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Any comments welcome

## **Ethnic Discrimination at the NYSE?\***

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The NYSE's long life and distinctive mechanism of admitting new members offers a unique window to the history of ethnic discrimination in the United States. Membership, and the right to trade securities, is restricted to the owners of 1,366 seats at the exchange. Although each seat is considered a "personal salable property" all transfers require the approval of a Committee of Admissions whose task it is judge each applicant's "personal and financial integrity". This paper uses a new data set on 7,097 applicants to the exchange and on the ethnic origins of their names to examine whether the assessment of these rules were subject to ethnic bias between 1883 and 1973. The data indicate that, in the early history of the exchange, Jewish and German applicants were significantly more likely to be rejected, while Irish applicants were slightly favored. The advent of WWI in 1914 raised the probability that applicants with German names would be rejected by 10 percent.

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The NYSE's long life and distinctive mechanism of admitting new members offers a unique window to the history of ethnic discrimination in the United States. Membership, and the right to trade securities, is restricted to the owners of 1,366 seats at the exchange.<sup>1</sup> Although each seat is considered a "personal salable property" all transfers require the approval of a Committee of Admissions whose task it is judge each applicant's "personal and financial integrity". This paper uses a new data set on 7,097 applicants to the exchange and on the ethnic origins of their names to examine whether the assessment of these rules were subject to ethnic bias between 1883 and 1973. The data indicate that, in the early history of the exchange, Jewish and German applicants were significantly more likely to be rejected, while Irish applicants were slightly favored. The advent of WWI in 1914 raised the probability that applicants with German names would be rejected by 10 percent.

To begin, it will be useful to define what we understand by ethnic discrimination for the purpose of this study. *Ethnic discrimination* occurs when members of a minority group are treated differently from the members of majority group, with identical productive characteristics.<sup>2</sup> Two types of discrimination are discussed in the literature: taste-based and statistical discrimination.

Gary Becker (1957) introduces a preference-based model of discrimination, in which an employer's tastes over characteristics that are irrelevant to production enter an

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<sup>1</sup> In 1929, the quarter dividend sale granted all members an extra quarter seat, expanding the number of seats from 1,100 to 1,375. See Lance E. Davis, Larry Neal, Eugene N. White (2005) for a thorough analysis of the quarter dividend sale. In 1953, membership was reduced to 1,366.

<sup>2</sup> Even this simple definition is fraught with problems. First, productivity may depend on membership in a minority group. For example, young Hispanic actors may be more appealing to a predominantly Hispanic audience, or handsome flight attendants might bring in more of the bored business customers that are essential to survival of the struggling airlines. Second, production technologies may be exogenous, as my military friends tell me that women are useless with a 90 pound pack on their backs. Third, productivity characteristics may be endogenous if expectations of discrimination influence the investment decisions of minority members. For now, I will ignore all of these problems.

employer's utility function. In Becker's model, a taste parameter, or coefficient of discrimination, measures an employer's distaste for interacting with members of a minority. The total wage that a discriminating employer pays to a member of the minority includes this parameter along with the wage payment. As a result members of the minority are hired only if the difference between the majority and the minority wage makes up for the employers distaste for minorities. The existence of discrimination in a population depends on the share of discriminating employers: if the fraction of discriminating employers is low, discrimination will be competed away and no minority workers work for discriminating firms. If, however, the fraction of discriminating employers in the population is high, some minority workers have to work for discriminating firms and the wage for majority workers will exceed those of the minority. With free entry and constant returns to scale, discrimination tends to disappear, even if there is a sizable share of discriminating employers: non-discriminating firms expand, as they hire minority workers at identical productivity and cheaper wages, and discrimination disappears without government interference.

