside the Department of Health and Human Services to incorporate supportive services and health care models into housing. Similarly, the Internal Revenue Service, as well as state agencies that manage LIHTC funds, could increase local government involvement by providing tax credits for supportive services and incentivizing the integration of healthcare.

The White House Conference on Aging (WHCOA) Should Frequently Convene

Although very successful in getting multiple agencies and stakeholders to engage issues specific to the senior population, the WHCOA only convenes every ten years. Our nation's aging experts must engage in more frequent conversations in order to advance a comprehensive agenda, including programmatic, technological, and legislative changes. National dialogue on aging needs to more frequently happen and should be facilitated by the White House as a way to attract important stakeholders. The WHCOA can serve as a platform to communicate the effects of legislation across agencies and its impact on non-governmental partnering entities.

States Should Prioritize LIHTC Deals for Senior Development

State tax credit allocation agencies administer LIHTC funds by reviewing applications from housing developers in a very competitive process. Developers earn application points by providing amenities and access to resources, and successfully stating financial feasibility, among other scoring criteria. Limited allocation of federal tax credits to the states drive up competition among developers who are seeking the tax credits to finance a significant portion of affordable housing development. These public-private partnerships attract private participation because

in most deals, eligibility criteria only call for a specific number of units in a development project to be below the market rate. As a result, many housing developments are open to only a few low-income applicants and are not specifically tailored for an aging community. State tax credit allocation agencies should thus award more points to prioritize senior housing development and match the growing need for affordable housing.

Setting in Place a Strategic Plan

Communicating the foundational steps HUD will take in its strategic plan will continue to guide the agency in long-term efforts to rehabilitate and construct affordable housing development for seniors. A strategic plan allows the department to leverage its set of resources, along with those from other agencies, to develop a more comprehensive approach that is tangible and can be agreed upon with key stakeholders. HUD thus prioritizes engagement with both private and public sector actors by laying out a long-term plan that focuses on clear goals.

Congress Should Expand HUD's Section 202

Stagnant funding for Section 202 is causing a backlog in development and consequently causing longer waiting lists for low-income seniors in dire need of housing. Section 202 alloca-

tions allow developers to build housing quarters with accessibility features, which in turn lead to higher retention rates and fewer people transitioning into assisted living facilities. HUD is requesting \$505 million for Section 202 in fiscal year 2017, which is an increase of \$72.3 million from fiscal year 2016 for the program. Congress should take into consideration the amount of research and best practices calling for affordable housing and approve HUD's request to increase Section 202 as a significant step in addressing a major issue for our senior population. This request is needed to fully fund highly needed grants such as the Project Rental Assistance Contracts (PRAC) and Senior Preservation Assistance Contracts (SPRAC), as well as renew service coordinator/congregate housing services grants.

HUD Should Integrate Culturally Sensitive Housing Models Under the "Supportive Services Demonstration for Elderly Households in HUD-Assisted Multifamily Housing" and Measure Their Success

As part of this demonstration program, HUD should collect data from field-tested practices that can speak to the strengths and weaknesses of integrating culturally sensitive housing models. HUD's best practices learned from this demonstration will allow the department to quickly and

efficiently adapt to the demographic changes in the senior population. A needs assessment (e.g. interviewing residents in a language they can understand) would help eliminate barriers and be more strategic with state and local funding. Additionally, the data collected will help identify the challenges and opportunities in expanding into public-private partnerships. This crucial information will assist HUD in developing finance models across agencies to achieve effective partnerships.

State Allocation Agencies Should Prioritize the Integration of Health Care Services in Affordable Housing Development

Many researchers and practitioners propose the integration of health care services in rental housing development as more successful practices are surfacing. Various studies show there are many cost benefits associated with the coordination of health care services with independent living housing options for low-income seniors. Overall, it helps elderly people achieve autonomy and limits the reliance on more managed care services. Service delivery could integrate strategies to address specific health disparities prevalent in ethnic elderly subgroups. For example, raising awareness about diabetes and heart disease can be integrated into the supportive service model as a way to cater to the Lati-

no elderly. Additionally, integrating health care funds, such as waivers, could allow seniors with disabilities to help cover housing costs such as security deposits and initial utility bills. Moreover, training the relatives and personal caretakers to whom the elderly look for support can also be an effort to be led by those administering supportive services at affordable housing developments.

Increase Access to Social Security Eligibility

Among ethnic groups, Latinos are shown to have less knowledge of social security eligibility rules, and yet rely heavily on the social security retirement pension and disability insurance. As such, the SSA should extend its Spanish communications campaign to target outlets known to the Latino elderly community on how to participate in the social security pension. Language barriers make navigating an already incredibly complex retirement system much more difficult for elderly Latinos. SSA can also begin to facilitate the explanation of complex retirement jargon into simple language that seniors and, more so for those whose English is not the native language, can easily understand. In its absence, thousands of Latinos looking to retire cannot do so because they do not understand. SSA field offices would thus find it beneficial to explain complex retire-

ment concepts also to seniors with low literacy rates and/or those with physical and mental disabilities. For example, many applicants are denied retirement claims because they do not have the quarterly credits to retire, lack proper representation during disability adjudication, or are simply unaware of benefits such as survivor and/or widow's benefits. These problems are further exacerbated as the application process moves into a complex digital format.

Summary

Housing is and will continue to be a growing concern that will affect the elderly in the United States. The affordable housing market will

be more competitive for the elderly as the general population growth continues to drive demand. To address this challenge, our government will have to look into innovative ways to meet the demand of seniors looking to live independently in housing options designed to accommodate them.

Innovation that looks to incorporate cultural competence will further address the needs of the changing demographics in the United States. It will take well-coordinated efforts between all levels of government, in conjunction with the private sector, to spur growth for senior housing and ultimately facilitate aging in place for our vulnerable populations.

Figure 2

BOX 1: DEFINITIONS

- **AREA MEDIAN INCOME (AMI):** The median family income in the metropolitan or nonmetropolitan area
- **DEEPLY LOW INCOME (DLI):** Households with income at or below 15% of AMI
- **EXTREMELY LOW INCOME (ELI):** Households with income at or below 30% of AMI
- **VERY LOW INCOME (VLI):** Households with income between 30% and 50% of AMI
- **LOW INCOME (LI):** Households with income between 50% and 80% of AMI
- **NOT LOW INCOME:** Households with income above 80% of AMI
- **COST BURDEN:** Spending more than 30% of household income on housing costs
- **SEVERE COST BURDEN:** Spending more than 50% of household income on housing costs

Source: National Low-Income Housing Coalition. Volume 5, Issue 1. March 2015

The HARVARD JOURNAL of HISPANIC POLICY

Harvard Kennedy School of Government

Call for submissions

HJHP invites established and emerging scholars, including researchers, journalists, artists and/or policy practitioners, to submit work by October 14, 2016 for publication consideration. HJHP also accepts Op-Ed/Blogs and artwork for web publication consideration on a rolling basis. All submissions must be the author's original work and previously unpublished.

About HJHP

Founded in 1985, the Harvard Journal of Hispanic Policy (HJHP) is the oldest student-run academic journal at the John F. Kennedy School of Government at Harvard University, and one of the premiere publications in the nation focused on the public policy issues that impact the U.S. Latina/o community. A nonpartisan review, HJHP seeks a wide range of submissions for print and web publication. HJHP's website provides a platform for rapid, relevant dissemination of timely policy perspectives, while the annual print edition continues our strong 30-year tradition of rigorous policy research.

Submission Guidelines

Print submissions must adhere to the Chicago Manual of Style formatting guidelines; footnote citations are not permitted.

