The Health of U.S. Immigrants from the Former Soviet Union: A Puzzling Case

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ABSTRACT

Since 1970, approximately one million immigrants from the former Soviet Union (FSU) entered the United States. Little attention has been given to the health of this group. Using the U.S. census, the National Health Interview Survey, and the Russia Longitudinal Monitoring Study, this research provides a first comprehensive analysis of FSU immigrant health. FSU immigrants (aged 50-84) display considerably higher levels of disability and lower self-rated health compared to U.S.-born whites and other U.S immigrant groups. In contrast, the prevalence of smoking, heavy alcohol use, and diagnosed medical conditions among FSU immigrants are better than or similar to levels reported by U.S.-born whites, and do not explain differentials in reported disability and self-rated health. Migrants who came in late-life report worse outcomes compared to those who came at younger ages indicating that migrant selectivity depends on age at migration. Russian-born immigrants report lower levels of disability compared to the Russian population, which may be a function of the large share of Jews among the immigrants. Whether the poor health reported by FSU immigrants reflects actual health states or is a result of a unique reporting style is unknown and highlights the need for future research on this growing population.

INTRODUCTION

One million immigrants arrive in the United States annually and the proportion of Americans who are foreign-born is approaching that of its historical highs (Martin and Midgley 2003). The growth in the foreign-born population of the United States has generated a rich body of research contrasting the health of foreign-born Americans to that of native-born Americans. The finding of much of this work documents that immigrants in the United States, on average, enjoy better health and longevity compared to the U.S.-born (Cho et al. 2004; Elo, Mehta, and Huang 2008; Hummer et al. 1999b; Jasso et al. 2004; Singh and Siahpush 2001). Most of this literature focuses on immigrants arriving from Latin America, Africa, or Asia. The share of immigrants arriving from Europe has decreased relative to the past, yet the absolute number of foreign-born Europeans in the United States grew in the last decades of the twentieth century. In 2000, the number of European-born immigrants in the United States was approximately 4.9 million, an increase of 13% since 1990 (Migration Policy Institute 2005).

The recent rise in European migration to the United States is fueled in large measure by immigrants arriving from the republics of the former Soviet Union (FSU). Since 1970, approximately one million FSU immigrants entered the United States.[1] Currently, little is known about the health of this population, which is comprised largely of refugees who arrived in the 1980s and 1990s. The reported levels of disability among middle-aged and older-aged FSU immigrants are substantially higher compared to the levels observed for U.S.-born whites and other major U.S. immigrant groups (Figure 1). The motivation for this study is to investigate the social and behavioral determinants that lie behind the poor reported health of this population. To our knowledge, this is the first comprehensive study of the health of FSU immigrants residing in the United States. We investigate the extent to which social factors, behavioral characteristics, and migration

history shape the health patterns of this growing population. Until recently, few prior studies have compared the health of migrants with their sending population. An important contribution of this research is that we contextualize the health of FSU immigrants (and specifically Russian-born immigrants) by comparing it with health patterns reported in Russia.

Given data availability, this study is based on self-reported health status. We evaluate mild and severe disability, self-rated health (SRH), and diagnosed medical conditions associated with adult disability and mortality. While reliance on self-reports of health has limitations, this study produces a set of interesting findings that require further consideration with respect to both the potentially poor health status of FSU immigrants as well as cross-cultural differences in the reporting of health. We rely on large nationally representative samples obtained from both census sources and household survey data. Census data offer the advantage of a relatively large sample of FSU immigrants allowing for the identification of individuals who arrived over different periods and who arrived at different ages as both are distinct factors that contribute to migrant health dynamics (Cho et al. 2004; Elo, Mehta, and Huang 2008). In addition, household survey data offers detailed measures of health and behavioral factors not available in the census.

BACKGROUND

Soviet and Post-Soviet migration to the United States

The flow of migrants from the Soviet republics to the United States in the latter part of the twentieth century is closely intertwined with the politics of the Cold War that guided U.S. policy toward admitting Soviet refugees, and with the disintegration of the Soviet Union in 1991. The modern wave of Soviet emigration began in the early 1970s when large numbers of Soviet Jews (and smaller numbers of other ethnic minorities) were allowed to leave the Soviet Union after long-standing restrictions on emigration

(Remennick 2007:4). It is estimated that about one-quarter of a million Jews left the Soviet Union between 1971 and 1981 with the majority immigrating to Israel (Remennick 2007:5). Approximately 40,000 individuals emigrated from the Soviet Union to the United States during this period (Immigration and Naturalization Service 1994). In the early 1980s, the Soviet Union reinstituted strict controls on emigration. As Soviet power began to weaken in the mid-1980s, larger numbers of individuals were once again allowed to leave. In Figure 2, we trace the number of U.S. immigrants born in the Soviet republics between 1980 and 2006 by visa category. Prior to 1989, U.S. policy toward admitting Soviet refugees was lenient granting refugee status to virtually all Soviet Jews and other ethnic minorities applying for residency in the United States. About 70,000 FSU-born individuals immigrated to the United States in the 1980s. At the end of 1989, the United States implemented policies that were more restrictive by reducing quotas, enforcing stricter terms of entry, and giving preference to those with familial or other ties to the United States (Beyer 1991; Remennick 2007). After the change in U.S. policy, the share of Soviet migrants entering the United States decreased precipitously and the share going to other major destination countries including Israel and Germany increased (Cohen and Haberfeld 2007; Dietz 2000). Nonetheless, Figure 2 indicates that about half a million FSU-born individuals immigrated to the United States during the 1990s and still most entered as refugees. By the end of the 1990s, the percentage of FSU refugees began to decrease while the share arriving under sponsorship of immediate relatives and diversity ("lottery") visas begins to increase.

Determinants of Health among FSU Immigrants

The immigrant subgroup in the United States that has received the most attention in the literature is Hispanics and much of this research points to an immigrant health advantage compared to U.S.-born Americans. Previous literature has also examined health among

other immigrant groups, and most have documented better health and mortality outcomes for non-Hispanic foreign-born whites, blacks, and Asian/Pacific Islanders compared to their U.S.-born counterparts or to U.S.-born whites (David and Collins 1997-; Elo and Preston 1997; Hummer et al. 1999a; Hummer et al. 1999b; Jasso et al. 2004; Parker Frisbie, Cho, and Hummer 2001; Singh and Siahpush 2002). Few studies have investigated the health of immigrant subgroups comprised largely of refugees. Mutchler et al. (2007) find that among older Asian-born immigrants in the United States, those born in Vietnam—a group with a large proportion of refugees—generally reported the highest level of disability. In addition, Akresh and Frank (2008) show that among recent immigrants who were granted permanent residency in 2003, individuals entering on refugee visas had more than twice the odds of reporting that their health was worse than the average level of health in their home country compared to immigrants entering on employment-based visas.

The fact that a substantially large share of FSU immigrants entered as refugees would lead us to believe that their health patterns resemble that of other refugee populations. However, FSU immigrants are distinct from other refugee groups in some key ways. First, FSU refugees did not have to establish directly a "well-founded fear of persecution." Rather, they were admitted primarily on a basis of their ethnic or religious categorization (such a policy was termed "presumptive eligibility" and heavily influenced by Cold War politics, see Beyer (1991) for a more complete discussion). Second, FSU-born immigrants have much higher levels of education and professional training than other refugee and other kinds of immigrants (Majka and Mullan 1992; Newbold 2002). For example, more than one-half of adult FSU-born immigrants possess a college or graduate degree compared to less than 30% among U.S. immigrant as a whole in 2000 (author tabulations, 2000 U.S. Census of Population).

Health Behaviors. The U.S. immigrant health advantage is also influenced by the favorable behavioral characteristics observed among immigrants (Antecol and Bedard 2006; Singh and Siahpush 2002). A positive selectivity among migrants from their home country would function to select those with more favorable health behaviors both because healthier behaviors are associated with better health and also that migrants should be more vested in preserving their future health compared to nonmigrants (e.g., to take advantage of the economic opportunities that migrating has afforded them). It is also thought that the healthier behavioral attributes of migrants arise from normative values restricting unhealthy behaviors in the sending countries (Cho et al. 2004; Parker Frisbie, Cho, and Hummer 2001). In contrast to many other immigrant groups, FSU immigrants arrive from a region with high male smoking levels. The smoking prevalence among adult males in the former Soviet republics is around 56%, which is more than double that of the United States (Gilmore et al. 2004). Frequent alcohol use, or more specifically heavy episodic drinking ("binging"), is considered to be an important determinant of high mortality in the former Soviet republics and is believed to have played an important role in the mortality increases of the early 1990s when alcohol consumption increased (Britton and McKee 2000; Leon et al. 1997; McKee and Shkolnikov 2001). FSU immigrants could have imported the poor habits of their homeland to the United States. This is perhaps an important source of health differentials between them and U.S.-born Americans, which we investigate.

