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Abstract

A rise in population caused by increased immigration, is sometimes accompanied by concerns that the increase in population puts additional or differential pressure on welfare services which might affect the net fiscal contribution of immigrants. The UK and Germany have experienced significant increases in immigration in recent years and this study uses longitudinal data from both countries to examine whether immigrants differ in their use of health services than native born individuals on arrival and over time. While immigrants to Germany, but not the UK, are more likely to self-report poor health than the native-born population, the samples of immigrants use hospital and GP services at broadly the same rate as the native born populations in both countries. Controls for observed and unobserved differences between immigrants and native-born sample populations make little difference to these broad findings.

Key words: Immigration, Health, Health Service

JEL Classification No. H00, J00

Introduction

The UK and Germany have experienced significant increases in their populations recently, driven, in the main, by increased immigration. These trends have sometimes been accompanied by concerns, often promulgated in certain sections of the media, that increased immigration has put additional or differential pressure on health and other welfare services.[1] While the debate over the net fiscal contribution of immigrants, (see for example Dustmann, Frattini and Hals (2010) for a recent study) is ongoing, most existing studies of welfare and public service use by immigrants do not include use of one of the largest public services available to residents of the UK and Germany, namely the state-provided national health systems that operate in both countries. Indeed economists have studied the links between immigration and health much less extensively than other areas such as the effects of immigration in the labour market. Yet if the net gain from immigration is to be evaluated, knowledge about the relative use of public services, including health services, by immigrants is an important factor in that calculation.

Faced with a rising population, it may be that tax revenues would simply increase in line with the change in population, allowing continued provision of a given level of state-funded health resources. However if health budgets are sticky, or the composition of the population and hence demand for health services changes as a result of immigration, then there may be crowding externalities resulting from any increase in population competing for a quasi-fixed resource. In an effort to shed some light on these issues and to help add to the debate on the potential costs and benefits of immigration, this study uses longitudinal data from Germany and the UK to try to examine whether immigrants differ in their intensive or extensive use of health services than native born individuals, as captured by both the incidence of and number of visits to general practitioners and hospitals.

[1] See for example "Now Poles get Free Abortions on the NHS", Daily Express, 16/3/2010 http://www.express.co.uk/posts/view/163198/Now-Poles-get-free-abortions-on-NHS
"UK expats fall victim to health tourism", Daily Mail, http://www.dailymail.co.uk/health/article-204961/UK-expats-fall-victim-health-tourism.html

The existing economic literature on immigration and health has tended to overlook the question of whether immigrants make relatively more or less use of health services than the native-born population, typically focusing instead on self-reported health, the variable most commonly available in many survey data sets. There is a general consensus that immigrants will be positively selected in terms of self-reported health. Healthier immigrants will have more to gain from migration, may be the recipients of higher incomes or may be less likely to return to the origin country, (see for example Jasso, Massey, Rosenzweig & Smith (2004), Chiswick, Lee and Miller (2006)). New arrivals to a country are also typically found to be healthier than the native-born population, on average, but the health of any migrants who remain tends to asymptote toward that of the native population over time, (see for example Antecol and Bedard (2006) for the United States, McDonald & Kennedy (2004) for Canada, Sander (2007) for Germany). Cohort effects or selective return migration are often advanced as reasons for these observations. Indeed Borjas (1999) argues that relative generosity of welfare provision in source and donor countries may help explain part of any selective return. These findings contrast with another stylised finding that the wages of immigrants are typically lower on arrival and then converge to that of native-born workers over time, (see for example Schmitt and Wadsworth (2007)). It is unlikely then that rising average incomes underlie the existence of a negative health gradient among immigrants.

In some ways however, the issues of selectivity and the existence or otherwise of years in the country health gradients do not directly address the question of whether immigrants, who remain in the host country, put differential pressure on health services in the host country than the native-born population, though they may of course help to explain why any result may arise. Similarly the possibility of discrimination in health care provision and unobserved heterogeneity in willingness to use health services across individuals, or a differential incidence of characteristics both observed and unobserved, known to be correlated with health, could all underlie any observed differences in outcomes between immigrants and the native-born.[2] Access to longitudinal data can

[2] See Chandra & Staiger (2010) for a discussion of discrimination among health care providers.

of course be used to try to identify whether changes in usage of welfare services over time can be attributed to cohort effects or changes in the welfare participation of specific cohorts over time, Ultimately, the cost-benefit analysis of migration depends on whether, not how, immigrants make differential use of health services. In what follows we present both unconditional and conditional estimates of the relative use immigrants make of the health services in Britain and in Germany. The former should help address the general macroeconomic question of the net cost of immigration on health services. The latter can help the understanding of the main drivers of the macroeconomic results.

There is already a parallel literature on immigrant use of welfare, rather than health, services which has focused mostly on benefits available to the non-employed. Barrett and McCarthy (2008) summarise much of the existing literature focusing on whether immigrant inflows are influenced by the nature of the welfare systems on offer in recipient countries and whether, partly as a consequence, immigrants use welfare services more intensively. Borjas and Trejo (1991) look at immigrant household receipt of public assistance in the United States. Using Census data over time, their findings suggest that rising relative participation by immigrants in welfare services observed in the 1970s, may have been driven by a change in the composition of migrant cohorts, the result of changes in the national origin mix. Moreover each cohort's take-up of welfare services rose with time spent in the country. Hansen and Lofstrom (2003) look at immigrants' use of welfare services in Sweden and conclude that immigrants make more use of these services net of controls that might otherwise explain welfare take up. In contrast, Dustmann, Frattini and Halls (2010) show that there has been a net benefit to the UK, including relatively fewer welfare claims, from migrants from the accession countries of the European Union. These A8 migrants were much younger, more likely to be in work and consequently much less likely to be in receipt of welfare payments, even allowing for stricter welfare eligibility criteria faced by many non-EU migrants.

If the existing literature on immigrant use of welfare services is somewhat ambiguous and varied across countries, there is, as yet, little direct evidence on immigrant's use of health services

to contribute to this debate.[3] Borjas and Hilton (1996) utilise US survey data from the 1980s and early 1990s to demonstrate that immigrants were more likely to be in receipt of (means tested) Medicaid and increasingly so among more recent immigrant cohorts to the US. By implication then, a rise in immigration would add to pressure on health resources. Laroche (2000) looks at health service utilisation in Canada, where, conditional on a medical, immigrants are prevented from entering the country if they are deemed to be a danger to public health or likely to generate excessive demand on Canada's health services. Using data from 1985 & 1991 she finds no significant difference between immigrants & native-born in the number of visits to general practitioners (GPs), nurses, specialist or time spent in hospitals. Gronqvist, Johansen and Niknami (2012) exploit the exogenous variation in residential placement policies for asylum seekers in Sweden to look at the causal effects of ethnic segregation on health. They find that the observed positive association between ethnic concentration and poor health outcomes, including admissions to hospitals and becomes insignificant once selection into an area is netted out.

In what follows we add to this rather sparse literature by first outlining the pattern of self-reported health and then focus on health service use by immigrants using longitudinal data from the UK and Germany, conditional on a set of covariates, both observed and unobserved, including self-reported health status. The next section outlines the institutional framework regarding eligibility for health services to which immigrants to the UK and Germany are subject. Section 3 discusses the data sets used to study the issue and section 4 goes through the results. The findings indicate that immigrants seem not to differ much in their use of various aspects of the health service in either country, with or without conditioning on self-reported health. Section 5 offers some conclusions along the lines that rising immigration may not have placed undue pressure on the health services of these countries over the sample period.

[3] We focus on the demand side for health services, but it is also important to look at the supply side, since immigrants may be net financers of health services if they pay proportionately more in taxes. Equally immigrants may provide the otherwise scarce labour to staff health services. Indeed the data show that around 14% (12%) of all health service staff in Britain (Germany) are immigrants. We leave these interesting issues to further work.

2. Immigrant Eligibility for Health Services

Some of the academic literature outlined above argues that immigrants may be attracted to the host country by more generous provision of welfare or health services than in the source country. Moreover, media focus has sometimes suggested that availability of health services can generate a form of health tourism and so raise subsequent demands on the health services and budgets of the recipient countries over and above any demands caused by increases in population. In truth, access to the health system of both the UK and Germany from non-residents is somewhat restricted.

