Crossing the Divide

Immigrant Youth and Digital Disparity in California

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Acknowledgements

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Technology is part of the everyday lives of nearly all Americans. Specifically, information technology (IT) is transforming the daily functioning of all United States sectors including government, the labor market, educational institutions, communications, and health care. For those who have access to the Internet, it is often the first place they turn to in seeking information on just about anything.

The so-called "digital divide" is one of many social inequalities faced by individuals who are low-income, ethnic minorities, or immigrants. Indeed, the presence of the digital divide may serve to widen the socioeconomic gap already present in the United States. IT is increasingly necessary to participate in critical aspects of the society; exclusion from the IT world can further disadvantage individuals who are already on the margin.

It has been argued that the digital divide is disappearing as access to computers and the Internet increased tremendously for all groups in the past decade. Young people in particular have close to universal access as nearly all schools and public libraries offer computers for their use. Despite this, there continues to be a digital divide both nationally and in California—a home technology digital divide. There are great disparities in access to home computers, Internet at home, and high-speed Internet at home for immigrants and many native-born ethnic minorities. Community centers and other neighborhood institutions have attempted to address this disparity by offering computer access outside of schools and libraries. This access is critical for youth who make use of it, but overall computer use at these institutions is far too low to fully make up for the disparity in home access. If computer and Internet access in schools and libraries is nearly universal, should we be

concerned about access in other locations? Information provided in this report, coupled with previous research from the Center for Justice, Tolerance, and Community, suggests that we should.

In previous research on minority youth using technology in community centers, we find that youth who use these centers report inadequate access in schools and libraries due to: (1) limited time allowed on the computer; (2) restrictions based on course enrollment; and (3) inaccessibility due to hours of operation, conflicts with other school activities, and transportation necessary to get to and from school (London, Pastor, Servon, Rosner, and Wallace 2006).[1] These limitations affect both the extent to which young people can use computers at school and how well they can learn the software and hardware to which they are exposed in that environment. Perhaps even stronger evidence comes from previous research that shows the positive effects of home computer access on youth high school graduation rates. Having a home computer is associated with a 7.7 percentage point increase in the rate of school enrollment and a 6 to 7 percentage point higher graduation rate, even after taking into account a variety of other factors that influence computer ownership such as parents' education and income levels (Fairlie 2005). The mechanism for this increase may be decreased idle time as home computer

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[1] *This research concentrates on community centers in disadvantaged communities. Schools and libraries in other areas may not face these same limitations.*

ownership is also associated with reduced school suspension and criminal activity (Fairlie 2005; Beltran, Das and Fairlie 2005).

Together, these studies suggest that the digital divide continues to be a pressing social justice issue that warrants serious attention. In this report, we focus specifically on the digital divide for immigrant youth. The digital divide between Whites and ethnic minorities, such as African-Americans and Latinos, has been reported and studied extensively (see U.S. Department of Commerce 2002 and Fairlie 2003, 2004), but less attention has been paid to the digital divide between immigrants and native-born Americans. In fact, none of the recent Department of Commerce Reports on technology use provides estimates of computer and Internet access rates by immigrant status. This lack of information is surprising as many immigrants are poor, have

relatively low levels of education, and are not English proficient—characteristics associated with the low levels of technology use (Fairlie 2004). Further, many immigrants come from developing countries that have extremely low levels of technology use (International Telecommunications Union 2005).

Immigrants are a diverse group both across and within ethnicities. In previous research, we find substantial variation in computer and Internet use rates across different Latino groups. As a group, Asians are found to have rates of computer and Internet use that are on par with rates of technology use among White, non-Latinos, but this comparison conceals large differences across Asian groups. This report provides an analysis of technology use by language spoken and across detailed immigrant groups.

Research Questions

We study three key research questions regarding immigrant youth and the digital divide:

1. *What are the patterns of home technology use among native-born and immigrant families and youth?*

Immigrants are less likely than native-born residents to have access to home computers, Internet at home, and high-speed Internet at home. Using data from the 1997-2003 Current Population Survey Computer and Internet Supplements (CPS), we examine the extent of the divide between natives and immigrants on these three dimensions, both in the United States as a whole and within California. We examine all residents and separately examine youth ages 5 to 25. We further delineate these groups by ethnicity, examining broad immigrant groups, including Latinos and Asians, and comparing them to individuals of the same ethnicity who are native-born. We also detail immigrant home technology access for the 20 largest immigrant groups in the United States. The report

discusses the extent of the divide by income level and immigrant status and examines other locations of Internet use for youth, such as in libraries, schools, or community centers.

2. *What are the causes and consequences of the digital divide for immigrant families and youth?*

We use the CPS data to examine the causes of differences in access to technology among immigrants and native-born youth, focusing on several key indicators: education level, family income level, other personal characteristics, and language spoken at home. We explore whether immigrant use of technology in the United States is related to home country rates of technology use. We also summarize research that documents the effects of home computer and Internet access on youth and young adults.

3. *How does technology at CTCs in California benefit immigrant families and youth?*

We use case studies from six immigrant youth serving community technology centers (CTCs)

in California to examine how immigrant youth are accessing technology, the goals of programming for immigrant youth, their main service needs, and the cultural relevance of CTC programming for immigrant youth. We also report findings from a survey of CTCs that are members of the trade association CTCNet to understand youth programming nationwide and for immigrants in California.

Organization of this Report

The remainder of this report is organized as follows. In Chapter 2 we briefly describe the sources of data upon which we rely. We describe the Current Population Survey Computer and Internet Use Supplements which underlie the quantitative analysis. We also provide an overview of the programming offered at the six immigrant youth serving community technology centers we visited as part of the project. We briefly discuss the CTC survey that informs some of our analyses.

In Chapter 3, we use data from the CPS to examine the extent of the digital divide between native-born and immigrant youth and adults in both the United States as a whole and in California. We use the data to study causes of the disparity in home technology use among natives and immigrants and discuss the consequences of this divide for young people.

We conduct an analysis of our qualitative data in Chapter 4, focusing on how immigrant youth access technology and other services at CTCs. We examine the needs of immigrant youth who use technology at CTCs, the ways that CTCs recruit and retain them, and the types of programming CTCs offer to this population with regard to technology and other youth development goals.

Finally, Chapter 5 integrates the findings in Chapters 3 and 4 and concludes with overarching themes and policy considerations. We offer several suggestions for improving home computer and Internet access for disadvantaged youth in California and nationwide. We also highlight the importance of technology access at community centers in promoting positive youth development for immigrants, particularly in the areas of leadership and civic engagement.

Chapter 2: Data and Methods

This report relies on several sources of data. First, for the quantitative analysis of the digital divide for immigrant youth, we use the Computer and Internet Use Supplements of the Current Population Survey (CPS). Second, we rely on data collected during in-person visits to six community technology centers in California, all of which serve primarily immigrant populations. Finally, for some analyses we examine responses to a web survey of community technology centers nationwide conducted by the Center for Justice, Tolerance, and Community at the University of California, Santa Cruz. Each of these is described below.

Quantitative Analysis using the Current Population Survey

The Current Population Survey (CPS) is conducted monthly by the U.S. Census Bureau and the Bureau of Labor Statistics. Included in the survey are approximately 50,000 households nationwide, which when weighted appropriately are representative of the entire U.S. population. The Computer and Internet Use Supplement has been included in the survey periodically, most recently in odd years appended to the October survey. The supplement contains a wealth of information on computer and Internet use by families and individuals not found in other government data sources. For our analysis, we rely primarily on the October 2003 data, which is the most recent available government data on home access to technology. The next supplement to the CPS is not scheduled for release until November 2007.

In addition to its information on home computer and Internet access, the CPS contains a wealth of information on respondent characteristics, income, and labor force participation. A key advantage of these data are the large sample sizes, which allow for analysis of detailed segments of the population that in most other surveys would have too few observations to examine separately.

Qualitative Analysis from Site Visit Data

We conducted six CTC case studies in the Fall of 2004, the Fall of 2005, and the Winter of 2006. For each case study, a team of two or more researchers spent one to two days visiting the CTC. During the visits, we interviewed CTC staff and instructors, youth participants, and community partners. We observed CTC activities, reviewed key program documents, and viewed the products that youth created using technology they learned at the CTC.

CTCs were selected to meet the following criteria:

- Youth serving—All CTCs had to have an established youth program or serve youth in a meaningful way.

- Immigrant serving—All CTCs had to serve a predominantly immigrant population, either first or second generation and in all cases youth were economically disadvantaged as well.

- Ethnic representation—We selected sites to represent several different immigrant ethnicities, including Korean, Latino, Mexican, and Southeast Asian (Vietnamese, Cambodian, and Laotian, primarily). Some CTCs served mainly one of these groups and others served a mix of them.

- Geographic representation—We selected sites from across California, including two

in San Francisco, two in Los Angeles, one in the Cental Valley, and one on the Mexican border

- Unique or outstanding program—Each site was recommended to us as outstanding in some way. We sought exemplary programs in order to best identify how CTCs can improve the lives of immigrant youth. However, because CTCs were selected in this fashion, results from this study are not necessarily generalizable to the broader population of CTCs.

Exhibit 2.1 summarizes the characteristics of these CTCs and each CTC is discussed briefly below.

The Bresee Foundation, located in Los Angeles, is a faith-based community center that offers a variety of technology, educational, health, and other supportive services. Youth are a main target group, particularly after school when Bresee offers homework assistance and tutoring. There is a designated youth computer lab where young people have the opportunity to take classes or learn by experimentation with assistance as necessary. High school students have the opportunity to participate in Bresee's Arts and Multimedia Production (AMP) program in which youth learn filmmaking and editing in the process of creating their own social documentaries. Youth participants are from a variety of ethnic backgrounds, including Latino, Asian, African-American, and other immigrant groups.

Casa Familiar is non-profit community-based organization located in San Ysidro, which is situated just across the Mexican border from Tijuana. Casa Familiar responds to the problems of the San Ysidro community with a multidimensional and holistic approach, offering more than 50 programs in the areas of human services, community development, recreation, technology, arts and culture, and education. For youth in particular, Casa Familiar operates the C3 Café computer lab, where students can receive homework help or explore computer technology; a fitness center, game room, and youth basketball league;

the Young Leaders Program, which teaches leadership skills and the value of community involvement to youth ages 12-21; and La Clase Mágica, which is offered in conjunction with the University of California San Diego and offers an opportunity for young children and their parents to jointly learn computer essentials. Casa Familiar also offers specific programs to adults and seniors and is actively engaged in community development projects, including designing and building livable space in San Ysidro.

*Firebaugh Computer Learning Center (*FCLC) is located in California's Central Valley in a rural town about 40 miles north of Fresno. Firebaugh has a large concentration of Mexican families who are employed in the area's agricultural industry. The FCLC is located in a housing project in which many of these families live. It offers computer access and basic skills courses for adults and youth, as well as opportunities to become involved in community activities and advocacy. There is not a separate youth program, though many young people use the computers for schoolwork. FCLC youth participants ar*e mostly Latino and of Mexican origin.*

The Koreatown Youth and Community Center (KYCC) is a non-profit, community-based organization located in Los Angeles that has served economically-disadvantaged immigrant youth and their families since 1975. KYCC provides programs and services that improve academic performance and increase community engagement among youth in Koreatown, Los Angeles, and surrounding communities. KYCC's SEEK-LA Drop-In Center provides after school tutoring, college preparation, and employment training to students at Los Angeles High School. KYCC also provides opportunities for youth leadership development and community service through its Korean Coalition of Students in California, Youth Employment Service, and Youth Drug Abuse Prevention Programs. KYCC serves elementary, middle, and high school students from Latino, Asian, African-American, and other ethnic backgrounds.

The Richmond Village Beacon Center (RVBC) is one of eight Beacon Centers in the Bay Area, the only one located in a High School. The Center was established in 1998 to fill the need for a safe, accessible and supportive youth and community center in the Richmond District of San Francisco, a culturally mixed and socio-economically diverse community. Youth are engaged through various programs and services including after school tutoring, homework help, performing arts, multi-media arts and technology (animation, digital photography, video-making, website design), cartooning, zine-making, cooking, recreation, martial arts,

and leadership programming. Center staff also support collaboration among agencies, schools, the faith community and other neighborhood organizations.

The Vietnamese Youth Development Center (VYDC) is a non-profit agency located in San Francisco's Tenderloin District, one of the most disadvantaged areas in the City. Since 1979, VYDC has provided neighborhood youth (ages 10 to 21) with urgently needed support and practical assistance as they adjust to their new lives in the United states. VYDC offers programming in the areas of: delinquency prevention, case management,

CTC and Location in California	Bresee Foundation *Los Angeles*	Casa Familiar *San Ysidro*	Firebaugh Computer Learning Center *Central Valley*	Richmond District Beacon *San Francisco*	Koreatown Youth and Community Center *Los Angeles*	Vietnamese Youth Development Center *San Francisco*
Goals	Provides access to technological resources often out of reach to low-income community members, teach marketable skills, and enhance job placement opportunities.	Focuses on unique challenges faced by border communities with a holistic approach. Includes a range of services for immigrant youth, including technology, human services, leadership, recreation, education, and arts.	Provides social, economic and educational advancement opportunities through technology training and programs.	Provides a safe, fun, and supportive environment for youth to explore and reach their full potential in a school based setting. Focus on self-determination, cultural and economic diversity, and community building.	Provides immigrant youth and families with tools and skills that lead to academic success, and develops youth leaders by building character and encouraging community engagement.	Provides assistance to immigrant youth in their adjustment to American life, and encourages and empowers youth to participate actively in the development of their community.
Public Access for Youth	Yes	Yes	Yes	Yes	Yes	Yes
Public Access for Adults	Yes	Yes	Yes	No	Yes	No
Multi-media program	Yes	No	No	Yes	No	Yes
Homework help	Yes	Yes	Yes	Yes	Yes	Yes
Basic computer skills classes	Yes	Yes	Yes	No	Yes	No
Technical skills classes	Yes	No	No	No	No	No
Internships/employment	Yes	No	Yes	No	Yes	Yes
Leadership program	Yes	Yes	No	Yes	Yes	Yes
College Prep	Yes	Yes	Yes	No	Yes	Yes
Adult mentors	Yes	Yes	Yes	Yes	Yes	Yes

Exhibit 2.1 Characteristics of Case Study CTCs

academic support, jobs, substance abuse counseling, computer technology, and digital arts and media. Youth are actively supported by a web of case managers and counselors, many of whom were themselves VYDC students. In 1990, VYDC initiated a Peer Resource Program—which includes peer counseling, leadership training, and community service projects—to bring neighborhood youth together in the spirit of personal responsibility and commitment to the community. Part of this program is the arts and technology program, in which students work collaboratively with center staff to create project-based films. During the summer months, students work more autonomously or in groups to see a film project through from start to finish. This and other VYDC arts programs encourage youth to share their experiences and perspectives with other peers and through local public events with Southeast Asian and general public audiences.

