The Stockholm University
Linnaeus Center for
Integration Studies (SULCIS)

Giving Up Foreign Names: An Empirical Examination of Surname Change and Earnings

Mahmood Arai and Peter Skogman Thoursie

SULCIS Working Paper 2007:1

ISSN 1654-1189

The Stockholm University
Linnaeus Center for
Integration Studies (SULCIS)

SULCIS is a multi-disciplinary research center focusing on migration and integration funded by a Linnaeus Grant from the Swedish Research Council (VR). SULCIS consists of affiliated researchers at the Department of Criminology, the Department of Economics, the Department of Human Geography, the Department of Sociology and the Swedish Institute for Social Research (SOFI). For more information, see our website: **www.su.se/sulcis**

SULCIS Working Paper Series

2007:1 Arai, M & Skogman Thoursie, P., "Giving Up Foreign Names: An empirical Examination of Surname Change and Earnings"

Giving up Foreign Names: An Empirical Examination of Surname Change and Earnings

Mahmood Arai and Peter Skogman Thoursie *

December 20, 2006

Abstract

In this paper we compare the earnings development for a group of immigrants that changes their names to Swedish-sounding or neutral names with immigrants who retain their names from the same region of birth. Our results indicate that name-changers are apparently similar to name-keepers and the earnings before the name change is essentially the same for both groups. However, an earnings gap after the name change is observed. The earnings gap corresponds to on average approximately 26 percent. Our understanding of the data and our results is that the groups are similar before the name change and that the earnings gap after the name change should be attributed to the name change. Our results should be viewed as evidence of unequal treatment of immigrants and natives in the Swedish labor market.

Keywords: Ethnic discrimination, earnings development, name change

JEL: J64; J71

*Department of Economics and SULCIS, Stockholm University. E-mail: mahmood.arai@ne.su.se and Department of Economics, Stockholm University peter.thoursie@ne.su.se.

Acknowledgements

The data collection of this project was financed by the Swedish Integration Board and the Swedish Trade Union Central Organization (LO). The Swedish Patent and Registration Office (PRV) has been most generous to give us the opportunity to collect the data. The officers at PRV were most helpful during the time we spent in Söderhamn retrieving the files from their Archive. We specially thank Mathias Benke, Urban Bentzer, Jan Ottosson, Per-Åke Pettersson and Runo Swärd. We are indebted to Anna Thoursie for dedicated engagement and cooperation in this project. Styrmir Olafsson and Marta Pettersson provided excellent research assistance. Claudia Goldin and Lena Schröder have been most helpful in commenting a very early description of our data. We also wish to thank seminar participants at Inequality Summer Institute at Harvard University, 2004, Uppsala university, Göteborg University, Department of Sociology and Department of Economics at Stockholm University and the Swedish Integration Board for useful comments and suggestions. We thank Moa Bursell, Magnus Bygren, Carl le Grand, Lena Nekby and Per Pettersson-Lidbom for helpful suggestions.

1 Introduction

Can a characteristic such as a name influence labor market opportunities? Bertrand and Mullainathan (2004) using correspondence testing report that the resumes with "Black" names had a significantly lower call back rate than those that were assigned a "White" name. Fryer and Levitt (2004), on the other hand, find no impact of name controlling for initial circumstances at birth.[1] We examine earnings development of immigrants who changed their surnames to Swedish-sounding or neutral names during the 1990s in Sweden and compare them with the earnings of immigrants from the same region that kept their names.[2] The underlying research question is whether the labor market offers equal opportunities to individuals regardless of their names and the associated ethnic background.

In the following we use the concept of "Swedish-conform names" for the class of names that can be regarded as Swedish-sounding or neutral names. The degree of conformity is related to the linguistic and phonetic features of the Swedish language and name conventions in Sweden. Furthermore, there is the symbolic signal associated with a name. Some names have positive connotations and associations while other names are unfamiliar to the Swedish culture. As an example, names such as Johansson (the most common surname in Sweden), Isakson (the 10th most common), Bergman (the 50th), Falk (the 100th), Bergfors (385 persons) are more Swedish-conform names than names such as Mohammed, Ibrahimovic etc. The Swedish Name Law does not allow new names to be taken that have a linguistic form, spelling, pronouncing,

[1] Freshtman and Gneezy (2001) laboratory experiment study using Israeli undergraduate students indicate that subjects treat people differently depending the name of the subjects.

[2] A general finding in the literature is that persistent gaps prevail which cannot be explained by the observed differences in individual characteristics between natives and immigrants. For Swedish studies, see e.g. Aguliar & Gustafsson (1994), Arai et. al. (1999), Arai & Vilhelmsson (2004), Edin & Åslund (2001), Ekberg (1994), Nelander et al. (2004), Lundborg (2000), Nekby (2002), Vilhelmsson (2000), Wadensjö (1997), Nekby (2003).

etc. such that it is not a suitable surname in Sweden. In this way the Law expresses the assimilating intentions of Swedish society.[3]

A Swedish-conform name can be beneficial for an individual if employers, customers and/or co-workers like the Swedish-conform name better than foreign names. In the terminology of Becker's theory of discrimination, a taste in favor a of name implies costs in terms of lower earnings for those who carry other names. In Becker's model the characteristics are given and cannot be changed. In terms of names however, these can be changed implying that individuals may skip the income loss due to the unfavorable taste towards their original names.

Even in the absence of tastes for names, a change of surname can reduce earnings loss due to statistical discrimination. A person that changes her surname to a Swedish-conform name is not easily sorted into a group that could be defined by the old name. Changing names might reduce disadvantageous treatment in the initial phase of contact with employers, customers and others. For example, an individual can increase the probability of being called to a job interview and get a better chance to present her skills to employers by changing to a Swedish-conform name.

Using the Swedish Patent and Registration Office (PRV) data on all name changes in Sweden that are handled by PRV, we create a unique data set on immigrant name changers. We examine data on all immigrants from Asian, African and Slavic countries that change their names to Swedish-conform names during the 1990s and compare the labor earnings before and after name change for these individuals with all other individuals that have kept their names and originate from the same countries. The largest distinct group of abandoned names is Mohammed with various spellings. We observe 90 name

[3]The implementation of this Law has caused problems in practice for the Swedish authorities and has led to revisions that are in progress.

changes from Mohammed in various spellings to Swedish-conform names, accounting for around 8.8 percent of all individuals changing from Asian/African (dominated by Middle East and Arabic names) to Swedish-conform names. The corresponding figure for the underlying population is 0.6.[4] Our study yields the following results. Name changers are very similar to those who did not change name. Before the name change, both groups have essentially the same earnings. Comparing the earnings after the name change we find that there is a gap in earnings corresponding to around 26 percent.

The first question is whether the earnings gap after the name change can be regarded as an effect of the name change or if there are other earnings-related characteristics that lead to a change in name and increased earnings after the name change. Any possible endogeneity problem in our study has a special character that makes it related to a version of the hypothesis we aim to test. Basically we aim to test whether there is discriminatory behavior in the Swedish labor market or not. If individuals that change name posses characteristics that makes them more productive than those who keep their names, we should observe a difference in earnings before the name change. We do not observe such a difference.