In the UK, the NHS is provided primarily free at the point of use for the benefit of those *lawfully resident* in the UK.[4] There is no provision in UK Immigration Rules for anyone to come to the UK for the purpose of obtaining free NHS treatment. Non-residents are expected to pay for any medical treatment they receive while in the UK, (Department of Health 2010). However, there are exemptions from charges, including people working for a UK based employer, students on courses lasting more than six months, victims of human trafficking and asylum seekers awaiting a final decision, and those in detention. So while all legal migrants are covered by the NHS system, visitors from the European Economic Area and from other countries with which the UK has reciprocal or bilateral health agreements, may also receive free treatment. Treatment of anyone with an infectious disease (influenza, TB, sexually transmitted diseases, but not, as yet, HIV) is free to all. Moreover, access to emergency treatment (A&E depts.), maternity treatment and HIV related is open to all (though charges may be levied at a later date). There are fewer restrictions on access to GPs, who themselves take responsibility for determining whether any individual should become a patient of their practice. There is no formal requirement to prove identity or immigration status.

There have been few changes in these rules over the sample period. What did change in Britain over the sample period was a significant increase in health service funding and management structures, begin in 2001, which, among other things, appear to be associated with a notable fall in

[4] Many drug prescription, ophthalmic and dental care do require a degree of co-payments by patients. Individuals may opt for private health care either through a private insurance scheme or on a one-off basis. Boyle (2011) suggests that around 12% of the health care budget is accounted for by the private sector.

operation waiting times, if not the large inequalities in health outcomes across socioeconomic class that are a longstanding issue in Britain (Boyle (2011).

The German Health Service is a mandatory pay as you earn health insurance system (subject to an earnings threshold) for anyone in work, (Green and Irvine, 2001). Dependents are automatically covered by the scheme. Physicians (GPs) and hospitals are then reimbursed for any services from these sickness funds. In an attempt to restrain the costs of the system, successive governments enacted a series of cost cutting measures. In 2004 co-payments were levied on individuals for each GP visit, drug prescriptions and days spent in hospital, subject to a maximum of 2% of household income, (Busse and Stock 2009). Those above a given earnings threshold can opt out to buy private health insurance, as do the self-employed and civil servants. The cost of treatment for any non-employed individual is reimbursed by the German Welfare Benefit Agencies. Immigrants require identity (registration) documents to become eligible for health insurance schemes, so any legally registered migrant is eligible for treatment. Asylum seekers are entitled to emergency treatment. Neither country has a policy of health screening that helps determine entry eligibility, unlike in, say, Canada or the USA.

3. Data and Modeling Strategy

To undertake the analysis, we use individual-level panel data from the two countries. The BHPS is a national panel survey of Great Britain which started in 1991 with an original sample of 5,500 households and 10,300 individuals. Additional samples of 1,500 households in each of Wales and Scotland were added in 1999 and 2,000 households in Northern Ireland were added in 2001. The sample includes every member of the selected households regardless of age, but sample members are only asked for a full individual interview from age 16 upwards with a self-completion youth interview for children aged 11 to 15. As children reach the age of 16 they become eligible for a full individual interview. Interviews are carried out annually with all eligible members of the household.

Sample members who move are followed to their new address and the members of their new household become eligible for an interview.

Since the BHPS follows individuals in households that were in existence in 1991 and does not sample new households apart from those that break away from the original households in the sample, then many recent immigrants to the UK are not picked up in the BHPS sample frame, unless they become attached to one of the original households in the sample or its offshoots. This means that the sample of immigrants in the BHPS is older, by around 4 years, rather than younger, by around 5 years, as is typical in a UK cross-section sample. Over 90% of the immigrants in the BHPS sample had arrived in the UK before 1992, compared to an estimated 50% in the 2008 (cross section) Labour Force Survey.[5]

For Germany, we have access to the German Socio-Economic Panel (GSOEP), conducted every year since 1984 with an original sample of 6000 households and 12,200 individuals. Like the BHPS, the GSOEP surveys not only the original sample from the first wave, but also households and persons that entered the survey at later points in time, for example, when individuals move out and form their own households, when people move into SOEP households, and when an original sample member gives birth to a "new sample member. Unlike the BHPS however, the GSOEP does periodically refresh the survey with new households in addition to the above, (now about 20,000 individuals). This means that the population of immigrants in the GSOEP is closer to the cross-section population at any point in time beyond the base year than the BHPS. As with the BHPS, the German sample is anyone aged 16 and older in any survey year.

The definition of an immigrant is similar in both data sets. Anyone born outside the host country is classified as an immigrant. The combined cross-section time series sample yields around 200,000 observations for the UK, of which around 11,000 are for immigrants. For Germany the comparable samples are around 250,000, of which around 37,000 observations are for immigrants. Both data sets contain a measure of self-reported health based on a 5-point scale ranging from excellent (very

[5] For the UK, the repeated cross-sections of the General Household Survey also offer information on both immigrant status and use of GPs and hospitals in certain years.

good) to poor (bad). over. Both data sets also contain information on the number of visits to the GP and on the number of days in hospital in the reporting period - either over the last year for Britain or the last three months for doctors and the last year for hospitals in Germany. For the BHPS this intensive information on GP visits is categorical. To make comparison of the regression estimates easier, the German GP visit data are recoded to fit the UK data categories.[6]

To provide some answers to the issues of relative use of health services in the host country, we utilise the longitudinal nature of the data in both countries to estimate the immigrant effect on the set of health service user outcomes discussed above in the context of the following simple model

$$Y_{it} = \beta^{*}Immigrant_i + \Sigma_I \delta_i X_{it} + \Sigma_t \gamma_t t + a_i + u_{it} \qquad (1)$$

where Y_{it} is the health service outcome for individual i observed at time t, *Immigrant* is a dummy variable capturing, self-reported immigrant status based on country of birth, X_{it} is a set of individual and time varying controls, $\Sigma_t t$ is a set of year dummies and a_i is an unobserved individual effect. Whether this is truly the causal impact of immigrants on these health service outcomes depends, of course, on to what extent the model deals with any endogeneity bias caused by omitted variables, simultaneity, or selective in- or out-migration.

Differences in observed characteristics could of course underlie any differences in health service usage between immigrant and native-born populations if, as seems to be the case in Britain, certain characteristics are associated with greater take-up or greater susceptibility to illness. The set of controls, common to the data sets from both countries, includes dummy variables for qualifications, gender, a quadratic in age and the quadratic in age interacted with dummy variables for 4 education group, along with region and year dummies. Also if use of health service by immigrants changes with time spent in the country, then any fiscal costs to service providers may also change along with the level of immigration. Any rise in immigration, as observed over the sample period in both

[6] The BHPS categories are 1-2 visits, 3-5, 6-10 and 10+visits.

countries, means that the stock of immigrants may be disproportionately comprised of newer migrants whose use of the service may be different from that of longer term migrants.[7] The regional dummies may pick up area-level differences in health service provision that may otherwise be correlated with immigrant residential concentrations. Panel data can of course help identify any assimilation effects. Both data sets contain information on the year of arrival of all immigrants and so we are able to build measures of length of stay in order to pursue this issue in the next section

Moreover, immigrants who arrive in a particular year or period may be influenced by forces and institutions unique to that period and this could conceivably influence future health trajectories. The data also allow the disaggregation of the immigrant stock into year of arrival cohorts, which are grouped into decade of arrival in the analysis below. Here again, return migration and any associated health selectivity could compromise attempts at identifying these cohort effects. In addition it may be that the health trajectories of native-born individuals used, by construction, as the comparator group, are not representative of the health profiles immigrants would have experienced had they decided to stay in the source country.

Both data sets are unbalanced panels. Individuals may refuse to participate in the interview for a variety of reasons or they may drop out of the sample because they move abroad. If the underlying processes determining health outcomes are correlated with those shaping the decision to participate in the sample or to move abroad then OLS estimates are inconsistent. If this systematic link between the two processes is constant over time, as are any or other unobservables that may affect the causal interpretation of the estimated immigration coefficients then fixed effects estimation eliminates the bias. If not, even fixed effects estimation yields unreliable parameter estimates. However fixed effects estimation is not an option when the variable of interest, immigration status, is fixed over time. All attempts therefore to control for the effects of unobserved heterogeneity in

[7] Equally the stock may rise because more migrants stay in the host country in which case longer-term migrants dominate the stock.

the panel estimates that follow use a random effects estimator.[8] Standard errors are clustered at the level of the individual.