Educational gradients in health. Socioeconomic gradients in health and mortality are well demonstrated across most populations. While the higher educational levels of FSU immigrants should translate into better overall health, recent findings suggest that the positive health returns from education are small for U.S. immigrants (Elo, Mehta, and Huang 2008; Goldman et al. 2006; Kimbro et al. 2008; Turra and

Goldman 2007). In fact, a large portion of the overall immigrant health advantage appears to be a function of this weak education-health association in that at low levels of education the immigrant health advantage is strongest. The association between education and health among FSU immigrants is not known. Two hypotheses concerning educational gradients in health among immigrants have been postulated (Goldman et al. 2006). First, education-health gradients in poorer regions of the world where most U.S. immigrants come from are smaller relative to the United States. Consequently, migrants from these regions export weakened social gradients to the United States. In contrast to other immigrant groups, FSU immigrants arrive from areas with strong educational gradients in mortality, self-rated health, and cigarette smoking (Carlson 2001; Mackenbach et al. 2008; Nicholson et al. 2005; Shkolnikov et al. 1998). Second, positive selectivity on health is thought to be strongest amongst those with the least resources. Under this guise, the disadvantaged are least able to overcome health-related obstacles to migration because they lack material resources and only the healthiest among them will migrate.

Lifecycle age at entry. One factor associated with migrant selectivity that has received less attention is the age at which an individual migrates. It is speculated that late life migrants are less positively selected on health compared to migrants who arrive at the younger ages (Elo, Mehta, and Huang 2008; Jasso et al. 2004). In order words, health status before migrating may be less of a factor in the decision to migrate for older migrants than younger ones. Rather than having to obtain employment, for example, older migrants may instead be sponsored by their working-age children or other relatives who would support them. It is also conceivable that older-aged migrants are seeking better health care and this could induce a *negative* health selection from the originating population, rather than the hypothesized *positive* selection that has received the most

attention. A disproportionately large share of FSU immigrants arrived at the older ages (46% vs. 17% for U.S. immigrants as a whole; author tabulations, 2000 U.S. Census of Population). In addition to the other determinants of health discussed above, we also investigate the association between age at migration and reported health among FSU immigrants.

SUMMARY AND HYPOTHESES

To our knowledge, this is the first comprehensive investigation of the health of FSU-born immigrants residing in the United States. We focus on adults aged 50-84. The health of FSU immigrants is compared to U.S.-born non-Hispanic whites and to the Russian national population (we specifically compare Russian-born U.S. immigrants with the Russian population). Broad dimensions of health are evaluated, which include self-reported disability, SRH, and diagnosed medical conditions. We identify three arrival cohorts of FSU immigrants by period of entry: 1970s, 1980s, and 1990s. The three periods are consistent with the migration history of this population. For example, the early arrivers (1970s cohort) may have faced obstacles in establishing themselves in the United States as well as leaving the Soviet Union. By separating out immigrants arriving in the 1980s from those arriving in 1990s, we distinguish between immigrants who arrived before (1980s) and after (1990s) the change in U.S. regulations that occurred in 1989, which ended the virtual open door policy into the United States for FSU emigrants. In recent work, Cohen and Haberfeld (2007) use the change in U.S. policy as a "natural experiment" to test differences in selectivity among those arriving before and after the change in U.S. policy. While Cohen and Haberfeld (2007) used earnings assimilation as a marker for selection, it is also possible that such a policy shift induced differential selection by health status. In addition to distinguishing FSU immigrants by period of entry, we also investigate the effect of age at migration and hypothesize that older age

arrivals are worse off compared to younger age arrivals. Given previous findings of relatively weak educational gradients in health among immigrants, we test whether educational gradients in reported disability differ between FSU immigrants and U.S.-born whites. In addition, the hypothesis that health-related behaviors partly explain health differentials between FSU immigrants and U.S.-born whites is tested. Finally, few prior studies compare the health and health-related behaviors of immigrants with that of their sending population. An important contribution of this research is that we contrast the health and behavioral profile of FSU-born immigrants with the Russian national population.

DATA

The data for this study are the 5% Public Use Microsample of the 2000 U.S. Census of Population (5% PUMS), the 2000-2007 National Health Interview Surveys (NHIS), and the Russia Longitudinal Monitoring Study Round 9 (RLMS 9). The 5% PUMS is a weighted subsample of all housing units that received the 2000 census long form (U.S. Census Bureau 2003). It is obtained through the University of Minnesota's Integrated Public Use Microdata Series (IPUMS) (Ruggles et al. 2004). Missing data are imputed by IPUMS. Our sample is restricted to the noninstitutionalized population to be consistent with other data used in this analysis that draw only from noninstitutionalized populations. The sample of FSU immigrants aged 50-84 who immigrated in 1970 or later is 9,793. Our analytic sample consists of 9,783 FSU immigrants due to 10 respondents reporting a year of immigration that would imply they immigrated before age zero. The sample of U.S.-born non-Hispanic whites aged 50-84 is 2,851,439.

In the 5% PUMS, nearly 75% of the FSU immigrant sample was born in either Russia (37%) or the Ukraine (37%). As indicated earlier, a large share of FSU immigrants are Jewish. However, no straightforward method is available to enumerate

the number of FSU immigrants in the United States or in our sample who are Jewish because federal data sources do not record information on religion. Based on information from other sources, we roughly estimate that about 70% of our FSU sample in the 5% PUMS is Jewish.[2]

While the U.S. census affords us the advantage of a large sample of FSU immigrants, we complement it with survey data from the NHIS, which collects both detailed information on health status and health-related behaviors not available in the census. We draw from the 2000-2007 NHIS sample adult files, which contain a total of 257 FSU-born individuals and 63,700 U.S.-born non-Hispanic whites. While data from the 5% PUMS can be proxy reported, the sample adult files in the NHIS are self-reported. The number of cases with missing data on at least one covariate is small (6%) with the exception of family income and BMI, which have a larger percentage of nonresponse. Due to well-known challenges in obtaining income data, the NHIS contain a large percentage of nonresponse for family income (approximately 15%-31% of total respondents annually). To account for such high levels of missing data, NHIS investigators provide imputed income data generated by multiple imputation methods, which are used in our analysis (Schenker et al. 2006). Over and above missing values on other covariates, BMI is absent in an additional 6% of respondents. The final analytic sample is 219 for FSU-born immigrants and 57,626 for U.S.-born non-Hispanic whites. The 2000-2007 NHIS surveys cover two design periods with different sampling frames (2000-2005 and 2006-2007). Therefore, the sampling weights and design variables are adjusted according to recommended guidelines (Minnesota Population Center 2008). We obtain the 2000-2006 NHIS data from the Integrated Health Interview Series, which we merge with the 2007 NHIS survey obtained from the National Center for Health Statistics.

The NHIS publicly released data does not allow us to restrict the FSU sample to immigrants who arrived from 1970 onwards as we do in the 5% PUMS because the year of U.S. entry responses were recoded into larger aggregate categories. Nonetheless, few immigrants from the FSU arrived in the United States between 1930 and 1970 (Immigration and Naturalization Service 1994). The FSU sample in the NHIS will also include immigrants who arrived up until 2007 while the 5% PUMS was conducted in 2000. Nonetheless, as we show below, the sociodemographic characteristics of the two samples are highly similar.

Data from Russia is obtained from the RLMS, which is a nationally representative household survey of Russians that was conducted over the 1990s and 2000s. The RLMS provides detailed measures of social and economic wellbeing of families including self-reported data on health comparable in scope and quality to large nationally representative health surveys in the United States. We draw from a single cross-section conducted in 2000 (RLMS 9). Analysis and comparisons using the RLMS 9 is restricted to ages 55-84 because the disability questions used here were only asked for those ages 55 and above. We also restrict the sample to individuals born in Russia. The number of missing cases on at least one covariate is small (approximately 1%) and our analytic sample comprises 1,346 respondents. Data were obtained from the Carolina Population Center of the University of North Carolina.