How to Submit

Prospective contributors must submit their works electronically via our website: www.harvardhispanic.org. Each submission should include a cover letter with author's (1) full name, (2) mailing address, (3) e-mail address, (4) phone number, (5) abridged biography of no more than 300 words, and (6) a professional headshot. Any supporting graphics, charts, and tables must be included as separate attachments.

All submissions received by October 14, 2016 will be considered for print publication. The HJHP Editorial Board will notify all applicants by January 1, 2017. Selected authors may be asked to perform additional fact-checking or editing before publication; compliance with these procedures is required for publication.

- **Research articles** must be between 4,000 and 7,000 words, and must include an abstract of no more than 100 words;
- **Book/film reviews** must be between 1,500 and 3,000 words, and must include the full citation, including publisher/director and year of publication/original release date;
- **Commentaries** must be between 1,500 and 3,000 words and include references where appropriate;
- **Artwork** should comment on the U.S. Latina/o community's political, social, and/or economic condition, and must be submitted as high resolution files (300+ dpi, JPEG format). Each submission must include artwork title, artist name, medium, and year of creation. (*Print & Web*); and
- **Op-Eds/Blogs** should be between 750 and 900 words and include references where appropriate (*Web only*).

An Emerging and Diverse Workforce To Reclaim Abandoned Mine Lands

Gabriela Sosa

Introduction

The United States has a vast legacy of economic prosperity and innovative technological development stemming from its historic mining activities. Minerals recovered from our federal and public lands have been used to improve many facets of American life. These minerals provide vital ingredients in a wide range of everyday products that provide economic and national security. Unfortunately, another legacy associated with historical mining lies in its significant degradation of the environment. More than a century of mining has created thousands of abandoned mine land (AML) sites with hundreds of millions of tons of solid wastes. Today, estimates of abandoned mines near 500,000 in the United States. In 2015, Con-

gressman Raul Grijalva from Arizona introduced legislation that would increase funding to reclaim these inactive mines and would reform the General Mining Law of 1872. The proposed Hardrock Mining Reform and Reclamation Act of 2015 (H.R. 963, 114th Congress) requires reclamation bonds for cleanup liability. This legislation could be improved if it took into account the need for a qualified and trained workforce in environmental and geosciences to reclaim abandoned mines. This paper identifies initiatives and programs that can be used to prepare the next generation of environmental scientists and geoscientists, while increasing the participation of underrepresented groups in earth science, particularly women and minorities. The policy recommendations will

focus on providing academic access to these professions to Hispanics in the US southwest region where a critical need exists to restore AML sites through reclamation.

A National Environmental Justice Issue

AMLs exist across private, federal and state lands adding to the complexity of the issue. Environmental damage occurred because historic mining operations were not subject to our current environmental protection laws (e.g. the Clean Air Act of 1963, the Clean Water Act of 1977, and the Comprehensive Environmental response Compensation and Liability Act of 1980). The issue of AMLs proves significant in the southwestern states of New Mexico, Arizona, Utah, Colorado, Nevada, and California. A rapidly growing population in the southwest continues to encroach on areas of historic mining activities, creating a greater potential for adverse effects to human health and the environment. These abandoned mines and associated mining wastes may pose both physical and chemical hazards; there is an increased exposure to people and risks of accidents and injuries from AML legacy sites.

The typical kinds of environmental problems stemming from AML sites include contaminated/acidic surfaces and ground water and

stockpiled waste rock and mill-tailing piles. Highly acidic water that is rich in metals acts as a serious problem at many abandoned mines; they pose significant risks to surface water and ground water. However, the potential chemical hazards vary greatly from one mine to the next. Each abandoned mine and associated mine waste needs to be individually evaluated to determine the risk. In addition, the physical hazards are the most common source of death and injury. These AMLs often contain structures, tunnels, and waste piles, which attract adventurous explorers who are usually unaware of the potential dangers.

Projected Workforce Trends

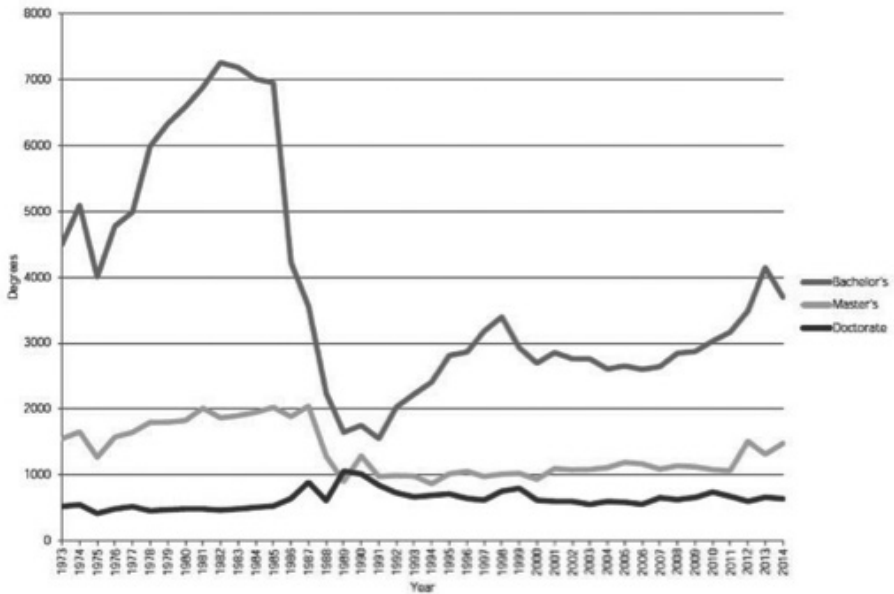
Geologists, soil scientists, environmental scientists, environmental engineers, or other qualified professionals play a key role in the wellbeing of our nation and they can assist in AML reclamation activities. According to the Bureau of Labor Statistics, employment of environmental scientists and specialists has been projected to grow 11 percent from 2014 to 2024, faster than the average for all occupations. Heightened public interest in the hazards facing the environment, as well as the increasing strains placed on the environment by population growth, will spur demand for envi-

ronmental scientists and specialists. The geoscientist profession will also experience a growth in employment. From 2014 to 2024, predictions show an additional 10 percent of geoscientists will be needed to meet employment demand.

The need for environmental protection and responsible land and resource management is projected to spur demand for geoscientists in the future. According to data collected by the American Geological

Institute, the geosciences continue to be a lucrative employment option in the current workforce. Demand for workers at all levels will remain strong for the foreseeable future and these jobs will continue to pay well: the average annual salary for geoscience-related occupations in 2013 was \$83,311. In an economic climate where other professions will experience a decline in demand, the number of mining jobs that include AML reclamation will increase.

Figure 1: U.S. Geoscience Degrees Granted 1973-2014



Trends in number of geoscience degree (defined in this figure as encompassing environmental science, hydrology, oceanography, atmospheric science, geology, geophysics, climate science, geochemistry, paleontology; environmental, exploration and technical engineering; and geoscience management) awarded at U.S. 4-year colleges from 1973-2014.

Source: Wilson (2014).

Participation of Women and Underrepresented Minorities

Women have made substantial gains in the environmental science and geosciences fields over the past several decades, and in 2014 held almost a quarter (24.5 percent) of these professions. However, compared with women, the gains of underrepresented minorities in environmental science and geosciences have been modest: less than 12 percent of the workforce identified as Black, Asian, or Hispanic or Latino. Regardless of field, women, who make up 50.8 percent of the US population, have made substantial gains in secondary education over the past several decades and now receive between 57 and 58 percent of bachelor's degrees. However, the federal workforce—and the academic programs that produce graduates—does not yet mirror the ethnic, racial, and gender diversity of the US population. For example, underrepresented minorities (Black, American Indian, and Hispanic or Latino of any race) composed 29.8 percent of the US population in the 2010 census, but received only 9.3 percent of bachelor's degrees awarded in 2012.