It could be argued that a change in some productivity related characteristics might have occurred at the same time as these individuals change name. We argue that this is possible only if individuals expect to be treated better with a Swedish conform name that without. So if there is an endogeneity problem, this is the same as the existence of expected discriminatory treatment. In absence of endogeneity, the income gap after the name change is the causal effect of name change. Due to the nature of our data we cannot discriminate

[4]Using the Statistics Sweden data on names for December 2004, we found 2,577 individuals that carry the surname Mohammed with various spellings. This corresponds to around 0.7 percent of individuals born in African or Asian countries.

between these two interpretations of our findings. The overall conclusion is that there is evidence for at least expectation of discriminatory treatment in the Swedish labor market, that is revealed by a group of immigrant workers' effort to adapt to the Swedish conventions considering names.

The remainder of the paper is organized as follows. In Section 2 we outline the theoretical framework for understanding the name change and the employer behavior in response to names. Section 3 analyzes the nature of endogeneity and its implications for our empirical work. The Swedish legislation about names is described in Section 4. In Section 5 we present the data collecting strategy. Section 6 presents the description of the data. Section 7 deals with the estimation matters. Section 8 deals with examination of the effect of name change on earnings and finally the paper is summarized in Section 9.

2 Theory

2.1 Why changing name?

Immigrants might experience difficulties in the labor market associated with their foreign names.[5] This can be the starting point and may be the principal reason for changing surname. Some immigrants might choose this strategy to enhance their job opportunities due to anticipated discrimination. However, this does not exclude a degree of assimilation when choosing the new (Swedish-conform) surname.

Lieberson (2000) list a number of stage- and original names of white entertainers. In many cases the stage-name seems to be chosen to hide ethnical

[5]See Arai et al. (1999) for survey evidence on foreign names and labor market opportunities.

or religious origin. The original names are often abandoned for Anglo-Saxon names. Robert Zimmerman is abandoned for Bob Dylan, Maria Kalogeropoulos becomes Maria Callas, Allen Konigsberg becomes Woody Allen, Bernard Schwartz becomes Tony Curtis etc. These stage names disclose that these artists choose names that appeal to the ruling preferences in the society and disguise their ethnical and or religious background. The opposite case is observed among Afro-American population where Afro-Americans choose distinct names that differ from Anglo-Saxon American names. These choices of names rather signal a group identity.

Watkins and London (1994) study the name-changing pattern of Jewish and Italian immigrants to the US in the early 1900s and observe a pattern of assimilation to common American names. These assimilating efforts are responses to the dominant culture and the fact that these people anticipate that a key to success in the new Society is adapting in taste to the governing taste. Taking a name similar to common native names signals adapting to the natives' taste for names.

Immigrants have all faced a sudden change in their cultural surrounding. The new society is a strong source of influence, making some old names so unattractive for some immigrants that they decide to abandon these names for names that are more in accordance with their new dominating cultural environment.

Assuming that various groups have identical sensitivity to the surrounding society, those groups that change names might regard the governing societies reaction to their names less positive. A hypothesis is that a group's propensity of changing names to new Swedish-conform names is positively related to experiences of discomfort with original names in the new surrounding society. Here we can talk about an implicit assimilation requirement that is

demonstrated by the discomfort the name-changing individuals' experience. The implication is that various names are associated with different degrees of social discomfort (tax in terms of lower income) that can be avoided by changing to Swedish-conform names. Some individuals stand this discomfort others avoid it by changing names.

2.2 Employer behavior

Two theoretical approaches are relevant when trying to understand the economic consequences of name changing behavior of immigrants: Becker's theory of discrimination and Aigner-Phelps theory of statistical discrimination (Becker 1957, Aigner and Cain 1977, and Phelps 1972).

The theory of statistical discrimination implies that employers and other agents in the economy use group characteristics to associate individuals to attributes related to a group. These attributes can be based on more or less precise statistics. A name links an individual to a group of persons. A person that changes his name to a Swedish-conform name cannot easily be sorted to his original group by just observing the new name. On the other hand, when the person is called for a job interview, it might be easy for the employer to retrieve the information that the original name would have signaled. As such, changing names may be an inefficient way of disguising cultural origin. Why should name then matter for earnings, when the employer can judge productivity by observing the person's skills and group affiliation in a job interview? By changing the name an individual can increase the probability of being called to a job interview where there is a better chance to present individual skills to employers. This argument is supported by the results of Bertrand and Mullainathan (2004) and Carlsson and Rooth (2006) where they send resumes with randomized names.

When employers or other agents have tastes regarding names we can apply Becker's theory of discrimination to our case. The Swedish-conform name can be profitable to the individual if employers, customers and/or co-workers like the Swedish-conform better than foreign names. In other words, if the new name is faced with less dislike than the old name, a person with a foreign name can recognize the social taste and adapt in order to avoid the cost of carrying a name that employers and others dislike. Changing name would then lead to increased income. In Becker's case people cannot easily change attributes. In our case, persons can change name and skip the income loss due to unfavorable taste towards their names.

3 The endogeneity of the Name Changes

The name changers in our data have characteristics that distinguish them from those that do not change names. Any permanent differences between the groups can be captured by our estimations. What is important in this context is that they might have characteristics that imply that they change their foreign sounding name to a Swedish-conform name and at the same time become a more productive worker. If this is the case, the change of name is endogenous in this context and we cannot evaluate the causal effect of name change on earnings. We will then have a correlation between name change and earnings that has to be explained by some other mechanism that leads to higher earnings for those who change name.

It is essential to understand the nature of the endogeneity of name change and it's implication for the relation between name change and earnings. One could say that individuals with stronger motivation for success in the labor market change names from Z to S. They feel more confident and perform

much better when seeking jobs or when they work. The following question can then be raised. Why should individuals with strong motivation for success in the labor market change name while less motivated do not? That name changers have stronger motivation for success in the labor market seems unlikely since we observe, as reported below, that name changers do not perform better than others before the name change.

In the previous section we discussed the possibility of the adaption to the governing taste in the society. The workers with strong motivation for success in the labor market might also have higher sensitivity to adapt to the governing taste for name. Believing in this scenario means that good workers also try to become closer to what is perceived as Swedish workers. The new name can be a signal that the individual announces that he wishes to adapt to the Swedish taste and distance himself from the original cultural origin as signalled by the original name. This means that the preferences in the society are such that it is difficult to combine, for example, an Arabic name with a successful labor market career.[6]

4 The name legislation

The Swedish legislation regulating person names is found in the Name Law (*Namnlag*, SFS 1982:670, with later amendments). The authority that handles name change (except cases related to marriage or partnership in which case it is a matter for the local tax office) is the Swedish Patent and Registration Office (*Patent- och registreringsverket*, PRV). In 2005, the fee for changing a surname through PRV was 1,500 SEK (approximately 200 USD)

[6]Escaping names that are complicated for Swedish speaking people cannot be an important issue either since complicated names can easily be handled by nicknames that commonly used in Swedish society due to the informal nature of social relations. When Kristoffer becomes "stoffe", "Mustafa" can easily become "Musse".

per individual and 3,000 SEK when several family members apply together. In this paper we are only concerned with name changes that go through PRV, implying that we do not consider surname changes due to marriage.