METHODS

Health Outcomes

The health endpoints investigated are: (1) functional limitations, (2) activities of daily living (ADL) limitations, (3) SRH, and (5) diagnosed medical conditions. Collectively, the endpoints capture a wide range of potentially overlapping health states including both mild (e.g., minor functional limitations) to severe (e.g., ADL limitation) disability,

subjective assessment of health status (e.g., SRH), and the presence of a chronic medical condition regardless of the presence of a disability.

Disability. Questions on functional and ADL limitations are asked in each of the three datasets, albeit in somewhat different forms. We code each variable as an 0/1 indicator. In the 5% PUMS, a single question was asked about functional limitations that respondents could answer yes or no. The question is as follows: "Does this person have any of the following long-lasting conditions: A condition that substantially limits one or more basic physical activities such as walking, climbing stairs, reaching, lifting, or carrying?" To be consistent with the 5% PUMS, we construct a measure of functional limitation in the NHIS from individual items asking about difficulty walking (1/4 mile), climbing stairs (10 steps without resting), reaching, and carrying (10 pounds). Unlike the census question, where respondents could only choose yes/no, the NHIS provides four levels of difficulty: "Only a little difficult," "Somewhat difficult," "Very difficult", or "Can't do it all." Given that the census question includes "substantially limits" in its phrasing, we define functional limitation in the NHIS as responses in either of the two highest categories ("Very difficult" or "Can't do it all") on at least one individual item. The prevalence of functional limitations for both FSU-born immigrants and U.S.-born whites is similar across the two surveys.[3] The functional limitation items in the RLMS 9 are similar to that of the NHIS and we use the same coding strategy. Note that there was no question on "reaching" in the RLMS 9 as in the NHIS or 5% PUMS.

The question pertaining to ADL limitations in the 5% PUMS is as follows: "Because of a physical, mental, or emotional condition lasting 6 months, or more, does this person have any difficulty in doing any of the following activities: Dressing, bathing, or getting around inside the home?" Respondents could answer yes/no. Similarly, in the NHIS a single question was asked about ADL limitations eliciting a yes/no response. The

difference in the NHIS question is that it asks about needing the "help of other persons with personal care needs" rather than asking specifically about "difficulty" in performing the activities. In addition, the NHIS question includes "eating" along with the three activities listed in the census. The prevalence of ADL limitations across the surveys are generally consistent for FSU-born immigrants, however, U.S.-born whites report somewhat less ADL limitations in the NHIS compared to the census. In the RLMS 9, we combine individual items asking about difficulty in dressing, showering, bathing, and using the toilet.

SRH and Medical Conditions. SRH is available in the NHIS and the RLMS 9. It is measured with the widely used 5-point scale. We model SRH as a dummy variable (0/1) indicating "fair" or "poor" SRH (or, equivalently, "bad" or "very bad" in the RLMS 9). In the NHIS, we also measure whether or not a respondent has ever been diagnosed with a serious medical condition. The medical condition variable is coded 1 if a respondent reports having been ever diagnosed with at least one of the following conditions: cancer, coronary heart disease, heart attack, hypertension, diabetes, and emphysema. The small number of FSU-born respondents in the NHIS precludes modeling the individual items, although preliminary tabulations revealed similar differentials between the FSU immigrants and U.S.-born whites on most of the individual items compared with the global variable used in the analysis.

Explanatory Variables

Health Behaviors. In the NHIS, we investigate the roles of smoking, alcohol, and BMI (based on self-reported height/weight). We adjust for three levels of smoking status (never, former, current). Alcohol use is modeled based on published guidelines (Schoenborn and Adams 2002): lifetime abstainer, former drinker (no drinks in the prior year), current light (≤3 drinks per week) and, current moderate/heavy (>4 drinks per

week). We combine the moderate drinker (4 to 21 drinks per week) and heavy drinker (≥21 drinks per week) categories because only two FSU respondents fell into the heavy drinking classification. While the role of alcohol "binging" has received considerable attention in Russia, the prevalence of binging (defined as having 5+ drinks in one day) was uncommon among the FSU-born sample with about 10% of males reporting having had five or more drinks on at least one day in the prior year. No FSU-born women reported "binging" in the prior year. BMI was classified according to current WHO guidelines (WHO 2000): normal (BMI 18.5-24.9), overweight (25.0-29.9), and obese (≥30.0). We drop underweight (<18.5) observations from the analysis (only two FSU-born respondents were underweight). The RLMS 9 has comparable questions on smoking and self-reported height/weight as the NHIS.

Period and Age of Entry. As indicated, we identify three arrival cohorts of FSU-born immigrants by periods of entry: 1990s, 1980s, and 1970s. The three periods are consistent with the immigration history of FSU-born immigrants. We also define two age at entry categories (<50 years, ≥50 years). Alternate specifications based on the traditional age at retirement of 65 did not produce substantively different results as those presented here.

Sociodemographic Predictors. In multivariate regressions, we include adjustments for age and age-squared to account for nonlinearities in the effects of age on health. Adjustment by sex is generally achieved by stratification, which allows the effects of the other covariates on health to vary by sex. In the NHIS, where the sample of FSU-born immigrants is relatively small, we combine both sexes and adjust for sex. We control for three levels of education (< high school degree, high school degree/GED, college graduate). Alternative models controlling for individual years of education in the 5% PUMS were also explored, but did not result in different conclusions than those

presented here. We also include adjustments for household income. Although, the association between income and health is bidirectional (Smith 1999), a primary objective in the multivariate models is to examine health differentials between FSU immigrants and U.S.-born whites *independent* of socioeconomic status. Net of education, income is associated with a wide array of health endpoints including disability and mortality (Bond Huie et al. 2003; Braveman et al. 2005). Among immigrants, a higher level of education may not translate into an advantaged economic position in the United States. For example, the training immigrants receive in their country of birth may not be transferable or valued in the U.S. job market and highly educated immigrants may take jobs inferior to their skill set (Friedberg 2000; Redstone Akresh 2006). Other controls include marital status (married, never married, and separated/divorced/widowed) and U.S. region of residence (Northeast, South, Midwest, and West). Due to the small number of never married older adults in the NHIS (n=10), we combine this group with the separated/divorced/widowed category in this sample.

Analytic Approach

We first compare the sociodemographic and behavioral characteristics of FSU-born immigrants and U.S.-born non-Hispanic whites (henceforth, non-Hispanic) in the 5% PUMS and the NHIS. Next, we compare the prevalence of each health endpoint across the two groups stratifying by sex. In multivariate analyses, we estimate a series of logistic regression models using the 5% PUMS and the NHIS samples. For simplicity of interpretation, all results are presented as odds ratios. We investigate differences by place of birth (FSU immigrants vs. U.S.-born whites) adjusted for sociodemographic characteristics (5% PUMS and NHIS) and behavioral characteristics (NHIS). With additional models in the 5% PUMS, we disaggregate the FSU immigrants by period of entry (1990s, 1980s, 1970s) and age at entry (<50 years, ≥50 years). Following the work

of Mutchler et al. (2007), we combine both year and age of entry for FSU immigrants into a single set of dummy variables. This allows us to examine whether period of entry is confounded by age at entry and vice versa (as we describe below there are limitations in the interpretation of this type of model). To investigate whether educational gradients in reported disability differ between FSU immigrants and U.S.-born whites, we include a series of interaction terms between place of birth and educational level. Based on these models, we estimate the probability of reporting a functional or ADL limitation for each place of birth and educational subgroup. We hold other covariates at their overall mean (so that we highlight differences specifically due to the interaction between place of birth and education). Given the small sample size of FSU immigrants in the NHIS, educational interactions are only implemented in the 5% PUMS.

In the final set of analyses, we compare the health and behavioral profile of FSU immigrants to that of the Russian population using the RLMS 9. In the 5% PUMS, we restrict FSU immigrants to those born in Russia, which is the most appropriate comparison group. We compare the prevalence of functional and ADL limitations among Russian-born U.S. immigrants in the 5% PUMS with that of the Russian population in the RLMS 9. Given the different age distributions observed between Russian-born U.S. immigrants and the Russian population, we stratify results by age (55-69 and 70-84) in addition to sex. In the NHIS, we cannot distinguish Russian-born immigrants from other FSU immigrants. Nonetheless, the NHIS allows us to compare the reported prevalence of ever smokers, obesity, and fair/poor SRH between the immigrant group and the Russian national population. Sample weights are used in all analyses using the svy: prefix in STATA 10.0.