Despite the intuitive appeal of Becker's model of taste-based discrimination, the literature on discrimination has focused on alternative models of statistical discrimination, perhaps because exogenous shocks to preferences over ethnicities are difficult to observe. Edmund Phelps (1972) and Kenneth Arrow (1973), Dennis Aigner and Glenn Cain (1977) develop such models of statistical discrimination, where discrimination results from differences in the reliability of indicators for ability, rather than in preferences. In their models, individual characteristics such as race and gender are correlated with productivity, and employers rely on these characteristics to infer the

expected productivity of applicants. In the simplest version of the model, the minority applicants are – on average – less productive than majority applicants, while the dispersion of productivity characteristics is the same in both groups. This implies that, although the average worker in each group is paid a wage that equals his productivity, it is possible for a minority member to receive a lower wage than a majority worker, even if both workers are equally productive. In other words, there can be discrimination at the margin, even if there is no discrimination on average. Workers receive equal pay for equal *expected* productivity and wage differentials need not be eliminated by competition.<sup>3</sup>

Empirical studies of discrimination have pursued four related approaches: regressions, natural experiments, laboratory experiments, and field experiments. Derek Neal and Johnson (1996) use regression analysis to examine potential determinants of the earnings gap between white and black workers. In their data for 15 to 23 year olds in the National Longitudinal Survey who took the AFQT at age 17 or below, it appears that pre-market differences in skills explain a large part of the racial earnings gap. They find no racial differences in returns to AFQT. Claudia Goldin and Rouse (2001) employ the policy of using screens to hide the identity of musicians as a natural experiment to identify the effect of gender on the outcomes of orchestra auditions. They find that women do, on average, worse on blind rounds, which may be explained by the fact that only the best female musicians chose to participate in auditions that are not blind. A

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<sup>3</sup> There are several variations of this simplest model of statistical discrimination. For example, majority and minority groups may differ in the quality of the signal that communicates their productivity. This situation may arise when majority managers cannot judge the ability of minority workers too well. In these models, discrimination occurs even when productivity characteristics are distributed with an identical mean and variance for minority and majority members; minority members with above average productivity characteristics are less likely to be hired and paid their productivity wage. Another prominent variation of the model assumes diminishing returns to worker ability and that employers are risk averse. In this case, all minority members are hurt by an imprecise signal.

comparison of differences in male and female auditions suggests that, among musicians that do both blind and non-blind auditions, women do better.

Chaim Fershtman and Uri Gneezy (2001) construct a laboratory experiment in which players transfer money without engaging in any kind of personal contact. Ethnicity is identified by Ashkenazi and Sephardic Jewish names that are written on paper. When these players play the trust game, male Ashkenazic Jews receive larger transfers from both Ashkenazi and Sephardic Jews. Women, on the other hand, do not seem to distinguish between players of different ethnicities. Whereas lab experiments can be criticized for being conducted in an artificial environment where decisions have little impact on the real life of participants, Marianne Bertrand and Sendhil Mullainathan (2003) create a new type of experiment that makes it possible to examine employers' real life response to differences in racial characteristics. Bertrand and Mullainathan send out resumes with identical characteristics that differ in the ethnic connotation of a name. They find that call-back rates are lower for ethnic-sounding names, and that black names benefit less from more experience or honors. Steve Levitt and Roland Fryer (2004) counter this work by controlling for the characteristics of mother and birth through a detailed analysis of birth records. They find that racial names have little effect on differences in the life outcome of white and black children.<sup>4</sup>

This paper differs from the existing literature as it focuses on examining empirical evidence for taste-based, rather than statistical discrimination. World War I creates a unique opportunity to examine the influence of an exogenous shock to preferences over the ethnicities of traders at the NYSE. Triggered by the assassination of the Austrian

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<sup>4</sup> In another type of a close to real setting, Steve Levitt (2003) finds evidence for statistical discrimination against Hispanics and older contestants in the voting behavior of contestants in the show *The Weakest Link*, but not against women and African-Americans.