Table A1 in the appendix provides some summary statistics on the key variables used in the analysis. These and other confounding factors may be correlated with health outcomes. In both countries the sample average age of immigrants and native-born is similar, at around 44. The UK sample of immigrants has, on average, been in the country around 10 years longer than the German immigrant sample. The UK sample of immigrants is typically better educated than the UK average native-born population and increasingly so over time. The German sample of immigrants is somewhat less educated than the average in the native-born population, but this gap appears to be narrowing over time, as later entry cohorts are increasingly better educated. Immigrants are concentrated in certain regions in both countries, with many migrants disproportionately resident in London and the South-east in the UK and in Baden-Württemberg in Germany, presumably reflecting the relative employment opportunities available in these regions. Table A2 also shows that there is considerable heterogeneity in immigrant composition by area of origin a) across countries (Germany immigrants are primarily European, while the UK immigrant stock is more heterogeneous) and b) over time (both countries have experienced an increased share of immigrants from outside Europe). Heterogeneity amongst migrants also means that there may well be considerable differences in health outcomes among this population.[9]

4. Results

Summary Findings

The top panel of Table 1 outlines the pattern of self-reported health by immigrant status. Since health is strongly related to age, the data in these tables are also stratified by age. Using self-reported general health status in Table 1, the foreign-born population in both the UK and German

[8] Fertig and Schurer (2007) use change of interviewer as an instrument for attrition in their analysis of immigrant effects on wages using the GSOEP. However, unlike with wages, change of interviewer is positively correlated with health status and hospital admissions in both the GSOEP and the BHPS, reducing its usefulness as a potential instrument.

[9] This may not hold since Kasl and Berkman (1983) find little difference in health outcomes among a diverse sample of immigrants to Israel. Equally any positive health selection among immigrants may work to reduce health heterogeneity.

samples appear to be in rather similar health to the native-born. The distribution of responses across the five categories is very similar within countries by migrant status, though many more UK survey respondents - both migrants and native-born - consider themselves to be in "excellent health" than in Germany. Conditional on age, the fraction of foreign-born reporting themselves in either excellent or very good health is also much the same, allowing for sampling error, to that of the native-born, as is the fraction reporting themselves as in poor or very poor health. [10]

The finding of differential cross-country responses to ostensibly similar questions is consistent with the existing evidence suggesting that residents of different countries use different response thresholds when placing themselves within scales that involve ranking along very general well-being general criteria including self-reported health (see for example Lindeboom and van Doorslaer (2004) or Banks, Kapteyn, Smith, and Van Soest (2005)). The fact that these country-specific effects appear to hold for both natives and migrants is worth noting. This means that while relative differences in self-reported health between migrants and native-born across countries are less likely to be compromised, cross-country comparisons of absolute differences may be more so.

Measures of utilisation of health services are presumably less susceptible to the problem of international differences in response thresholds. The bottom panels of Table 1 record the self-reported yearly number of visits made by individuals to either a doctor or to a hospital. Again there are no large differences in the unconditional estimates of visits to GP or hospitals between immigrants and native-born in either country.[11] Health conditions may be under-reported in foreign-born populations if there is less frequent contact with medical services influenced, in part, by cultural and language difficulties. However the evidence from the lower panel of Table 1 suggests that less frequent contact with medical services is not observed in these data. It is apparent however

[10] In the British sample, 49% of variation in self-reported good health in the sample is accounted for by within-individual variation over time, (49% for GB-born, 47% for immigrants).

[11] The British data also record whether the hospital visits was to a state or private institution. More than 90% of hospital visits are to state hospitals. Again there is no significant difference in the unconditional means between the native-born and immigrant samples.

that the overall incidence of visits to the GP is lower in Germany than in Britain, while the number of days spent in hospital is, on average, twice as long in Germany, at around 8 days.[12]

Since panel data consist of a combination of time, age and birth cohort influences, Figures 1 to 3 graph hospital and GP usage according to these different aspects for both countries. Figure 1 shows little trend in either GP or hospital visits in the UK over time, whereas in Germany both the average numbers of visits to GPs and days spent in hospital appear to have fallen over the sample period. This is consistent with the idea that the cost-saving measures placed on the German health service over this period, outlined in section 2, may have influenced behaviour. British adults in the sample visit the doctor a little over 3 times a year. Visits to the doctor among German adults in the sample have fallen from around 3 to 2.5 every three months, still some three times as frequent as in the UK. The mean number of hospital visits is around 1 day in both Germany and in Britain. However these numbers include the 90% or so of the population in both countries who do not spend any days in hospital in any given year. The trends conditional on a non-zero number of hospital visits are similar to the unconditional patterns for both countries, albeit around different levels. The conditional median number of days of the year spent in hospital in Germany falls from 10 to 7 over the sample period and remains at around 4 days over the sample period for Britain. Notably, as with the findings for self-reported health, these country-specific patterns appear to be replicated for native-born and immigrants in both countries.

When the panels are disaggregated by age, Table 1 and Figure 2,then both GP and hospital visits rise with age, notably after age fifty in both Britain and in Germany.[13] Again there are no large differences in these unconditional patterns between native-born and immigrants in either country, though older immigrants in Britain and middle–aged immigrants in Germany appear to visits doctors a little more than the native born of similar ages.

[12] Unlike in Britain, individuals do not need to see a GP before being referred to a specialist and this may help explain the lower incidence of GP visits in Germany.

[13] The UK, but not the German, data contain disease prevalence rates. UK immigrants tend to have lower rates of chronic conditions than the native-born, conditional on age, though the differences are not large. On this basis it is hard to argue that immigrants, who remain in the sample, experience more rapid general health deterioration than is typical of the native-born population. Jasso et al (2004) report a similar finding for the US. There are no significant entry cohort effects across immigrants in the UK sample for these conditions. Results available on request.

These sample populations outlined in Tables 1 are also combinations of different immigrant year of arrival cohorts from different origin country mixes who may differ in their underlying health on entry and over time and be subject to different institutional legislation in the host countries on arrival. Patterns from pooled cross-sectional age groupings may not reveal actual life-cycle health service usage for anyone. Figure 3 therefore disaggregates the sample of immigrants into decade of arrival cohorts and follows the mean number of doctor visits at different ages for each of six immigrant cohorts. While there are no obvious differences across different year of arrival cohorts in the British sample, there is a clear fall in the number of visits to the doctor among later immigrant arrival cohorts in Germany.[14] Relative to the native-born populations, British immigrants across all entry cohorts seem to visit the GP a little more, (1/2 of a visit a year), but there is little difference for immigrants to Germany.

Immigrant Effects on Hospital Services

To investigate whether these patterns observed in Figures 1 to 3 hold controlling for observed and unobserved characteristics, this section summarises the results from a set of random effects estimates of the immigrant status effect on six health service user outcomes. The first column of Table 3 gives the unconditional differences between immigrants and native-born, the second column gives the conditional OLS estimates, the third column controls additionally for unobserveables and the fourth column adds poor health as an additional control.

The unconditional estimates in column 1 of Panels A to C show that there is little evidence of differential usage, extensive or intensive, of hospitals across immigrants and native-born in either country. Both use of hospitals and the number of hospital nights are uncorrelated with the immigrant status variable. The inclusion of observed socioeconomic covariates makes little difference to this finding in column 2. In general, the results in column 3 show that the

[14] Similar cohort effects are also observed in Germany for the number of days in hospital. Interestingly there appear to be no obvious cohort differences in self-reported health over the life-cycle in either Britain or Germany. Results are available on request.

unobserveables tend to reduce the coefficient estimates on immigration in the British sample and raise the estimates in the German sample.

Attrition is a potential problem in both panels since the data used are unbalanced. Individuals may refuse to participate in the interview for a variety of reasons and it is of course possible that any results showing effects for immigrants are driven by selective out-migration of immigrants that is not picked up in the estimation process. While return-migration cannot be addressed directly here, it will be positively correlated with attrition in the sample. The results in Table A3 in the appendix suggest that immigrants are indeed more likely to drop out of the sample over time in both countries, as indeed are those in poor health. The interaction of the poor health and immigrant dummy variables in both samples is insignificant, so that there is no additional attrition among immigrants in poor health. Nevertheless the coefficients on immigrant and poor health dummies taken together are at least suggestive that return migrants may be more likely to be in poor health. If so, then the remaining migrants in the sample may be in relatively better health. However the data are not comprehensive enough to go further, so a definitive view on this important issue must be left to future work. Nevertheless it is important to interpret the estimated immigrant coefficients in what follows as representative of the behaviour of immigrants who remain in each country at any point in time.