The centers we visited served many youth, including upwards of 100 youth per day in at least one center. Some of the specialized media programs offered by these centers serve fewer students with more intensity, taking in between six and ten students at a time, but rotating new students in every few months.

CTC Survey

In the Summer of 2005, we conducted a web survey of community technology centers nationwide. We asked staffrespondents a host of questions on the characteristics of youth they serve, the types of programming they have available, the specific software they use, and their overall philosophy about serving youth with technology. Included in this questionnaire was a special module for California respondents focused specifically on immigrant youth. We asked California respondents about the extent to which they serve immigrant youth, the needs of immigrant populations, and whether immigrant youth engage with technology in ways that appear to be different than non-immigrant youth.

The respondent pool for the survey was the membership of CTCNet, the national professional organization to which many CTCs belong. With a web survey, we anticipated a fairly low response even though we offered an iPod as a raffle prize for all survey completers. We received 52 responses, 19 of which were within California. The membership of CTCNet is about 1,000, and when it does its own surveys, the organization usually receives about 100 responses. It is not feasible to reliably conduct a detailed analysis with this number of responses; generalizability from our survey results to the CTC population is not possible. We use the information gathered from the survey to supplement the much more in-depth information we gathered while on site at the six CTCs.

Chapter 3: Immigrants and the Digital Divide

As discussed previously in Chapter 1, there exist large disparities in access to home computers, the Internet, and broadband technology between ethnic and racial groups, with minority groups substantially less likely to access these technologies than Whites. Among ethnic minorities, immigrant groups in particular have some of the lowest rates of technology access, though they have not been the focus of, or even included in, the discussion about the digital divide. Research indicates that the digital divide may have serious economic consequences for immigrants as information technology skills become increasingly important in the labor market and for education. Economic, education, community participation, and political advancement for immigrant groups is becoming increasingly linked to computer access, and the expectation is that this will continue to be an important way to connect and mobilize various groups. In addition, critical information on government services, health conditions, and educational opportunities are widely available online, and in many cases this information is even more convenient to access over the Internet than it is in other forms. It seems clear that the adoption of technology by immigrants can help their assimilation in the United States.

Using data from the Computer and Internet Use Supplement to the October 2003 Current Population Survey (CPS), this chapter documents native/immigrant differences in access to home computers, the Internet and broadband technology. We examine whether native/immigrant differences in the most likely "suspects"—family income, education, occupation, and family structure—have independent effects on disparities in home computer and Internet access. We also discuss some of the likely consequences of the digital divide and summarize findings from recent research on the labor market and educational consequences of the digital divide.

The CPS data upon which we rely are the most comprehensive available to study this issue. However, they are limited in that the sample size for any one state, even California, is relatively small. Because of this, we examine immigrants' home computer and Internet use for both the U.S. and California. In examining specific subgroups of the population, we focus on the United States as a whole in order to ensure that the sample sizes are large enough to provide accurate results.

Access to Technology among Immigrants in the United States and California

UNITED STATES POPULATION

Immigrants are substantially less likely to have a computer at home than are native-born Americans. Exhibit 3.1 reports the fraction of the U.S. population that has home access to a computer, the Internet, and high-speed Internet by ethnicity and immigrant status.[1] Estimates from the October 2003 CPS

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[1] *In each of the exhibits, we include for comparison a group labeled as White/other. This includes all racial and ethnic groups other than Latinos and Asians, which are reported separately. White/other is predominantly those who self-identify as "White," and also those who report being "Black," "American Indian, Aleut, Eskimo," or multiple races.*

indicate that 69.7 percent of native-born individuals have access to a home computer, while only 56.4 percent of immigrants can access the computer at home.[2] Immigrants are also less likely to have Internet access at home—slightly more than 60 percent of the native-born population has Internet access compared to 47.6 percent of the immigrant population. These patterns are cause for concern as it has been
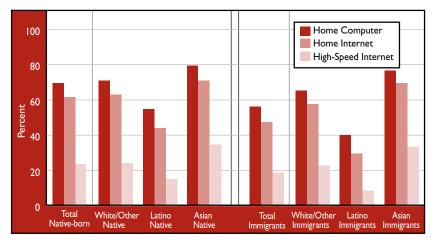
The CPS also includes information on the type of Internet access. Access to high-speed connections, such as DSL and cable modems, may represent an emerging dimension of the digital divide. Immigrants have lower rates of high-speed Internet access than the native-born, but the differences are not as large as those reported for home computers and the Internet. This is likely because the subscription to broadband Internet is much lower overall than computer ownership and access to non-broadband technologies. Nearly one quarter of the native-born population has high-speed Internet at home compared to 18.7 percent of the immigrant population. The rates of high-speed Internet are increasing rapidly for all groups.

A simple comparison of access to technology between the native-born and immigrant population captures major differences in ethnic and racial composition. Exhibit 3.1 reports estimates of home computer, Internet, and high-speed access rates by major ethnic and racial subgroups in the native and immigrant populations. For Latinos, access rates are notably larger among the native-born population than the immigrant population. Home computer rates are 14.9 percentage points higher, Internet access rates are 14.5 percentage points higher, and high-speed Internet rates are 6.6 percentage points higher for U.S.-born Latinos than for Latino immigrants. These represent very large differences as technology access rates for Latinos are relatively low compared to other native groups.

For other ethnic groups, the native/immigrant differences are smaller, but still substantial. For instance, the difference between U.S.-born and immigrant Asians' home access to the computer is 2.9 percentage points. For those in the White/other category, natives are about 5 percentage points more likely to have a computer or the Internet at home than immigrants. Overall and within ethnic groups, immigrants have lower rates of access to technology than natives, although the differences are not large for Asians as a whole.

Exhibit 3.1 **Percent of U.S. Population with Access to Home Computers and the Internet** *Current Population Survey, October 2003*
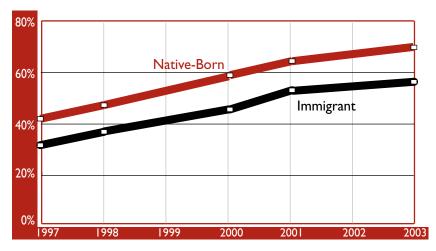

Exhibit 3.2 **Percent of U.S. Population with Access to a Home Computer by Nativity** *Currrent Population Survey, 1997-2003*

argued that economic advancement, educational advancement, and community participation are increasingly dependent on access to the Internet, and access to the Internet is important because of the growth in commercial activity, government services, and health and educational materials online (U.S. Department of Commerce 2000, 2002).

[2] *See Appendix 1 for detailed tables.*

The relatively low rates of access to home computers and the Internet among immigrants have existed since 1997, when the collection of these data began. Exhibit 3.2 displays the percent of the U.S. population who have access to a home computer by nativity for available years from 1997 to 2003. These estimates are generated from the computer use supplements to the 1997, 1998, 2000, 2001 and 2003 CPS (data were not collected in 1999 and 2002). In 1997, 33.2 percent of immigrants had home computers, whereas 43.4 percent of natives had home computers. Over the past five years, the racial gaps have declined slightly in percentage terms, but have increased slightly in percentage point terms. In either case, the estimates clearly indicate that immigrants have been and continue to be less likely to have access to a home computer than natives.

Exhibit 3.3 displays Internet access rates by nativity since 1997. Again, the figure makes it clear that immigrants have been and continue to be less likely to have access to the Internet than natives. Furthermore, the native/immigrant gap in home Internet access has increased over time. The trajectories for both home computer and Internet access rates do not indicate that the digital divide based on nativity will disappear in the near future.

CALIFORNIA POPULATION

Are patterns of access to technology at home by nativity different in California than in the rest of the United States? Exhibit 3.4 reports estimates of home computer, Internet, and high-speed access rates for Californians. The native-born population living in California has higher rates of access to home computers than the U.S. native-born population (74.5 percent compared to 69.7 percent). In California compared to the country as a whole, home computer access rates are 4.8 percentage points higher, Internet access rates are 5.2 percentage points higher, and high-speed Internet access rates are 6.6 percentage points higher. The benefits of living in California compared to rest of the country in terms of access to

technology are also realized by immigrants, but the differences are smaller. California immigrants are 2.2 and 1.4 percentage points more likely to have home computers and high-speed Internet access than U.S. immigrants, respectively. Access to the Internet among

Exhibit 3.3 Percent of U.S. Population with Access to the Internet at Home by Nativity *Currrent Population Survey, 1997-2003*

Exhibit 3.4 Percent of California Population with Access to Home Computers and the Internet *Current Population Survey, October 2003*

immigrants is the same. For most of the ethnic groups shown in Exhibit 3.4, Californians also have higher rates of access to technology than the U.S. population.

As was the case in Exhibit 3.1, Californian native Asians and those in the White/other category have the highest rates of access to computers and the Internet while Latino natives and immigrants have the lowest rates. In general, within an ethnic group, immigrants have lower rates of access to home technology than natives living in California.

Access to Technology Among Youth

UNITED STATES POPULATION

Children and young adults are more likely to have access to a home computer than are adults. Exhibit 3.5 reports home computer, Internet and high-speed Internet access rates by immigrant status for the population ages 5 to 25. Immigrant youth are substantially less likely to have access to home technology than are native-born youth. Seventy-five percent of native-born children have access to a home

Exhibit 3.5 **Percent of U.S. Youth Ages 5-25 with Access to Home Computers and the Internet** *Current Population Survey, October 2003*

Exhibit 3.6 **Percent of California Youth Ages 5-25 with Access to Home Computers and the Internet** *Current Population Survey, October 2003*

computer, compared to only 53.9 percent of immigrant children. For Internet access, native-born youth are more than 20 percentage points more likely to have the Internet at home than are immigrant youth. High-speed Internet access is roughly 10 percentage points higher among

native-born youth than among immigrant youth.

For each of type of access to technology at home, the disparities between immigrants and natives are larger than the disparities for the entire population (all ages). The reason for these differences is that native-born youth have higher rates of access to technology than the overall native-born population, whereas immigrant youth have lower rates than the overall immigrant population. These patterns are troubling given the potential importance of access to technology on educational and future labor market outcomes.

For Latino and White/other youth, the native/immigrant differences are large. The disparities are larger than for the total population. Among Asian youth, however, the pattern is different. Asian immigrant youth are more likely to have home computers and the Internet, and have similar rates of access to high-speed Internet as U.S.-born Asian youth.
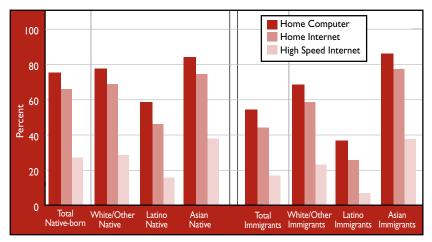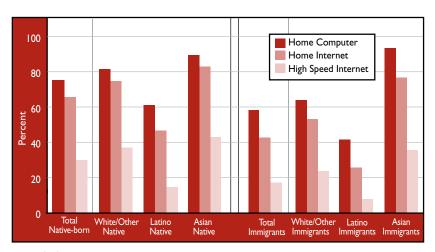
CALIFORNIA POPULATION

As is shown in Exhibit 3.6, California youth are about as likely to access technology at home as youth in the U.S. as whole. However, some California ethnic groups are more or less likely to access home technology. For instance, Latino native and immigrant youth in California are more likely than those in the United States to have home computers (61.3 percent compared to 58.3 percent for natives and 41.5 percent compared to 36.4 percent for immigrants). Asian native and immigrant youth are even more likely to have access to home technology in California than they do nationwide. For instance, 89.5 percent of Asian native youth in California have access to home computers, compared to 83.6 percent nationwide. Ninety-three percent of Asian immigrant youth in California have a home computer—a percentage even higher than the native youth of that ethnicity—compared to 77.4 percent nationwide. The same trends holds for the catch-all category of White/other, for both natives and immigrants.

Although access rates in California are higher than elsewhere in the country, the immigrant digital divide is equally present. Immigrant youth in all categories except Asians have lower rates of access to technology at home than native youth of the same ethnicity. Among Asian youth in California, immigrants have slightly higher rates of home computer access (93.5 percent for immigrants compared to 89.5 percent for natives), but slightly lower rates of Internet and high-speed Internet at home.

WHERE DO YOUTH USE THE INTERNET?

Exhibit 3.7 reports estimates of the percent of youth ages 5-25 using the Internet at three locations outside the home: library, community center and school.[3] Overall, immigrant youth are equally likely to use the Internet at a library as are native-born youth. The comparison of immigrants and natives masks some important differences by ethnicity. Latino immigrants are less likely to use the Internet at a library than are U.S.-born Latinos, but Asian immigrants are more likely to use the Internet at a library than are U.S.-born Asians.

Internet use at community centers was not included as a question on the October 2003 CPS supplement. Instead, Exhibit 3.7 reports estimates of community center Internet use for September 2001. Immigrant youth are slightly more likely to use the Internet at a community center than are native-born youth and Asian immigrants have the highest rates of Internet use at community technology centers. Our analysis suggests that it may be the most disadvantaged youth who use Internet at community centers. The rate of Internet use at a community center for all youth decreases as family income increases. The higher rate of community center access for immigrant youth is likely because immigrant youth have lower income on average than native-born youth.

However, levels of use for all groups are low. It is likely that this is due more to limited availability (perhaps due to lack of funding for community technology centers) than

due to limited demand. It is also possible that the level of use at community centers is underreported in the CPS, as one adult in the household answers these questions for all household members, including children.

Still, even with low reported rates of Internet use at CTCs, this may be an important location of use for disadvantaged youth. Data

	Percent Using Internet at Library	Percent Using Internet at Community Center (2001)	Percent Using Internet at School	Percent Using Internet at School among Enrolled
Native-born	11.1%	0.8%	39.9%	51.2%
White/Other	11.2%	0.8%	41.4%	53.6%
Latino	10.1%	0.7%	29.4%	36.8%
Asian	13.1%	0.8%	40.2%	46.0%
Immigrants	11.2%	1.1%	27.2%	48.0%
White/Other	14.2%	1.0%	36.3%	55.7%
Latino	7.7%	0.8%	16.5%	35.4%
Asian	17.1%	2.1%	45.7%	62.3%

Notes: (1) All estimates are for 2003, except community center use which is for 2001.
(2) All estimates are calculated using sample weights provided by the CPS.
(3) Internet use for youth is reported by parents in the CPS.