RESULTS

Descriptive Statistics

Table 1 shows descriptive characteristics of FSU immigrants and U.S.-born non-Hispanic whites (henceforth, U.S.-born) from the 2000 5% PUMS for ages 50-84. Females comprise about 56% of the FSU sample and 53% of the U.S.-born sample. Educational achievement between the two groups differed markedly, particularly with respect to postsecondary schooling. More than one-half of the FSU immigrants hold at least a college degree compared to about one-quarter for the U.S.-born. About 20% of individuals in both groups did not complete high school. In contrast to the high educational achievement in FSU immigrants, their poverty rate is more than quadruple that of the U.S.-born (26% vs. 6%). Nonetheless, about 22% of FSU immigrants had a family income more than five times the 2000 poverty level (compared to 38% among the U.S.-born). The distribution of marital status is similar across the two groups with about two-thirds being married. Compared to U.S.-born whites, the FSU immigrants are concentrated in the Northeast where more than one-half of the immigrant group resides. With respect to the timing of migration, more than 65% of FSU immigrants entered the United States in the 1990s, 21% in the 1980s, and 14% in the 1970s. The majority (61%) of FSU immigrants entered the United States when they were ages 50 or older.

Table 2 presents descriptive characteristics from the 2000-2007 NHIS. In general, the sociodemographic characteristics of the FSU-born sample in the NHIS are consistent with that of the 5% PUMS sample. Therefore, we are confident that the weighted NHIS estimates provide a reasonably good representation of the immigrants' characteristics despite the smaller sample size (N=219). The FSU sample in the NHIS is slightly more educated compared to the 5% PUMS sample with 59% (vs. 55%) possessing a college degree and only 14% (vs. 20%) not completing high school. In addition, the geographic

distribution of the FSU sample is more dispersed in the NHIS than in the 5% PUMS. For example, while only 13% of the FSU sample in the 5% PUMS resides in the Midwest, about 28% of the FSU NHIS sample lives in this census region. This discrepancy is perhaps due to sampling variation across the data.

Table 2 also shows the prevalence of health-related behaviors and weight status between the FSU immigrants and the U.S.-born group. Overall, the immigrants smoke less and drink less alcohol compared to U.S.-born whites. For example, the differential in never smoking is substantial (72% vs. 46%) as is the percentage of alcohol abstainers (38% vs. 21%). The FSU-born are also less likely to be current smokers (10% vs. 17%) and much less likely to be moderate/heavy drinkers (9% vs. 20%). About one-quarter of both groups are obese (BMI≥30.0) with the immigrants displaying a higher prevalence of overweight (50% vs. 40%).

Table 3 compares the health status of the two groups by sex using the health measures drawn from both the 5% PUMS and the NHIS. Two general findings in Table 3 are noteworthy. First, the FSU-born report higher levels of disability and fair/poor SRH compared to the U.S.-born across both sexes and datasets. The differences across the two groups were significant in each case for women. Among men, there was no significant difference in the reporting of functional limitations in the NHIS, but the results are suggestive of an immigrant disadvantage (19% vs. 13%). Second, despite reporting higher disability and lower SRH, the FSU immigrants report similar levels of having been diagnosed with at least one serious medical condition compared to their U.S.-born counterparts. This suggests that diagnosed medical conditions do not explain the FSU immigrant disadvantage in reported disability and SRH, which we formally test in multivariate analyses.

The Roles of Sociodemographic Factors, Period of Arrival, and Age at Arrival

Table 4 shows results from logistic regressions modeling functional and ADL limitations in the 5% PUMS stratified by sex. All models in Table 4 adjust for age, age-squared, education, family income, marital status, and U.S. region of residence. Three separate models are estimated for each limitation and within each sex. Model 1 shows odds ratios that reflect differences between the FSU immigrants and U.S.-born group (reference category). As we found with the unadjusted comparisons in Table 3, the immigrant group is significantly more likely to report a disability compared to the U.S.-born group. Model 1 highlights that these differences are independent of background characteristics. The odds ratio for functional limitations in Model 1 is 1.30 ($p<.001$) in men and 1.74 ($p<.001$) in women. For ADL limitations, the corresponding odds ratios are 2.71 (men, $p<.001$) and 3.39 (women, $p<.001$).

In the second set of models (Model 2), we disaggregate the FSU-born by period of U.S. entry (1990s, 1980s, 1970s) revealing important patterns in reported disability by timing of entry. Model 2 indicates that the higher levels of reported disability for the FSU-born observed in Model 1 are largely a function of individuals arriving in the 1980s and 1990s. In general, the odds ratios for the 1970s cohort are significantly lower ($p<.001$) compared to the odds ratios for the latter cohorts (results not shown). The only exception is for women in the ADL limitation model, where those arriving in the 1970s report less ADL limitations compared to those arriving in the 1980s and 1990s, but the differences are not statistically significant. With respect to their U.S.-born counterparts, FSU men who arrived during the 1970s had a similar odds of reporting a functional limitation (OR=0.97; $p>.05$). Men arriving during the 1970s, however, did have a significantly higher odds of reporting an ADL limitation (OR=1.51, $p<.05$). In contrast, women arriving during the 1970s show elevated odds in reporting both types of disability

compared to U.S.-born women. While both the 1980s and 1990s cohorts display higher odds of reporting limitations compared to the U.S.-born (both sexes), the differences between the two cohorts are largely insignificant (results not shown).

Model 3 disaggregates the FSU-born by age at U.S. entry. FSU-born immigrant men and women arriving before age 50 report statistically indistinguishable levels of functional limitations compared to their U.S.-born counterparts. Younger arrivals (<50 years) do, however, report significantly higher levels of ADL limitations in both sexes. What is important in Model 3 is that in each case, we find that those arriving at the older ages (≥50 years) report significantly higher levels of disability compared to younger arrivals (<50 years). The differences between younger and older arrivals are statistically significant in the four models (results not shown).

At first glance, it appears that FSU immigrants arriving in the 1970s display better outcomes compared to the latter cohorts perhaps because of differences in migrant selectivity by period of entry. Such a conclusion, however, is premature. Lifecycle age at entry can confound the cohort effects and vice versa. To highlight these relationships, we follow Mutchler et al. (2007) and create a multicategory variable that combines period of entry and age at entry (Table 5). For clarity, we combine both sexes because the applicable conclusions did not differ by sex. Table 5 shows that within each entering cohort (1970s, 1980s, 1990s) those arriving at the older ages (≥50 years) report higher functional and ADL limitations compared to younger arrivals (<50 years) (each case is statistically significant). We find little to no effect of period of entry after accounting for age at entry. For example, among those who arrived at age 50 or older, there are no statistically significant differences across the three periods and for both functional and ADL models. A similar finding ensues for younger arrivals (<50 years). Table 5 provides evidence that cohort differences in reported disability are entirely a function of the

different distributions of age at entry, and those arriving at the older ages regardless of period of entry are worse off compared to younger arrivals.[4]

Educational Gradients in Reported Disability

Given prior evidence pointing towards a weak educational gradient in health among certain U.S. immigrant subgroups, we investigate educational gradients in reported disability among the individual FSU-born cohorts and U.S.-born whites (Figure 3). This is achieved by interacting the three categories of education (<HS omitted) with place of birth (U.S.-born omitted). The interaction effects were highly significant with positive coefficients (indicating a weaker educational gradient among the FSU-born than the U.S.-born). Figure 3 shows the predicted probability of reporting a functional limitation across educational level by place of birth. The results in Figure 3 combine both sexes because the substantive results did not differ by sex. Results for ADL limitations are not shown in Figure3 yet display the same pattern. As Figure 3 indicates, the strongest differentials between the FSU-born and U.S.-born appear at the higher levels of education (high school and college degree).

Health Behaviors, BMI, and Diagnosed Medical Conditions

Table 6 shows logistic regression results from the NHIS for functional and ADL limitations, poor/fair SRH, and reporting a diagnosed medical condition. Due to the small sample size of FSU-born respondents in the NHIS, we combine men and women and adjust for sex. In Table 6, the health endpoints are in the left-most column and the odds ratios indicate differences between the FSU immigrants and U.S.-born (reference category). All models adjust for age, age-squared, sex, education, income, and U.S. region of residence. As we found in the 5% PUMS analysis, Model 1 displays the higher levels of reporting a functional (OR=1.62; $p<.01$) or ADL (OR=3.55; $p<.001$) limitation among the FSU immigrants compared to the U.S.-born independent of background

factors. The FSU immigrants also reported higher levels of poor/fair SRH (OR=2.87, p<.001), but there were no significant differences for reporting a diagnosed medical condition between the two groups (OR=0.92, p>.05). In Model 2, we further adjust for smoking, alcohol use, and BMI. The odds ratios for reporting a functional or ADL limitation and poor/fair self-rated health all tended to increase, albeit slightly. Most of the increase is due to the inclusion of smoking, which is consistent with the fact that current and former smoking is more prevalent in the U.S.-born compared to the FSU-born. The odds ratio for reporting a serious medical condition remained insignificant in Model 2 (OR=0.99, p>05). Finally, in Model 3 we treat reporting a diagnosed medical condition as an independent predictor. As expected, there was little change in the observed group differences across the health measures most likely due to the similar prevalence of reported medical conditions between the two groups. To account differences in health care access, we further adjusted all models with indicator variables for having a usual medical provider and for visiting a health professional in the prior year. No changes in results were observed (results not shown).