Academic Readiness of Hispanics

Hispanics comprise the largest minority group in the United States, making up roughly 17.4 percent of the country's population (55.4 million) in

2014. According to a recent study by the Pew Hispanic Center, Hispanics now also represent the largest minority on college campuses; they make up roughly 19 percent of all US college students ages 18 to 24. Notably, over half of all Latino undergraduate students in higher education (62 percent) have enrolled in 13 percent of institutions in the United States identified as Hispanic serving institutions (HSIs). HSIs are defined in federal law as accredited and degree-granting public or private nonprofit institutions of higher education with 25 percent or more total undergraduate Hispanic full-time equivalent (FTE) student enrollment. In 2014-2015, 435 institutions existed that met the HSI enrollment criteria, and they enrolled 1.75 million undergraduates. Of these, 172 offered graduate degrees (ninety offered doctoral degrees as the highest degree, and sixty-nine offered master's degrees). Over 68 percent of HSIs are public degree-granting institutions, and they are located in eighteen states and Puerto Rico (28). In addition, in 2014-2015, there were also 310 institutions identified as emerging HSIs. These institutions had between 15 and 25 percent undergraduate FTE Hispanic enrollment.

Training the Next Generation

Supporting a future pipeline of trained professionals that are capable of examining AML sites and their associated

environmental, health, and safety issues proves critical. However, the number of graduates in these environmental and geosciences fields that can address the issue is decreasing, and lacks diversity. In 2013, about 40 percent of Whites ages 25 to 29 had a bachelor's degree or higher. In comparison, just 15 percent of Hispanics among the same age group had a bachelor's degree or higher. As the baby boomer generation starts to retire, the United States will face the loss of a large number of experienced earth science and environmental science professionals in the industry, academia, and the government. However, the current pipeline of STEM-capable students and workers proves inadequate to meet AML workforce needs. The National Academy of Sciences (NAS) published a report stating there is a growing demand for geosciences and engineering professionals by the mining and energy sector. The current educational system is not producing enough qualified workers to replace the retiring generation.

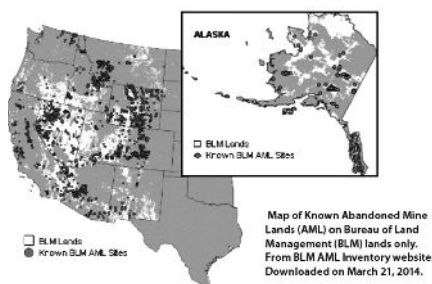
Training Programs

To help increase the number, quality, and diversity of the AML workforce, federal agencies and private corporations that hire these professionals could invest in a variety of education and training programs that can attract and retain students in these fields. Educating the public about the importance

of reclaiming AMLs and the career opportunities this sector offers future scientists is critical for Hispanics living in the southwest. Efforts to broaden the participation of unrepresented groups in the workforce to reclaim abandoned mine lands are needed to address this pressing environmental hazard. Addressing these issues requires a skilled workforce that draws on the talents of all citizens, including women and minorities historically underrepresented in earth science and environmental sciences professions. Increasing the participation of minorities in these fields will require not only effective practices within individual programs, but also attention to linkages between programs and socioeconomic inequities, such as uneven access to mentors or financial resources. Individuals should first be introduced to potential careers in the environmental and earth science field. Secondly, they should learn about the topics in the field and get hands-on experiences. Finally, individuals should prepare for a career by acquiring specialized knowledge, skills, and expertise, as well as by exploring different employment options. Concerns over pollution, environmental degradation, and health issues can significantly influence Hispanics in the southwest and across our country to pursue careers in earth science and environmental science to address AML reclamation. Today, an extensive number of abandoned mines exist on

federal lands, as over 100,000 inactive legacy mines reside in the southwest (see Figure 2).

Figure 2



Overview of a Successful Training Model

Educational funding is limited, so it is imperative agencies and industry model existing programs that have been successful at attracting or retraining minorities and women in STEM fields continue their efforts. The Hispanics Leaders in Agriculture and the Environment (HLAE) program at Texas A&M University has been identified as a successful program that has increased the number of minority students graduating in STEM fields. This federally funded program took comprehensive approach, integrating students into college academic and social systems that include the development of knowledge and skills, support, mentoring, monitoring, and advising. Unfortunately, this program ceased in 2012 due to federal budgetary constraints. The additional factors important for creating success for this program included the requirement

of a research or training component (e.g. by providing research experiences to students) that stimulated interest through hands-on research and the development of student cohorts that provide mutual support. The HLAE program provided scholarships and stipends to master's and doctoral students to pursuing a career in agriculture and environmental fields. It also provided students the opportunity to network by facilitating the student's participation in national conferences to present research results, social activities, peer-to-peer support, and mentoring programs. These professional preparation opportunities help socialize students in a discipline, promote academic success, and prepare them for careers. Recognizing and emulating this successful program could help realize great benefits. The creation of a similar program with a focus on preparing the next generation of Hispanic environmental scientists and geoscientist professionals in the AML workforce is needed for us to address this national workforce issue. These programs open doors of opportunity to underrepresented minorities, but they could also help attract and retain students of all backgrounds.

Additionally, studies suggest a variety of interventions are needed to increase the participation of underrepresented minorities in the STEM fields, including (a) research and internships experiences that expose student to real-world work and hands-on experiences at the

graduate and undergraduate level; (b) networking opportunities; (c) financial assistance to support undergraduate and graduate study to gain specialized knowledge, skills, and expertise; and (d) efforts to lower barriers to participation, such as developing outreach activities to cultivate future students.

Policy Recommendations

The information presented in this paper can be used by government, academic and professional society managers of earth science education and outreach programs. Recommendations to strengthen the diversity in the AML workforce include the following:

- Amend the Hardrock Mining Reform and Reclamation Act of 2015 (H.R. 963, 114th Congress) to include education and workforce training opportunities that attract young people, including ethnic minorities and women, into STEM programs that lead to careers in the AML reclamation field, in environmental science and geosciences. Policymakers should support university research that contributes to workforce development by enhancing the education pipeline. Federal agencies should provide increased research funding to current and emerging Hispanic service institutions with environmental and geoscience programs (e.g. the University of Arizona, University of

Nevada-Reno, and the New Mexico Institute of Mining and Technology), with matching funding from industry and specific requirements to incorporate two outcomes from the research: (1) advancing technology to drive innovation in AML reclamation, and enrich graduate and undergraduate education; and (2) developing university faculty who work on cutting-edge AML research to enhance the quality of higher education.

- Congress should provide the Department of the Interior (DOI) with legislative authority to support research-based programs to increase underrepresented student participation in STEM, with a focus on AML reclamation, and direct the DOI to establish a nationwide pilot in partnership with the private sector. This goal could be achieved through the creation of a long-term ecological research (LTER) program on AML sites with funding from the National Science Foundation (NSF) in collaboration with the DOI. This would be greatly beneficial to the field of land reclamation and to the future workforce. The goal of an LTER is to address ecological questions that cannot be resolved with short-term observations or experiments. These long-term interdisciplinary studies prove essential in achieving an integrated understanding of how

populations, communities, and other components of ecosystems interact, as well as to test ecological theory. Currently, twenty-five LTERs exist; however, none of these programs address the issue of abandoned legacy mines.