The Law distinguishes between two main categories of surnames. A surname is either existing or new. An individual can take an *existing surname* if that name has existed for at least two generations within the last 100 years and the individual is a linear descendant of the persons having carried this surname. According to the Law, when a person applies for a new non-existing name, the *new surname* should not easily be confused with known or registered literary or artistic works, registered trademarks, geographical locations, known surnames from an extinct genealogy, known surnames in other countries or historical persons, etc. Moreover new names are rejected if they can cause offense or have a linguistic form, spelling, pronunciation, etc. such that is not suitable for surnames in Sweden. Whether a name is suitable or not is judged by the PRV. PRV's decision can be appealed to The Court of Patent Appeal and further to the Swedish Supreme Administrative Court. As an example, the name Beachman was treated by The Court of Patent Appeal and the Swedish Supreme Administrative Court and these courts approved this name with reference to the internationalization of Swedish names.

PRV has a "catalogue" of Swedish-sounding new surnames. In addition, on the PRV homepage (`http://www.prv.se`) there is a system which creates new Swedish-sounding surnames available to interested applicants. Swedish-sounding surnames can often be divided into distinct first and second (or concluding) elements.[7]

The law and practice of PRV promotes Swedish-sounding new names and

[7]As an example, the surname "Lindberg", can be divided into the first element, Lind- and the second element, -berg (mountain). At the homepage of PRV, an array of first and concluding elements that can be combined are presented.

prevents foreign-sounding new names. This implies that those who change to new names are more or less restricted to new Swedish names or foreign names that are easily adaptable within the Swedish linguistic context. The name legislation clearly discloses the assimilating intention of the Swedish society.

5 Data collecting strategy

During the 1990s approximately 40,000 persons changed their surnames through PRV. Complete electronic files exist only for the later part of the 1990s. These files, however, do not include the name that the person has abandoned. We were given the opportunity to search for the abandoned name, case by case, through the records at PRV. As this strategy would have been extremely time consuming and more importantly, not all cases are of interest, we focused on those that changed to new names. Since we were interested in examining the effect of changing a surname from a foreign-sounding name to a Swedish-sounding or neutral surname, these cases are most likely to be found among those who change into new names rather than those who change to existing names. This is the case since persons who wish to abandon their foreign-sounding surname for a Swedish-sounding name are not likely to have Swedish-sounding ancestral names.

All applied new names are published in *Tidning för kungörelser om efternamn (Newspaper for Announcement of Surnames)*. This is done in order to give the opportunity for holders of existing names, trademarks etc. to hinder PRV approval of a new name that can easily be confused with existing ones. We started with listed new names. We then examined these names one by one, to determine the abandoned name. If the abandoned or the new name had some foreign-sounding element we noted the number of the file. These

files were then retained from the archives. From the archive folders, we copied the application form that includes information on the personal number, the new name, the original abandoned name and the date of name change.

For the period 1990-1995, we found only 10 cases with names changed from a Swedish sounding name to foreign-sounding name. These were dropped from estimations. There was around 12 percent of all cases involving an original foreign-sounding name changed to another foreign sounding name. These cases were also dropped. We consider only those cases where a foreign-sounding name is abandoned for a Swedish-sounding or neutral name.

To determine which surnames are foreign-sounding we consider those names that by our judgement may be considered complicated to pronounce or to spell for the majority population. We also consider the group of foreign names that might be easy to spell and pronounce but are historically non-Swedish. We observed for example a large number of applications from those who abandoned the surname "Mohammed" (or various versions thereof). Another example is the changing of Slavic names ending in "vic".

The applications were then used to code names into various categories: Finnish, Asian/African, Slavic or Latin. The coded name were then delivered to the Statistics Sweden where they were scanned and matched with the LOUISE data set (a set of various registers covering the entire population in Sweden), unidentified and delivered back to us.[8]

This constitutes our main data set covering all persons who changes surnames from "foreign-sounding" surnames to "Swedish/neutral" sounding surnames. To be able to relate this group to the overall population of name changers we use another data set containing all name changes through PRV

[8]We never made any list neither on computer nor on paper. The reason is the nature of the data including names and personal numbers. The Swedish Law prohibits making lists of persons in any form without permission. The sheets including no names

in 1995-2000. This data set does not contain any information about the original names.

The data on all individuals who changed name during the period 1995-2000 were also matched (using the individual personal number) with the LOUISE dataset. The resulting data set covers information on individuals who changed first names or surnames. The vast majority (73 percent) of name changes concerned changing surnames to existing surnames followed by new surnames (17 percent). The remaining 10 percent changed first names. That the least frequent name changes considers first names is due to the fact that it is possible to add or remove a first name through the local tax offices. It is reasonable to assume that many first-name changes go through these tax offices. However, if a person wishes to entirely change first names, then an application must be made through PRV. A problem is that in some cultures it is common to only have one first name while in other cultures it is common to have several first names. This difference, together with the fact that the Swedish legislation for changing first names is likely to create a situation in which persons with origins in certain countries are observed in our data while others go through the local tax offices. These differences do not appear in the case of surnames and we therefore focus only on those who change surnames in this study.

6 Description of data

We have two data sets on name changers: the *Main Data* that cover individuals who have changed their foreign-sounding names to Swedish-Conform names during 1991-2000, and another data set that covers *All Name Changers* for the period 1995-2000. In order to keep individuals that are expected to have labor market earnings during the 1990s, we keep in both data sets

all individuals that are born in 1938-1971. Around 46 percent of the Main Data were deleted due to this age limitation. The corresponding figure for All Name Changers data is 38 percent.

Furthermore we drop all individuals that changed name several times during the observed period. Approximately 0.5 percent in the Main Data and around 6 percent in the All Name Changers data switched names repeatedly. In the following we refer to three sets of data: Main Data 91-00, Main Data 94-97 and All Name Changers 95-00. All data sets cover the period 1990-2001 but covers individuals who have changed names in 91-00, 94-97 and 95-00 respectively. In all these cases the age and non-repeated name change limitations are applied.

When we analyze the effect of name change on earnings we use only the Main Data and apply a number of restrictions on income, early retirement, year of immigration etc. The data sets are then referred as *Main Data 91-00 Restricted* or *Main Data 94-97 Restricted*.[9] When creating comparison groups we use data on the entire population of immigrants in Sweden during 1990-2001. When analyzing the effect of name changes on earnings, we exclude individuals that had annual earnings above the 90th percentile any year in the 1990-1993. We believe these individuals do not meet considerable hinders to entry and performance in the Swedish labor market. The economic consequences of name change for these individuals are not expected to be substantial and if there are any effects of name change, these effects would show up after a longer period that is not covered by our data.

[9]For detailed description of these restrictions see Appendix A.

6.1 Foreign-sounding surnames and region of birth

The group of people abandoning foreign-sounding surnames were classified into various categories of surnames from different regions based on our own judgement. At the time of the original coding, we had no access to information on region of birth since this information could be matched to our original data only after the original data were coded and unidentified. A natural question that arises is how well our judgement-based coding of abandoned surnames correspond to the region of birth of these individuals. Surnames are of course inherited from parents and thus not necessarily related to an individual's own region of birth. Table 1 crosses the region of birth with types of name as coded in our material.[10] These findings indicate that it is relatively easy to identify the region of birth of an individual by observing the name of the individual.

– Table 1 about here –

6.2 Name changers and others

In Table 2, we present the relative frequencies of surname changes for individuals born in various regions as well as the relative weights of these groups in the Swedish population.