Comparison with the Russian Population

In Table 7, we compare the health profiles of Russian-born U.S. immigrants with the Russian national population in 2000 using the 5% PUMS and the RLMS 9. Note that while the other analyses presented here include all FSU-born immigrants, Table 7 restricts the U.S. sample to Russian-born immigrants. Overall, Table 7 indicates that Russian-born U.S. immigrants generally report less disability compared to the Russian population, although the results are not all statistically significant. Among men, the immigrants report significantly less ADL limitations across both age groups (55-69 and 70-84). Immigrant men also appear to report less functional limitations compared to their Russian counterparts, but the results are not significant. Russian-born U.S. women do

report significantly less functional and ADL limitations compared to women in Russia. For reporting a functional limitation, the immigrant women report roughly a quarter less disability compared to women in Russia. The differentials are stronger for ADL limitations whereby the immigrant women report levels less than half of that reported by women in Russia.

We performed additional analyses comparing the prevalence of health behaviors, obesity, and poor/fair SRH among FSU-born U.S. immigrants and the Russian population (Table 8). Given that these variables are only available in the NHIS, we are limited in the types of comparisons that can be conducted. First, the NHIS does not allow us to partial out immigrants born in Russia from other FSU-born immigrants. Second, we are unable to stratify the analysis by age due to small cell sizes. Nonetheless, some interesting findings can be derived from Table 7. First, the prevalence of male ever smokers is significantly higher in the Russian population compared to FSU-born immigrants (79% vs. 44%). Gilmore et al. (2004) estimate that the FSU prevalence of ever smoking is about 61% among men (ages 60+), which is still considerably higher than the 44% observed in our sample of FSU-born immigrants. The opposite is the case for women, where the immigrant group has significantly higher levels of smoking compared to the Russian group (13% vs. 3%). There is no statistical difference in the level of obesity for men. For women, the FSU-born immigrants actually have a significantly lower prevalence of obesity (34% vs. 44%, $p<.05$). Obesity among Russian women in our sample appears quite high and we have not been able to confirm this finding with other studies on middle- and older-aged adults in the FSU. However, in a sample of women over 18 in 2004, the prevalence of obesity among Russian women was around 37% (Huffman and Rizov 2007). Finally, the prevalence of poor/fair SRH did not differ significantly between the two groups for either sex. We are unable to compare directly

the prevalence of alcohol "binging" because of differences in the types of questions asked between the NHIS and RLMS 9. As indicated above, about 10% of FSU immigrant men "binged" at least once in the prior year. In contrast, published estimates suggest that the prevalence of "binging" among Russian males aged 55 and over in 1996 is roughly one-quarter (Malyutina et al. 2002).

DISCUSSION

Most of the literature on U.S. immigrants highlights the advantageous health of this group relative to native-born Americans. Our findings are a counterexample. We reveal substantial disadvantages with respect to self-reported disability and SRH for FSU immigrants compared to U.S.-born non-Hispanic whites across both sexes (ages 50-84). These differentials are independent of education, income, and other sociodemographic characteristics and are strongest among immigrants arriving at ages 50 or older. Despite the high educational achievement of FSU immigrants, a substantial proportion also lives in poverty (25%). There is a larger immigrant penalty in reporting disability among college graduates than among individuals with less than a high school diploma. This is true with and without adjustment for family income. Interestingly, we find relatively low levels of smoking and heavy drinking among FSU immigrants compared to U.S.-born whites. This is most likely attributable to the large share of Jews among FSU immigrants. Health-related behaviors along with obesity did little to explain the health differentials between the FSU immigrants and U.S.-born whites. In addition, FSU immigrants and U.S.-born whites reported similar levels of diagnosed medical conditions and this variable also did not explain the FSU immigrant disadvantage. An important contribution is that we contextualize the health of FSU immigrants with that of the Russian population. Overall, Russian-born U.S. immigrants reported less disability compared to

the Russian population and the migrant health advantage is stronger among women compared to men.

Our study is based on health measurements that are self-reported or in some cases proxy-reported (a possibility with 5% PUMS data). Given the relatively small numbers of FSU-born immigrants in the United States, there are no nationally representative data containing objective measures of health and a sufficient sample of FSU immigrants. Previous studies have found that self-reported measures of health to be useful in predicting future mortality and clinical outcomes across a wide range of cultural and national groups (Idler and Benyamini 1997; Idler, Russell, and Davis 2000; Kroenke et al. 2008; Lee 2000; McGee et al. 1999; Scott et al. 1997; Wang and Satariano 2007). Nonetheless, there are existing controversies as to the validity of self-reported health status whether measured by SRH (Sen 2002; Subramanian and Ertel 2009) or disability (Hugo Benítez-Silva et al. 2004). Moreover, we are aware of no studies that have investigated the association between self-reported health and mortality or other objective health measures within migrant FSU populations. Over and above biases arising from self-reports, additional biases due to potential proxy responses in the 5% PUMS are possible. However, our findings suggest that any proxy reporting in the 5% PUMS introduce little additional bias because the results from the NHIS, which are entirely self-reported, were highly consistent with findings from the 5% PUMS.

To the extent that cross-cultural differences in reporting of "true" health status are operating, we must be cautious in interpreting differentials *across* groups (i.e., between the FSU-born and U.S.-born) (Carr, Gibson, and Robinson 2001; Mathers 2003; Murray and Chen 1992; Sen 2002). Albeit indirect, our findings do indicate potential differences in reporting styles between FSU-born immigrants and U.S.-born whites. This is most evident in the contrasting results observed for reporting a diagnosed medical condition

versus reporting a disability or reporting fair/poor SRH. The reported prevalence of at least one diagnosed medical condition did not differ between the FSU-born and U.S.-born despite the higher level of self-reported disability and fair/poor SRH reported by the immigrant group. In addition, the prevalence of health-related behaviors such as smoking and heavy alcohol use—both well known to be associated with adult health—were considerably lower among the FSU-born than among the U.S.-born. It is clear that future studies on the health of FSU immigrants in the United States are warranted.

Differentials in health status *within* a particular social group may be less affected by variability in reporting styles (Mathers 2003). Our analysis of health patterns within FSU immigrant subpopulations reveals both familiar and unfamiliar patterns in relation to previous work on U.S. immigrant health. One familiar pattern is that we find evidence of differential outcomes by age at migration. Older FSU immigrants who immigrate at ages 50 or above report higher levels of functional and ADL limitations compared to those who immigrated below age 50. In fact, most of the health disadvantage between FSU immigrants and U.S.-born whites is concentrated among those arriving at ages 50 and above. This is supportive of the idea that migrants who arrive late in life are less selected on health and other attributes compared to migrants arriving earlier in life.

Another familiar pattern is that educational gradients in reported disability among FSU immigrants are weaker compared to U.S.-born whites. This is true despite the fact that social gradients in health are strong in the sending Soviet republics. However, unlike other immigrant groups in which we observe better than expected outcomes at low levels of education, FSU immigrants tend to have worse than expected outcomes at higher levels of education (with respect to U.S.-born whites). These findings are independent of income—if we remove adjustments for income, the differentials between highly educated FSU immigrants and U.S.-born whites become even stronger. While these results are

consistent with the idea that positive migrant selectivity is strongest among the least educated, further research into whether the mediating factors that link education to health operate in a similar manner among the foreign-born as they do in native-born groups (e.g., health behaviors, health-related knowledge, social resources). Another explanation of the weak education-health gradient among FSU immigrants also could lie in the fact that a large proportion of this population is Jewish. Some have speculated that less educated Jews in the FSU benefit from the large proportion of highly educated Jews through their affiliations within Jewish social networks (Shkolnikov et al. 2004). Hence, the effect of membership within a Jewish community protects the less educated from poor health through, for example, group norms emphasizing healthy behaviors or increased access to health-promoting knowledge and resources (see, Shkolnikov et al. (2004:325) for a more complete discussion).