- Research programs addressing AML reclamation can be used by agencies to identify potential partners and share effective practices for attracting and retaining traditionally underrepresented minority students. These industry-education partnerships can produce a STEM-competent workforce in environmental science and geoscience fields. In particular, programs that raise awareness of earth science or increase access to education and training (e.g. social and professional networks or financial assistance for a study) may be especially fruitful for federal agencies looking to increase ethnic, racial, and gender diversity in the public sector.

- Federal agencies should promote collaborative efforts with industry and professional societies focused on diversity in order to assist in connecting students to education and training opportunities, providing students with another avenue of information on available positions. Research experiences for undergraduates and paid internships provide students with technical and non-cognitive skills that improve

communication, teamwork, project management, and leadership. Another recommendation falls under the idea that any federally sponsored programs adopt the use of peer and professional mentors; they can play a key role in providing information, guidance, and support at critical decision points in students' careers.

Conclusion

A strong and pressing need for a qualified and trained workforce in environmental and geosciences to reclaim abandoned mines exists, especially in the southwest where more than 100,000 AMLs currently reside. This need presents significant opportunities for Hispanic students looking for a viable career with anticipated growth. This paper has identified initiatives and programs that can be used to prepare the next generation of environmental scientists and geoscientists, while increasing the participation of underrepresented groups in earth science, particularly women and minorities. Reinstating programs like HLAE and creating coalitions of partners from federal agencies, private companies, universities, and professional societies would stretch federal dollars and bring a wide range of expertise to training the next generation of earth scientists. Such efforts contribute toward meeting national goals of developing a robust and diverse STEM workforce.

Unlocking the Power of Telehealth: Increasing Access and Services in Underserved, Urban Areas

By Sara Agate

Executive Summary

The term telemedicine literally means “healing at a distance” through the Latin “medicus” and Greek “tele.” While there is not one universally accepted definition of telehealth, generally it is the use of technology to deliver health care, health information, or health education from a distance. Telehealth has the potential to improve access to quality health care and services for underserved populations. As the growing interest of telehealth pervades the health care system, policymakers, associations, health care providers, patients, and insurers seek better solutions. Innovative telehealth programs for patients with chronic conditions, such as the University of Virginia Health System and the University of Mississippi Medical Center, have demonstrated

very compelling results. For instance, within less than a year 116 patients enrolled in a diabetes pilot program reduced their hemoglobin A1C levels by 1 percent. These solutions seek to increase access, coordinate care, reduce health care spending, and improve health outcomes as our health care system struggles with a provider shortage. Through the increased use of telehealth it is possible that underserved urban populations can gain access to health services and education regarding the prevention and management of chronic diseases, such as diabetes, obesity, and high blood pressure (HBP).

Telehealth Background

The United States’ ongoing battle to slow health care’s rising budget and ensure access to services creates

urgency to utilize technology now; it is no longer a futuristic ideal. Here, the term telehealth will be used to include telemedicine (clinical services such as diagnosis and treatment of illness or injury, remote patient monitoring, and mobile health or mHealth) and eHealth, which is “the use of information and communication technologies for health.” According to a 2011 World Health Organization (WHO) mHealth report, mHealth is a component of eHealth and no standardized definition of mHealth exists. Geographic disparities in access to care can be addressed partially using technologies that allow for remote audio, visual, and haptic communication between patients, caregivers, or health care providers that are not in the same site.

The use of technology in health care creates a growing complex industry. “Medicine in the twenty-first century is increasingly dependent on technology.” A Pew research survey shows that from 2000 to 2015, there has been a 32 percent increase in American adults using the Internet. The integration of health care with Internet use creates an opportunity for telehealth to improve access to quality health care and services to underserved populations in urban areas. It is a tool that should create another access point for all.

Underserved Communities

In this case, the term “underserved”

includes, but is not limited to, immigrants, members of ethnic groups, rural residents, urban youth, the unemployed, and the homeless. The ability to reach the underserved communities in urban areas through telehealth is underdeveloped. Older adults in urban and suburban areas also face difficulties traveling to their doctors’ offices for frequent appointments.

According to a Pew Research Center Fact Tank article citing census data, Hispanics “are projected to comprise twenty-nine percent of the US population by 2060.” Telehealth can offer the growing Latino population another health care service opportunity. In this paper, the terms Hispanic and Latino are used interchangeably due to varying data sources. “Over ninety percent of Latinos live in urban areas, compared to less than eighty percent of Whites.” “The Patient Protection and Affordable Care Act (ACA) sought to close the uninsured gap,” yet many Latinos still lack adequate health care insurance. Among those who do have insurance, there are obstacles in receiving appropriate services and care. As a result, the rapidly growing Latino population faces some of the highest health disparities. Telehealth could provide another entry point to increase health care service access for Latinos across the nation, particularly those in urban, underserved areas.

In a 2012 study examining telemedicine perceptions among Lati-

nos and African Americans titled, “How Do Low-Income Urban African Americans and Latinos Feel About Telemedicine?”, Latinos noted several advantages and were more positive and enthusiastic about the prospect of telemedicine. Latinos viewed telemedicine’s potential convenience appealing, in terms of location, and suggested it would result in more jobs for nurses. Telehealth was also seen as a means to address health care workforce shortages.

Other barriers must be considered in access to care, such as language and digital literacy, in addition to access and utilization of services. With the increased use of telehealth, more urban, underserved populations can gain access to health services and education to aid in the prevention of chronic diseases such as diabetes, obesity, and HBP.

Barriers

The acceleration and adoption of telehealth has been slowed by a number of factors including:

- *Coverage*: lack of coverage and reimbursement, particularly in the Medicare program;
- *Interoperability*: lack of data and system/platform interoperability;
- *Cyber-Security*: pervasive privacy and security concerns;
- *Expertise/Skill*: limited training and education of health care providers in the appropriate use of

such technologies (hampered by limited number of clinical practice guidelines); and,

- *Regulation*: onerous regulatory hurdles at the state and federal level.

Overall, this paper concludes it is worthwhile to remove the geographic and originating site restrictions and other barriers for telehealth services to support underserved, urban communities, patients, and increase telehealth adoption and expansion. “Although the implementation of telemedicine technologies requires initial investments in equipment, telecommunications, and technical and administrative personnel, a variety of cost analyses have found that models of care using telemedicine can result in long-term overall cost savings.” This belief runs counter to the Congressional Budget Office’s (CBO) historic stance that the investment outweighs the cost savings.

Extended Analysis

Today’s healthcare providers, patients, and populations who are not yet accessing healthcare services have the tools to develop a digital relationship—one that treats health technology as an integrated system to improve quality of care, decrease healthcare spending, and prevent disease.

A Brief History of Telehealth

The use of telecommunications in health began in the 1950s when the

US started to support space stations. As outer space mission trip duration increased over time, the National Aeronautics and Space Administration (NASA) needed to track astronauts' biometric data to learn how their health status changed in space. This created an opportunity for collaboration between the US Department of Health, Education and Welfare, now known as the Department of Health and Human Services, and the Indian Health Service that joined in sponsoring the Space Technology Applied to Rural Papago Health Care.

As a result, it is believed that this project was a necessary step in improving the health of astronauts and could be used to help ordinary Americans. NASA began to experiment with different technologies, such as blood pressure devices and heart monitors, to track and manage astronauts' health. Over time, NASA realized this innovative technology would benefit the Department of Defense (DOD). The increased use of telehealth by the US Army followed, leading to better health access and telecommunication systems where the armed forces could connect with a health care provider without the provider being on site. As such, the DOD has been instrumental in using new technology to improve the delivery of care, and the US Department of Veteran's Affairs (VA) has also been leading in telehealth efforts.