– Table 2 about here –

Immigrants are overrepresented among those who changed surnames to new names. This should come as no surprise considering the Swedish name

[10]There is a slight discrepancy concerning the Slavic surnames. We have 112 Slavic surnames for people born in other European countries that are not included in our definition of the Slavic region. This is partly due to the fact that we do not have information on country of origin in cases where only a few individuals are observed. This is a restriction imposed by Statistics Sweden to hinder identification of individuals. Our definition of Slavic countries is thus very imprecise and some individuals born in a Slavic country are classified as born in other European.

legislation (presented earlier) making it difficult for the foreign-born to take existing surnames. Around 37 percent of immigrants who abandoned foreign-sounding surnames were born in the Asian/African countries. Since people who were born in African/Asian countries constitute 20 percent of the immigrants as a whole, they are clearly overrepresented among name-changers. A similar pattern of over-representation (29 per cent of name-changers compared to 16 per cent of all immigrants) is observed for immigrants born in Slavic countries. In order to see whether this over-representation is systematically related to economic outcomes, we computed average labor earnings as well as average days in unemployment by region of birth. The African/Asian group is characterized by the lowest labor income and the highest average days of unemployment followed by the Slavic group. The name changers from African/Asian/Slavic countries constitute our main group of name changers. Their characteristics based on Main Data 1994-1997 Restricted (see Appendix A for details) and the control group are presented in Table 3.

As it can be seen in Table 3, the name-changers group and the control group are very similar.[11]

A systematic comparison of the two groups by means of a logistic regression yields a significant (95 percent) difference only with respect to age: the main group is slightly younger. In empirical estimations described in Section 8 we control for all time-invariant differences between the main and the control group and take into consideration the differences in age as well as in sex and educational level when comparing the outcomes.

[11]This is very different for the native name changers. As shown in the Table A2 in the Appendix the native name changers who change to a new name are much younger (around 5 years on average) and have significantly higher education than those who do not change their name.

6.3 Earnings over time

In this section we inspect the earnings development for name changers and the control group to answer the following three questions. Do name changers and the control group have similar earnings in 1990-1993 (the period before the name changing period)? This tells us whether the control group and the name changers are similar before the name changing period. Do earnings diverge after 1997 (the period after)? This gives a preliminary hint on whether or not there might be an effect of changing names. And finally, does this divergence occur in the end of the name changing period (1994-1997) or starts already in the beginning of the period when some name changers have not yet changed their names. This is very important and discloses whether the divergence is closely tied to name changers or is a divergence that can be related to the fact that these groups are different in some other respects that we do not observe.

Figure 1 presents the development of average labor earnings during the period 1990-2001 for individuals who changed their name in the period 1994-1997 and for our control group i.e. those from the same birth region (Asian/African/Slavic countries) but who did not change their name. Starting in 1992, the Swedish economy faced a deep recession and average labor earnings dropped for these groups. Average labor earnings have very similar trends in 1990-1994 for these groups. This means that we can use those who did not change name as the control group when examining the effect of name changes on earnings. Average earnings start to increase after 1995 but the increase is stronger for name changers compared to the control group suggesting that changing names might have improved individuals' earnings opportunities.

The pattern of earnings during 1994-1997 when name changes take place is not straightforward to interpret since name changes occur at various years. Around 28, 31, 25 and 16 percent of name changers changed their names in

1994, 1995, 1996 and 1997 respectively. This implies that average earnings in 1994 for name changers is based on earnings where 72 percent have not yet changed their name—only in 1997 have all changed their name.

There is no clear divergence in labor earnings until 1996. The divergence of earnings between the groups can first be observed after 1996 when the groups are more clearly defined as those who have changed their names and those who have not. These findings indicate that the control group seems to be appropriate, that the earnings divergence exist after the name changing period and that this divergence starts first after 1995 when 59 percent of the group of name changers have changed their name.

In order to isolate the change in earnings before and after the actual name change we have to turn to another measure of time than calendar time. We set the time origo to the year when an individual has changed name. Results are plotted in Figure 2.[12] The time axis thus measures years prior or after the year of name change. All earnings are now based on average of four years due to the fact that the name changes we study take place during a four year period: 1994-1997. For example average earnings for name changers one year after the name change correspond to earnings corresponding to 1995, 1996, 1997 and 1998. These average earnings are compared with weighted average of earnings for the individuals in the control group. We have to use a weighted average since the fraction of individuals that change name is not the same during the name change period 1994-1997.

The figure clearly indicates that in periods preceding name change, earnings for the two groups follow each other closely. At the year of name change earnings starts to increase for both groups. The increase is however stronger for name changers already one year after the name change. The stronger

[12]For constructing this figure we follow Ayres & Levitt (1998).

increase for name changers is particularly pronounced four years after name change.

So far we have been concentrating on differences in mean earnings. A question is however whether we should expect the effect to be similar across the earnings distribution. If changing to a Swedish-conform name improves labor market opportunities, this would most likely show up in the lower part of the earnings distribution. The very lower earnings at the lower tail of the income distribution are basically a result of lack of employment. This is the case when a Swedish-sounding name can facilitate being called to a job interview and increase the probability of employment.

Figure 3 presents ratios between earnings for the name changers and the control group at different percentiles before and after the name change period 1994-1997. As regards the 55th percentile, name changers have about 10 percent lower earnings before but 10 percent higher earnings after the name change period. As lower percentiles are considered, the relative increase in earnings for the name changers accelerate after name change. For example, at the 35th percentile name changers "before" earnings are about 16 percent lower compared to the control group. After the name change period the earnings ratio has increased to more than 2 times implying that name changers have more than a 100 percent higher earnings at this percentile compared to the control group.[13]

Finally an important question is whether name change in general and not only name changes from foreign-sounding to Swedish-comfort names affect earnings. A priori there is no reason to believe that changing a Swedish surname for another new name would imply a change in earnings. TO check

[13]The ratios for the percentiles below 30 not shown in the Figure 3 are close to one for the before period and as large as 16 for the period after the name change.

whether there are any systematic pattern of earnings development for name changers as compared with others, we plotted the yearly earnings of persons who change their surname to a new surname in 1995,1996,...,2000 comparing with all others using the same restrictions as we did in the case of immigrants (except immigration year). The plots in figure A in the appendix disclose that there does not seem to exist ant systematic pattern in earnings development that can be related to the name change. The overall steeper earnings pattern of name changers is due to their age (on average 5 years younger) and substantially higher level of education (see Table A2).

7 Estimation matters

The discussion in this section relies on the assumption that the probability of name change is not correlated with productivity characteristics that imply higher earnings.

The most straightforward way to examine the effect of changing surname is to compare the earnings change before and after for the name changers with the corresponding change for the control group, i.e. a "Difference-in-differences" approach (DD). Using earnings data for all individuals in all years from 1990 to 2001, we compare the change in average labor earnings before and after the name change period, 1994-1997. This controls for all time-invariant differences between name changers and name keepers as well as all time effects common to the two groups. The effect of changing surname on earnings is captured by the coefficient for an interaction variable between the name change indicator and the indicator representing the after period.

We reported in Section 6 that there is on average two years difference in age between name changers and the control group. Name changers might

have a steeper earnings profile because they are younger. We account for this by including interactions between age and the after indicator variable. We do analogous controls with respect to sex and education level. Furthermore, we estimate effects of name change on labor earnings at different parts of the earnings distribution by means of quantile regressions.