The fact that most FSU immigrants are Jewish also partially limits our ability to test the extent to which FSU immigrants are positively selected from their sending populations. As expected, we do find lower levels of reported disability among Russian-born immigrants compared to the Russian national population. We largely attribute this finding to religious/ethnic selection rather than to selection of individual-level traits that distinguish migrants from nonmigrants. While research on the health of Jews in Russia is limited, there is evidence that Russian Jews have considerably lower mortality compared to the general Russian population (Shkolnikov et al. 2004). The most appropriate comparison group to test for migrant selectivity for FSU immigrants in the United States then would be Jews in the former Soviet republics.

A more unfamiliar health pattern among FSU immigrants compared to other U.S. immigrant groups pertains to the association between period of entry and health. Previous studies on other immigrant groups indicate that a longer length of U.S. residence is

associated with poorer health (Amaro et al. 1990; Angel, Buckley, and Sakamoto 2001; Hummer et al. 1999a). Explanations focus on the role of acculturation, where initial health advantages are reduced as immigrants adopt unhealthy behaviors and experience increasingly dislocated social and familial ties. Among FSU immigrants, there lacked an association between duration of residence and reported disability after accounting for age at entry. This suggests that acculturation or exposure to the United States is less of a factor for the health of FSU immigrants versus other U.S. immigrants. We rely entirely on cross-sectional data to reach this conclusion. It is possible that the 1970s and 1980s cohorts were better off closer in time to U.S. entry. If so, increased duration of U.S. residence would be associated with poorer health among FSU immigrants. Nonetheless, most studies on other U.S. immigrant groups that found poorer health with increasing time in the United States have also been based on cross-sectional data. As indicated, we find little difference in reported disability between the 1980s cohort and the 1990s cohort. Thus, our findings also do not lend support to the hypothesis that the change in U.S. policy in 1989, which made it more difficult to obtain a U.S. visa, resulted in a change in the health composition of FSU-born migrants.

This study has other limitations not already addressed. First, the FSU immigrant sample in the NHIS analysis is small so we should take some care in drawing firm conclusions about the roles of behaviors and reported medical conditions. Furthermore, the NHIS sample covers a different period (2000-2007) than the 5% PUMS sample (2000). After 2000, an increasing proportion of FSU migrants entered under the sponsorship of immediate relatives or by obtaining a "diversity" visa. To the extent that visa category is associated with migrant selectivity, the health composition of FSU immigrants arriving after 2000 may be different compared to earlier arrivals. Unfortunately, we do not have information on visa category. Nonetheless, the substantive

conclusions reached in the NHIS analysis are highly similar to that of the 5% PUMS analysis. Second, there were differences in the way that the disability questions were asked across the three surveys and the responses that were elicited (e.g., yes/no vs. graded levels of difficulty). Questions in the RLMS 9 were more similar to that of the NHIS than the 5% PUMS. Given that the prevalence of disability for both the immigrants and the U.S.-born were very similar in the NHIS and 5% PUMS, we are more confident in our comparisons of reported disability between the 5% PUMS and the RLMS 9. Yet, this remains an important limitation in analyzing the extent of health selection of FSU immigrants from their sending region. Finally, we are not able to assess the potential importance of return migration or circular migration (Redstone and Massey 2004). However, it is unlikely that return migration to the former Soviet republics is large in this population given the political and economic changes these regions experienced and the likely fact that entire families and communities left during the mass emigration.

In sum, this investigation finds that middle-aged and older-aged FSU immigrants report higher levels of disability and poorer SRH compared to their U.S.-born counterparts, which cannot be explained by socioeconomic status, health-related behaviors, or diagnosed medical conditions. Most of the disadvantage is concentrated among immigrants arriving late in life (≥50 years) and results do not differ substantially by sex. The levels of poor health reported in this highly educated population represent a clear outlier with respect to what we know about the health of other U.S. immigrants. We are unable to explain fully the relative health disadvantages of FSU immigrants highlighting the need for future research into the health of this population. If cross-cultural differences in reporting health turns out to be a key factor, then reasons behind the unique reporting style of this immigrant group require further attention, as do the

social implications that may be associated with reporting poor health (e.g., health care utilization, mental health).

NOTES:

[1] Based on author tabulations from U.S. Department of Justice and U.S. Department of Homeland Security sources.

[2] One source for estimating the number of FSU-born Jews in the United States is the National Jewish Population Survey (NJPS) conducted in 2000-2001. In this population-based survey of adult Jews aged 18 and over, it is estimated that the number of Jews who were born in the FSU and who immigrated since 1970 is approximately 261,000. Based on author tabulations from the 2000 U.S. Census of Population, there were approximately 636,000 adults 18 and over in the United States who were born in the FSU and who immigrated between 1970 and 2000. Therefore, a rough estimate would be that 40% of FSU-born adults in 2000 are Jewish and immigrated in 1970 or later. While this figure includes adults of all ages, the proportion of Jews among older FSU immigrants appears substantially larger. Based on tabulated data available from the 2000-2001 NJPS (Ament 2004), there were an estimated 107,000 FSU-born Jews who were ages 55 and over and who immigrated in 1980 or later. In the 2000 U.S. Census, approximately 148,000 total FSU-born individuals fell into this category. The estimate of the number of FSU-born Jews provided by the NJPS is consistent with estimates from the Hebrew Immigrant Aid Society, which collected data on the number of FSU-born Jewish immigrants it helped resettle between 1970 and 2001 (United Jewish Communities 2001).

[3] In preliminary analyses, we defined functional limitations in the NHIS as reporting any level of limitation on at least one items. This resulted in a prevalence of functional disability that were about twice that observed in the census supporting the argument that those with milder forms of disability were answering "no" in the census question. Nonetheless, using the broader definition of functional limitation disability does not substantively change differentials between the FSU-born and US-born that we present here.

[4] Given the linear relationship across year of entry, age at entry, and current age, some caution must be taken in making firm conclusions from Table 5 (e.g., current age and year of entry exactly predicts age at entry). We were only able to estimate the models in Table 5 because of the way in which the period of entry and age at entry categories were aggregated. The age ranges within each cross-tabulated cell between the period of entry and age at entry categories will only partially overlap. At one extreme, is the 1970s cohort where those who entered at the older ages can only be ages 71-84 in 2000. At the other end, those who entered in the 1990s and at the younger age range are restricted to ages 50-59. Nonetheless, for any other combination of cells, there will be some overlap in current age and we have to assume that the estimated effects hold for the entire age range of the sample (i.e., no important age interactions).

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Table 1. Characteristics of immigrants born in the former Soviet Union and U.S.-born non-Hispanic whites in the 2000 5% PUMS, ages 50-84.

Characteristic	FSU-born	US-born whites
Female	56.3	53.4
Age	63.3 (mean)	63.6 (mean)
Highest Education Level		
Less than High School	19.6	18.8
High School/GED	25.8	53.7
College degree+	54.6	27.5
Family Poverty Income Ratio		
At/below poverty line	25.7	6.3
101%-200%	26.3	13.5
201%-500%	26.2	41.8
>500%	21.8	38.3
Marital Status		
Married	69.2	67.9
Never Married	2.4	4.5
Separated/Divorced/Widowed	28.4	27.6
U.S. Region of Residence		
Northeast	51.5	20.1
South	8.7	35.5
Midwest	13.3	25.9
West	26.5	18.5
Period of U.S. Entry		
1990s	65.1	N/A
1980s	20.6	N/A
1970s	14.3	N/A
Age at U.S. Entry		
Arrival <50 years	38.6	N/A
Arrival ≥ 50 years	61.4	N/A
Sample Size, N	9,783	2,851,439

Note: Percentages unless otherwise noted. Data are weighted except for sample sizes.

Source: 5% PUMS 2000 U.S. Census of Population

Table 2. Characteristics of immigrants born in the former Soviet Union and U.S.-born non-Hispanic whites in the 2000-2007 National Health Interview Surveys, ages 50-84.