"Over the past four decades, tele-

medicine has become an increasingly cost-effective alternative to" in-person care and has, in some cases, been integrated into a "continuum of care" "in hospitals, physicians' offices, patients' homes, and many other settings." "Telehealth is becoming an increasingly important part of the US medical system that focuses more on quality and integration of care," including "highly-integrated models such as patient-centered medical homes and accountable care organizations (ACOs)." In order to foster acceleration, adoption, and access of telehealth services for underserved, urban populations, a health-tech culture that values telehealth as a supplemental digital relationship to the traditional in-person visit must be created. The optimal model for care would ensure the patient and communities have access to and know their options to engage in quality, affordable health care and education services in-person and remotely.

Access to Healthcare Services

Through the ACA more than 17.6 million Americans gained coverage through late summer in 2015. Yet, rates of insurance enrollment on the health exchanges is lower for Hispanics, and compared to other racial groups they tend not to have health insurance. Various factors make enrollment difficult; for instance, a state's decision to expand Medicaid

eligibility levels. Better access to insurance coverage and services, coupled with the use of telehealth could help lower rates of health disparities among Latinos.

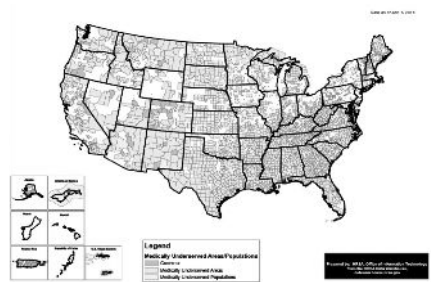
Health Care Workforce Shortage

Telehealth offers an ideal opportunity to ensure access to services for underserved populations and promote workforce development. “The world will be short of 12.9 million health care workers by 2035.” The Association of American Medical Colleges (AAMC) predicts physician shortage will occur in the future, although we are already feeling the effects of it now. If health trends continue to grow as they are in the US, the AAMC predicts there will be a greater shortage of specialists than primary care doctors. This is particularly troublesome for Latino populations because a shortage of Latino physicians already exists and is worsening as the overall population increases. Physician shortages, combined with the growing number of insured individuals through the ACA, yields serious stress on our health care system. More insured Americans will increase demand for primary care services that are already scarce in many areas.

Those scarce areas can be seen in the maps produced by the Health Resources and Services Administration (HRSA). The maps show medically

underserved areas (MUAs) that may be a whole county or a group of contiguous counties, a group of county or civil divisions, or a group of urban census tracts in which residents have a shortage of personal health services. The HRSA accounts for medically underserved populations (MUPs) that may include groups of persons who face economic, cultural, or linguistic barriers to health care. The plight of communities categorized as MUAs and MUPs is a call to action for multisector stakeholders to collaborate and make telehealth accessible for all (see Figure 1).

Figure 1: Medically Underserved Areas and Populations, 2016



Yet, the Bureau of Labor Statistics (BLS) “projects health care employment to grow by twenty-six percent between 2012 and 2022, an increase of about 4.1 million jobs.” The BLS states a growing and aging population, chronic conditions, medical and technical advances, and health insurance reform will lead to this employment increase. Further, primary care capacity can be greatly increased

without many more clinicians in the following ways:

- by empowering licensed personnel, including registered nurses and pharmacists, to provide more care;
- by creating standing orders for non-licensed health personnel, such as medical assistants, to function as panel managers and health coaches that address many preventive and chronic care needs;
- by increasing the potential for more patient self-care; and
- by “harnessing technology to add capacity.”

Physicians also believe telehealth improves access to care for patients. Telehealth could promote the rise of the health care workforce by training community health workers (CHWs), health educators, midwives, nurses, physicians, and industry technology specialists to engage in telecommunications with patients and populations.

Latino Health Disparities

“The Centers for Disease Control and Prevention (CDC) has found that Hispanics suffer disproportionately from cancers, diabetes, asthma, chronic obstructive pulmonary disease, HIV/AIDS, obesity, and liver disease, many of which can be either prevented or controlled by early detection and treatment.” Preventable diseases such as diabetes, obesity, and

HBP are on the rise. “The study of Latinos found that the prevalence of diabetes in Hispanic/Latino groups was roughly 16.9 percent for both men and women, compared to 10.2 percent for non-Hispanic Whites.” Obesity is a growing issue swelling the pocketbook of our health care system. Estimates show that among adults aged twenty and older “overweight and obesity issues affect more than three in four Hispanics (78.8 percent) and Blacks (76.7 percent).” For such cases, telehealth tools could be incorporated into an individual’s lifestyle, particularly for at-risk populations. For other cases, telehealth can promote chronic disease management and wellness. Successful implementation of health IT in underserved communities must incorporate technology as one element of a broader initiative. “The technology should target known problems that burden institutions, patients, and communities.”

Latino Technology Use

Latinos have the potential to unlock the power of telehealth. Latinos are now more than 17 percent of the US population. As of 2015, the group’s growing purchasing power was estimated to reach \$1.5 trillion. This population growth and purchasing power, paired with the need to make health care coverage and services more accessible to all, posits Latinos as benefactors.

Broadband Access

Critics claim the digital divide, which can be described as the access and adoption of fixed broadband connection, inhibits the Latino population's economic investment in basic technology, like the Internet. Hispanics who have a smartphone, but do not have home broadband service rose from 16 percent to 23 percent between 2013 and 2015. Nielsen reports a similar finding: there is more "Hispanic dependence on mobile devices for Internet connectivity." "Smartphones are widely used for navigating numerous important life activities, from researching a health condition to accessing educational resources . . ." This could be attributed to the lack of broadband access.

According to the Office of the National Coordinator for Health Information Technology (ONC), "the overall proportion of Americans using health information technology (HIT) (defined as texting or emailing health care providers, using health apps, and accessing online test results) has been increasing for the last several years, though it is still under fifty percent," and among those, Hispanics and African Americans use it least. "Looking ahead, with the ever-increasing population growth among the Latino community, this group is poised to become a major trendsetter with new forms of technology and early adoption of media use." Biometric data

collected through wearable devices, smartphones, or computers could lead to more interactive, healthy, and behavioral lifestyle changes, and the prevention of chronic diseases.

However, to fully embrace the benefits of telehealth, there must be both smartphone and home Internet connections for successful engagement with health care systems and technologies. Recognizing the home broadband challenges, particularly among Latinos and African Americans nationwide, places emphasis on the need for broadband access and adoption. Federal, state, and private entities are working to develop a telecommunications infrastructure.

Digital Literacy

Although Latinos may use the same technologies as non-Hispanic Whites, they tend to use them differently, with greater importance placed on cultural and linguistic factors. Innovators and health care providers should be aware of digital literacy opportunities and barriers. Technologies will need to be culturally and linguistically relevant to Latinos. Increased consumer education; consumer-designed telehealth devices that consider human factors, such as language; and culturally sensitive health care professionals could mitigate the digital literacy barriers that may prevent some Latinos from engaging with telehealth.

The use of CHWs to support ca-

capacity building for Latino engagement could further alleviate some of the digital literacy, cultural, and linguistic barriers. The use of telehealth could create more access for English language learners by making appropriate translation and interpretation services or software readily available. With a need to increase and diversify the health care workforce worldwide, telehealth could offer workforce development opportunities, meanwhile allowing the existing workforce another access point to care for urban, underserved populations and patients.