Exhibit 3.7 **Internet Use Outside the Home for Youth Ages 5-25 in the U.S.**

from previous years of the CPS indicate that Internet use at CTCs is expanding rapidly. With limited access at home for many immigrant youth and reported disparities in school access, community center access can play a critical role in helping to reduce digital disparity for young people.

Immigrant youth are less likely to use the Internet at school than are native-born youth. Roughly one-fourth of immigrant youth use the Internet at school compared to slightly less than 40 percent of native-born youth. The low rate of Internet use among immigrants relative to natives is driven primarily by Latino youth. Only 16.5 percent of immigrant Latino youth use the Internet at school. U.S.-born Latinos have higher rates of use in schools, but their rates are also relatively low.

Almost all of the difference in rates of Internet use in schools is due to native/immigrant differences in school enrollment. Immigrant youth are substantially less likely to be enrolled

[3] We focus on youth in the U.S. because sample sizes for California youth are prohibitively small.

in school than are natives. Approximately 80 percent of native-born youth ages 5-25 are enrolled in school, whereas only 60 percent of immigrant youth ages 5-25 are enrolled in school. For those who are enrolled in school, 51.2 percent of native-born youth use the Internet at school compared to 48.0 percent of immigrant youth. Apparently, the low rates of school enrollment among immigrant youth are severely limiting an important point of access to technology.

Internet use in libraries and community centers may represent important access points for immigrant youth who do not have access to technology at home. They may also represent important access points for the large percent of immigrant children who are not enrolled in school. Overall, however, library and community center use is relatively low. Low rates of use in libraries may be due to crowded computers and outdated technology, and low rates of use among community centers may be due to limited supply of centers and programs because of funding. Low rates of Internet use outside the home could also be due to an increasing focus on helping people acquire home computers.

Technology Access for Detailed Immigrant Groups

The CPS data allow us to examine in more detail home access to technology for even more detailed levels of immigrant group. Exhibit 3.8 reports estimates of home computer, Internet and high-speed Internet access rates for the 20 largest detailed immigrant groups in the U.S., ranked from highest to lowest rates of access.[4] Immigrants from the Phillipines—who comprise the second largest immigrant group in the United States—have the highest rates of access to home computers of all immigrant groups. Indian immigrants have the highest rates of Internet at home and high-speed Internet access. Mexicans, who are by far the largest immigrant group in the U.S., have among the lowest rates of home technology access. Just one-third of Mexican immigrants own a home computer, less than one-fourth have Internet access at home and 5.9 percent have high-speed Internet access at home. These rates of access to technology are much lower than the total rates for Latino immigrants. Estimates for other Latino immigrants clearly indicate that there is a lot of variation in access rates across Latino groups although most groups have substantially lower rates of access than native-born rates.

The Asian immigrant groups shown in Exhibit 3.8 have higher than average rates of access to technology, which explains why Asian immigrants have technology access rates that are similar to their native counterparts. Among the larger Asian groups, Vietnamese immigrants tend to have the lowest home technology access

Country of Origin	Percent with Home Computer	Percent with Home Internet	Percent with High-Speed Internet	Population in U.S.
Philippines	82.6%	75.3%	32.0%	1,460,380
India	79.9%	77.3%	42.4%	1,186,091
Korea	78.3%	72.0%	39.4%	815,622
England	76.7%	70.3%	36.4%	461,340
Canada	76.2%	70.7%	31.6%	678,589
China	73.3%	66.6%	35.2%	1,171,926
Vietnam	69.6%	56.0%	17.7%	870,960
Poland	65.9%	53.1%	16.0%	496,568
Germany	65.6%	58.8%	18.9%	581,777
Jamaica	64.9%	52.5%	15.5%	614,725
Russia	64.4%	51.9%	19.7%	460,766
Colombia	62.2%	57.9%	13.6%	579,560
Italy	54.8%	50.1%	18.6%	451,588
Haiti	51.7%	33.9%	13.7%	572,276
Dominican Republic	51.1%	42.4%	17.7%	695,399
Cuba	50.9%	39.8%	11.5%	967,051
El Salvador	50.6%	33.2%	11.7%	947,793
Mexico	33.5%	23.0%	5.9%	10,330,580
Guatemala	31.3%	20.4%	8.3%	591,873
Honduras	22.6%	19.9%	6.7%	398,976

Note: All estimates are calculated using sample weights provided by the CPS.

Exhibit 3.8 Home Technology Access Rates for 20 Largest Immigrant Groups in the United States *Current Population Survey, 2003*

[4] *Sample sizes for many of these groups are relatively small, and thus some caution is warranted in making comparisons.*

rates.[5] Their rates of access to technology are lower than the Asian total for all three measures. Vietnamese immigrants also have lower rates of access to the Internet and high-speed Internet at home than the native-born Asians, but have similar home computer rates. We also find low rates among additional Asian immigrant groups, including Laotians and Cambodians.

However, sample sizes are too small to report these estimates.

Overall, the estimates reported in Exhibit 3.8 indicate that there is substantial variation in home computer, Internet, and high-speed Internet access rates across immigrant groups. There is also variation across detailed groups within broad categories such as Latinos and Asians.

What are the Underlying Causes of the Digital Divide?

HOME COMPUTER AND INTERNET USE RATES BY INCOME

An interesting question is whether the large native/immigrant disparities in home computer and Internet access exist even after taking into account differences between the groups in income levels. It is well known that immigrants have lower average levels of income than natives and that home computer and Internet use increase with income. Exhibits 3.9, 3.10, and 3.11 display home computer, Internet access and high-speed access rates by income level for natives and immigrants. As expected, rates of having a home computer, Internet access, and high-speed Internet access rise with family income. This pattern holds for both natives and immigrants. The interesting finding, however, is even within income groups, immigrants are less likely than natives to access technology at home. For every reported income category above the lowest, immigrants are less likely to have a home computer and access to the Internet than are natives. The findings for high-speed Internet access, shown in Exhibit 3.11, are less clear. At the low end of the income distribution, immigrants are more likely than natives to have high-speed connections. At the high end of the income distribution, immigrants and natives are about as likely to have high-speed Internet. Overall, it appears that income is an important determinant of access to technology, but clearly there must be factors other than income contributing to native/immigrant differences.

THE CONTRIBUTIONS OF INCOME, EDUCATION, AND OTHER FACTORS TO THE DIGITAL DIVIDE

How much of the digital divide is due to income and how much is due to other factors, such as education and family structure?

Exhibit 3.9 Home Computer Access by Income and Immigrant Status *Current Population Survey, October 2003*

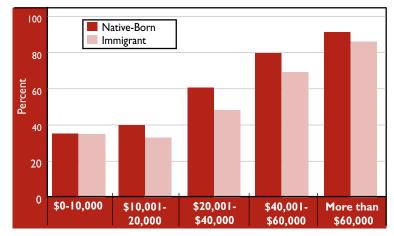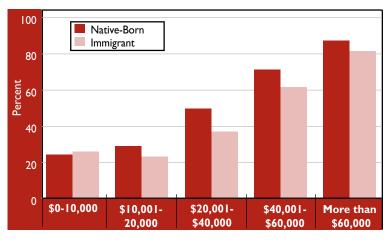**Exhibit 3.10** Home Internet Access by Income and Immigrant Status *Current Population Survey, October 2003*

[5] *Some Asian immigrant groups may also have very low rates of access in certain regions of the country, which is consistent with the finding from a study of community organizations by the Community Technology Policy Council (2004) that specific Asian groups face great barriers to technology access and use.*
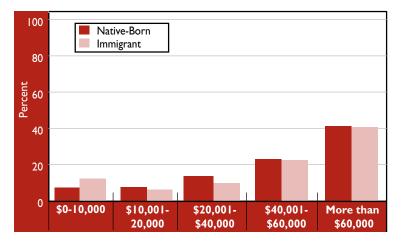
Exhibit 3.11 **Home Access to High Speed Internet by Income and Immigrant Status** *Current Population Survey, October 2003*

Although previous studies find evidence that income, education and occupation differences contribute to the racial digital divide in the United States (Fairlie 2004, U.S. Department of Commerce 2000), we know very little about the causes of native/immigrant differences in access to technology at home. We use the CPS data to explore the underlying causes of native/immigrant differences in computer, Internet,

and high-speed Internet access. In particular, we examine whether native/immigrant differences in the most likely "suspects"—family income, education, occupation, and family structure—have independent effects on disparities in computer and Internet use. The separate and independent effects of these variables are estimated using regression models and decomposition techniques (e.g. Blinder 1973 and Oaxaca 1973). The decomposition technique combines regression estimates and sample means to identify how much a factor, such as income or education, explains of the disparity between native and immigrants in a specific outcome, such as computer or Internet use. The technique is described in more detail in Fairlie (1999, 2006).

Exhibit 3.12 reports estimates from this analysis, looking at factors that explain disparities in computer, Internet, and high-speed Internet access rates between natives and immigrants. The separate contributions of immigrant/native differences in education, income, employment/occupation, region, central city status, sex and age, and marital status and children are reported.

The first column shows the results for native/immigrant differences in the percent of the population with access to a home computer. As discussed previously, the difference between native and immigrant home computer rates is large (0.118 or 11.8 percentage points). The first row of Exhibit 3.12 shows how much of this difference is explained by the different education levels possessed by natives and immigrants. Immigrants have lower levels of education, on average, than natives; 31.4 percent of immigrants did not graduate from high school compared to 11.1 percent of natives. Native/immigrant differences in education are the single largest factor contributing to the disparity in computer ownership. Natives' higher levels of education account for 3.5 percentage points of the 11.8 point difference, which is 29.7 percent.

The second largest factor explaining native/immigrant disparities in home computer

Native/Immigrant difference in home technology rate		Home Computer	Home Internet	High-Speed Internet
		0.118	0.125	0.030
Contributions from native/immigrant differences in:				
Education	Amount explained	0.035	0.042	0.015
	Percent explained	29.7%	33.8%	48.8%
Income	Amount explained	0.025	0.034	0.025
	Percent explained	21.1%	27.4%	82.2%
Employment/ Occupation	Amount explained	0.011	0.011	0.006
	Percent explained	9.0%	8.7%	21.1%
Central city status	Amount explained	0.003	0.002	-0.010
	Percent explained	2.3%	1.4%	-32.3%
Region	Amount explained	-0.009	-0.011	-0.006
	Percent explained	-7.8%	-8.6%	-18.3%
Marital status and children	Amount explained	-0.006	-0.007	-0.001
	Percent explained	-4.7%	-5.4%	-4.2%
Sex and age	Amount explained	-0.015	-0.014	-0.013
	Percent explained	-12.8%	-11.5%	-42.7%
All included variables	Amount explained	0.044	0.057	0.017
	Percent explained	36.9%	45.6%	54.6%

Notes: (1) *The sample consists of adults ages 25 and over*
(2) *Contribution estimates are mean values of the decomposition using 1000 subsamples of whites See text for more details*

Exhibit 3.12 **Decomposition of Native/Immigrant Differences in Home Technology Access Rates** *Current Population Survey, 2003*

ownership is income. Lower levels of income among immigrants account for 21.1 percent of the native/immigrant difference. It is likely that this primarily captures native/immigrant differences in the ability to purchase computers, however, the results show that lower levels of computer ownership among immigrants are not simply due to an inability to purchase computers. Other factors, possibly including desire to own a computer, are also important.

One reason for this is that immigrant adults tend to work in occupations that are less associated with owning computers. Employment and occupational differences explain 9.0 percent of the gap in computer ownership rates. Immigrants are overrepresented in occupations associated with low home computer rates, such as services, production, farming, construction, and transportation.

The included geographical factors (region of the country and whether the individual lives in the central city) do not play a major role in explaining native/immigrant differences in computer ownership. In fact, immigrants tend to live in regions of the countries with higher computer ownership rates as compared to natives, primarily the Pacific region. Thus, regional differences explain none of the difference in native/immigrant home computer disparities and in fact serve to "widen" the native/immigrant gap, which results in a negative number reported in Exhibit 3.12.

Native/immigrant differences in sex and age also explain none of the difference in home computer ownership and offer negative contributions. Immigrants are younger on average than are natives and also more likely to be married and have children ages 6-17. Younger adults and those with children are more likely to own computers than older adults and those without children at home. Hence, if not for these characteristics, the difference in computer ownership rates between immigrants and natives would be even larger.

The difference between the percent of immigrants who have access to the Internet at home and the percent of the native-born who have access to the Internet at home is also large—12.5 percentage points (see column 2 of Exhibit 3.12). The factors contributing to native/immigrant differences in home Internet access are similar to those contributing to native/immigrant differences in home computers. Education and income differences are the two most important factors although both explain more of the difference between native and immigrant Internet access than the computer access. Low levels of education among immigrants explain one-third of the difference in Internet rates, and low levels of income explain 27.4 percent of the difference in computer ownership.

The difference between natives' and immigrants' home high-speed Internet access is smaller than the computer and Internet differences. Immigrants are 3.0 percentage points less likely to have access to high-speed Internet at home than are natives. Education and especially income differences explain a larger share of this difference. Other factors also have large contributions in percentage terms, but these estimates should be interpreted with some caution as the high-speed Internet gap is small.

In analyzing the causes of the digital divide between Whites and African-Americans and Whites and Latinos, we also find that income and education inequalities are leading causes of the disparities (Fairlie 2006). However, education differences explain a smaller share of the African-American/White digital divide, accounting for 10.7 and 11.5 percent of the differences in computer ownership and Internet access, respectively. In our analysis of the native/immigrant digital divide, we find education accounts for 29.7 and 33.8 percent of the differences in computer ownership and Internet access. For both African-Americans and Latinos, income differences explain roughly 25-30 percent of the differences, which is comparable to what we find in the native/immigrant analysis.