Characteristic	FSU-born	US-born whites
Female	53.5	51.7
Age	65.0 (mean)	63.2 (mean)
Highest Education Level		
Less than High School	14.0	14.9
High School/GED	26.7	50.1
College degree+	59.3	34.5
Family Poverty Income Ratio		
At/below poverty line	20.1	6.4
101%-200%	21.2	16.3
201%-500%	36.3	42.6
>500%	22.4	34.7
Marital Status		
Married	69.5	68.7
Separated/Divorced/Widowed/Never Married	30.5	31.3
U.S. Region of Residence		
Northeast	40.5	19.3
South	9.1	35.6
Midwest	27.8	27.4
West	22.5	17.6
Smoking Status		
Never Smoker	72.0	45.6
Former Smoker	18.3	37.7
Current Smoker	9.6	16.6
Alcohol Consumption		
Lifetime Abstainer	38.2	20.8
Former Drinker (no drinks prior year)	11.8	21.5
Current Light (≤ 3 drinks per week)	40.9	38.3
Current Moderate/Heavy (>4 drinks per week)	9.1	19.5
BMI Categories		
Normal (18.5-24.9)	24.7	33.7
Overweight (25.0-29.9)	50.2	39.5
Obese (≥30.0)	25.1	26.8
Sample Size, N	219	57,626

Note: Percentages unless otherwise noted. Data are weighted except for sample sizes.

Source: 2000-2007 National Health Interview Surveys

Table 3. Self-reported disability, self-rated health, and diagnosed medical conditions of immigrants born in the former Soviet Union and U.S.-born non-Hispanic whites by sex, ages 50-84.

	Males			Females		
Characteristic	FSU-born	US-born	diff.[2]	FSU-born	US-born	diff.[2]
Disability						
Functional Limitation (5% PUMS)	23.2 (21.8, 24.5)	17.0 (16.9, 17.1)	***	29.1 (27.9, 30.4)	18.7 (18.7, 18.8)	***
Functional Limitation (NHIS)	19.0 (8.2, 29.8)	13.1 (12.6, 13.6)		31.2 (23.8, 38.6)	19.6 (19.0, 20.1)	**
ADL Limitation (5% PUMS)	10.9 (10.0, 12.0)	3.8 (3.8, 3.9)	***	14.9 (14.0, 15.9)	5.0 (4.9, 5.0)	***
ADL Limitation (NHIS)	7.7 (0.4, 15.1)	2.0 (1.8, 2.2)	**	11.4 (4.7, 18.2)	2.7 (2.5, 2.9)	***
Fair/Poor Self-Rated Health (NHIS)	31.1 (19.8, 42.5)	17.7 (17.1, 18.3)	**	40.5 (31.0, 50.0)	17.9 (17.3, 18.4)	***
Diagnosed Medical Condition (NHIS)[1]	63.4 (52.1, 74.7)	63.6 (63.0, 64.3)		60.0 (49.9, 70.1)	60.2 (59.6, 60.8)	

Note: Percentages (95% CI). Data are weighted.
[1] Report of having been ever diagnosed with at least one of the following conditions: cancer, coronary heart disease, heart attack, hypertension, diabetes, and emphysema.
[2] FSU-born vs. US-born, *** p<.001; ** p<.01; * p<.05

Sources: 5% PUMS 2000 U.S. Census of Population and 2000-2007 National Health Interview Surveys

Table 4. Odds ratios from logistic regression models predicting functional and ADL limitations by sex, ages 50-84.

	Males		Females	
Characteristic	Functional Limitations	ADL Limitations	Functional Limitations	ADL Limitations
Model 1				
FSU-born	1.30*** (1.20, 1.41)	2.71*** (2.43, 3.01)	1.74*** (1.63, 1.86)	3.39*** (3.13, 3.69)
Model 2: Period of U.S. Entry				
1990s	1.34*** (1.21, 1.48)	3.12*** (2.75, 3.53)	1.83*** (1.69, 1.98)	3.63*** (3.29, 4.01)
1980s	1.40*** (1.17, 1.66)	2.19*** (1.73, 2.78)	1.70*** (1.47, 1.96)	3.25*** (2.72, 3.89)
1970s	0.97 (0.76, 1.24)	1.51* (1.04, 2.20)	1.32** (1.09, 1.60))	2.35*** (1.81, 3.05)
Model 3: Age at U.S. Entry				
Arrival <50 years	0.87 (0.74, 1.04)	1.61*** (1.22, 2.12)	1.01 (0.87, 1.17)	1.68*** (1.34, 2.11)
Arrival ≥50 years	1.49*** (1.36, 1.65)	3.11*** (2.76, 3.51)	2.06*** (1.90, 2.23)	3.98*** (3.63, 4.36)

*** p<.001; ** p<.01; * p<.05

Note: Odds ratios (95% CI). Reference group for each model is U.S.-born non-Hispanic whites. Model 2 disaggregates the FSU-born category by period of U.S. entry and Model 3 disaggregates by age at U.S. entry. All models adjust for age, age-squared, education, family income, marital status, and U.S. region of residence. Data are weighted.

Source: 5% PUMS 2000 U.S. Census of Population

Table 5. Odds ratios from logistic regression models predicting functional and ADL limitations for the combined effect of year and age of entry, ages 50-84.

Characteristic	Functional Limitations	ADL Limitations
Year and Age of Entry		
1990s		
Arrival Age<50 years	0.85 (0.70, 1.03)	1.93*** (1.47, 2.54)
Arrival Age≥50 years	1.80*** (1.69, 1.93)	3.73*** (3.43, 4.05)
1980s		
<50 years	1.01 (0.82, 1.23)	1.36 (0.97, 1.91)
≥50 years	1.98*** (1.72, 2.28)	3.55*** (3.00, 4.19)
1970s		
<50 years	1.02 (0.85, 1.23)	1.57** (1.17, 2.11)
≥50 years	1.62** (1.19, 2.22)	2.94*** (2.09, 4.14)

*** p<.001; ** p<.01; * p<.05

Note: Odds ratios (95% CI). Reference group is US-born non-Hispanic whites. All models adjust for sex, age, age-squared, education, family income, marital status, and U.S. region of residence. Data are weighted.

Source: 5% PUMS 2000 U.S. Census of Population

Table 6. Odds ratios from logistic regression models predicting functional and ADL limitations, poor/fair self-rated health, and diagnosed medical conditions, ages 50-84.

Dependent Health Measure	Model 1 (Socio-demographics)	Model 2 (+ Behaviors)	Model 3 (+ Diagnosed Medical Condition)
Functional Limitation	1.62** (1.16, 2.28)	1.68** (1.20, 2.37)	1.72** (1.23, 2.41)
ADL Limitation	3.55*** (2.05, 6.16)	3.66*** (2.18, 6.14)	3.71*** (2.17, 6.36)
Poor/Fair Self-Rated Health	2.87*** (2.06, 4.00)	3.13*** (2.28, 4.32)	3.36*** (2.36, 4.78)
Diagnosed Medical Condition[1]	0.92 (0.68, 1.26)	0.99 (0.72, 1.38)	-

*** p<.001; ** p<.01; *p<.05

Note: Odds ratios (95% CI) for predicted difference between FSU-born U.S. immigrants and US-born non-Hispanic whites (the omitted category).

Model 1: Adjusts for education, income, marital status, and U.S. census region of residence

Model 2: Model 1 + smoking status, alcohol use, and BMI categories

Model 3: Model 2 + diagnosed medical condition

[1] Report of having been ever diagnosed with at least one of the following conditions: cancer, coronary heart disease, heart attack, hypertension, diabetes, and emphysema.

Source: 2000-2007 National Health Interview Surveys

Table 7. Percentage reporting a functional or ADL limitation among U.S. immigrants born in Russia and Russian-born individuals residing in Russia by age and sex, ages 55-84; 2000.

	Males		Females	
Characteristic	Functional Limitations	ADL Limitations	Functional Limitations	ADL Limitations
Ages 55-69				
Russian Population	18.3 (14.0, 22.6)	10.9 (7.4, 14.5)	32.6 (28.6, 36.6)	20.8 (17.3, 24.2)
Russian-born U.S. Immigrants	16.0 (13.2, 18.8)	6.9 (5.0, 8.8)	21.6 (18.9, 24.3)	8.0 (6.3, 9.6)
p-value	p=.37	p=.03	p≈.00	p≈.00
Ages 70-84				
Russian Population	46.0 (36.7, 55.3)	36.1 (27.2, 45.1)	68.5 (63.5, 73.6)	57.8 (52.3, 63.1)
Russian-born U.S. Immigrants	37.8 (32.0, 43.5)	22.3 (17.4, 27.2)	46.5 (42.0, 51.0)	25.1 (21.2, 29.0)
p-value	p=.13	p≈.00	p≈.00	p≈.00

Note: 95% CI in parenthesis. The Russian population is restricted to those born in Russia. The p-values indicate differences between the Russian population and Russian-born U.S. immigrants. Data reflect sampling weights.