As a second strategy we utilize the complete yearly panel and estimate a model including individual and year fixed effects. The effect of name change corresponds to the estimate for a dummy variable which takes the value one at and after the years the individual changes name.[14] Using this strategy we can also examine whether changing name has an immediate and/or delayed effect on earnings by including series of lags for the name change indicator. We can also add series of leads for the name change indicator, coded as dummies for whether a person will change name in future years. This can be used as an informal test for whether the effect of name change has a causal interpretation as the coefficients on such dummy variables should be insignificant since the person has not changed name yet.[15]

8 Effects of name change on earnings

8.1 Average Earnings Before and after

Estimation results based on the before and after DD-estimator are presented in the upper panel Table 4. In Column 1 the mean effect from a first differenced equation is reported. Columns 2-7 present results from the 25th, 30th, 35th,...,50th percentile regressions. The mean effect of changing from a

[14]We also will allow for differential trends with respect to the time-invariant variables in the same way as discussed above. In this case the covariates are interacted with each year dummy variable.

[15]This strategy is similar to Stevenson and Wolfers (2003).

foreign-sounding to a Swedish-conform surname is estimated to almost SEK 15,000. Since average earnings before name change were 57,000 this yields a 26 percent increase in earnings due to the name change. This effect is significant at the 5 percent significance level using conventional OLS standard errors (using robust standard errors the *p-value* is 0.08.)

As regards the quantile regressions the effect of changing name is significant at all percentiles from the 25th up to the 50th percentile. Results from regressions at percentiles lower than the 25th and higher than the 50th are not reported since they are not significant.

At the 25th percentile a name change is associated with an increase in labor earnings of about SEK 14,600. The before name change income at the 25th percentile is SEK 8,000, implying a 188 percent increase in earnings due to the name change at this part of the income distribution. The corresponding effects decrease at higher percentiles.[16]

— Table 4 about here —

Estimation results based on the DD-estimator when controlling for differential earnings trends with respect to age groups (the age categories used are: 20-24, 25-29, 30-34, 35-39 and 40-52) and gender are presented in the lower panel Table 4.[17] The mean effect of changing name change becomes slightly lower when age group and gender earnings trends are allowed for. The mean effect of changing name is now approximately SEK 13,400 (compared to 14,900 when no differential trends were allowed for). Using conventional OLS standard errors the *p-value* of this effect is 0.047 but raises to 0.11 when clustered standard errors are used. As means of robustness analysis we also applied

[16]The increase in earnings due to the name change at the 30th, 35th, 40th, 45th, and 50th percentiles are 164, 167, 158, 117 and 70 percent, respectively.

[17]We have also controlled for differential trends with respect to educational level and year of immigration but the results are basically unchanged.

a "Differences-in-differences matching estimator" where matching was based on earnings prior to the name change period. Results are almost the same regardless of which estimator that is used indicating that the control group is fairly adequate.

As regards results from the quantile regressions allowing for differential earnings trends with respect to age groups and gender results are basically unchanged.

8.2 Before and after using annual data

Using annual data we can examine whether changing name has an immediate and/or delayed effect on earnings. We can also estimate whether there is an effect of changing name in future years. This can be seen as a way of checking whether the effect of name change has a causal interpretation since we would not expect any earnings effects for persons who have not changed their name yet.

Table 5 shows fixed effect estimations utilizing the complete yearly panel. In Column 1 we report results from an estimation including an indicator variable taking the value 1 from the year when the individual changed name (0 otherwise) and controlling for year effects. We find basically the same results as when average data before and after the name change period was used (the *p-value* is 0.11 using individual robust standard errors). Results are about the same when controlling for differential earnings trends with respect to age groups and gender (see Column 2).[18]

— Table 5 about here —

Column 3 of Table 5 shows results including the set of dummy variables

[18]We also also allowed for additional trends with respect to education level and year of immigration. This does not affect the results.

indicating if name change was adopted k years ago. According to results there is a large and statistically significant effect of changing name three to four years after name change and the effect seems to grow. After three or four years earnings increase by SEK 13,500 after name change. The corresponding estimate after four to seven years is almost SEK 20,000.

In Column 4 results adding leads of dummy variables indicating k years to name change are presented (baseline is the year when name change took place). Consistent with a causal effect interpretation of changing name coefficients on the dummies indicating the period before name change are close to zero and not significantly different from zero (individually or jointly). The coefficients on dummies indicating the period after name change, on the other hand, show a significant growing effect of changing name on earnings and the estimated coefficients are very similar to those obtained in Column 2, even though the standard errors are somewhat larger.

One issue when estimating treatment effects is the potential problem of seriously underestimating standard errors due to group/time-specific random shocks (see Donald and Lang 2006; Wooldrigde 2003, 2006). One way to take into account random group/time effects, suggested by Donald and Lang, is to estimate standard errors using aggregated data at the group-time level. Applying such a strategy we obtain an estimated name effect of SEK 15,000 (the *p-value* is 0.147).[19]

In summary, estimations above suggest that changing surname into a Swedish-conform surname yields increased earnings. Furthermore, the effect

[19]We also added individuals who also changed name during 1991-1993 and 1998-2000 in our estimations. The reason why we do not use this sample in the main analysis is that it is not straightforward to evaluate earnings trends before name change. Comparing means, the same differences between name changers and name keepers as presented in Table 1 seem to prevail. Based on fixed effect estimations the mean name change effect using this sample is SEK 8,000 (the *p-value* is 0.08 using individual robust standard errors) which is somewhat lower than when name changers from 1994-1997 were used.

seems to be stronger in the lower part of the earnings distribution. Different strategies to estimate standard errors have been used and standard errors have in general been larger the more flexible structure we put on the error term. But the effect of changing name is always significant at significance levels between 1 and 15 percent. This would be acceptable levels in terms of rejecting the null hypothesis of no effect of changing names considering the rather few number of individuals that changed name during the 1990s.

9 Summary

In this paper we studied the earnings development for immigrants who changed their foreign-sounding names to Swedish-sounding or neutral names as compared with immigrants from the same region that did not change names. It also seems to be case that immigrants with the same country of origin but who did not change names constitute an adequate control group.

To summarize, results indicate that there was a substantial effect from changing the surname into a Swedish-sounding one in the 1990's and the effect seems to be higher at the lower part of the distributing compared to the mean effect. Allowing for differential trends with respect characteristics that differ between the two groups such as age, gender, educational level and year of immigration, did not alter the results in any substantial way. These results indicate that the Swedish society displays a preference for individuals carrying Swedish sounding names implying that individuals with names originating from the African/Asian/Slavic countries have to pay a price for their names in terms of lower earnings.

References

Aguilar, R. and B. Gustafsson (1994), "Immigrants in Sweden´s labor market during the 1980s", *Scandinavian Journal of Social Welfare*, No. 3, sid. 139-147.

Aigner, D. J., and G. Cain (1977), "Statistical Theories of Discrimination in the Labor Market", *Industrial and Labor Relations Review*, 30, 175-187.

Arai, M., H. Regnér, and L. Schröder (1999), *Är arbetsmarknaden öppen för alla?*, Bilaga 6 till Långtidsutredningen 1999, SOU 2000:7. Fritzes, Stockholm.