Other Explanations for Differences in Natives' and Immigrants' Home Technology Access

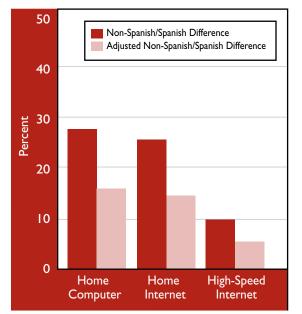As is indicated in Exhibit 3.12, the combination of education, income, employment and occupation, region, central city status, marital status and children, and sex and age explains just 37 percent of the difference between natives and immigrants in home computer ownership, 46 percent of the difference for home Internet access, and 55 percent of the difference in home high-speed Internet access. There are substantial amounts of these differences that are not explained by the characteristics included in the analysis. We next examine several alternative explanations.
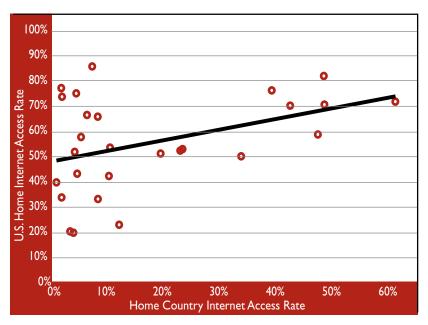

Exhibit 3.13 **Differences in Home Technology Access Rates by Spanish Language, U.S. Latino Immigrants**
Current Population Survey, 2003

Exhibit 3.14 **U.S. Home Internet Access Rate by Home Country Internet Access Rate for Immigrants**

LANGUAGE BARRIERS

Language may be an important factor limiting computer and Internet use among non-English speaking minorities. As it turns out, the Internet is less global than it is sometimes portrayed—the overwhelming majority of sites are in English. Spooner and Rainie (2001) report estimates from VilaWeb.com indicating that 68 percent of Web pages are in English, whereas only 3 percent are in Spanish. The Organization for Economic Cooperation and Development (2001) also reports that 94 percent of links to secure servers are in English. Although computer software is available in languages other than English it is not clear how widely it is used. Perhaps because of this, Latinos living in households where Spanish was the only language spoken were less than half as likely to use the Internet as other Latinos (U.S. Department of Commerce, 2002). Although these results do not control for differences in income or education they are suggestive of the importance of language and content.

To investigate this issue further, we use information in the CPS on whether Spanish is the only language spoken among adults in the household to examine whether Latino immigrants in Spanish-speaking households are less likely to use computers and the Internet. Unfortunately, the CPS does not ask about other languages spoken, so we cannot examine patterns for other ethnic groups. Exhibit 3.13 reports differences in home computer, Internet, and high-speed Internet access rates between Latino immigrants living in Spanish speaking and non-Spanish speaking households. The columns reported "unadjusted" estimates present the percentage of home computer, Internet, and high-speed home access. The "adjusted" estimates use regression analysis to control for differences in gender, age, marital status, children, education, family income, region, central city residence, employment, and occupation of the Spanish and non-Spanish speaking groups. These adjustments help us

to identify whether the difference between Spanish-speakers is due to language or to differences between Spanish- and English-speakers in these other measured characteristics.

Latino immigrants living in Spanish-speaking households are much less likely to have a home computer, Internet access and high-speed Internet access than are Latino immigrants in non-Spanish speaking households. Just 25.8, 17.0 and 4.3 percent of Latino immigrants in Spanish-speaking households have access to a home computer, the Internet and high-speed Internet, respectively. The rates of home computer and Internet access are roughly 25 percentage points lower and the rates of high-speed Internet access is nearly 10 percentage points lower than non-Spanish speaking Latinos.

Perhaps a first response to a comparison of technology access among Spanish and non-Spanish-speaking in their home access to technology access is that these two groups may differ substantially in terms of education, family income, and other factors affecting access to technology. Accounting for various background and other characteristics through regression analysis narrows the difference between the two Latino immigrant groups, but does not eliminate it altogether. The adjusted differences are 16 percentage points for home computer access rates, 15 percentage points for Internet access rates, and 5 percentage points for high-speed access rates.

Overall, the results clearly indicate that language is an important determinant of computer ownership, Internet access and high-speed Internet access, even after taking into account differences in education, family income and region. Spanish-speaking Latino immigrants have very low rates of access to technology at home. However, Latino immigrants who speak English at home have rates of home access at home that are only slightly lower than the rates of U.S.-born Latinos.

HOME COUNTRY RATES

An interesting and unanswered question is whether immigrant use of technology in the United States is related to home country rates of technology use. If immigrants use technology to communicate with their friends and family in their home countries, then higher rates of home country technology use should be correlated with high rates of use among U.S. immigrants. In other words, immigrants from countries with relatively high rates of Internet use may be more likely to have access to computers and the Internet at home to communicate with family, relatives, and friends residing in these countries.

Exhibit 3.14 displays home Internet rates in the United States by home country Internet rates for the 27 immigrant groups with at least 100 individuals in the CPS sample. The home country rates are drawn from the International Telecommunications Union (ITU) data on country-level technology use. The estimates displayed in Exhibit 3.14 support the hypothesis that immigrants who hail from countries with higher rates of Internet access

Explanatory Variables	Home Computer	Home Internet
Home country Internet use rate	0.7431 ** (0.2026)	0.7626 ** (0.1944)
Female	0.0064 (0.0107)	0.0024 (0.0106)
Age	0.0129** (0.0023)	0.0093 ** (0.0023)
Married	0.2906 ** (0.0898)	0.3673 ** (0.0927)
Previously married	0.1213 (0.1102)	0.1637 (0.1136)
Number of children	-0.0408 (0.0420)	-0.0798 * (0.0428)
Children ages 6 to 17	0.7475 ** (0.0993)	0.5369 ** (0.0988)
High school graduate	0.6001 ** (0.0713)	0.7429 ** (0.0747)
Some college	1.1339 ** (0.0878)	1.3032 ** (0.0878)
College graduate	1.3651 ** (0.0989)	1.4323 ** (0.0961)
Graduate degree	1.6958 ** (0.1377)	1.7568 ** (0.1282)
Family Income:		
$10,000 to $15,000	-0.0138 (0.1279)	0.0283 (0.1398)
$15,000 to $20,000	-0.0614 (0.1423)	0.0611 (0.1532)
$20,000 to $25,000	0.1488 (0.1262)	0.1972 (0.1366)
$25,000 to $30,000	0.4087 ** (0.1302)	0.3838 ** (0.1394)
$30,000 to $35,000	0.6617 ** (0.1281)	0.5472 ** (0.1364)
$35,000 to $40,000	0.9858 ** (0.1390)	1.1391 ** (0.1435)
$40,000 to 50,000	1.2242 ** (0.1316)	1.2780 ** (0.1356)
$50,000 to 60,000	1.1881 ** (0.1364)	1.4279 ** (0.1400)
$60,000 to $75,000	1.8356 ** (0.1468)	1.7249 ** (0.1433)
More than $75,000	2.0631 ** (0.1328)	2.1705 ** (0.1328)
Mean of Dependent Variable	0.583	0.503
Sample Size	7,748	7,748

Notes: (1) The sample consists of immigrantss ages 20-64.
(2) All regressions also include controls for region, urbancity, unemployment, and occupation.
(2) Marginal effects (sample average of individual marginal effects) and their standard errors are reported.
(3) *=statistically significant at the 5% level,
**=statistically significant at the 1% level.

Exhibit 3.15 Logit Regressions for Probability of Having a Home Computer or Internet Access

tend to have higher rates of home Internet access once they reach the United States. There is an overall positive relationship between U.S. Internet access rates and home country Internet use rates for immigrants in the United States.

To investigate the relationship further, we estimate regressions that examine the probability of home computer ownership and Internet access using a sample of immigrants from the CPS (see Exhibit 3.15). The regressions include the same explanatory factors as those used to calculate the decomposition analysis reported in Exhibit 3.12. In addition, we include the immigrant's home country Internet rate, which is the focus of our analysis. Columns 1 and 2 of Exhibit 3.15 report regression estimates and standard errors for the probability of having a home computer and Internet access, respectively. The first row of Exhibit 3.15 shows that home country Internet rates are

associated with substantially higher rates of computer ownership and Internet access among immigrants in the United States. They imply that increasing the home country rate of Internet penetration by 15 percentage points (which is roughly a one standard deviation change) results in a 2.7 percentage point increase in the immigrant's home computer rate and a 2.9 percentage point increase in the immigrant's home Internet access rate.[6]

To summarize, there is some evidence suggesting that differences across immigrant groups are caused by differences in home country rates. Immigrants from countries that have higher rates of Internet penetration may be more likely to use the Internet to communicate with family, relatives, and friends in those countries. It may also be the case that more exposure to technology in home countries translates into higher use in the United States because of better skills and more familiarity.

Potential Consequences of the Digital Divide

There may be long-term economic, educational, political, and health impacts of access to technology for immigrant youth in California and nationwide. Two of the most important impacts are likely to be in the labor market and education. It is quite clear that information technology skills are becoming increasingly important in the labor market. The U.S. Department of Labor's 2002-03 Occupational Outlook Handbook projects Computer Software Engineers-Applications, Computer Support Specialists, Computer Software Engineers-Systems Software, Network and Computer Systems Administrators, and Network Systems and Data Communications Analysts to be the fastest growing occupations from 2000 to 2010. There is also evidence that the share of employment in information

technology industries and occupations and the share of employees using computers and the Internet at work have risen dramatically over the past decade, a large percentage of new hires are required to use computers, and workers who use computers on the job earn more than their non-computer-using counterparts (Freeman 2002). Furthermore, online-job search is becoming increasingly popular.

EMPLOYMENT IMPACTS

One way to demonstrate the increasing importance of computer and Internet skills in the workplace is to examine estimates of the use of computers and the Internet at work today. Computer and the Internet use at work have become the norm, especially in higher-skilled jobs. Sixty percent of all workers use

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[6] *One concern with these results is that immigrants from wealthier countries may have higher rates of Internet use in their home countries and in the U.S., and thus the regression is picking up this correlation. Regressions not shown include home country per capita gross domestic production (GDP) as an additional control and find the effects of home country Internet on U.S. computer ownership and Internet access remain large and positive, but are statistically insignificant.*

a computer at work and 46 percent use the Internet at work (see Exhibit 3.16). Among jobs that require a college degree, 85 percent of workers use a computer at work and 74 percent use the Internet at work. Even among high school graduates who did not attend college, 43 percent use a computer at work and 27 percent use the Internet. Given that technology skills are required in the labor market, especially for better paying jobs, the digital divide is likely to have serious negative consequences on labor market opportunities for individuals who have limited opportunities to acquire these skills.

EDUCATIONAL IMPACTS

The educational impacts of the digital divide also appear to be large. In previous research, we find evidence suggesting that home computers increase school enrollment, high school graduation, and grades (Fairlie 2005; Beltran, Das and Fairlie 2005). Having a home computer decreases school suspension and criminal activity. Home computers may exert a positive influence on academic performance directly through the use of educational software and indirectly by facilitating the completion of school assignments and learning. The use of home computers may also open doors to learning, encourage some teenagers to stay in school, reduce truancy and crime, and offer economic incentives for completing high school.

Fairlie (2005) uses data from the Computer and Internet Use Supplement to the 2001 Current Population Survey to explore whether access to home computers increases the likelihood of school enrollment among teenagers who have not graduated from high school. A comparison of school enrollment rates reveals that 95.2 percent of children who have home computers are enrolled in school,

whereas only 85.4 percent of children who do not have home computers are enrolled in school. Taking into account differences between those who stay in school and those who drop out in their family income, parental education, parental occupation and other observable characteristics and using additional statistical techniques that try to control for differences in enrollment related to motivation to stay in school, the study finds a difference of school enrollment rates of 7.7 percentage points. These estimates suggest that home computers increase the likelihood that children stay in school.

In another article, Beltran, Das, and Fairlie (2005) use longitudinal data that follow young people over time to explore the relationship between computer ownership and high school graduation and other educational outcomes. This research also finds that teens who have access to home computers are 6 to 8 percentage points more likely to graduate from high school than teens who do not have home computers after controlling for individual, parental, and family characteristics. It is important to include controls for these characteristics in the regression analyses because children who live in families with home computers are wealthier, have more educated parents and have other "advantaged" characteristics. Home computers appear to increase high school graduation partly by reducing non-productive activities, such as school suspension and crime, among children.

Overall the results of these two studies and others from the literature provide evidence that access to home computers improves educational outcomes among children. These findings indicate that the digital divide may translate into educational inequality, and thus future economic inequality.

Summary

Estimates from the Computer and Internet Use Supplements to the October 2003 Current Population Survey (CPS) indicate that the digital divide between the native born and immigrant adults and youth is large and does not appear to be disappearing quickly. Immigrants nationwide and in California are much less likely to have access to computers, the Internet, and high-speed Internet at home than are natives. These patterns generally hold within broad racial groups. The native/immigrant digital divide is much larger for youth than for adults, but generally similar in magnitude in California as in the entire United States.

Income and education inequalities are leading causes of the digital divide between immigrants and natives. It is important to note, however, that these two factors explain less than half of the difference in computer ownership and home Internet use between natives and immigrants. In fact, large disparities in computer ownership and Internet use were found between native and immigrants in high-income families.

Estimates also indicate that language is an important determinant of computer ownership and Internet use above and beyond its correlation with factors such as education, family income and other characteristics. Spanish-speaking Latino immigrants have strikingly low rates of computer ownership and home Internet access relative to English-speaking Latino immigrants. The differences between U.S.-born and immigrant Latinos become smaller after taking into account differences between these groups' education, family income, and other characteristics.

Access to technology in the United States among immigrant groups also appears to be related to levels of Internet use in their home countries. There is a strong correlation between home computer and Internet access rates in the United States and home country Internet use rates. The positive relationship holds even after controlling for differences in education, family income, and other characteristics. Higher levels of Internet use in home countries may create increased exposure to technology for immigrants even before they arrive in the United States, and may also be associated with increased use of technology in the United States for communication purposes.

Chapter 4: CTC Response to the Immigrant Digital Divide in California

Community centers can support immigrant youth in navigating what can be unfamiliar and confusing social and educational demands. More specifically, community technology centers (CTCs), or community centers that offer computer and Internet access, can further assist youth by offering them a supportive environment in which to learn about different kinds of technology. As discussed in Chapter 3, there are tremendous advantages associated with access to computers, the Internet, and high-speed Internet technologies. Recognition of information technology as a critical aspect of learning is further demonstrated by community responses to disadvantaged young people. In this chapter, we study how six CTCs that serve predominant or substantial immigrant populations address the needs of immigrant youth in California. Although technology is not in all cases the "hook" that brings young people into the centers, it is an important part of the menu of resources offered.

The CTCs we visited create spaces for immigrant youth to connect with each other and supportive adult mentors, express themselves freely, and be in a cultural setting that they find comfortable. Our visits to six community centers shed light on the diversity of immigrant youth, even within ethnicity, and the need to address a wide variety of challenges faced by these groups. The research also provided excellent examples of how to engage young people in the broader community by providing leadership education and empowerment for youth who are at risk of disenfranchisement.