Sources: Russia Longitudinal Monitoring Survey Round 9, 2000 (Russian Population) and the 5% PUMS 2000 U.S. Census of Population (Russian-born U.S. Immigrants)

Table 8. Percentage ever smokers, obese, and reporting poor/fair self-rated health among FSU-born U.S. immigrants and Russian-born individuals residing in Russia by sex, ages 55-84; 2000.

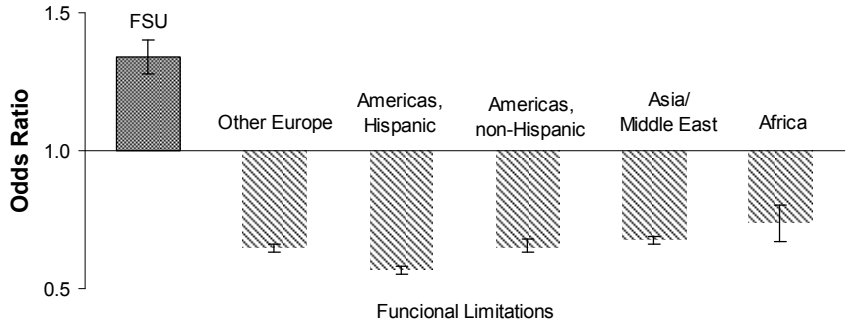
	Ever Smokers, %		**Obese, %**	
Characteristic	Males	Females	Males	Females
Ages 55-84				
Russian Population	79.3 (75.5, 83.1)	3.3 (2.1, 4.4)	13.5 (10.1, 16.8)	44.1 (40.7, 47.4)
FSU-born U.S. Immigrants	44.1 (31.1, 57.1)	12.8 (5.8, 19.9)	20.3 (9.1, 31.5)	33.3 (22.8, 43.8)
p-value	p≈.00	p≈.00	p=.12	p=.03
	Poor/Fair Self Rated Health, %			
Russian Population	34.8 (30.3, 39.3)	43.7 (40.4, 46.9)		
FSU-born U.S. Immigrants	33.9 (21.4, 46.5)	47.2 (35.9, 58.5)		
p-value	p=.88	p=.49		

Note: 95% CI in parenthesis. The Russian population is restricted to those born in Russia. The p-values indicate differences between the Russian population and FSU-born U.S. immigrants.

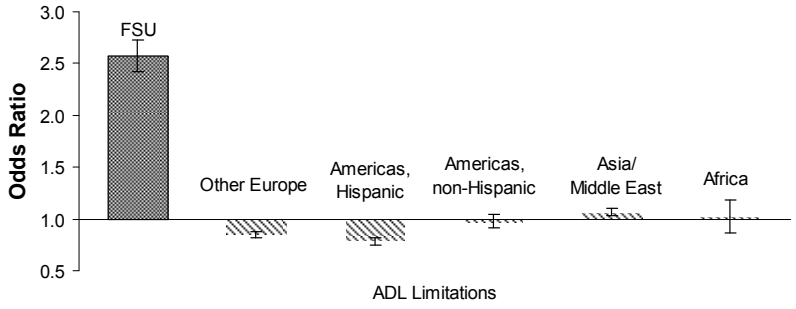
Sources: Russia Longitudinal Monitoring Survey Round 9, 2000 (Russian Population) and the 2000-2007 National Health Interview Survey (FSU-born U.S. Immigrants)

Figure 1. Odds ratio of reporting a functional limitation or activities of daily living limitation among U.S. immigrants born in the former Soviet Union (FSU) and immigrants born in other regions of the world, ages 50-84; 2000.

(a)



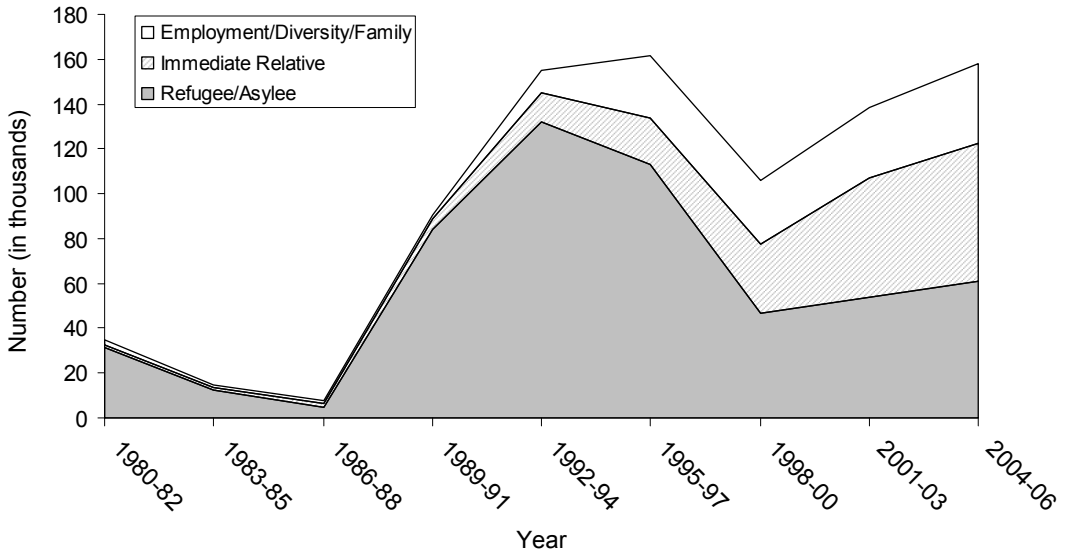
(b)



Note: Results based on a logistic regression model. Reference category is U.S.-born non-Hispanic whites. Both sexes are combined. Results are independent of age, sex, education, income, marital status, and U.S. region of residence. Error bars indicate 95% confidence interval. Sample weights are used.

Source: 5% PUMS 2000 U.S. Census of Population

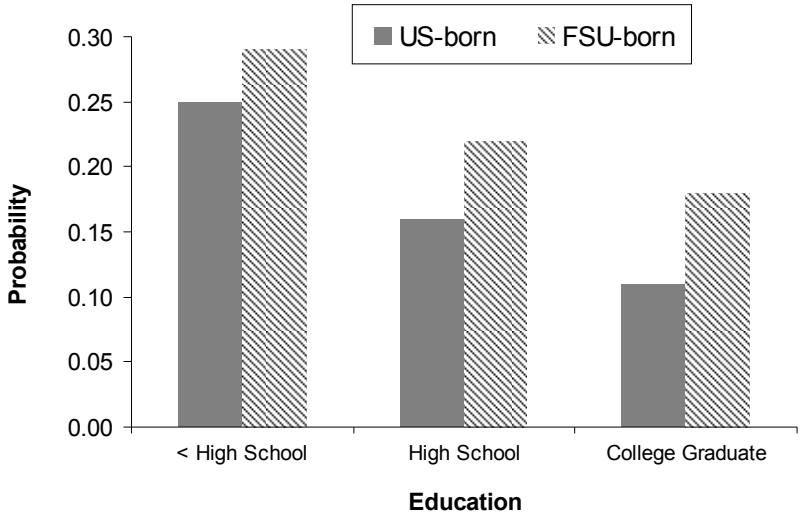
Figure 2. Number of immigrants born in the former Soviet Union awarded permanent residency by major visa entry category and year (in thousands), 1980-2006



Note: Statistics based on year granted permanent residency, which may not reflect actual year of entry to the United States. Refugees initially enter the United States on a refugee visa and, in most cases, adjust their status to permanent residents approximately one year after arrival. The employment, diversity, and family visas are combined because data prior to 1992 does not distinguish the individual visa types. From 1992, family-based visas comprise a small portion of the combined category. Diversity visas were awarded beginning in 1992. Immediate relatives are defined as spouses, minor children, and parents of U.S. citizen.

Source: Author tabulations from a) Yearbook of Immigration Statistics (2002-2006); U.S. Department of Homeland Security, and b) Statistical Yearbook of the Immigration and Naturalization Service (1980-2001); U.S. Department of Justice

Figure 3. Predicted probability in reporting a functional limitation among immigrants born in the former Soviet Union and US-born non-Hispanic whites (both sexes combined), ages 50-84.



Note: Based on logistic model adjusted for age, age-squared, sex, family income, marital status, and region of residence. Each adjustment factor is held at the overall mean.

Source: 5% PUMS 2000 U.S. Census of Population