Arai, M. and R. Vilhelmsson (2004), "Unemployment-Risk Differentials Between Immigrant and Native Workers in Sweden", *Industrial Relations*, Vol. 43, sid. 690-699.

Ayres, I. and S. D. Levitt (1998), "Measuring Positive Externalities from Unobservable Victim Precaution: An Empirical Analysis of Lojack", *The Quarterly Journal of Economics*, 113 (1), 43-77.

Becker, G. S. (1957), *The Economics of Discrimination*, University of Chicago Press, Chicago.

Bertrand, M. and S. Mullainathan (2004), "Are Emily and Greg More Employable Than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination", *The American Economic Review* 94 (4), 991-1013.

Carlsson, M. and Rooth, D-O. (2006), "Evidence of Ethnic Discrimination in the Swedish Labor Market Using Experimental Data", IZA Discussion Paper 2281.

Donald, S., and K. Lang (2006), "Inference with Difference in Differences and Other Panel Data," forthcoming in *The Review of Economics and Statistics*.

Edin, P-A. och O. Åslund (2000), *Invandrare på 1990-talets arbetsmarknad", i Ofärd i välfärden*, SOU 2001:54, Fritzés, Stockholm.

Ekberg, J. (1994), "Economic progress of immigrants in Sweden from 1970 to 1990: a longitudinal study", *Scandinavian Journal of Social Welfare*, No. 3, sid. 148-157.

Fershtman, C., and U. Gneezy (2001), "Discrimination in a Segmented Society: An Experimental Approach", *Quarterly Journal of Economics*, February, 351-377.

Freyer, R. G. and S. D. Levitt (2004), "The Causes and Consequences of Distinctively Black Names", *The Quarterly Journal of Economics*, 119 (3), p. 767-805.

Lieberson, S. (2000), *A Matter of Taste: How Names, Fashions, and Culture Change*, New Haven, Conecticut, Yale University Press.

Lundborg, P. (2000), "Vilka förlorade jobbet under 1990-talet?", i Fritzell, J. (red.), Välfärdens förutsättningar. Arbetsmarknad, demografi och segregation. Kommittén Välfärdsbokslut, SOU 2000:37. Fritzes, Stock-

holm.

Nekby, L. (2003), How long does it take to integrate? Employment convergence of immigrants and natives in Sweden, in *Empirical Studies on Health Insurance, Employment of Immigrants and the Gender Wage Gap*, Dissertations in Economics, 2003:2, Department of Economics, Stockholm University.

Phelps, E. S. (1972), "The Statistical Theory of Racism and Sexism", *American Economic Review*, 62: 659-661.

Stevenson, B., and J. Wolfers (2003), "Bargaining in the Shadow of the Law: Divorce Laws and Family Distress", NBER Working Paper 10175.

Watkins, S. C., and A. S. London (1994) "Personal Names and Cultural Change: A Study of the Naming Patterns of Italians and Jews in the United States in 1910", *Social Science History*, 18(2): 169-209

Vilhelmsson, R. (2000), "Ethnic Differences in the Swedish Youth Labor Market", Licentiatserien 15/2000. Institutet för Social forskning, Stockholms universitet, Stockholm.

Wooldridge, J. M. (2003), "Cluster-Sample Methods in Applied Econometrics", Econometrics, *American Economic Review*, 93 (2), 133-138.

Wooldridge, J. M. (2006), "Cluster-Sample Methods in Applied Econometrics, An Extended Analysis", Department of Economics, Michigan State University.