Our research found that immigrant based CTCs offer a comprehensive menu to meet the basic needs of immigrant youth and their families. They do not always have the most cutting edge computers or multimedia programs, but their advantage for serving immigrant youth is that they offer services that address multiple needs of families and generally take a more family-centered approach. Five of the six centers we visited were not stand-alone technology centers, but rather organizations that serve immigrant youth in a variety of

ways, including technology. The six CTCs visited for this study, and briefly described in Chapter 2 of this report, were:

- Bresee Foundation in Los Angeles,
- Casa Familiar in San Ysidro on the Mexican border,
- Firebaugh Computer Learning Center (FCLC) in the Central Valley,
- Koreatown Youth and Community Center (KYCC) Children and Family Services Center in Los Angeles,
- Richmond Village Beacon Center (RVBC) in San Francisco, and
- Vietnamese Youth Development Center (VYDC) in San Francisco.

All sites serve a substantial proportion of immigrants and have specific programming aimed at youth; one is focused exclusively on youth. The centers serve a number of different immigrant groups, with some working exclusively with one specific population and others serving immigrants from a variety of native countries. In order learn about the youth who participate at the CTCs, we spoke

"Nurture you to get a dream."
Youth from VYDC

"…sparking the confidence to explore"
RVBC staff

with CTC staff and conducted focus groups or group interviews with youth who participate in center activities, seeking out those participating in technology-driven projects (often multimedia) in particular. Due to the relatively small number of visits, the analysis is not intended to generalize for all CTCs serving immigrant communities. However, we are able to draw out consistent messages across the sites which we feel are potentially representative more generally.

CONTEXT FOR UNDERSTANDING CTCS SERVING IMMIGRANT YOUTH

"Immigrants may be just learning English, but they are flawless with the technology."
RVBC staff

The sites represent the diversity present in California, covering both the Los Angeles and San Francisco Bay Areas, as well as the Central Valley and the Mexican border. They also are representative of the ethnic diversity in the State, serving primarily the two predominant immigrant groups, Latinos and Asians. All the CTCs we visited are located in disadvantaged neighborhoods with high concentrations of immigrants and families from a variety of ethnic backgrounds. The sites include one located in San Francisco whose participants are almost entirely of Southeast Asian descent, one whose participants are entirely of Mexican origin located in the border town of San Ysidro, three that serve students from a variety of backgrounds in both Los Angeles and San Francisco, and one that serves mostly Latino farmworkers living in the Central Valley. In each CTC we visited, some of the youth served are first generation immigrants, and others come from second or even third generation families. There are also youth who are not from immigrant families who use the CTCs, though they are generally not in the majority.

Each center we visited is situated within a community to attract youth (and others) to make their participation convenient. VYDC, Bresee, and KYCC are located within pockets of major metropolitan areas that have high concentrations of immigrants. FCLC and

Casa Familiar are located in small towns that are dominated by immigrant residents. RVBC is situated differently to attract youth—it is located on site at a school that serves a diverse student population. These locations permit youth to engage in center activities in familiar settings—either their own neighborhood or their own school—which promotes cohesiveness amongst youth who attend center activities. Location is also important for CTCs in promoting their community development and leadership goals, as neighborhood youth who are served within their community and taught to be leaders will hopefully stay on and offer leadership in their home community.

Situating the CTC at the school is an important convenience for RVBC students. For others, computer access in the neighborhood can be a better option than at school because students take the bus long distances to their school or have a preference to being closer to home at the end of the day. In a neighborhood like San Francisco's Tenderloin, where VYDC is located, there are simply not very many places for youth to go after school, and VYDC is a safe place that young people and parents can agree upon. In both San Ysidrio and Koreatown, the centers are fixtures in the community with long standing, positive reputations, serving broad populations from young children to seniors. .

As is documented in detail in Exhibit 2.1, all sites visited offer an array of experiences for youth. Bresee, Casa Familiar, FCLC, and RVBC are the most focused on computer and Internet access as critical aspects of their programming, though all centers have open access labs for participating youth to use. Importantly, all sites also offer a variety of other services and programs geared toward youth with different needs. In this chapter we examine the array of offerings at these centers and their effects on the immigrant youth that access them.

PARTICIPATING YOUTH

Immigrant youth in California are diverse in many regards, but this diversity reaches beyond merely country of origin, language ability, or even the length of residence. There are other subtle differences taken into consideration by CTC staff when designing programs to reach immigrant youth. For instance, VYDC, FCLC and Casa Familiar focus on immigrants predominantly from one country or region and their programming reflects the core values of that culture, particularly values that carry over to the United States. Centers that serve more of a mix of students have other ways to reach specific groups. KYCC serves youth from both Asian and Latino backgrounds, but has a specific emphasis on Asian cultural identity and history, with the goal of exposing youth growing up with American cultural values to the culture and ways of their parents' birthplace. Centers also gather students together to share commonalities in characteristics other than ethnic background. At RVBC, there is a queer youth services program and a Gay Straight Alliance that is also open to allies. VYDC, KYCC and Bresee have specific programs for youth who are first offenders, and actively seek out this group to provide them with needed services. Indeed, all the sites we visited seek out marginalized groups that are in need of support networks and academic assistance.

Staff members at the six centers distinguish between youth who have recently migrated to the United States (newcomers) and those who have been living in the United States for at least five years, and were possibly born here. The majority of youth we interviewed are bilingual, though many are in the process of learning English, others spoke English at school and at the center but not at home. English language comprehension is excellent at all the sites. Still, we noticed a range of communication comfort levels among youth we interviewed—some are more shy and polite while others are more outgoing and talkative. These differences could be attributable to different cultural backgrounds, age, language ability, or other factors. The number of youth interviewed is too small to generalize to the larger population.

Many of the youth we interviewed at the six centers came to the United States with some computer knowledge. In general, youth at VYDC, RVBC and KYCC came to the United States with more advanced computer skills than youth at Casa Familiar.[1] Students at these three sites also reported having greater access to home computers with high-speed Internet than students interviewed at Casa Familiar, FCLC or Bresee. We can not presume that the difference in home computer access is related to ethnicity or even length of time in this country, however data presented in Chapter 3 suggest that Mexican-origin youth are far less likely than other youth to have access to home computers. However, it is clear that lack of home access is a key issue for immigrant youth overall. A majority of staff at 19 California CTCs responding to a web survey conducted as part of this project indicated that half or fewer of the immigrant youth they serve had computers at home.

At Casa Familiar, there is a strong emphasis on getting entire households connected to computers. Their "Tech Power" computer purchase program offers families the opportunity to purchase computers from Gateway. In order to receive the computer, the families are required to learn about what features and capacities they need from the equipment.

Staff at the centers noticed that computer literacy generally is not a challenge once basic language skills are in place. The youth served at the CTCs are able to pick up the technology

"Once you show up, shoot something, edit, what's your next step?...[youth need to] take it to the next level and not give up...push to a higher expectation."
VYDC staff

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[1] *We did not specifically ask this question at Bresee or FCLC.*

quickly. However, even having a computer at home does not ensure high quality access due to the types of hardware and software available, as well as the speed of Internet connection at home. For example, some youth have computers but no printers, or some must share their computer with others in the household which reduces its accessibility.

The CTCs attempt to tailor their programming to the distinct cultural patterns present in their constituent populations. For instance, in Southeast Asia, education relys heavily on memorization, and staff working with Southeast Asian youth have a sophisticated understanding of their past educational experiences. At RVBC, which serves youth from many cultural backgrounds, staff track the immigration demographics and trends in their area in order to effectively adjust their programming and outreach.

FAMILY CONTEXT AND PARENTAL INFLUENCES

Understanding immigrant youth requires looking at their entire families. In the sites we visited, there was a repeated recognition of the centrality of family and peer relations and the reliance on family networks (as opposed to a more individualistic approach) for advancement.. This comprehensive approach sets these sites apart from other CTC models. The literature on immigrant education and youth development supports the need for integrating family into youth-centered programming (Suárez-Orozco and Carola 1995) and this sentiment is confirmed in nationwide data in which immigrant parents were reported having higher educational expectations than native-born parents (Vernez, Abrahamse, and Quigley 1996). Indeed, this study finds that immigrant students are even more likely to attend college than students born in the United States if they are enrolled in high school by 10th grade.

The priority given to education by parents is important for understanding immigrant youth. Although parents greatly value education, some staff reported that parents may not understand

how to advocate and navigate the educational system to support their children who may be struggling within it. For instance, parents often look to the school to teach their children English, but do not have the experience or resources to know that much more is required for their children to succeed in school. Staff report that parents are often less likely than their children to speak English, a fact supported by staff respondents to a survey of 19 CTCs in California. Nearly all these centers reported that more than half their immigrant youth are fluent in English, yet a majority also reported that more than half of immigrant youths' parents are not fluent. The disconnect between parents who value schooling and schools who cannot communicate with parents can be damaging for students. Research on Southeast Asians in particular has shown that if schools do not respond to newcomer students' needs quickly, students lose their positive attitude toward schooling (Ima 1995).

Other groups may face cultural barriers for promoting schooling. In particular, Mexican families may interact with school systems differently because in Mexico teachers are treated with great respect; teachers may seem less approachable to Mexican parents than to parents who are born in the United States. In addition, for Latinos cultural attitudes toward achievement are oriented more toward peer and family relations than individualistic self-advancement, which is often the paradigm of mainstream educational models (Valdés 1996).

Because public education is not readily accessible in many countries from which immigrant families originate, staff at the CTCs reported that parents come to the United States with an expectation that their children should take advantage of this free public resource, and thus create pressures for children to excel. At the same time, schools have expectations for parents and immigrant parents may be unaware of these or unable to meet them for a variety of reasons. For instance, research on Mexican immigrant families suggests that parents' low levels of education

and pressures to meet economic challenges may create barriers to participation in their children's education (Valdés 1996). These families may be assumed to be disinterested in their children's education, but in fact may be looking at education from a different cultural lens than the U.S. perspective.

We heard anecdotally from CTC staff that the expectations of newcomer parents are more stringent than those of youth who have been in the United States longer. As a result, the newcomer youth tend to have higher expectations and strive to achieve more, whereas the second generation youth tend to be more disaffected. This belief reinforces parents' concerns about how adaptation to U.S. culture may cause their children to acquire "bad American values." This speaks to a broader generation gap between immigrant youth and their parents. Probably because they are in school and interacting with English-speakers on a daily basis, young people adapt more easily to U.S. culture than their parents. Once adapted, they are required to take on greater responsibility as they mediate between their own families and the dominant culture in the United States (Ima 1995). A common example is the need for children to translate for their parents for health care workers, police, teachers, and in other official settings. The same is true for written documents. Immigration documents and even report cards may be impossible to understand for parents with limited English. Regardless of country of origin, our research shows that a prominent issue for immigrant youth and parents is the generation gap formed when children adapt to the new culture more quickly than their parents.

CTC staff also reported that many parents have a strong interest in where their children spend time after school. Particularly in the urban areas we visited parents are concerned about the safety and culture of the CTCs, especially for their daughters. This is likely a common concern amongst non-immigrant parents as well, but because the gender expectations of other countries can vary from those in the United States, immigrant parents may be especially concerned about their daughters' safety and exposure to U.S. cultural norms and expectations.

At some sites inter-generational programming that involves and integrates the family helps the center gain the parents' trust. Slightly less than half the respondents to the survey of 19 California CTCs indicated that they have services and programming for both parents and youth. Among the sites we visited in person, Casa Familiar has a program called Clase Majica, which invites parents and young children into a specially designed lab to learn about computers together, and to build trust and support the program's outreach is done in parents' native language. Yet, other CTCs do not involve parents in their programming activities. Several of the CTCs we visited explicitly do not engage parents and instead focus on building individual relationships with youth participants. These CTCs offer support and guidance for youth and expect youth to be responsible for their conduct, dress, completion of their projects, and obligations to others with whom they work. For many youth participants, this is their first "real world" experience with autonomy.

"When you work with these youth, you have to prove to them that you care for real."
RVBC Executive Director

Strategies for Recruiting, Engaging, and Retaining Immigrant Youth

INITIAL DRAW TO THE CTCS

Computers are not always the main recruiting tool at the sites we visited, but are considered a critical component of youth programming. In some cases, the computers bring the young people into the centers because they go to wherever they can find computers to get their homework done, to communicate (via email and "myspace.com"[2]), and for recreation (including video games). At KYCC, some

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[2] *Myspace.com website was mentioned at several of the sites as a popular place for youth to express themselves and socialize on the web. There were also some concerns about the potential problems of overuse and privacy.*

students reported that limited hours and outdated computer labs at schools and libraries make finding a computer difficult. Students at Casa Familiar, FCLC, and Bresee, who are the least likely to own a home computer, seem to be most likely to come in specifically to use the computers. Both Bresee and Casa Familiar have relatively bigger youth-designated computer labs with state of the art equipment. Students do not appear to come to VYDC specifically to use the computers, but once there they use the computers for a variety of activities, including homework, college financial aid applications, and recreation.

What attracts youth to the centers is the laid back environment and the caring and culturally competent staff. Many of the staff are of similar background and this is seen as a great asset. The coordinator of one of the programs at RVBC finds that she has had success with recruiting a small group of committed youth. She expects that by cultivating this core group, more students will follow. She also noted that she believes some of the program's success is due to her shared ethnicity and sexual orientation with some of the youth she serves. A youthful staff may also contribute to the creation of a comfortable and appealing environment. One staff person talked about how it is important to be "cool" in the eyes of the youth, while still providing structure and respect.

Another important reason students spend time at the CTCs we visited is because they are safe spaces that keep youth away from the negative influences found on their neighborhood streets (most notably gangs and drugs). Especially for students living near the four urban centers we visited, having a safe place to spend time after school is important. Few students reported this as their primary reason for attending center activities, but staff at all four of these sites highlighted safety issues as primary concerns for the youth they serve and for their centers.

While staff people actively recruit students through schools and other methods, such as flyering or holding events, tapping into

youth social networks seemed to be the most effective means of reaching youth. In order to attract and retain youth, one staff person at RVBC emphasized that "you must know your population, where they are, every extra little bit of interest makes a difference." At Bresee, word of mouth is a key recruiting tool; many of the youth we interviewed reported first coming to the center with a friend or sibling. At VYDC, many staff members grew up in the Tenderloin neighborhood and know both the youth participants and their immediate and extended families. This gives the staff credibility with the youth, and helps them to gain the trust of young people in the community.

WHAT KEEPS YOUTH COMING

Youth continue to be engaged with the centers for a variety of reasons and several strategies are used for retention. At Casa Familiar, one staff person said that the best way to keep youth engaged is to have youth buy-in and involvement in the early stages of planning. We saw this at two of the centers where there are youth advisory boards and committees that guide the direction of the programming.