Influence of Self-Reported Health

To get a sense of how poor health might influence the estimated immigrant effects, column 4 in Table 3 adds the self-reported poor health variable to the set of covariates in an attempt to condition out any health differences that may be correlated with immigrant status[15]. Table A4 in the appendix reports the set of results from estimation of a model similar to equation (1) where self-reported poor health is the dependent variable. There are estimation results for immigrants as a whole (panel A), disaggregated by age on arrival, (panel B) and by year of entry cohorts, (panel C). For Britain, there is no significant difference in self-reported poor health net of controls for

[15] Though, as already outlined, self-reported health may be endogenous in models with health service use as dependent variable.

observeables and unobserveables. In Germany, immigrants are significantly more likely, by around 3 percentage points, to report being in poor health, with or without controls for observed characteristics like age or education. Immigrants who arrived as children may have closer health use profiles to those of the native-born populations than immigrants who arrived as adults. Panel B suggests, however, that there is little difference in self-reported health among immigrants to the UK who arrived either as adults or as children. In contrast, immigrants who arrived as adults in the German sample appear to underlie the observed positive immigrant association with poor health observed in panel A. Immigrants who arrived in Germany as children are indeed little different to the native-born population in their incidence of self-reported poor health. Panel C shows that there are no large entry cohort effect estimates observed for Britain, net of controls. There are significant, but not systematic, entry cohort effects in Germany.

Given these small differences in self-reported health status between native-born and migrants it is perhaps not surprising then that the inclusion of this variable among the set of covariates has very little effect on the estimated immigration effects in column 4. If anything, the health variable tends to reduce the coefficient estimates on immigration in both the British and the German samples. The results on the intensive use of hospitals, number of days, also show no significant immigrant effects. [16]

Effect on GP services

Panels D to F in Table 3 repeat the exercise now using visit to the GP as the dependent variable. In contrast to the results for hospitals, there are now small, but statistically significant, differences between immigrants and native-born with regard to use of GPs. For Britain, there is a small *positive* immigrant effect on doctor visits of around 2.6 percentage points with or without controls. For Germany, there is a small *negative* effect of a similar magnitude. So immigrants to German are less likely to use the GP service than the native-born. These broad findings for immigrants - small positive effects in Britain, small negative effects in Germany - also apply to the

[16] The addition of household income to the set of controls also does little to the basic findings. Results available on request.

number of visits to the doctors, (panels E & F). The average number of immigrant visits to the GP in Britain is around 0.3 of a visit greater than those of native-born over a year. The average number of immigrant visits to the GP in Germany is around 0.1 of a visit less than those of native-born over 3 months. [17]

The results for immigrants in Table 3 may average out different experiences of immigrants according to age or year of arrival. For example older immigrants may have additional health needs relative to their native-born older peers if negatively selected. Conversely younger migrants may place relatively fewer demands on health services, if positively selected. Tables 4 and 5 therefore look at whether the extensive and the intensive health service user outcomes for immigrants are influenced by age, (Panels A & B), whether the immigrants arrived as an adult or as a child, defined here as under the age of 16, (panel C) and by decade of entry cohorts, (panel D). We report the unconditional OLS estimates and the conditional random effects estimates without the self-reported health control.[18]

The results for both the extensive and intensive margins suggest that the insignificant immigrant effects on hospital use seen in Table 3 are broadly replicated across all these age related dimensions. The unconditional decade of entry effects show, not surprisingly, that immigrants who arrived in the fifties and sixties make relatively more use of hospital services than the native-born, but these effects disappear when age and education controls are added to the list of covariates. In short, it seems that immigrants appear to use hospital services at the same rates as native-born populations of both countries.

The results for extensive and intensive use of GP services suggest that, for Britain, the small but statistically significant, positive immigrant effect on greater extensive use of GPs holds across different age groups (panels A&B), but the effect is significant only for migrants who arrived as an

[17] One indirect way to assess the representativeness of the British data used in this study is to estimate similar regressions using years in the GHS where questions on extensive use of health services and immigrant status also appear. These cross-section estimates on immigrant status, available on request, are very close to the estimates reported in Table 3.

[18] Other specifications, available on request, do not differ much from the reported findings.

adult rather than those who arrived as children, (panel C), and/or for those who arrived in the 1960s or 1970s.[19] In Germany, there do not appear to be any significant differences between adult and child migrants. Both groups are less likely to use GP services than the native-born population. The decade of entry effects in Germany also suggest there may be small positive effects among those who arrived in the 1960s or 1970s. Once again none of these significant estimates, positive or negative, are large and so it is hard to conclude that immigrants make large differential demands on the GP services of either country.

Assimilation Effects

It is common in the wage, employment or self-reported health literatures to look for suggestions of convergence in behavior or outcomes for immigrants relative to the native-born with time spent in the host country. It is conceivable that, among other things, new arrivals need time to form knowledge capital that would enable them to access health services at the same rate as the native-born population. Indeed the results for Britain for child immigrants hint that there may be elements of assimilation that explain behavioural outcomes. Of course whether anyone can truly identify assimilation effects in addition to time age and cohort effects in panel data is debatable (see Pischke (1992)).

Table 6 splits the immigrant samples into years in the host country and looks at assimilation estimates for the extensive use of GP and hospital services. There is little evidence of any large assimilation profiles for use of hospitals in both countries, conditional or unconditional. There are significant year of entry cohort effects in both countries for use of GP services, but they are not systematic in the case of Britain. The point estimates on the years in country effects are not significantly different from each other, (columns 1 and 2 in Table 6). For Germany there is more evidence of the GP use profile rising with time spent in the country. However, most migrants are significantly less likely to use GPs than native-born Germans. Only migrants in the country for

[19] The average age of immigrants who arrived as children in the regression sample is 40 (31 in Germany). The average age of immigrants who arrived as adults in the regression sample is 51 (50 in Germany).

more than 30 years are significantly more likely to use GPs than the native-born population, by around 2 percentage points net of controls, (column 6 in Table 6). [20]

5. Conclusions

Rising immigration is often accompanied by concerns over the net benefit of immigration. The determination of such a calculation is a complex task, involving the compilation of evidence from many different sectors of the economy. In this paper we offer some evidence form one aspect of one important sector in this debate, health, from two countries that have experienced large rises in immigration over the last two decades. The evidence assembled and discussed above suggest that, over the sample period, there are no large differences in health service use between immigrants, on average, and the native-born populations of the British and German samples. Controls for observed and unobserved differences between immigrants and native-born sample populations make little difference to these broad findings. While immigrants to Germany, unlike immigrants to the UK, do appear to report a greater tendency to be in poor health than the native-born population, this is not appear to lead to a greater propensity to use the health services on offer. Moreover, unlike for self-reported health, there is less evidence of any systematic assimilation profiles in use of health services in both countries. For Britain immigrants are no more likely to be in poor health but may make a little more use of GP health services but not hospitals.

These GP effects are confined to the sub-set of immigrants who arrived as adults and there may be some, though not systematic, differences in usage across different year of entry cohorts. Immigrants to Germany may be more likely to self-report poor health but there is no evidence of greater manifestation of health service use. Indeed if anything immigrants to Germany are less

[20] Table A5 in the appendix outlines the unconditional correlations between years in the host country and self-reported health. Typically the literature finds that immigrants are "healthier" on arrival and this gap disappears over time. The evidence in Table A5 is consistent with this for both Britain and Germany. After around 10 years in the host country, the health outcomes look similar to those averaged across the entire native-born samples. The addition of controls however, attenuates these assimilation profiles further still, particularly in the British sample.

likely to use GP services, despite, on average, worse self-reported health. However these differences are not large.

Taken together the evidence presented above suggests that studies of the relative net cost of immigrants to health service usage may be broadly in line with that of the rest of the population. As such the contribution of health service demands to the debate over the net fiscal benefit of immigration looks, on this evidence, to be rather neutral.

References

Antecol H. and Bedard K., (2006), "Unhealthy Assimilation. Why do Immigrants Converge to American Health Status Levels?", *Demography*, Vol. 43, No. 2, pp. 337-360.

Borjas, G., (1999), "'Immigration and Welfare Magnets', *Journal of Labour Economics*, Vol. 17 17, No. 4, Part 1, pp. 607–37.

Barrett, A. and McCarthy, Y., (2008), "Immigrants and Welfare Programmes: Exploring the Interactions Between Immigrant Characteristics, Immigrant Welfare Dependence and Welfare Policy", *Oxford Review of Economic Policy*, Volume 24, Number 3, pp.542–559.