Figures

Figure 1: Earnings for name changers in 1994–1997 and name keepers

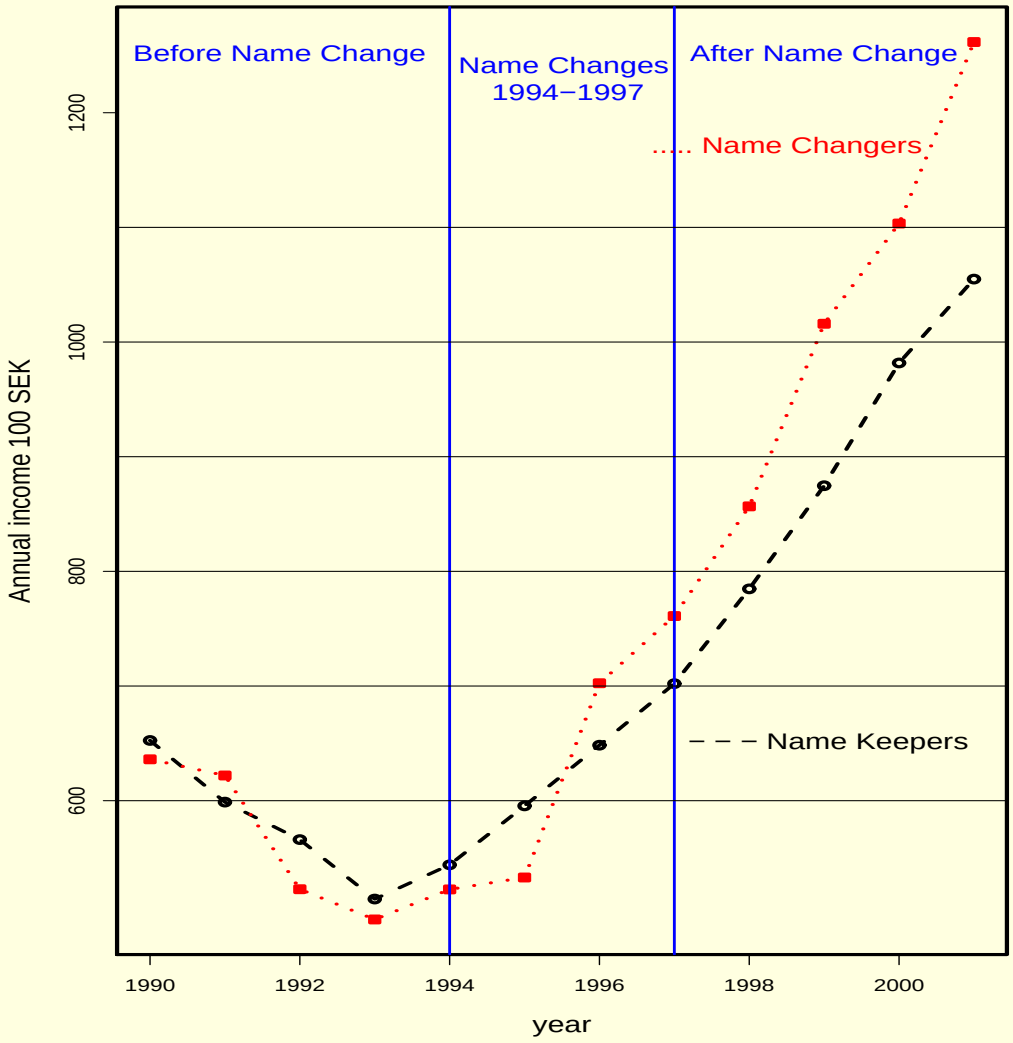

Figure 2: Earnings for name changers in 1994–1997 and name keepers

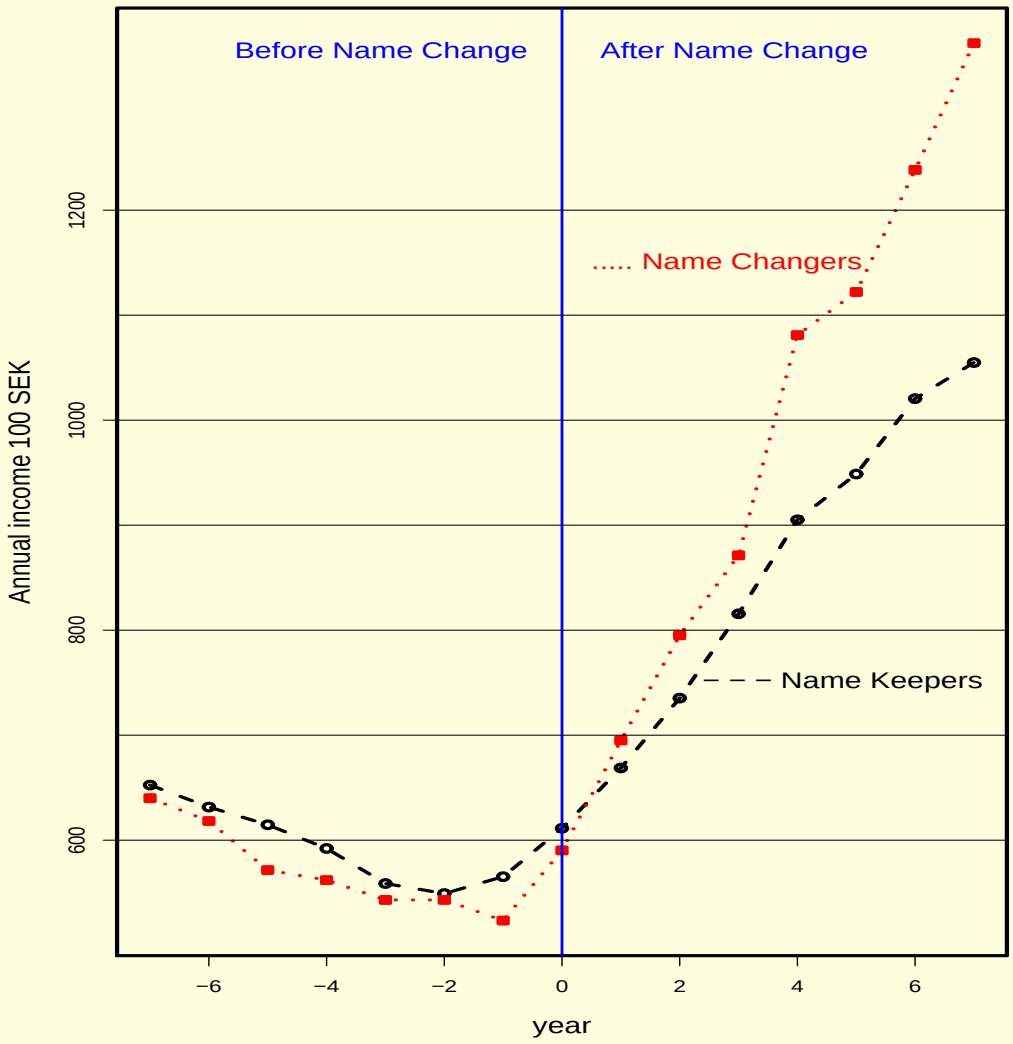

Figure 3: Name changers to name keepers relative earnings before and after name change for name changers in 1994–1997

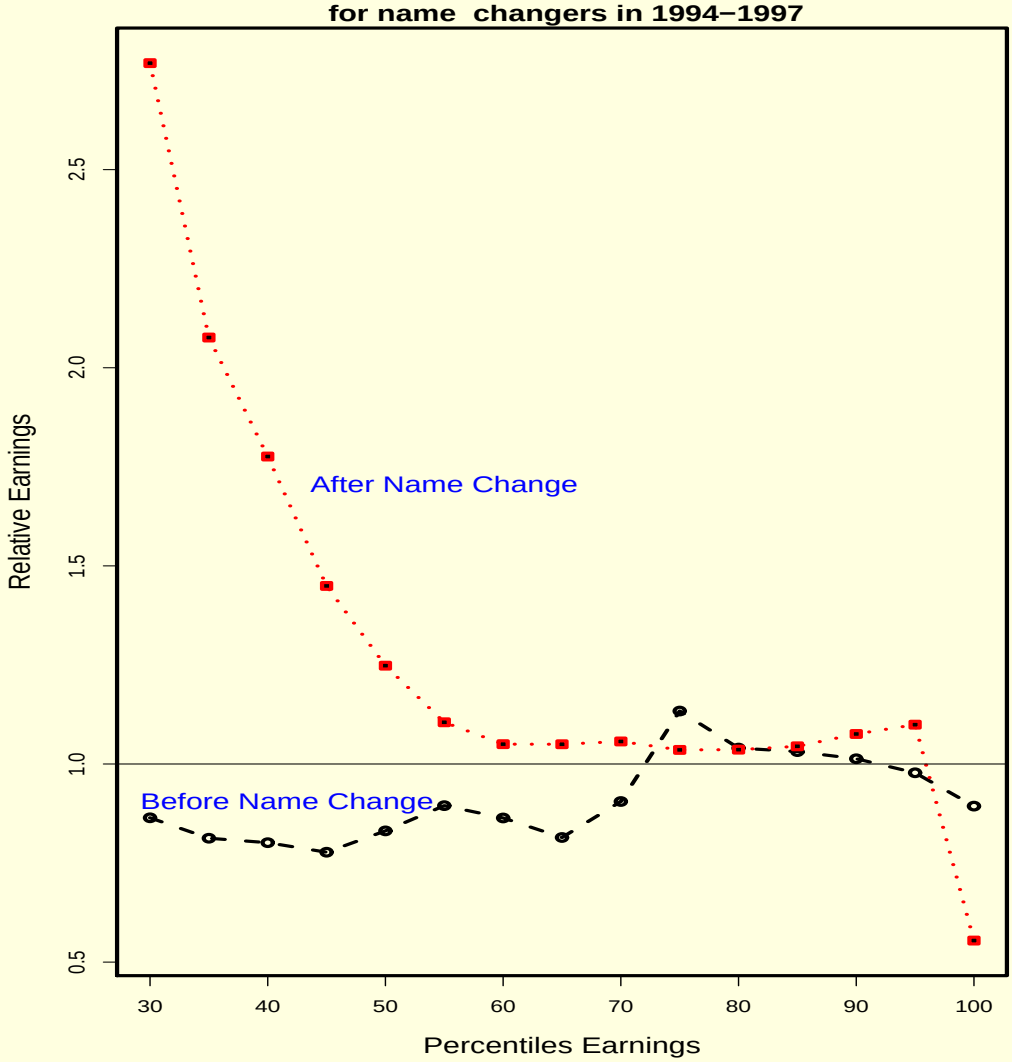

Table 1. Type of name abandoned and Region of Birth for name changers. Number of persons

	Type of name abandoned.					
Birth Region:	Finland	Latin	Asia/ Africa	Slavic	Others	*Total obs.*
Finland	145	0	10	8	3	166
Latin countries	0	28	1	1	2	32
Asia/Africa	0	0	434	9	18	461
Slavic countries	7	5	22	317	9	360
Other European count.	1	17	23	112	48	201
Other countries	2	2	14	7	16	41
Observations	155	52	504	454	96	1,261

Notes:
i) Slavic countries are Poland and countries belonging to the former Yugoslavia and Soviet union.