Each CTC we visited actively attracts and retains immigrant youth by providing culturally-appropriate and engaging programming that appeals to both newcomers and those who are already adapted to U.S. culture. For instance, at VYDC Vietnamese dance classes and weekly karaoke session are said to be popular and well attended. RVBC has a group for young women called Mujercitas who according to their website "use popular Latino culture, music and heritage to explore their identities, life challenges and opinions." Casa Familiar staff organize field trips for their young leaders that tap into indigenous rituals such as Native American ceremonies. KYCC also has a summer project that provides culturally sensitive leadership development for Korean Americans. Bresee has weekly leadership sessions that bring together youth to talk about a variety of issues.

Some youth continue coming to the centers specifically for technology access. The students

involved with multimedia programs are very much engaged in their work and many are eager to continue careers in this field. Most programs require a minimum commitment of a number of weeks, instilling a sense of completion and responsibility. At the CTCs offering them, the media arts programs are popular and much sought after. At one site, there is an application and interview process and a long waiting list to get accepted. At another site, the media program is viewed as more challenging and demanding than the other programs and has a reputation of expecting a lot from its students. There are fewer applications at this site, but slots are always filled.

Programming strategies are another way of retaining youth. With the rapid pace and change in U.S. culture, especially among young people, staff recognize the importance of keeping the programming fresh and responsive to the issues that youth face in their daily lives. This ranges from basic language and academic support for those who are newer to the country, to exposure to different cultural backgrounds and case management for those who have may be been in the United States longer. Other strengths of the CTCs are their ability to offer unique experiences that are not available in schools. Instructors find that getting young people outside to film and take responsibility for completing a project helps to engage students. Hands-on work that provides

an outlet for expression is a good combination for young people. In at least one of the centers, working in teams cooperatively to complete a film is seen as a positive skill-building experience that is not available elsewhere in students' lives. There is also a progression of engagement for some of the youth. For instance, at Casa Familiar, some young people first came to the center for community service credit and assisted with implementing community events, eventually becoming more involved and using computer resources for researching and applying to colleges on line.

The CTCs' success in engaging youth in meaningful ways is exemplified at several of the sites where a number of the staff are former participants. Almost all the sites seek to recruit staff who come from the community and therefore are intimately connected to the neighborhood and its families. Having people who are from the neighborhood work in neighborhood institutions not only helps to build trust, it also demonstrates the core message of giving back to one's community— a value all of the CTCs we visited try to impart. This level of commitment is felt by those who come into the centers and is contagious. Youth find the CTCs to be safe, welcoming, and supportive environments where they can to express themselves. They like the informality and warmth of the centers, but also like the structure and knowing that help is available.

"Use video as a tool to change lives … use digital media as a tool of community action"
Bresee Foundation Staff

CTC Responses to Immigrant Youth

Immigrant based CTCs offered a comprehensive menu to meet a wide array youths' technology and other needs. A video produced by the Arts and Media Academy (MAA) at RVBC called "Life as We Know It," touches on the many pressures that immigrant youth face in their everyday lives: racism, stress, social life, and school. In their own voices, they express who their role models are, the importance of relationships, and their likes and dislikes. Like their counterparts at RVBC, youth at the other five centers we visited also

expressed needs and challenges that the CTC was helping them to meet.

We identified four broad ways that CTCs respond to the needs of immigrant youth:

- Using technology as a means for self-expression;

- Creating a safe, supportive, and culturally comfortable place;

- Providing support and mentoring for learning and academic achievement; and

- Offering leadership training and opportunities for civic engagement.

USING TECHNOLOGY AS A MEANS FOR SELF-EXPRESSION

Expressing one's identity is the most commonly reported reason for youth participation at most of the centers we visited. Connection with adult role models and youth like themselves is the most important draw for youth, as is help with homework and case management support. Once there, youth are drawn to computers and technology and make use of the available resources to complete homework assignments, conduct research on the Internet, communicate, or participate in arts and media programs.

Immigrant youth face many pressures, including assimilating with other youth and parental expectations. Having a place to express themselves in an environment that offers tools and supports to do so is a real and important need. A primary way that youth use technology to express themselves is through programming specifically geared toward storytelling using digital media.

Three of the six CTCs we visited for this study have explicit arts and media programs aimed at training young people to use filmmaking equipment and software to create their own films and documentaries. Youth are drawn to these programs for a variety of reasons, but mostly for the opportunity to learn how to do something "cool" that they otherwise would not have the opportunity to learn. The media process itself is an excellent and entertaining tool for probing and expressing cultural diversity. In addition to creative expression, critical thinking, self esteem and skill building and encouraging career exploration are goals of these programs. Indeed many of the participating youth are interested in pursuing careers in technology related fields.

In Bresee's Arts and Media Program (AMP), young people, with assistance from adult staff members, learn to make social documentaries that reflect their own views and experiences.

Youth have complete creative control and use their films to portray images of themselves and their communities that they feel are more representative than what is shown in the media. At RVBC, youth engage in community filmmaking, working together on projects that they design. Students each write their own short film script as a group they decide how to integrate their work, and then they collectively produce a film. Through these individual and shared processes, they not only explore their own identities, but they learn about and relate to the experiences of others who may be different in terms of ethnicity, gender, or socioeconomic class. At VYDC, youth work with experienced and award-winning filmmakers to create films and documentaries in a small group setting. They commit to working for a specified period of time, and the expectations on the part of the staff for this commitment are high. Their most recent film is about a Cambodian rapper from Long Beach, CA named Patch. In the summer, youth work together to produce shorter films on topics that they select. According to one VYDC staff member, the hardest part for the youth is the storytelling, not necessarily learning the new technology.

Much more than just cool equipment and software, CTCs' multimedia programming is about self-expression. Youth who participate in multimedia programs bring their heritage to their projects. Staff spoke specifically of the historical inequalities and racism that are still very much present for young people, and these issues are evident in the multimedia project content and themes. While youth themselves did not articulate this issue, some of the staff and other researchers have found that many immigrants come to this country feeling like disadvantaged minorities, whereas they may have been part of a group that was relatively better off in their country of origin (Suárez-Orozco and Caorla 1995). This change in status undoubtedly affects one's identity and views of the world.

"We are a place that supports education, workforce development and community empowerment through proactive leadership training for youth and adults."

FCLC Executive Director

The director of one of these programs emphasized that given some of the negative portrayals of immigrant youth in the media, allowing these youth the opportunity for self-expression is especially important. He felt that the only way to truthfully represent their experiences is to have them document their lives themselves. When youth, especially those straddling multiple cultures, gain more confidence in their identity they can express themselves more freely. Making cultural connections with family and classmates is part of the process of self awareness and building collective identities.

Another mode of self-expression that youth gain from CTC participation is communicating via technology. They use the center computers to email friends and family locally and in other countries. Staff at many of the CTCs spoke about how organizing youth required communicating via cell phones and email regularly. The increasingly popular "myspace.com" is another means of connecting to peers in what can be a creative and expressive. Quick and frequent communication is a part of youth culture, and immigrant youth are no exception.

CREATING A SAFE, SUPPORTIVE, AND CULTURALLY COMFORTABLE PLACE

Adolescence is a period marked with many changes; adding adaptation to a new culture—a large adjustment in itself—to this developmental stage can make it much more difficult. Immigrant youth benefit from interacting with those who have been through the assimilation process and are willing to share their personal experiences.

The CTCs we visited have programming that is aimed at teaching youth about their own cultural heritage as well as exposing them to the traditions of their peers. For youth whose primary cultural experiences are not American, these activities can be very positive experiences. Because traditions from their home countries are generally not included in American classrooms, immigrant youth can feel alienated and outside the mainstream.

Integrating important cultural events into the centers, like Chinese new year and Dia de los Muertos celebrations, helps youth relate to the cultural values of their parents and bridge generation gaps while also encouraging parents to participate in center activities. The CTC staff play the role of "cultural brokers" between students from different backgrounds and in some cases between students and schools or even within families.

Shared identities create powerful bonds. Exploring one's shared cultural identity is a key reason that youth attend activities at the centers we visited. Social inclusion is important for immigrant youth, who may feel marginalized due to their immigrant or socioeconomic status. Feeling a sense of belonging at these centers creates an environment that promotes retention. The youth we interviewed reported that their friends are at the center, and they want to spend time with them. Also, parents' lack of availability due to economic stresses, as well as their feelings of marginalization and alienation, may motivate youth to turn to peer support. This is another reason why CTCs are an effective model for immigrant youth who find peers at the sites.

All the centers we visited offer connections to one's cultural heritage through a variety of activities. VYDC has an explicit mission of helping young people to adapt by linking them with youth of the same ethnicity who have already adapted to U.S. culture. Weekly activities such as native dancing keep youth connected to their home country culture. KYCC works with both immigrant and native youth of the same ethnic background, helping to adapt immigrant youth and at the same time expose youth growing up with America cultural values to the culture and ways of their parents' birthplace. Youth at Casa Familiar are engrossed in both American and Mexican culture due to their proximity to the Mexican border. Traditional Mexican values and culture dominate that community, but American issues have also taken root. While we visited

"My job is not only to help with the immediate problems they are facing, but to also … spark an interest for a lifetime of learning."
KYCC Partner Staff

Casa Familiar, flyers were posted to bring Latinos together to oppose the war in Iraq in a peaceful and community-building event.

Myths about heritage tend to group students in ways that can be limiting. For instance, Asian immigrants are viewed as the "model minority," with education completion rates and computer access rates that are on par with or even exceed native Whites' achievements. Yet, on an individual-level, youth may not find themselves among the most successful minority. In particular, Southeast Asians, who came to the United States in response to war and violence, are very different from other waves of Asian immigrants. Issues such as these are especially important to adolescents who are looking for role models who look like themselves.

Indeed, connecting with supportive adults is a key reason many youth continue to spend time at the centers we visited. Newcomers have some acute needs (which may not be met by schools) that tend to focus on language acquisition. In contrast, CTCs seek to overcome youths' feelings of isolation due to language and cultural differences. They encourage communication through multimedia, support groups, and mentoring. At FCLC informal mentoring about education and financial aid by the Executive Director helps youth to see college as one of their prospects. One former youth participant at RVBC was frustrated with the school administration and they did not have a grievance system for students. Becuase she was angry about not being heard she talked with a staff person at the Beacon who helped bring together several other students to form a support group called Revolutionary Minds. This group approached the administration, talked about solutions, got some of their issues addressed, and then continued to meet for months afterwards to talk about other issues that came up for them. According to the student, who now teaches poetry workshops at the Center, this group of young women who would have never found each other or had a voice without the support of a caring adult who brought them together.

> *"Technology is the great equalizer for those who don't have degrees…"*
> **Casa Familiar Executive Director**

PROVIDING SUPPORT AND MENTORING FOR LEARNING AND ACADEMIC ACHIEVEMENT

All six centers we visited offer support for education and academic achievement. The use of technology is seen by some as transcending language; the language of technology is more accessible and can be an equalizer, creating opportunities for collaboration that might not otherwise be available. Tackling projects from start to finish keeps youth challenged and engaged. They learn about important life skills like working cooperatively in groups, following through on assignments, thinking through long-term projects, and pushing themselves to reach higher expectations. CTC staff note that this is excellent preparation for what lies ahead for college-going youth. It also helps to cultivate the self-esteem needed stay in school and sustain a quality education.

Each CTC provides students with homework assistance and one-on-one tutoring. In most cases, students have the opportunity to work with tutors who speak their primary language. Because education is so important to immigrant families, this homework assistance is considered to be critical by many students with whom we spoke. At VYDC, nearly every student we interviewed indicated that they first came into the center for help with their homework. At KYCC's collaborative with L.A. High School and other partners (called SEEK-LA), homework assistance and tutoring are two central features of the after school drop-in program. At Casa Familiar, the C3 Café is a hub for after school homework assistance, and at RVBC there is a tutoring program which provides academic support.

In all locations, computer and Internet use was usually mentioned in conjunction with homework support. For students newer to the United States, there is a catching up period that requires language and academic support. Having native speakers who are also bilingual at the centers is a much needed resource for both creating a welcoming environment, as discussed above, and for assisting with school

work. In addition to homework support, staff at some of the sites go to the schools to recruit and for case management purposes, and they are also helpful for interacting with the teachers and acting as student advocates, something that parents may not be able or prepared to take on. At RVBC, when students come to the center during class time, staff speak to the teacher to make sure they are aware of the student's absence. At VYDC, the case managers are linked to the school referral system and visit the schools regularly.

In our research on site and also in conversations that took place while we were researching sites to visit, respondents talked about how middle school children have high hopes and then something happens at around ages 17-19 that, in the words of one staff person, "makes them think they can't make it and so they turn to selling drugs instead of getting a job." If given a chance to build their self-esteem, this respondent believed that some youth would chose to continue their education.

Another important commonality across sites was their promotion of college application and assistance in applying for financial aid and scholarship. CTC staff reported that although immigrant parents are highly supportive of public education through high school, they are often less supportive about sending their children to college. Staff at all the CTCs we visited provide information and support regarding the college application and financial aid processes, which can be difficult and alienating even for native English speakers.

For nearly all the staff interviewed, success for the youth they work with included going on to higher education, and the youth interviewed also expressed a desire to go to college after graduating. They saw themselves going to schools, community colleges and four year universities, especially those that were close to home. As mentioned previously, mentoring about educational opportunities, financial aid workshops, and college tours are an important element to all of the CTCs visited. College options might be limited because most students reported wanting to stay close to home. Being prepared to get into the local colleges is a critical stepping stone for their educational futures.

OFFERING LEADERSHIP TRAINING AND OPPORTUNITIES FOR CIVIC ENGAGEMENT.

The staff people at CTCs see young people as potential leaders of the community. The CTCs conduct leadership training and help youth to understand the importance of community building. KYCC, Casa Familiar and RVBC all have leadership programs that gather young people together with the explicit goal of creating homegrown leaders. At Casa Familiar, the youth leaders group canvases the neighborhood to organize for their events. They also form committees for different community based activities—for example, one of their committees is helping to plan the Cultural Center that is being developed in the neighborhood and another committee is using the computers to design a new logo for the group. The RVBC committees and advisory boards encourage taking more responsibility and creating opportunities to develop leadership roles. At VYDC there is an organizing effort in the neighborhood to get the corner stores to take down liquor and cigarette signs and replace them with healthier advertisements. This kind of community mobilization encourages youth to find their voice and builds their leadership capacities. FCLC sponsored Grupo Unido en Acción that offers immigrant leadership training for Spanish speaking residents. The group facilitated a community forum that was well attended by 200 residents including the mayor. While this group is more adult focused, the FCLC also led an internship program that got young people to do door to door surveying about computer access in the housing projects. The interns then organized their findings into presentations where they practice their public speaking skills.