Banks, J., Kapteyn, A., Smith, J., and Van Soest, A., (2005), "Work Disability is a Pain in the *****, Especially in England, The Netherlands, and the United States", NBER Working Paper No. 11558.

Boyle, S., (2001), "United Kingdom (England): Health system review", *Health Systems in Transition*, Vol. 13, No. 1, pp. 1–486

Busse R. and Stock, S., (2010), "The German Health Care System" in *International Profiles of Health Care Systems*, Commonwealth Fund Paper No. 1417, June.
Chandra, A. and Staiger, D., (2010), "Identifying Provider Prejudice in Healthcare", NBER Working Paper, No. 16382

Chiswick B. Lee and Miller (2006), "Immigrant Selection Systems and Immigrant Health", *Contemporary Economic Policy*, Vol. 26, Issue 4, pp. 555-578.

Department of Health (2010), "Review of Access to the NHS by Foreign Nationals", http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_113243.pdf

Dustmann C. Frattini T. and Halls, C., (2010), "Assessing the fiscal costs and benefits of A8 migration to the UK", *Fiscal Studies*, Vol. 31, No. 1, pp. 1-41.

Fertig, M. and Schurer, S., (2007), "Labour Market Outcomes of Immigrants in Germany: The Importance of Heterogeneity and Attrition Bias", IZA Discussion Paper No. 2915.

Grönqvist, H., Johansson, P., and Niknami, S., (2012), "Income Inequality And Health: Lessons From A Refugee Residential Assignment Program", Swedish Institute for Social Research (SOFI) Working Paper No. 4/2012.

Green D. and Irvine, B., (2001), "Health Care in France and Germany. Lessons for the UK", Civitas, London. http://www.civitas.org.uk/pdf/cs17.pdf

Jasso, Massey, Rosenzweig and Smith (2004), "Immigrant health: Selectivity and Acculturation" in in N. B. Anderson, R. A. Bulatao, and B. Cohen (eds.), *Critical Perspectives on Racial and Ethnic Differences in Health in Late Life*. Washington, DC: National Academy Press.

Hansen, J. and Lofstrom, M. (2003), "Immigrant Assimilation and Welfare Participation: Do Immigrants Assimilate Into or Out of Welfare?", *Journal of Human Resources*, Vol. 38, pp.74–98.

Kasl, Stanislav V. and Lisa Berkman, (1983), "Health Consequences of The Experiences of Migration," *Annual Review of Public Health*, Vol. 4, pp. 69-90.

Laroche, M. (2000), "Health status and health services utilization of Canada's immigrant and non-immigrant populations", *Canadian Public Policy*, Vol. 26, No. 2, pp. 51–75.

Lindeboom, Maarten & van Doorslaer, Eddy, 2004. "Cut-Point Shift and Index Shift in Self-Reported Health," *Journal of Health Economics*, Vol. 23, No. 6, pp 1083-1099.

McDonald J. and Kennedy S., (2004), "Insights into the 'healthy immigrant effect': health status and health service use of immigrants to Canada", *Social Science & Medicine*, Vol. 59, Issue 8, pp. 1613-1627.

Pischke, S., (1992), "Assimilation and the Earnings of Guestworkers in Germany, ZEW Discussion Papers, No. 92-17, http://hdl.handle.net/10419/29366

Sander M., (2007), "Return Migration and the "Healthy Immigrant Effect", SOEP Working Paper No. 60, DIW Berlin.

Schmitt, J. and Wadsworth, J., (2007), "Changing Patterns In The Relative Economic Performance of Immigrants to Great Britain and the United States, 1980-2000", *British Journal of Industrial Relations*, Vol. 55, No. 4, pp. 659-686