Telehealth Perceptions

Pre-telemedicine perceptions among Latino and African Americans, the main advantages were reduced waiting time, immediate feedback on diagnosis and action steps, increased access to specialists, and increased access to multiple medical opinions. This has yet to be a reality for many communities of color, but telehealth expansion within underserved, urban populations could be a positive change. With these smart technologies in the hands of many underserved populations, the challenge is ensuring we leverage these efficient modes of connectivity and telecommunication to engage with populations who are at risk and suffer from health disparities in order to improve health outcomes and reduce costs. Given the many benefits, some advocates caution against health

care provider fraud and abuse. Patient advocates caution that patients' data and rights should be protected.

Barriers to Widespread Adoption

Coverage

The Centers for Medicare and Medicaid Services (CMS) has been hampered by statutory restrictions on telehealth coverage, yet critics claim CMS is not exercising its discretion enough to expand coverage in the context of Medicaid-Medicare dual eligibles, the Center for Medicare/Medicaid Innovation grantees, and the Medicare Shared Savings Programs.

Under the CMS' fee-for-service program, reimbursement for telehealth services is conditional on the originating site being located in a non-metro county or in a primary care or mental health geographic health professional shortage area located in a rural census tract of a metropolitan county. In addition, there are restrictions on store and forward technologies and home-based telehealth. Despite this limitation, there are federal, academic, and private initiatives encouraging the expansion of telehealth. Private health insurers are paving the way for telehealth acceleration and adoption by recognizing the value and cost savings it provides to patients, health care providers, and population health.

Figure 2: States with Parity Laws for rovate Insurance Coverage of Telemedicine, 2016



Source: The American Telemedicine Association, 2016.

Licensure

Regulatory barriers include state-based licensure and state medical practice laws. According to the American Telemedicine Association, there are seventy state, medical, and osteopathic licensing boards in the US and its territories. While some telehealth stakeholders have promoted federal licensure or upheld unrestricted licenses to practice anywhere, the American Medical Association (AMA) and the Federation of State Medical Boards, along with other telehealth stakeholders, have offered an alternative to streamline the burdensome licensure process: the Federation of State Medical Boards Interstate Compact, which is on pace to be adopted in twenty-six states by the end of 2017.

Licensure portability, for health care providers to practice out-of-state, remains in debate. The Federation of State Medical Boards recognizes the autonomy of each state medical

board and offers uniform application for physician state licensure and guideline recommendations on practice standards. “The jury is still out as to whether states will require telemedicine to reach urban populations.” Parity laws vary across states; twenty-eight states and the District of Columbia have enacted full parity laws (see Figure 2).

Coding

The AMA formulated a telehealth services workgroup in June 2015 to recommend updates and changes to the Current Procedural Terminology® code set to medical services related to telehealth technology.

Federal Agency Initiatives

There are several initiatives that promote and provide assistance to research and expand telehealth. While the support of agencies is beneficial, long-term investments to create sustainability for communities are crucial. Some of the largest investments are made by HHS’ through CMS’ Medicare, Medicaid, and Indian Health Service payment mechanisms. There are several other divisions within HHS that invest in telehealth, such as the HRSA that offers funding opportunities for states, the Substance Abuse and Mental Health Services Administration, the CDC, the Agency for Healthcare Research and Quality, and the National Institutes of Health. The ONC’s 2015-2020

federal health information technology strategic plan collaborates with many of the initiatives. In addition, the US Department of Agriculture continues to issue rural telehealth development grants. Lastly, a major bill called the 2009 American Recovery and Reinvestment Act (ARRA) allocated \$417 million to the Federal Communications Commission's (FCC) rural health care pilot program. These agencies' involvements in telehealth are worthwhile, but arguably, many of the activities focus on rural population telehealth development. According to Dr. Nina Solenski, "Our big cities have the same issues as our rural areas . . . access to care."

Recent Federal Telehealth Legislation

In the 114th Congress, there have been several pieces of legislation introduced relating to the term "telehealth." In February 2016, the Creating Opportunities Now for Necessary and Effective Care Technologies (CONNECT) for Health Act (S. 2484/H.R.4442) was released and seeks to eliminate Medicare's geographic and originating site reimbursement restrictions by encouraging the use of telehealth in alternative payment models (APMs) through the Medicare Access and CHIP Reauthorization Act (MACRA) demonstration waivers.

The Comprehensive Behavioral Health Reform and Recovery Act of 2016 (H.R. 4435) has fifteen related

bills in the House and Senate. The bill seeks to improve access to mental health and substance use disorder prevention, treatment, crisis, and recovery services. The bill includes telehealth as a service to make these improvements by allowing the secretary to offer grant money to eligible states that submit an application.

The Telehealth Innovation and Improvement Act of 2015 (S. 2343/H.R. 4155) would direct CMS to provide coverage and payment for expanded telehealth and remote-monitoring services. The bill would create an opportunity for ACOs to incorporate telehealth services in bundled payments and coordinated care models.

The Rural Veterans Improvement Act of 2015 (S. 2265) seeks to ensure that veterans in rural areas have access to mental health care even when telehealth mental health services are unavailable.

The Act of Making Appropriations to Stop Regulatory Excess and for Other Purposes of 2016 (S. 2132) focuses on rural health Medicare funds to make available grant money for the implementation of telehealth services, which includes pilots and demonstration for quality improvement and adoption of health information technology.

From January to August 2015, there were twenty-seven bills introduced. For instance, the Mental Health Reform Act of 2015 (S.1945) seeks to develop an online database and communication mechanisms, including telehealth, to facilitate consultation support to pediatric

practices. Another bill is the Medicare Telehealth Parity Act of 2015 (H.R. 2948) that would amend Title XVIII of the Social Security Act to provide an incremental expansion of telehealth coverage under the Medicare program.

The 21st Century Cures Act (H.R. 6) has forty-three related bills. In regard to telehealth, the bill seeks to establish CMS reporting requirements for telehealth services under the Medicare program and requires a report from the Medicare Payment Advisory Commission (MEDPAC) to submit a report to Congress on telehealth. It generally recognizes that expansion of telemedicine is the delivery of safe, effective, quality health care services, by a health care provider, using technology as a mode of care delivery.

Lastly, the Telehealth Enhancement Act of 2015 (H.R. 2066) would remove originating sites barriers for telehealth access. The bill proposes to promote and expand telehealth applications under Medicare and Medicaid. Additionally, it grants ACOs coverage to use telehealth and remote patient monitoring services as supplemental health care benefits.

The passage of any one of these proposed legislations will allow for the increase of adoption and expansion of telehealth services. While the passage of telehealth legislation was difficult during the presidential election year, continuing advocacy efforts remains critical.

Telehealth Economics

Developing partnerships with existing literacy programs at the local level is crucial to telehealth utilization. For example, the Center for Information Technology Leadership estimates that widespread use of telehealth systems to promote preventive care, early intervention, and effective information sharing could save the US \$3.61 billion annually. A 2010 FCC report estimated that remote patient monitoring for heart disease, diabetes, pulmonary disease, and skin disease could save \$197 billion nationwide over twenty-five years. Currently, Medicaid provides supportive services that can help connect individuals to care, such as transportation and case management. The use of provider-to-provider telehealth technologies could save \$537 million per year in transportation costs.

Recommendations

The following recommendations focus on Congressional and federal actions to help improve telehealth.

Congress should enact the CONNECT for Health Act (S. 2484/H.R.4442). In July 2015, the CBO signaled it has not changed its assessment on expanding Medicare coverage for telehealth services because it would likely increase Medicare spending. Previous efforts to expand Medicare reimbursement for telehealth and remote patient monitoring services have failed partly because the CBO has

reported it will result in higher spending by facilitating enrollees' access to health care services. Despite the CBO's approach, a bipartisan and bicameral effort introduced the CONNECT for Health Act, a bill that would establish reimbursement and models to expand telehealth and remote patient monitoring. The bill has been endorsed by more than fifty industry organizations.