Table 2. Region of birth for various groups, born 1938-1971. Shares in percent.

	Swedish[a] Population	Name Changers				Immigrants[b]
		All Names	New Names	Foreign to Swedish All	Foreign to Swedish Immigrants	
	95-00	95-00	95 -00	90-00	90 - 00	90 - 00
Finland	3.7	3.0	4.7	10.5	13.2	20.9
Latin	0.9	0.4	0.8	2.0	2.5	5.4
Asia/Africa	3.4	5.7	9.8	29.1	36.6	20.2
Slavic	2.8	2.6	6.7	22.7	28.6	15.8
Other Europe	4.4	3.1	5.9	12.7	16.0	25.7
Other	2.0	1.0	1.5	2.6	3.2	11.9
Sweden	82.8	84.2	70.1	20.4	–	–
Observations		16,585	3,180	1,584	1,261	

Notes:
[a] The figures are based on total population of immigrants. The fraction of natives is computed residually based on the 20-53 years old population in 1991 according to Statistics Sweden and the total number of observation in our immigrant population data.
[b] These statistics are based on a 2 percent random sample of the underlying population between ages 17-54 in 1991.

Table 3. Means of central variables for name changers from Asian/African/Slavic countries and the control group based on Main Data 94-97 Restricted (for data restriction see Appendix A). Standard deviations in parentheses.

	Name Changers	Control Group
Earnings Before (hundreds SEK)	570	583
	(577)	(568)
Earnings After (hundreds SEK)	1059	924
	(1052)	(949)
Age in 1990	30	32
	(6)	(8)
Education		
Lower than Gymnasium	0.23	0.31
Gymnasium	0.51	0.45
Higher than Gymnasium	0.14	0.16
Unknown	0.12	0.08
Female	0.40	0.48
Resid. in Big City in 1990	0.70	0.65
Latest immigration year	1982	1982
	(7)	(7)
Education direction		
Common basic	0.33	0.26
Pedagogical	0.03	0.02
Humanities and arts	0.03	0.04
Social sciences, law, trade, business and administration	0.12	0.17
Natural, math and computer sciences	0.03	0.04
Engineering, technical, construction	0.21	0.20
Agriculture	0.01	0.01
Health, medical care and services	0.11	0.11
Service	0.06	0.05
Unknown	0.09	0.11
Observations	159	69,988

Notes:
i) Earnings Before (After) corresponds to average earnings based on the years 1990-1993 (1998-2001).

Table 4. Difference-in-difference estimation of the effect of name change on labor earnings. OLS on First Differences (FD) and Quantile regressions.

		Quantile regressions					
	OLS	Percentile:					
	FD	25th	30th	35th	40th	45th	50th
Name change	149.0*	146.0**	178.5**	252.2*	301.2**	283.4***	227.1*
×After	(85.5)	(62.0)	(82.8)	(139.6)	(139.0)	(106.5)	(125.7)
Name change	–	17.8	-16.7	-33.6	-48.0	-70.2	-67.2
		(14.5)	(17.5)	(31.7)	(46.3)	(62.8)	(74.7)
After	–	-55.8***	-31.5***	24.0***	84.3***	159.3***	247.0***
		(2.2)	(2.9)	(3.8)	(5.4)	(7.9)	(5.7)
Constant	341.1***	66.6***	122.9***	179.1***	241.9***	159.3***	247.0***
	(3.2)	(1.6)	(2.1)	(2.4)	(2.1)	(7.9)	(5.7)
		Controlling for trends in covariates					
Name change	134.2	155.8**	193.2***	184.0*	274.9**	352.0**	261.7*
×After	(84.4)	(77.1)	(49.9)	(101.5)	(114.8)	(149.9)	(144.5)

Notes:
i) In Column 1 robust standard errors are reported. Note that the estimation here is based on a first differenced equation with two time periods implying a cross section estimation. Thus, allowing for an arbitrary individual serial correlation process in the errors term is not relevant here. In Column 2-7 bootstrapped standard errors are reported.
ii) In Column 1 the estimation is based on the first differenced equation implying that 70,147 observations are used.
iii) In the lower panel differential trends with respect to age groups (20-24, 25-29, 30-34, 35-39 and 40-52) and gender are controlled for.

Table 5. Fixed effect estimations of the effect of name change on labor earnings.

	(1)	(2)	(3)	(4)
Name change	106.2***	97.8***	–	–
	(32.2)	(31.9)		
	[66.5]	[65.7]		
>= 5 years	–	–	198.0***	199.3**
after			(70.4)	(79.4)
			[119.4]	[118.8]
3-4 years	–	–	135.1***	137.4**
after			(45.8)	(59.5)
			[84.4]	[75.5]
1-2 years	–	–	62.0	64.3
after			(39.2)	(54.7)
			[63.4]	[51.7]
Year of	–	–	-2.3	–
Name change			(48.6)	
			[51.9]	
1-2 years	–	–	–	-3.1
before				(54.9)
				[48.7]
3-4 years	–	–	–	-3.0
before				(55.1)
				[58.8]
>= 5 years	–	–	–	20.4
before				(61.6)
				[76.9]
Year dummies	YES	YES	YES	YES
Diff. trends	NO	YES	NO	NO

Notes:
i) Heteroscedasticity robust standard errors in parentheses. Cluster robust standard errors in brackets.
ii) In Column 2 differential trends with respect to age groups (20-24, 25-29, 30-34, 35-39 and 40-52) and and gender are controlled for.

Appendix A

The are 244 name changers from Asian/African/Slavic countries in the Main Data 94-97. Excluded observations are:

41 individuals who had a *disability pension* at least one year during the period 1990-2001

8 individuals with *missing information on county of residence as well as labor earnings* at the same year. These (49 = 41+8) observations on individuals are excluded

additional 36 who had *annual earnings above the 90th percentile* of the earnings distribution sometime in the period 1990-93.

All together, the sample restriction described above imply that 85 individuals are excluded leaving us with 159 name changers that are used in the main analysis. A comparison of mean characteristic of these 159 name changers and the 85 excluded observations are presented in Table A.

Table A1. Descriptive Statistics for *Main Data 94-97 Restricted* (159 observations) and excluded observations (85) due to the restrictions as described above.

	Observations	Mean	Std. Dev.	Min	Max
Age in 1990	85	35.5	7	21	52
	159	30.1	6	20	46
Female	85	0.3		0	1
	159	0.4		0	1
Big City	85	0.7		0	1
	159	0.7		0	1
Year of Immigration	85	1980	7	1965	1989
	159	1982	7	1961	1989

Table A2. Means of central variables for Native Name Changers in 1995-2000 and Native Name Keepers. Same sample restrictions as described above in this Appendix. Standard deviations in parentheses.

	Name Changers	Control Group
Age in 1995	35.4	40.0
	(8.4)	(9.5)
Education		
Lower than Gymnasium	0.12	0.25
Gymnasium	0.48	0.50
Higher than Gymnasium	0.40	0.23
Unknown	0.00	0.02
Female	0.44	0.54
Observations	1,791	112,309

Figure A: Earnings for Native Name Changers in 1995-2000 and Native Name Keepers.