Figure 1. Number of Visits to Doctors and Hospital by Time

Figure 2. Number of Visits to Doctors and Hospital by Age

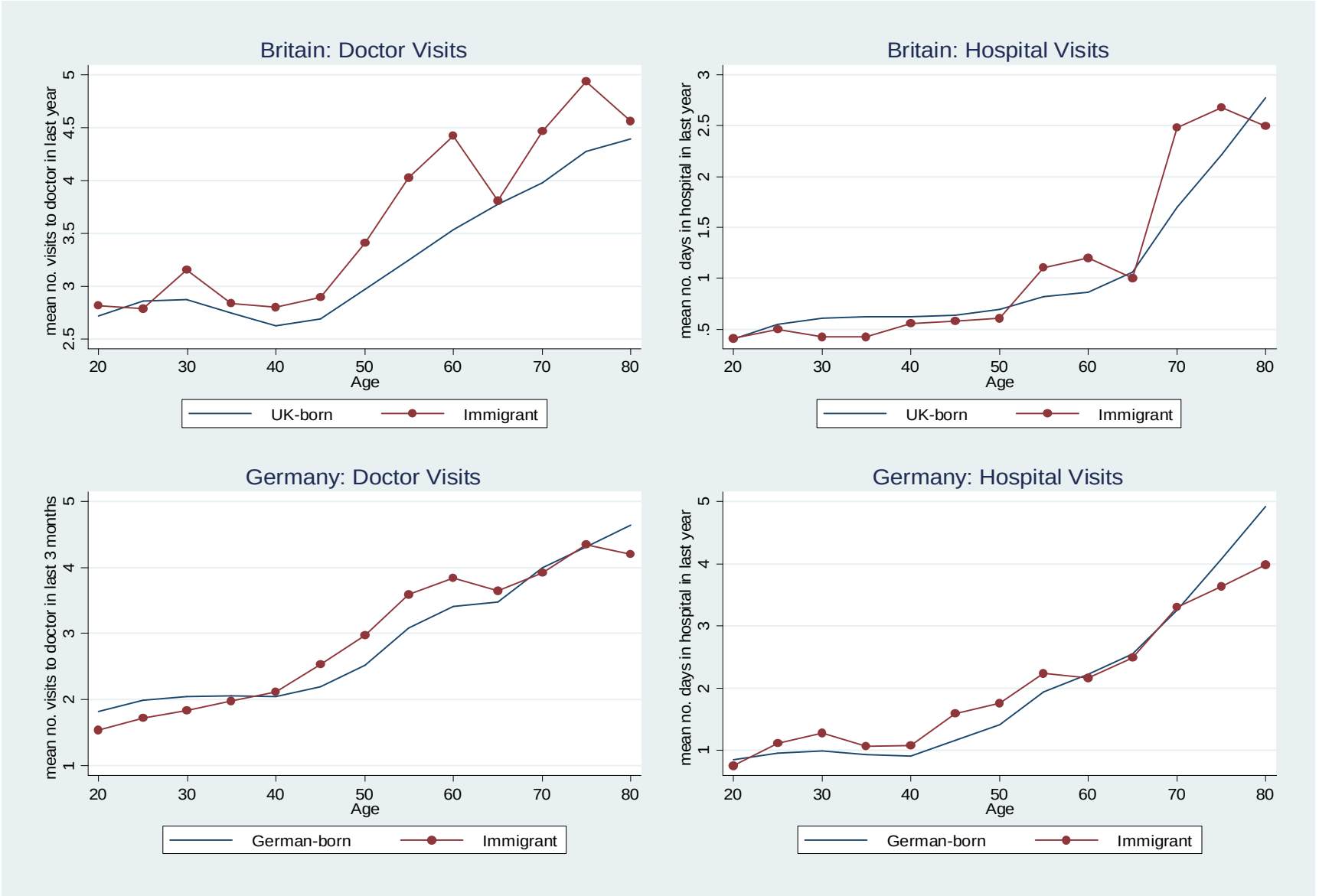

Figure 3. Number of GP Visits by Immigrant Decade of Arrival Cohort and Age

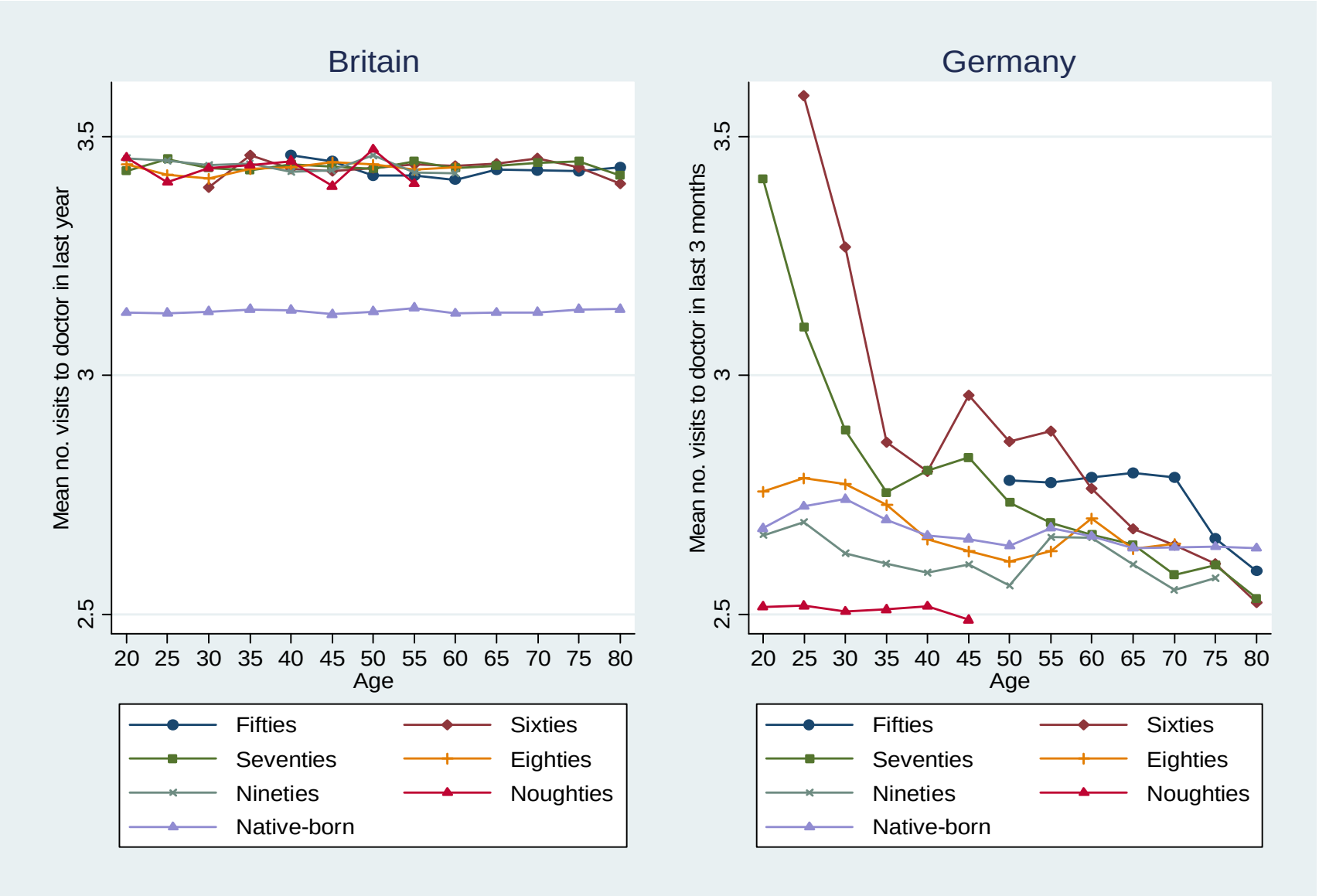

Table 1. Self-Reported Health Status and Health Service Use of Native and Foreign-Born

	Percentage Response							
	Total		Age16-39		Age 40-59		Age 60+	
Health Status	Native-Born	Immigrant	Native-Born	Immigrant	Native-Born	Immigrant	Native-Born	Immigrant
Britain (1991-2008)								
Excellent	23.3	22.6	28.3	28.4	23.2	21.3	14.5	14.6
Good	45.3	43.0	47.8	47.1	44.9	43.7	41.3	34.8
Fair	21.2	23.1	17.4	18.4	20.8	22.6	28.4	32.2
Poor	7.9	8.5	5.4	5.0	8.5	9.4	11.7	13.0
Very Poor	2.3	2.8	1.1	1.1	2.7	3.1	4.1	5.6
Germany (1994-2008)								
Very Good	9.9	10.3	17.8	19.0	6.4	5.7	2.6	2.3
Good	41.2	39.2	53.2	52.1	41.1	36.4	23.4	20.0
Fair	32.6	30.6	22.2	21.2	36.1	34.8	43.6	40.3
Poor	12.7	15.3	5.9	6.4	13.3	17.9	22.3	27.6
Bad	3.5	4.6	0.9	1.2	3.1	5.2	8.1	9.8
Any visits to GP								
Britain								
None	24.5	21.8	27.1	26.5	27.4	21.9	16.3	13.3
1-2	36.5	35.5	39.1	37.4	36.5	37.4	31.7	28.9
3+	39.0	42.7	33.8	36.1	36.1	40.7	52.0	57.8
Germany								
None	30.3	33.8	38.3	43.0	32.7	32.8	15.0	18.3
1-2	34.3	31.7	35.4	33.0	34.9	31.7	31.8	29.4
3+	31.4	34.5	26.3	24.0	30.4	35.5	53.2	52.3
Any Hospital visits								
Britain	10.7	11.0	10.1	10.1	8.2	8.9	15.0	16.0
Germany	11.8	11.8	9.4	10.4	10.0	10.5	18.0	16.8
Days in hospital in year								
Britain	4	4	3	3	4	4	7	7
Germany	8	10	6	7	8	10	12	14

Source: BHPS. GSOEP. Sample sizes: Native-Born; 226,719 of which 97395 aged 16-39, 72913 aged 40-59 and 55606 aged 60+. Immigrants 11,268 of which 4451 aged 16-39, 4230 aged 40-59 and 2572 aged 60+. German-born; 230,53 of which 89548 aged 16-39, 80786 aged 40-59 and 59716 aged 60+. Immigrants 37,116 of which 14808 aged 16-39, 4230 aged 40-59 and 7832 aged 60+. Median days in hospital conditional on visit.

Table 2. Self-Reported Health Status and Health Service Use of Foreign-Born by Years in Country

		Years in Country				
	Native-Born	0-5 years	6-10 years	11-19 years	20-29 years	30 years+
Britain (1991-2008)						
Excellent	23.3	30.3	26.7	23.9	23.8	20.1
Good	45.3	50.4	48.9	47.0	43.3	39.6
Fair	21.2	15.3	17.0	20.8	22.6	26.1
Poor	7.9	3.8	6.4	6.8	8.1	10.1
Very Poor	2.3	0.2	1.1	1.5	2.3	4.2
Germany (1994-2008)						
Very Good	9.9	18.8	14.3	12.5	8.2	4.3
Good	41.2	45.1	45.3	44.8	40.1	28.7
Fair	32.6	23.1	25.4	28.1	31.2	36.9
Poor	12.7	10.1	11.7	11.3	16.3	22.6
Bad	3.5	2.9	3.3	3.2	4.3	7.5
Britain						
Any Doctor Visit	76.5	78.6	77.4	75.7	77.7	79.4
Any Hospital Visit	10.7	11.0	11.2	9.1	10.1	12.1
Germany						
Any Doctor Visit	69.7	57.1	57.8	60.5	67.2	75.1
Any Hospital Visit	11.8	12.8	11.8	10.6	10.6	13.3

Note. Source BHPS, GSOEP. Sample sizes, Britain: Total 11268 of which 2548 (0-5 years), 4845 (6-10 years), 2602 (11-20 years), 954 (21-30 years), 319 (30 years+). Germany: 37,185 of which 2337 (0-5 years), 4845 (6-10 years), 2602 (11-20 years), 954 (21-30 years), 319 (30 years+).