Federal agencies should begin telehealth pilot programs in urban spaces that would be an incremental approach to telehealth expansion. Specifically, federal agencies should expand the population eligibility criterion and remove the requirement of "rural" population eligibility. To increase efficiency and strengthen efforts, rural models should be adopted and tailored toward specific program initiatives that account for geographical differences. These models should include a component on digital and language literacy development. According to Peyton Taylor Jr., MD, from the University of Virginia Center Health System, "Finding local partnerships is key to the future of telemedicine." Developing partnerships with existing literacy programs at the local level is crucial to telehealth utilization. Efforts to incorporate urban telehealth growth could provide necessary services for underserved populations and grant more patient-to-provider consultation time.

The CMS should remove the geographic and originating site limitations on reimbursement. Further, the CMS

should reimburse for remote patient monitoring. Lastly, there should be increased collaboration among medical and health associations to align the vision and practice of telehealth services and appropriate payment mechanisms for health care providers, all while upholding the highest patient protections.

Conclusion

The great potential of growing telehealth usage to underserved communities, such as Hispanic and Latino populations, is a widely accepted concept. The global telemedicine technologies market was valued at \$17.8 billion in 2014. The widespread use of telehealth is causing changes in the coverage and payment system, with more insurers seeking options to offer proper payment to providers and add value to patients. Innovative telehealth programs for patients with chronic conditions also exist, such as the University of Virginia Health System and the University of Mississippi Medical Center. Many of the centers are reporting significant improvements in patients managing chronic diseases. The work of these centers and health systems can be used as models to promote growth and improvement of future urban telehealth developments. The US health care system must move forward with telehealth technologies to meet the dynamic needs of our nation's urban populations.

Modelo Promotoras: Advancing health literacy through culturally competent health promotion and prevention strategies

Heydi Correa-Encarnacion

With the introduction of The Patient Protection and Affordable Care Act (ACA) on March 23, 2010, the health care landscape in the United States has taken dramatic shifts toward more inclusive health care policies. Despite great strides in assuring health care access to an increasing number of uninsured and underinsured Americans, the US health care system remains one of the most complex among industrialized nations. The increasing and continuous involvement of varying public and private programs, institutional policies, services, products, and health-related information has given rise to a system, which can be perplexing to the average consumer. Within these provisions lie complex tiers including insurance eligibility, prescription medication, disease management, prevention, and lifestyle

modifications—all of which pose challenges to those seeking affordable, equitable, and quality health care; in particular to individuals in underserved and underrepresented communities.

Health literacy lies at the core of health care attainment. Low health literacy is inextricably linked to an increase in negative health outcomes, high-risk health behaviors, a reduction in the use of health care services, and low to non-existent levels of chronic disease management. These types of negative health behaviors can be commonly found in the Latino community. The ACA aims to provide needed access to health services for an increased number of American citizens including the Latino community; yet, it has still struggled to provide sustainable approaches to

health literacy educational resources that target underserved and under-represented communities.

We can further examine the methods through which health literacy can improve overall health care conditions within Latino communities. One method is by facilitating the adoption of basic health principles and information disseminated by practitioners, physicians, and providers and by understanding health literacy and its effects on Latino health care consumers. By enacting a national health literacy initiative and establishing continuous federal funding of community health worker/*promotoras(es) de salud* initiatives, health literacy levels can be expected to exponentially rise in the Latino community.

Defining Health Literacy

Title V of the ACA defines health literacy as the degree to which an individual has the capacity to obtain, communicate, process and understand basic health information and services to make appropriate health decisions. The Centers for Disease Control and Prevention (CDC) states that health literacy has its own version of capacity building and skill sets individuals need in order to fully comprehend basic health information regarding medical procedures and prescriptions. The CDC utilizes the term “capacity” to define the need for individuals to access and

understand health information, as well as services when a potential health situation exists. Health care consumers must be able to develop comfort in finding appropriate information while communicating personal needs and preferences to their health care provider. These elements prove necessary in order for health literacy attainment to influence behavioral modifications and perpetuate positive health outcomes.

Further expanding the definition of health literacy, the US Department of Health and Human Services (HHS) outlines health literacy as being dependent on individual and systemic factors including communication skills between the person and professionals, knowledge on health topics, culture, demands of the health care and public health systems, and demands of the situation and/or context. The HHS argues health literacy must include numerical skills, where individuals must be able to understand and interpret chronic disease management knowledge (for example, monitoring sugar levels) and be able to make assertive measurements of their medication intake. Disseminating health information in simple and concise plain language formats, as described by the HHS, acts as a key for increasing health literacy levels nationwide. Plain language, in turn, promotes health literacy by ensuring the language utilized through the dispersion of health information is at a universal reading level.

Health Literacy Status in the United States

Health literacy has been established as a major public health priority in both policy and advocacy efforts in bringing health care access forward. National data suggests only 12 percent of adults in the United States have proficient health literacy. This reality means that nearly nine out of ten adults in the United States lack the necessary skills and capacity needed to manage positive health outcomes and prevent disease. The disparity grows larger when comparing non-White racial and ethnic communities, elderly adults, individuals with low socioeconomic status and education, people with mental and physical disabilities, and non-native English speakers.

According to the National Assess-

ment of Adult Literacy (NAAL)—an initiative overseen by the US Department of Education—14 percent of adults have below basic health literacy. Adults within this realm are more likely to report they are experiencing poor health and are more likely to lack health insurance and access to quality health care. For the first time, a federal agency set forward to study and analyze overall health literacy levels in the United States. The NAAL developed a four-tier system in order to better measure literacy levels within the 19,000 adults surveyed (*see Figure 1.1*). Each tier reflects the patient’s ability to understand the elements and services within their surrounding health care system. The four tiers assessed include Proficient, Intermediate, Basic, and Below Basic.

Figure 1.1 Abilities Associated with Each Tier Established by NAAL

Four Literacy Levels	Key Abilities
Proficient	Able to clearly acknowledge health care cost for the year and find information in complex medical documents.
Intermediate	Able to comprehend the use of an over-the-counter medication and understand which substances in the medication will create positive and adverse drug interactions toward current sickness.
Basic	Understanding simple and short documents such as a medical demographic form.
Below Basic	Not able to decipher basic medical information from a pamphlet at a community center.

NAAL researchers ultimately concluded that approximately 36 percent of adults in the United States have intermediate health literacy, 22 percent of individuals are at basic level, and 14 percent have below basic health literacy understanding.

Evidence-based research has shown individuals who are at low or below literacy levels are hospitalized at higher rates (specifically for preventable health events/conditions); are more likely to suffer from a chronic disease, such as high blood pressure, diabetes, and asthma; and are less likely to effectively manage them due to an inability to access preventive care measures. As a result, the US economy annually loses between \$106 billion and \$236 billion due to medication errors, unnecessary emergency room visits, longer hospital stays, and the lack of access to basic health prevention services such as annual physicals and check-ups.

Existing National Efforts

Nationally, there have been insufficient federal policy proposals that seek to implement health literacy interventions. While the NAAL was a breakthrough in informing public health professionals about the vast disconnect between health literacy and health outcomes, few efforts have been made to provide sustainable and measurable interventions that

directly and independently address health literacy.