"[The goal is to] get people to tell stories, teach them how to tell a story, and help them tell their own stories from their own neighborhoods."
Casa Famliar Staff

Summary

The following four broad CTC responses to immigrant youth interests and needs are key to CTCs' role in bridging digital and other divides: technology as a means of self expression; creating a safe, culturally comfortable place to grow; and academic, learning, and mentoring support; and offering leadership training and opportunities for civic engagement are all. Having CTC staff acting as cultural, educational, and generational "brokers" makes transitions easier for the participating youth.

Immigrant serving CTCs take a comprehensive, holistic approach to supporting their community. They understand youth in the context of their family and heritage. Unlike the school systems which may not meet all the needs of immigrant student populations, CTC programming is based on an understanding and respect for dynamics of immigrant families and their values and beliefs.

Further, including technology in all aspects of their services and programming would advance not only computer based skills but also connect their families to information and opportunities. Casa Familiar's approach is a model for how CTCs could plan and grow. Technology is on equal standing with all the other key elements of their organization; it is not simply added on, but showcased as a part of everything they do. To be prepared for the future, immigrant youth require language and academic skills, and they also need the confidence and self awareness to believe they can make it in this culture. For immigrant youth who are being pulled between worlds, CTCs are places to sort it out among friends.

"Success is helping students to carry on skills, .…feel they have a place in the community, and that it is within their power to change issues in their lives and community."
Bresee Foundation Staff

Chapter 5: Conclusions and Policy Implications

One in eight U.S. residents is an immigrant, and in California the ratio is closer to one in four. In California—where native residents have higher than average home access rates to computers, the Internet, and high-speed Internet— immigrant youth are at heightened risk of becoming lost in the digital divide. Although access to technology has increased for immigrants since the late 1990s, these increases have not kept pace with native-born home technology access. Furthermore, although Asian immigrants appear to be adapting to technology at a very high rate, Latinos and other immigrants are far less likely than natives to access computers and the Internet.

Should the digital divide be viewed simply as a disparity in utilization of technology arising from income differences just as we might view disparities in purchases of other electronic goods, such as cameras or televisions? Or, should we view the digital divide as a disparity that has important personal and societal effects—on education, healthcare, or employment—such that it warrants redistributive policies?[1] Policy makers cannot agree on an answer to these questions.[2] For example, the U.S. Departments of Agriculture, Commerce, Education, Health and Human Services, Housing and Urban Development, Justice, and Labor each have programs addressing the digital inclusion of various groups. However, the former Chairman of the Federal Communications Commission, Michael Powell, referred to the digital divide as "…a Mercedes divide. I'd like to have one; I can't afford one," causing the funding for several technology-related programs affecting disadvantaged groups to be in jeopardy (Servon 2002).

For schoolchildren, there exists more of a consensus over the importance of access to technology for education. Virtually all schools in the United States provide access to computers and the Internet, and 92 percent of all instructional classrooms in U.S. public schools have computers with Internet access, with an average of 3.5 computers per classroom (U.S. Department of Education 2004a). The federal government has also made the provision of computer and Internet access to schoolchildren a top priority. Spending on the E-rate program, which provides discounts to schools and libraries for the costs of telecommunications services and equipment, totaled more than $16 billion from 1998 to 2005 (Universal Services Administration Company 2005).[3] Recently, the U.S. Department of Education released the National Educational Technology Plan as part of the No Child Left Behind Policy. The plan calls for increased teacher training in technology, e-learning opportunities for students, and access to broadband, digital content and integrated data systems (U.S. Department of Education 2004b). Several state, local, and private programs have also created one-to-one computing in selected schools through the provision of laptop computers to schoolchildren and teachers.

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[1] *Access to information technology may also help disadvantaged minorities overcome some of these other problems by enabling them to earn more and accumulate wealth (Noll et al. 2000; Thomas Rivera Policy Institute 2002).*

[2] *See Noll et al. (2000) and Crandall (2000) for examples of the academic debate.*

[3] *See Puma et al.(2000) and Goolsbee and Guryan (2005) for more details and analyses of the program. Goolsbee and Guryan (2005) find that increased Internet connections in schools resulting from the E-rate program do not have a measurable effect on student test scores.*

The most ambitious program, instituted in Maine, provides every 7th and 8th grade student and their teachers with a laptop computer for school use, totaling over 34,000 students and 3,000 teachers at a cost of nearly $40 million.

Other public policies aimed at reducing digital disparity are relatively new. Substantial attention has been paid to the issue of universal access to high speed Internet, with some large cities including Philadelphia, Seattle and San Francisco rolling out or planning to implement citywide wireless networks. There has also been much discussion of the issue of broadband deployment, with an eye toward equalizing access to high-speed Internet for underserved communities, such as in rural locations. These municipal Internet access projects, however, are currently facing opposition from private providers. Thus far, no federal legislation has addressed these issues.

Our research points to the importance of public policies aimed at improving access for disadvantaged communities, particularly those with high concentrations of immigrants. We find evidence that there are two critical locations for disadvantaged and immigrant youth to access computers—at home and in neighborhood community centers. Home computer access is associated with improved educational outcomes and reduced truancy. Community center technology access provides youth who do not have home computers a venue for using computers and the Internet to complete homework, work on school or extracurricular projects, learn about educational and employment opportunities, and learn new technologies in an adult-supported and monitored environment. These types of activities are not typically offered at the schools and libraries serving the neighborhoods in which the community centers we visited are located. At the same time, the community centers we visited offer immigrant youth many other services in supportive environments to help them adapt to the United States and share their common heritage with peers.

Our study has produced three overarching conclusions which are relevant to policy discussions currently underway:

- Home and community center access to computers and the Internet are critical for immigrant youth;

- Content and context both matter for immigrant youth; and

- Technology can be a tool to promote leadership and civic engagement among low-income immigrant communities.

Home and Community Center Access to Computers and the Internet are Critical for Immigrant and Other Disadvantaged Youth

Some argue that the digital divide, in terms of access to computers for young people, has disappeared because virtually all schools provide at least some access to computers and the Internet. As such, the debate over the digital divide has generally moved away from the discussion of basic access. However, although all schools have computer access for students, there is evidence of wide disparities in the quality and quantity of computer and Internet access across schools. London et al. (2006) provide suggestive evidence that disadvantaged communities with high concentrations of ethnic minorities, including immigrants, have public schools with insufficient computer and Internet access to meet the needs of the student population. As Chapter 3 of this report demonstrates, these disadvantaged students are also the least likely to have access to computers and the Internet at home.

Our research indicates that both home and community centers are places that youth use computers and the Internet with substantial positive results. Youth who have home

computers are more likely to be enrolled in and graduate from high school, have better grades, and are less likely to be suspended from school. Yet, there are vast disparities in home computer and Internet access across income level, immigrant status, and ethnicity. Immigrants, and particularly Latino immigrants, are much less likely than other groups to have home computers and Internet access, and especially high-speed Internet access. Lower income families are also less likely to have home computers than higher income families, but even within income groups, immigrants are less likely to have computers than their U.S.-born counterparts.

POLICY SOLUTIONS TO IMPROVE HOME ACCESS TO TECHNOLOGY

One possible solution to this unequal access is to use the existing Individual Development Account (IDA) structure to allow savings to be used for home computer purchase. IDAs are matched savings accounts for low-income individuals in which each dollar saved by the recipient is matched by some amount from another source, either public or private. The match can be one-to-one or a higher ratio and is usually capped at a certain amount. IDA programs are run by both public and private agencies. Thirty-four states have IDA programs as part of their cash welfare program, Temporary Assistance for Needy Families (Boshara 2005). The Koreatown Youth and Community Center (KYCC), one of the six CTCs visited for this study, runs its own IDA program as well, with a focus on saving for starting new micro-enterprise ventures.

The main rationale behind IDAs is that people with assets are more economically secure, giving them more options and allowing them to pass on wealth to future generations. By helping low-income individuals save, IDAs are intended to improve the life chances of low-income families and future generations. Withdrawals from IDAs are typically limited to a set of restricted uses, most commonly:

purchase of a home, postsecondary education, or business start up.

We recommend adding purchase of home computer and Internet services to this list, allowing IDA users to withdraw funds for these purposes. This sort of investment is directly in line with the goals of IDAs—to improve the life chances of low-income families. Having a home computer may also aid families to pursue their other goals, such as postsecondary education or starting a business. To the extent that community centers such as KYCC are already involved in helping families save through IDAs, encouraging purchase of home computer equipment through these savings programs may be relatively simple to implement.

Another policy that could help families purchase home computers is to provide tax deductions for the purchase of computers and Internet service for educational purposes. Tax breaks could be limited to low-income families and families with children who are currently enrolled in school to more directly address the digital divide. There is precedent in the federal tax code for promoting educational goals; there already exist several tax deductions for higher education costs including education tax credits and deductions for interest paid on student loans.

Expanding the recently-created programs that provide one-to-one laptops to schoolchildren is another policy option that warrants serious attention. These programs provide every student and teacher in a school with their own laptop to use at school and, in some cases, laptops can be checked out for home use. Increasing both the number of participating schools and the ability of schoolchildren to take these computers home would improve home access for immigrant children. There are several state, local, and private one-to-one laptop programs in place today, but these programs serve relatively few students in the nation's schools.[4] School laptops made available for home use could have a dramatic effect on equalizing home access and be especially

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[4] See Stevenson (1999), Lowther et al. (2001), Rockman et al. (2000), Silvernail and Lane (2004), Mitchell Institute (2004) and Urban-Lurain and Zhao (2004) for example, and Keefe et al. (2003) for a summary of numerous programs.

beneficial because these computers would be well integrated with school curriculum. Encouraging students to bring these computers home could also engage the parents of immigrant schoolchildren in both technology and school curriculum. Currently these programs are expensive to run, but as the price of computers continues to decline, they may become more viable on a larger scale.

A final example of a policy solution to address the digital divide among immigrant youth is the provision of refurbished computers. Private non-profit firms, such as Computers For Classrooms, Inc. and Computers 4 Students, provide low-cost refurbished computers for school and student use. These organizations refurbish donated or surplus computers with updated software and sell them at low prices. To support these programs, government policies could be created to facilitate donations to these types of programs, especially from government agencies.

Solutions should be designed so that immigrants can realistically access these; in this regard tax breaks may be less appealing than IDA and laptop or refurbished computer strategies.

POLICIES ADDRESSING ACCESS AT COMMUNITY TECHNOLOGY CENTERS

Policy solutions such as IDAs, tax breaks, one-to-one laptop programs, and providing refurbished computers would all help to bring computers into the homes of disadvantaged young people. As described previously, home access to computers is an important aspect of educational success. However, first time computer owners—particularly the parents of immigrant or disadvantaged youth—may need substantial technical support and instruction in order to make full use of their technology equipment. Furthermore, even with computers at home, immigrant youth may still need homework assistance and other supports to be able to complete their school assignments.

The six centers we visited offer youth not only a place to log on to the Internet, but also tremendous support for using computers to complete homework assignments, search for information about colleges and employment, complete financial aid forms, and learn about multimedia arts. Youth and staff at these centers reported that these supports and activities are not generally offered elsewhere in their communities. Community centers that serve immigrant youth also provide a host of other non-technology related supports, such as first offender and leadership programs, that are similarly not available elsewhere. The combination of these services makes community centers an important place where technology merges with the goals of positive youth development.

Many community centers that serve immigrant populations face funding challenges. One center that we visited had firms interested in investing in a state-of-the-art computer lab for their facility, but their small space and lack of existing IT network-supporting infrastructure proved to be insurmountable barriers. Another center creatively used volunteers from a host of publicly supported programs instead of paid staff so that it could operate at needed hours. Not all of the centers that we visited faced such dire funding situations, but all experienced the challenge of keeping their labs stocked with up-to-date computers and software. Although these centers serve only a minority of schoolchildren, they are important places of public access, particularly for disadvantaged youth, and can offer many other services to support youth and their families. These centers typically offer computer classes for a range of age groups in an attempt to adapt entire families, not just youth, to the resources available through computers and the Internet. We feel that increased funding to community technology centers is critical to their operation, and to their expansion into underserved communities lacking institutional IT infrastructure. Expanding access along these lines may represent a good use of funds from the recently created Digital Divide Fund administered by the California Public Utilities Commission. Our own research and others' (e.g., work by PolicyLink) demonstrates that funding is a significant barrier for nonprofit

or community organizations in investing in and maintaining new technologies. The lack of community technology funding at the federal, state, and local levels is an impediment to these organizations, particularly those that serve disadvantaged and immigrant youth. We recommend that there be new funding streams established at the federal, state, and local levels, and that philanthropic and corporate funding for technology be focused specifically on helping community nonprofits provide high quality technology experiences for youth.

Content and Context both Matter for Immigrant Youth

Our own and others' work on the digital divide has revealed that both income and language are key factors limiting computer and Internet use among non-English speaking immigrants, particularly Latinos. Perhaps because the majority of Internet sites are in English, Latinos living in households where Spanish is the only language spoken are less than half as likely to use the Internet as other Latinos (U.S. Department of Commerce 2002). Indeed, only 13.7 percent of Mexican-Americans in Spanish-speaking households in the United States have access to the Internet at home (Fairlie 2006). This rate of home Internet access is not substantially higher than the national rate of 7.5 percent in Mexico (International Telecommunications Union 2005). Even after controlling for differences in income and education, large disparities in computer and Internet use persist between Spanish-speaking and non-Spanish speaking Mexican and other Latino households (Fairlie 2003). These results are suggestive of the importance of language and content, as well as the role of immigration, in fueling the digital divide for some groups.

The finding that language barriers among Latinos are a leading cause of the digital divide is especially important for California policy. Expanding the number of web pages that provide government information in Spanish as well as other foreign languages is one possibility. More foreign language web pages similar to the Department of Motor Vehicles and California Courts' Online Self-Help Center, which provide legal information in Spanish, would be useful. Improving access to political, health, employment, education, public service,

and consumer information in Spanish and other languages may increase computer and Internet use among immigrants because of the importance of language barriers. Indeed, a recent publication the Children's Partnership urged policymakers to think more seriously about e-government to improve access to essential public information and services (Lazarus, Lipper, and Roberts 2003). On the other hand, income and educational differences are also major causes of the digital divide among immigrant groups, potentially limiting the effectiveness of these policies on closing the digital divide. In fact, they may have little effect at all if immigrants continue to have low rates of computer and Internet use. However, if the Internet and other information technology applications are tailored to provide the type of content that attracts immigrants and other marginalized groups, parents and other adults may become more interested in the technology and more likely to provide home access for their children (and themselves). One way to do this is to create a variety of content, including local information, that underserved users are seeking (Lazarus, Lipper, and Roberts 2003).