Table 3. Estimated Immigrant Effect on Health Service Use

	Britain				*Germany*			
	Pooled OLS	Pooled OLS	Random Effects	Random Effects	Pooled OLS	Pooled OLS	Random Effects	Random Effects
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
A) *Any Visits to Hospital*								
Immigrant	0.003	0.008	0.005	0.003	-0.001	0.002	0.003	-0.001
	(0.005)	(0.005)	(0.005)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
B) No. Hospital Nights								
Immigrant	0.019	0.071	-0.014	-0.041	0.012	-0.012	0.003	-0.088
	(0.083)	(0.080)	(0.089)	(0.084)	(0.066)	(0.068)	(0.076)	(0.071)
C) No. Hospital Nights>0								
Immigrant	-0.163	-0.094	-0.167	-0.314	0.199	-0.066	-0.066	-0.510
	(0.684)	(0.659)	(0.589)	(0.574)	(0.395)	(0.393)	(0.393)	(0.372)
D) Any Doctor								
Immigrant	0.027 *	0.027*	0.026*	0.026*	-0.037*	-0.020*	-0.023*	-0.028*
	(0.008)	(0.008)	(0.007)	(0.007)	(0.005)	(0.005)	(0.005)	(0.004)
E) No. Doctor Visits								
Immigrant	0.307*	0.394 *	0.311 *	0.293 *	-0.039	-0.088*	-0.032	-0.124*
	(0.090)	(0.081)	(0.072)	(0.063)	(0.036)	(0.034)	(0.032)	(0.028)
F)No. Doctor Visits>0								
Immigrant	0.248*	0.350 *	0.288 *	0.277 *	0.142*	-0.018	0.027	-0.072*
	(0.092)	(0.084)	(0.072)	(0.064)	(0.038)	(0.038)	(0.033)	(0.029)
Controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Health control	No	No	No	Yes	No	No	No	Yes

Notes. * indicates significance at 5% level. Controls include dummy variables for qualifications, gender and region, a quadratic in age and the quadratic in age interacted with dummy variables for 4 education groups. Sample sizes: Britain: 207089, Germany:255205.

Table 4. Estimated Immigrant Effects on Health Service Use by Age & Year of Entry Cohorts

	Britain				*Germany*			
	Any Doctor Visits		***Any Hospital Visits***		***Any Doctor Visits***		***Any Hospital Visits***	
	Pooled OLS	Random Effects	Pooled OLS	Random Effects	Pooled OLS	Random Effects	Pooled OLS	Random Effects
A) All *Age<60*								
Immigrant	0.029*	0.024*	0.002	0.002	-0.025*	-0.030*	0.007*	0.002
	(0.010)	(0.008)	(0.005)	(0.005)	(0.006)	(0.005)	(0.003)	(0.003)
B) All *Age 60+*								
Immigrant	0.035*	0.041*	0.013	0.017	-0.031*	-0.001	0.012	-0.002
	(0.013)	(0.013)	(0.011)	(0.011)	(0.009)	(0.008)	(0.007)	(0.007)
C) Age on Arrival								
Adult Immigrant	0.062*	0.042*	0.010	0.005	-0.017*	-0.021*	0.004	0.004
	(0.010)	(0.009)	(0.006)	(0.006)	(0.006)	(0.005)	(0.003)	(0.003)
Child immigrant	-0.017	0.005	-0.006	0.007	-0.106 *	-0.030*	-0.020 *	-0.001
	(0.013)	(0.011)	(0.007)	(0.007)	(0.010)	(0.009)	(0.005)	(0.005)
D)Entry Cohort								
Fifties	0.062 *	0.017	0.027*	0.006	0.108*	0.012	0.026	-0.011
	(0.016)	(0.015)	(0.011)	(0.011)	(0.022)	(0.022)	(0.014)	(0.015)
Sixties	0.021	0.030	0.013	0.020*	0.043*	0.016	0.011	0.001
	(0.020)	(0.017)	(0.010)	(0.010)	(0.012)	(0.011)	(0.007)	(0.007)
Seventies	0.015	0.035*	-0.015	0.003	-0.022 *	0.006	-0.010	-0.002
	(0.018)	(0.015)	(0.009)	(0.009)	(0.009)	(0.009)	(0.005)	(0.005)
Eighties	0.006	0.025	-0.014	0.002	-0.075 *	-0.033*	-0.014*	0.012*
	(0.019)	(0.017)	(0.010)	(0.010)	(0.010)	(0.009)	(0.005)	(0.005)
Nineties	0.045*	0.045*	0.002	-0.003	-0.121*	-0.075 *	0.001	0.006
	(0.019)	(0.017)	(0.011)	(0.010)	(0.010)	(0.009)	(0.005)	(0.005)
Noughties	-0.044	-0.039	-0.018	-0.012	-0.115*	-0.052	-0.018	0.003
	(0.040)	(0.035)	(0.021)	(0.018)	(0.045)	(0.040)	(0.021)	(0.020)
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Health control	No	No	No	No	No	No	No	No

Notes. * indicates significance at 5% level. Controls include dummy variables for qualifications, gender and region, a quadratic in age and the quadratic in age interacted with dummy variables for 4 education groups. Sample sizes: Britain: 207089, Germany:255205.

Table 5. More Estimated Immigrant Effects by Age & Year of Entry Cohorts

	Britain				*Germany*			
	No. Doctor Visits>0		***No. Days in Hospital>0***		***No. Doctor Visits>0***		***No. Days in Hospital>0***	
	Pooled OLS	Random Effects	Pooled OLS	Random Effects	Pooled OLS	Random Effects	Pooled OLS	Random Effects
A) All Age <60								
Immigrant	0.242*	0.262*	-0.285	-0.555	0.217*	-0.018	1.759*	0.864
	(0.100)	(0.078)	(0.648)	(0.615)	(0.040)	(0.036)	(0.481)	(0.485)
B) All *Age 60+*								
Immigrant	0.342*	0.471*	0.306	0.637	0.134	0.168*	-1.295*	-1.369*
	(0.173)	(0.160)	(0.458)	(1.262)	(0.075)	(0.072)	(0.631)	(0.637)
C) Age on Arrival								
Adult Immigrant	0.483*	0.375*	0.527	-0.584	0.275*	0.068	1.013*	0.022
	(0.122)	(0.097)	(0.925)	(0.762)	(0.043)	(0.038)	(0.438)	(0.436)
Child immigrant	-0.082	0.169	-1.194	0.419	-0.388 *	-0.136*	-3.291*	-0.455
	(0.131)	(0.102)	(0.939)	(0.888)	(0.060)	(0.056)	(0.714)	(0.718)
D)Entry Cohort								
Fifties	0.528 *	0.124	3.926*	0.995	0.444*	-0.231	0.699	-3.455*
	(0.195)	(0.166)	(1.690)	(1.546)	(0.170)	(0.163)	(1.489)	(1.453)
Sixties	0.745*	0.659*	1.043	1.016	0.868*	0.441*	5.485*	2.248
	(0.227)	(0.174)	(1.386)	(1.205)	(0.105)	(0.097)	(1.175)	(1.189)
Seventies	0.009	0.353*	-2.667*	-1.465*	0.328 *	0.190*	1.070	0.566
	(0.158)	(0.143)	(1.013)	(0.712)	(0.076)	(0.070)	(0.817)	(0.832)
Eighties	-0.039	0.258	-3.009*	-0.456	-0.385 *	-0.227*	-2.502*	-0.882
	(0.223)	(0.165)	(0.953)	(1.049)	(0.061)	(0.057)	(0.640)	(0.605)
Nineties	-0.351*	0.087	-4.194*	-2.394*	-0.190*	-0.092	-1.000	0.437
	(0.179)	(0.159)	(0.920)	(0.679)	(0.071)	(0.062)	(0.651)	(0.616)
Noughties	-0.368	-0.073	-6.379*	-2.840*	-0.661*	-0.090	-5.260	0.555
	(0.234)	(0.237)	(0.430)	(0.564)	(0.198)	(0.206)	(2.819)	(0.269)
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Health control	No	No	No	No	No	No	No	No

Notes. * indicates significance at 5% level. Controls include dummy variables for qualifications, gender and region, a quadratic in age and the quadratic in age interacted with dummy variables for 4 education groups. Sample sizes: Britain: 207089, Germany:255205.