As the first of its kind, the NAAL brought forth alarming statistics to the public health community, showcasing the fact that health literacy was not being considered a forefront public health issue in the United States. As health disparities become inextricably associated with a lack of health literacy, the HHS introduced the National Action Plan to Improve Health Literacy. The plan seeks to reduce disparity through community-based efforts that implement sustainable health literacy practices in the United States. The mission of the action plan focused on restructuring the ways in which public health professionals create and disseminate accurate health information through the implementation of several goals. These strategies set out to maximize accessibility, quality and safety guidelines, which in turn leads to a reduction of health care cost while improving overall quality of health. Although the ACA has, to some extent, recognized the lack of health literacy within our current health care system, such language can only be found in certain sections of the law. To date, the National Action Plan embodies some of the most comprehensive proposals in advancing health literacy despite limited exposure on the federal, state, and local levels. As a result, organizations have independently developed their own versions of health

literacy education and promotion procedures without any set guidelines from Congress.

Latinos Knowledge on Health

Within the last decade, Latinos have become the largest ethnic minority group in the United States. However, Latinos are disproportionately affected by various chronic diseases and are less likely than their Caucasian counterparts to seek preventative medical attention. Health literacy functions as a great concern due to a substantial portion of Latinos falling in the below basic level of health literacy (41 percent), and only 4 percent considering themselves proficient.

In 2009, the National Council of La Raza (NCLR) conducted research in order to gauge attainment levels and information sources for Latinos with regard to their understanding of health care. Data revealed that Latinos have lower levels of health literacy compared to those of non-Hispanic backgrounds, and receiving two-thirds of their health information is funneled through various independent sources outside of their health care provider. A worrisome statistic reported by NCLR found that 62 percent of limited English-proficient Latinos reported a lack of health information disseminated by their health care providers, citing language barriers as a hindrance to quality care. These alarming percentages speak to the

socioeconomic barriers and coverage gaps that Latino individuals face within the United State health care system. These barriers—such as cultural competency and language—are linked to disproportionate rates of re-hospitalization and lower adherence of medical regimens by Latinos.

The NCLR survey also explored the diverse avenues by which Latinos received their health information. Twenty-eight percent of those who participated in the survey stated they did not receive any medical information from their health care provider in 2012. One major obstacle that continuously prevents many Latinos from accessing quality health care services occurs through systemic language barriers between them and their health care providers. This situation can lead many Latinos to gather health information from alternative outlets. Newspapers, radio, and online resources are considered the three major media outlets Latinos rely on most when seeking health information from non-medical providers. As a result, Latinos are susceptible to attaining incomplete medical knowledge, which can negatively affect their understanding of individual health care needs and may lead to inaccurate knowledge of chronic disease management or even wrongful information about symptoms.

Latinos can improve their health literacy through forged relationships

with community health workers, better known among Latino communities as *promotoras(es)*. *Promotoras(es) de salud* have increasingly become a focus in the federal spectrum of health care management, and thus the HHS has recognized community health workers as a sustainable and necessary outlet for the dissemination of health care information. The *promotoras(es) de salud* initiative focuses on recognizing the important contributions of culturally competent health professionals in reaching vulnerable, low-income, and underserved community members. In addition, it promotes increased engagement through accurate and active health education and prevention efforts.

Promotoras(es) are trained bilingual health educators and facilitators who possess extensive knowledge on the community's health disparities and how to most effectively address them. *Promotoras(es) de salud* prove critical in providing relevant and appropriate health information, as well as health care navigators, interpreters, health educators, outreach workers, and advocates for patients. They rely on diverse resources, such as personal and professional contacts, knowledge of local health care organizations, and extended relationships within the community in order to become effective in educating at-risk populations. *Promotores(as)* become ingrained members of a community

and are able to address those in need of assistance by interpreting health care information acquiring appropriate health services from physicians, practitioners, and providers. *Promotoras(es)* serve their respective community by building a foundation of trust and engagement.

Legislative Efforts

Former US Senator Norm Coleman of Minnesota introduced the National Health Literacy Act (S.2424) of 2007 during the 110th Congress. The bill's purpose was to amend the Public Health Service Act in order to establish an agency in the HHS titled Health Literacy Implementation Center, enabling efforts to eliminate low health literacy by improving research, development, and information dissemination. The directive of the center would focus on providing health literacy resources to researchers, health care providers, and the public, in accordance with health literacy guidelines set by the HHS. The center would sponsor evaluation projects, develop the next generation of health literacy interventions and tools, and identify and fill gaps related to health literacy, while advocating for the improvement of quality care for all in the United States. Another stated responsibility of the center would be to assist federal agencies in establishing goals and objectives to carry out health prevention and

promotion strategies, while also implementing programs that adopt innovative literacy intervention tools.

The 110th Congress did not enact S.2424 into law. The bill made its way to the US Senate Committee on Health, Education, Labor, and Pensions (HELP), where it was not considered for further legislative action. This has been the only effort by Congress to bring forth a comprehensive piece of legislation that specifically targets health literacy as an integral part of health care policy and disease management. While the ACA has made great strides in ensuring affordable coverage for all, it has yet to embrace specific target levels in the improvement of health literacy within the law. The ACA has attempted to reassess what has been viewed by many as a mismanaged and overly complex health care system, in order to ensure all citizens can benefit from the health care they deserve. The primary goal of this legislation is to increase access to coverage, regulate private industry by allowing more individuals into insurance systems at affordable rates, and control health care costs.

Recommendations

As the nation moves forward with comprehensive and affordable health care, health literacy must become a core component of health policy innovation. Reintroduction of new legis-

lation that mirrors the language of the National Health Literacy Act of 2007 would ensure health literacy becomes a fundamental component in public health policy moving forward. Newly proposed bills must include inclusive and diverse language, and present updated findings and information on the current health literacy barriers in the United States. In addition, bills must showcase the addition of statistical reflections upon current health literacy standards among underserved and underrepresented communities, which would particularly benefit Latinos in the US

The creation of a federally mandated *promotoras(es) de salud* program under the HHS's office of minority health would help forge stronger partnerships between community-based physicians and Latino community members, which would significantly reduce the current void of cultural competence and linguistically appropriate services. Thus, an established *promotras(es) de salud* program can continue to provide equitable and vital services to underserved individuals, while prompting federal funds to be allocated for new community proposals built upon successful local interventions.

Title IV of the ACA, also known as the Prevention of Chronic Diseases and Improving Public Health (Sections 4001-4402) set forth a community health worker initiative in

the United States. Congress unified in bringing forth such legislation in creating annual budget designations to be approved by the appropriations committee in order to implement, develop, and sustain this initiative. Evidence-based studies and interventions continuously show the implementation of a community health worker program can significantly increase access to health care services. Latino consumers have shown great benefits from programs such as *promotoras(es) de salud*, linking community leaders to skill-building activities and knowledge sets, which are transferrable to linguistically and culturally competent health promotion settings.

Conclusion

Under the ACA, health care coverage has been extended to more than 32 million individuals, most of whom are represented in at-risk low socioeconomic communities. Coverage expansion incorporates simplified insurance marketplaces, equity in ensuring all communities and populations are

able to access basic levels of health care services, as well as increased efforts within our health practitioner workforce in allowing for well-rounded training that focuses on cultural competency, language, and literacy issues. Further bridging of health disparity gaps must include the dissemination of clear and concise health information, active adherence to health promotion and prevention measures, along with increased assurance for culturally competent and equitable high-quality services. Programs such as *promotoras(es) de salud* should be at the forefront of future health policy agendas through the creation of task forces aimed at reducing health disparity gaps through health prevention and promotion strategies. Strong legislative and financial support for nationally recognized *promotoras(es) de salud* initiatives, could more effectively reduce negative health outcome trends that have historically impeded Latino communities from accessing quality health care services.

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