The findings from our research also have implications for the controversial issue of whether schools should replace textbooks with CD ROMs or Internet-based materials. Arguments for the use of CD ROMs range from the exorbitant costs of textbooks to the "backbreaking" weight of textbooks carried by children. Arguments against these proposals have centered around the lack of access to computers and the Internet among some groups of schoolchildren. It is clear, however, that schools are increasingly digitizing content.

In fact, one of the action steps included in the new U.S. Department of Education's (2004b) National Education Technology Plan is to "move away from reliance on textbooks to the use of multimedia or online information (digital content)." Without addressing the causes of limited access to computers at home, these changes may place immigrant schoolchildren at an even larger educational disadvantage in the near future.

Although language content is a barrier for immigrant families, particularly Latinos, in accessing technology, language should not be the only consideration. Programs that promote increased use of technology among groups with historically low rates of use must be mindful of the cultural context in which the technology is introduced. Our research at six community technology centers in California provides evidence that technology is just one part of a mix of services and activities sought out by immigrant youth. In some centers, technology is the "hook," but once in youth are offered a wide array of other activities from college tours to case management. In other centers, the range of activities including homework assistance and karaoke sessions attract youth, but staff use all opportunities to integrate technology into activities offered. In some neighborhoods, the community center is a cultural beacon of the community, while in others it is a safe haven in an otherwise troubled neighborhood.

For disadvantaged youth in particular, the context of the community center is very important. Immigrant youth may face a host of problems related to adapting to the United States, even if they themselves are not newcomers. Staff and youth at the centers we visited identified the important role that family plays in the lives of immigrant youth, and explained that parental expectations (particularly with regard to schooling) place substantial pressure on youth. Centers we visited offered a variety of venues for youth to discuss these issues within the safety of their cultural peers—support groups, one-on-one case management, and workshops on issues faced by youth in their everyday lives, such as violence and drugs. Although not necessarily related to centers' primary technology offerings, this type of support appears to be key in helping youth stay on track in school and civically engaged.

These contexts are important considerations for community technology centers, yet very little is known about the impact of participation in such multi-faced centers on future youth outcomes, including schooling, employment, and civic engagement. The centers we visited, which were among the most acclaimed in the State, simply do not have the infrastructure to maintain contact with all former participants and track their outcomes. Although staff stay in touch with some former youth, these are typically the ones who continue to use the center rather than those who did not return for various reasons.

We believe a *critical* next step in the research process is to examine the youth users of these centers in a longer-term context, examining which combinations of technology and other services are most valuable in helping disadvantaged youth to stay in school, go to college, and become productive members in their communities. There is a lack of long-term research aimed at understanding how technology works in conjunction with other services toward positive youth development, and this is an important question that warrants further attention.

Currently there is an intense debate taking place about the role of immigrants in the United States, especially in the labor market. The recent unprecedented rallies bringing together immigrants and their supporters to ensure immigrant rights demonstrate the potential political power of this large and growing population. Typically, immigrant issues do not attract substantial media attention and immigrant groups, like other marginalized groups, generally do not portray a unified or influential voice. Our research provides suggestive evidence that increasing access to technology among immigrant families may help overcome their sense of being disconnected. We heard anecdotally from community center staff about the ways that technology helps youth to learn English more quickly, get better grades and stay in school, and learn about other U.S. youth who are not in their peer groups. These adaptations may help youth to succeed economically, which is a primary reason many families migrate to the United States.

The six community centers we visited all had staff members who were actively involved in their communities in ways that promoted civic participation among youth and adult participants. By civic participation, we do not mean just voting, an activity which is beyond the reach of non-naturalized immigrants, but rather active engagement through education, organizing, and policy advocacy on the issues of importance to one's own community. Five of the six CTC programs offered specific youth

leadership programming in which young people learned about civic engagement generally and more specifically around the issues relevant to their communities. These leadership programs have the explicit goal of strengthening the voice of immigrant communities and we would expect these efforts to help immigrant communities gain a more audible presence in future public policy debates. These programs also create an opportunity for many young people, even those who do not go on to be future leaders, to participate in community organizing activities, which can benefit them individually and the communities in which they live. The centers we visited responded creatively to youths' needs through workshops and community forums, neighborhood canvassing campaigns, public meetings with local leaders, family events, and fundraising efforts.

Regardless of what one thinks of the current debate over new immigration policies, it clear that the children of immigrants are in the United States to stay. Many analysts have suggested that given this reality, we need to include in our scope not just issues of immigration policy but strategies for immigrant incorporation. Such incorporation includes leadership and training for civic life, that is, for the sort of discussions, bridge-building, and organizing that can help build communities. Encouraging immigrant youth to express themselves and be active in their communities in order to lead them through the 21st century is a lofty goal, but one that immigrant-serving CTCs are undertaking with fervor.

Beltran, Daniel O., Kuntal K. Das, and Robert W. Fairlie. 2005. "Do Home Computers Improve Educational Outcomes? Evidence from Matched Current Population Surveys and the National Longitudinal Survey of Youth 1997." University of California, Santa Cruz Working Paper.

Blinder, Alan S. 1973. "Wage Discrimination: Reduced Form and Structural Variables." Journal of Human Resources 8: 436-455.

Boshara, Ray. (2005). Individual Development Accounts: Policies to Build Savings and Assets for the Poor. Welfare Reform and Beyond Policy Brief #32. Washington, DC: The Brookings Institution.

Community Technology Policy Council. 2004. Access Denied: A Follow-Up Report on Information and Communications Technology Equity for Asian Americans and Pacific Islanders.

Crandall, Robert W. 2000. "Bridging the Digital Divide: Universal Service, Equal Access, and the Digital Divide," paper presented at Bridging the Digital Divide: California Public Affairs Forum, Stanford University.

Fairlie, Robert W. 1999. "The Absence of the African-American Owned Business: An Analysis of the Dynamics of Self-Employment," Journal of Labor Economics, 17(1): 80-108.

Fairlie, Robert W. 2002. "Race and the Digital Divide." Joint Center for Poverty Research Working Paper 307.

Fairlie, Robert W. 2003. "The Effects of Home Computers on School Enrollment," University of California, Santa Cruz Working Paper.

Fairlie, Robert W. 2004. "Race and the Digital Divide." Contributions to Economic Analysis & Policy. The B.E. Journals 3(1): 1-38.

Fairlie, Robert W. 2005. "The Effects of Home Computers on School Enrollment." Economics of Education Review 24(5): 533-547.

Fairlie, Robert W. 2006. "Explaining Differences in Access to Home Computers and the Internet: A Comparison of Latino Groups to Other Ethnic and Racial Groups," University of California, Santa Cruz Working Paper.

Freeman, Richard B. 2002. "The Labour Market in the New Information Economy," National Bureau of Economic Research Working Paper No. 9254.

Goolsbee, Austan, and Jonathan Guryan. 2006. "The Impact of Internet Subsidies in Public Schools," Review of Economics and Statistics (forthcoming).

Ima, Kenji. 1995. "Testing the American Dream: Case Studies of At-Risk Southeast Asian Refugee Students in Secondary Schools." Ruben G. Rumbaut and Wayne A. Cornelius (Eds) California's Immigrant Children. San Diego: Center for U.S.-Mexican Studies.

International Telecommunications Union. 2005. World Telecommunication Indicators Database.

Keefe, Dave, Phoebe Farag and Andy Zucker. 2003. Annotated Bibliography of Ubiquitous Computing Evaluations, Ubiquitous Computing Evaluation Consortium. Arlington, VA: SRI International, Inc.

Lazarus, Wendy, Laurie Lipper, and Karen Roberts. (2003). The Search for High-Quality Online Content for Low-Income and Underserved Communities: Evaluating and Producing What's Needed. The Children's Partnership Issue Brief.

London, Rebecca A., Manuel Pastor, Jr., Lisa J. Servon, Rachel Rosner, and Antwaun Wallace. 2006. "The Role of Community Technology Centers in Youth Skill-Building and Empowerment." Center for Justice, Tolerance, and Community Working Paper, University of California, Santa Cruz.

Lowther, Deborah L., Steven M. Ross, and Gary R. Morrison. 2001. Evaluation of a Laptop Program: Successes and Recommendations. Paper presented at the National Educational Computing Conference, "Building on the Future," Chicago, IL.

Mitchell Institute. 2004. One-to-one Laptops in a High School Environment, Piscataquis Community High School Study Final Report. Great Maine Schools Project.

Noll, Roger G. Noll, Dina Older-Aguilar, Gregory L. Rosston, and Richard R. Ross. 2000. "The Digital Divide: Definitions, Measurement, and Policy Issues," paper presented at Bridging the Digital Divide: California Public Affairs Forum, Stanford University.

Oaxaca, Ronald. 1973. "Male-Female Wage Differentials in Urban Labor Markets," International Economic Review, 14: 693-709.

Organization for Economic Cooperation and Development. 2001. Understanding the Digital Divide.

Puma, Michael J., Duncan D. Chaplin, and Andreas D. Pape. 2000. E-Rate and the Digital Divide: A Preliminary Analysis from the Integrated Studies of Educational Technology. Urban Institute.

Rockman Et Al. 2000. A More Complex Picture: Laptop Use and Impact in the Context of Changing Home and School Access. A Project for Anytime Anywhere Learning by Microsoft Corporation.

Servon, Lisa. 2002. Bridging the Digital Divide: Community, Technology and Policy. Malden, MA: Blackwell Publishing.

Silvernail, David L., and Dawn M. M. Lane. 2004. The Impact of Maine's One-to-One Laptop Program on Middle School Teachers and Students, Phase One Summary Evidence, Research Report #1. Maine Education Policy Research Institute, University of Southern Maine Office.

Spooner, Tom, and Lee Rainie. 2001. "Hispanics and the Internet." Pew Internet & American Life Project.

Stevenson, Kenneth R. 1999. Evaluation Report – Year 3, Middle School Laptop Program, Beaufort County School District. University of South Carolina.

Suarez-Orozco, Marcelo and E. Carola. 1995. "The Cultural Patterning of Achievement Motivation: A Comparison of Mexican, Mexican Immigrant, Mexican American, and Non-Latino White American Students." Ruben G. Rumbaut and Wayne A. Cornelius (Eds) California's Immigrant Children. San Diego: Center for U.S.-Mexican Studies.

Thomas Rivera Policy Institute. 2002. Latinos and Information Technology: The Promise and the Challenge. Prepared for the IBM Hispanic Digital Divide Task Force.

U.S. Department of Commerce. 2000. Falling Through the Net: Toward Digital Inclusion. Washington, D.C.: U.S.G.P.O.

U.S. Department of Commerce. 2002. A Nation Online: How Americans are Expanding Their Use of the Internet. Washington, D.C.: U.S.G.P.O.

U.S. Department of Education. 2004a. National Center for Education Statistics. Internet Access in U.S. Public Schools and Classrooms: 1994–2002, NCES 2004-011. Washington, D.C.: U.S.G.P.O.

U.S. Department of Education. 2004b. Office of Education Technology. Toward a New Golden Age in American Education: How the Internet, the Law, and Today's Students are Revolutionizing Expectations. Washington, D.C.: U.S.G.P.O.

Universal Service Administrative Company. 2005. Annual Report. http://www.universalservice.org/about/governance/annual-reports.

Urban-Lurain, Mark, and Yong Zhao. 2004. Freedom to Learn Evaluation Report: 2003 Project Implementation Executive Summary. Prepared for Michigan Virtual University by The Center for Teaching and Technology Michigan State University.

Valdés, Guadalupe. 1996. Con Respet: Bridging the Distances Between Culturally Diverse Families and Schools. New York: Teachers College Press.

Vernez, Georges, Allen Abrahamse, with Denise Quigley. 1996. How Immigrants Fare in U.S. Education. Institute on Education and Training, Center for Research on Immigration Policy.

	Home Computer	Home Internet	Home High-Speed Internet	Sample Size
Appendix Table 1				
Home Computer and Internet Access by Nativity for the United States				
Current Population Survey, 2003				
All Individuals				
Native-born	69.74%	61.63%	23.64%	126,542
White/Other	70.96%	63.10%	24.22%	115,323
Latino	54.86%	44.16%	15.12%	8,911
Asian	79.47%	71.14%	34.57%	2,308
Immigrants	56.37%	47.59%	18.70%	13,455
White/Other	65.45%	57.61%	22.83%	4,772
Latino	40.04%	29.67%	8.54%	5,822
Asian	76.62%	69.73%	33.53%	2,861
Youth (Ages 5-25)				
Native-born	75.09%	65.60%	26.83%	37,719
White/Other	77.33%	68.28%	28.16%	32,518
Latino	58.31%	45.86%	15.52%	4,152
Asian	83.69%	74.13%	37.56%	1,049
Immigrants	53.95%	43.52%	16.43%	2,814
White/Other	68.21%	58.13%	22.65%	785
Latino	36.41%	25.29%	6.58%	1,553
Asian	85.76%	76.96%	37.23%	476

Note: All estimates are calculated using sample weights provided by the CPS.

	Appendix Table 2			
	Home Computer and Internet Access by Nativity for California			
	Current Population Survey, 2003			
	Home Computer	Home Internet	Home High-Speed Internet	Sample Size
All Individuals				
Native-born	74.47%	66.75%	30.23%	6,815
White/Other	78.87%	72.90%	34.43%	4,602
Latino	58.48%	45.21%	15.28%	1,744
Asian	83.64%	77.00%	38.00%	469
Immigrants	58.55%	47.59%	20.05%	2,694
White/Other	68.75%	62.47%	26.16%	513
Latino	44.29%	30.60%	9.87%	1,471
Asian	77.35%	68.38%	34.16%	710
Youth (Ages 5-25)				
Native-born	75.39%	65.58%	30.03%	2,433
White/Other	81.88%	74.66%	37.41%	1,222
Latino	61.30%	46.56%	14.85%	976
Asian	89.52%	82.96%	43.14%	235
Immigrants	58.21%	42.58%	17.18%	528
White/Other	63.79%	52.33%	23.65%	91
Latino	41.54%	25.25%	7.50%	331
Asian	93.52%	76.70%	35.59%	106

Note: All estimates are calculated using sample weights provided by the CPS.

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