Table 6. Estimated Years in Country Effects on Health Service Use

	Britain				Germany			
	Any Doctors		Any Hospital		Any Doctors		Any Hospital	
	Pooled OLS	Random Effects	Pooled OLS	Random Effects	Pooled OLS	Random Effects	Pooled OLS	Random Effects
A) *All*								
<=1 year	0.030	0.033	-0.026	-0.023	-0.141*	-0.112*	-0.042*	-0.028
	(0.030)	(0.028)	(0.022)	(0.023)	(0.038)	(0.037)	(0.020)	(0.020)
2-5 years	0.020	0.024	-0.001	0.011	-0.124*	-0.082*	0.015	0.028*
	(0.024)	(0.022)	(0.015)	(0.015)	(0.014)	(0.013)	(0.008)	(0.008)
6-10 years	0.031	0.028	0.015	0.021	-0.119*	-0.058*	-0.001	0.012*
	(0.021)	(0.018)	(0.015)	(0.015)	(0.010)	(0.009)	(0.006)	(0.006)
11-15 years	0.001	0.012	-0.023*	-0.010	-0.094*	-0.050*	-0.010	0.004
	(0.020)	(0.018)	(0.011)	(0.011)	(0.010)	(0.009)	(0.006)	(0.005)
16-20 years	0.008	0.022	-0.015	0.003	-0.078*	-0.040*	-0.016*	0.001
	(0.018)	(0.016)	(0.011)	(0.010)	(0.011)	(0.010)	(0.006)	(0.006)
21-25 years	0.016	0.023	-0.007	0.010	-0.047*	-0.030*	-0.016	-0.003
	(0.018)	(0.015)	(0.011)	(0.011)	(0.010)	(0.009)	(0.006)	(0.006)
26-30 years	0.020	0.031*	0.009	0.021	0.004	0.009	-0.006	-0.003
	(0.017)	(0.014)	(0.012)	(0.011)	(0.010)	(0.009)	(0.006)	(0.006)
31-35 years	0.028	0.031*	0.001	0.008	0.025*	0.022*	-0.001	-0.004
	(0.018)	(0.015)	(0.011)	(0.011)	(0.010)	(0.009)	(0.007)	(0.007)
35 years+	0.046*	0.030*	0.017*	0.002	0.065*	0.020*	0.018*	-0.006
	(0.014)	(0.012)	(0.008)	(0.008)	(0.012)	(0.010)	(0.008)	(0.008)
Controls	No	Yes	No	Yes	No	Yes	No	Yes

Table A1. Summary Statistics of Sample. All Adults 16+

	Age	Years in country	Age on Arrival	% < 16 on arrival	% with Degree	% with no Quals.	% in London & south-east /BadenWurt.
Britain							
Native-Born	43	--	--	--	11	22	19
All Immigrants	44	29	18	44	20	22	41
of which:							
Entry Cohort <=1950s	65	50	14	54	14	35	31
Entry Cohort 1960s	48	36	15	52	16	23	40
Entry Cohort 1970s	40	26	15	50	24	19	48
Entry Cohort 1980s	34	16	21	33	22	11	47
Entry Cohort 1990s	32	9	25	15	28	11	44
Entry Cohort 2000s	29	3	26	1	25	17	28
Germany							
Native-Born	44	--	--	--	12	8	12
All Immigrants	44	19	22	31	10	33	23
of which:							
Entry Cohort <=1950s	66	45	22	34	9	36	23
Entry Cohort 1960s	57	34	23	22	5	47	29
Entry Cohort 1970s	45	26	19	39	6	46	27
Entry Cohort 1980s	37	14	22	34	11	25	21
Entry Cohort 1990s	36	8	25	26	13	22	18
Entry Cohort 2000s	31	3	28	7	20	23	32

Note . Table entries are sample median estimates for age and years in country, sample proportions otherwise.

Table A2. Area of Origin of Immigrants in Sample

	Whole Sample	Entry Cohort <=1950s	Entry Cohort 1960s	Entry Cohort 1970s	Entry Cohort 1980s	Entry Cohort 1990s	Entry Cohort 2000s
Britain							
EU15	33.5	52.1	29.5	24.5	25.7	38.6	21.5
Other Europe	7.0	9.6	8.8	3.8	3.9	6.8	18.4
Americas	12.1	11.4	17.9	10.8	8.4	9.6	13.9
Asia	30.8	18.1	29.0	36.1	40.2	33.9	30.6
Africa	16.7	8.8	14.8	24.7	21.8	11.2	15.6
Germany							
EU15	22.5	28.4	51.4	27.6	12.9	5.7	17.2
Other Europe	54.9	63.7	43.5	67.1	47.1	55.8	58.6
Americas	12.1	7.1	3.8	4.0	28.2	12.4	10.7
Asia	9.4	0	1.3	0.8	10.3	25.2	9.4
Africa	1.1	0.9	0.1	0.5	1.5	0.8	4.1

Note . Table entries are sample median estimates for age and years in country, sample proportions otherwise.

Table A3 . Estimated Attrition probabilities from Sample

	Britain				Germany			
	Pooled OLS	Random Effects	Pooled OLS	Random Effects	Pooled OLS	Random Effects	Pooled OLS	Random Effects
A) *All*								
Immigrant	0.013 *	0.037 *	0.024 *	0.056 *	-0.002	-0.001	0.019 *	0.034 *
	(0.003)	(0.007)	(0.003)	(0.009)	(0.002)	(0.002)	(0.002)	(0.004)
Poor Health	0.033 *	0.029 *	0.034 *	0.023 *	0.031 *	0.055 *	0.021 *	0.019 *
	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Immigrant*Poor	-0.033 *	-0.021 *	-0.027 *	-0.008	-0.002	-0.003	-0.003	-0.001
Health	(0.012)	(0.014)	(0.010)	(0.010)	(0.005)	(0.005)	(0.004)	(0.005)
Controls	No	No	Yes	Yes	No	No	Yes	Yes

Table A4. Estimated Immigrant Effect on Self-Reported Poor Health

	Britain			Germany		
	Pooled OLS	Pooled OLS	Random Effects	Pooled OLS	Pooled OLS	Random Effects
A) *All*						
Immigrant	0.008	0.014 *	0.007	0.035 *	0.025 *	0.039 *
	(0.007)	(0.006)	(0.005)	(0.005)	(0.005)	(0.004)
B) Age on Arrival						
Adult Immigrant	0.023 *	0.017	0.008	0.066 *	0.033 *	0.049 *
	(0.009)	(0.009)	(0.007)	(0.006)	(0.006)	(0.005)
Child immigrant	-0.011	0.010	0.005	-0.073 *	-0.006	-0.001
	(0.009)	(0.008)	(0.008)	(0.007)	(0.007)	(0.006)
C)Entry Cohort						
Fifties	0.052 *	0.028	0.018	0.123 *	-0.011	0.007
	(0.018)	(0.018)	(0.017)	(0.033)	(0.032)	(0.031)
Sixties	0.023	0.021	0.023	0.137 *	0.058 *	0.080 *
	(0.014)	(0.013)	(0.013)	(0.015)	(0.015)	(0.013)
Seventies	-0.016	0.012	0.009	0.049 *	0.036 *	0.064 *
	(0.012)	(0.010)	(0.010)	(0.009)	(0.009)	(0.009)
Eighties	-0.011	0.016	0.016	-0.040 *	-0.002	0.016 *
	(0.014)	(0.013)	(0.011)	(0.007)	(0.007)	(0.007)
Nineties	-0.044 *	-0.020 *	-0.028 *	0.008	0.038 *	0.041 *
	(0.010)	(0.009)	(0.007)	(0.009)	(0.009)	(0.008)
Noughties	-0.048 *	-0.024	-0.030	-0.075 *	-0.004	-0.001
	(0.018)	(0.017)	(0.016)	(0.023)	(0.021)	(0.023)
Controls	No	Yes	Yes	No	Yes	Yes

Notes. * indicates significance at 5% level. Standard errors clustered at the individual level. Controls include dummy variables for qualifications, gender and region, a quadratic in age and the quadratic in age interacted with dummy variables for 4 education groups. Sample sizes: Britain: 207147, Germany:255205.

Table A5. Estimated Years in Country Effects on Self-Reported Poor Health

	Britain		Germany	
	Pooled OLS	Random Effects	Pooled OLS	Random Effects
A) *All*				
<=1 year	-0.072	-0.038	-0.065	0.010
	(0.011)*	(0.012)*	(0.024)*	(0.021)
2-5 years	-0.051	-0.021	-0.031	0.016
	(0.010)*	(0.011)*	(0.010)*	(0.009)
6-10 years	-0.023	0.005	-0.011	0.040
	(0.012)	(0.012)	(0.009)	(0.007)*
11-15 years	-0.026	0.012	-0.006	0.042
	(0.011)*	(0.011)	(0.009)	(0.007)*
16-20 years	0.001	0.038	-0.028	0.033
	(0.013)	(0.012)*	(0.008)*	(0.008)*
21-25 years	-0.003	0.016	0.024	0.051
	(0.012)	(0.011)	(0.009)*	(0.008)*
26-30 years	0.001	0.011	0.076	0.056
	(0.013)	(0.012)	(0.010)*	(0.009)*
31-35 years	0.030	0.016	0.105	0.066
	(0.015)*	(0.012)	(0.012)*	(0.010)*
35 years+	0.037	0.001	0.125	0.043
	(0.013)*	(0.011)	(0.015)*	(0.011)*
Controls	No	Yes	No	Yes

Notes. See Table 3.