Archduke Ferdinand in Sarajevo on June 28, 1914, it begun just after a major wave of immigration from Germany had petered out. Distrust worsened as German Americans lobbied against the war, raising questions about their loyalty. For example, a letter to the editor of the *New York Times* on January 3, 1915 argued that “German-Americans would not fight against Fatherland” (*New York Times*, January 3, 1915, p. C2). In the wake of these developments, groups with traditionally strong ties to German members, such as the Chemists Club banned the use of German on their premises and expelled German-born members to avoid perception of being pro-German (*New York Times*, May 5, 1918). At the same time, Representative J.F.C. Smith of Michigan introduced a bill to congress demanding that towns named “Berlin”, “German Town”, or “Bismarck” be renamed “Liberty” or “Victory”, and American cities, such as Portland, Oregon re-christened its Teutonic named streets (*New York Times*, June 2, 1918). The taste for things German was quite literally reduced: from the onset of the war until 1918, the U.S. consumption of sauerkraut decreased by 75 percent, so that New York’s association of grocer’s complained that “There is enough sauerkraut in stock at the present time to feed a good-sized German army...” (*New York Times*, April 25, 1918, p.10)<sup>5</sup> These examples illustrate a negative shift in preferences over ethnicities, which I exploit as an exogenous source of variation.

This paper is similar to the existing literature, such as Bertrand and Mullainathan (2003) or Fershtman and Gneezy (2001) in that it relies on the ethnic connotations of

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<sup>5</sup> Contemporary accounts of discrimination against German Americans abound. For example, Lou Gehrig recalled being taunted as a “dirty Hun” at the beginning of the war. (*New York Times*, July 3, 2005) In 1917 the National German-American Alliance, an organization that had campaigned against United States involvement in the war, had its charter withdrawn. Some schools stopped teaching German as a foreign language and radio stations were encouraged not to play the music of German composers. A large number of German language newspapers, starved of advertising, were also forced to close. Also see Carl Wittke 1956, p. 115.

names to identify ethnicity. Applicants to the exchange are assigned to ethnicities based on their first and last name using a commercial data base that identifies ethnicities for purposes of marketing. Eighty-five percent of 8,347 applicants to the exchange can be assigned to seven ethnicity groups, Dutch, German, English, Italian, Irish, Jewish, Scottish, and Other.

Such data reveal evidence for ethnic discrimination up to 1945. Logit regressions of admissions decisions with weekly fixed effects exploit differences in decisions across individuals with different ethnicities, holding constant the conditions of the stock market. They show that applicants with Jewish and German last names were more likely to be rejected than applicants of any other ethnicity. In the period from the beginning of World War I to 1929, the probability that a German applicant was rejected increased by more than 10 percent. The probability that a Jewish applicant was rejected increased by 7 percent. At the same time, Irish applicants appeared to have been slightly favored at a time when Irish Americans rose to prominence in the city and began to occupy important offices in the administration. Regressions yield no evidence for discrimination among these ethnicities after 1945.

The remainder of this paper uses data on more than 8,000 applicants to the New York Stock and the ethnicities of their names to test for ethnic discrimination. Section I introduces the NYSE data, section II presents results from fixed-effects logit regressions of the admissions decision on ethnicity, section III discusses the history of discrimination against Jewish and Irish New Yorkers and section III concludes.

## I. The NYSE Ethnicity Data

The NYSE data includes information on 8,347 applications for membership at the NYSE between 1883 and 1973. From 1883 all attempted transactions were recorded in a large ledger of transactions, which can be viewed at the archives of the exchange.<sup>6</sup> Each of the ledger's hand-written entries includes the buyer's name, the seller's name, the price of the seat, the date of the application, the date of the decision, the decision, and the number of black balls and white balls that were cast. In the average week between 1883 and 1973, the membership committee decided on 2.4 applications. Rejection rates from 6 percent during WWI to less than 1 percent between 1945 and 1973 (Table 1).<sup>7</sup>

Names are matched to ethnicities by a commercial data base, List Service Direct (LSDI)<sup>8</sup>. Their algorithm matches names to ethnicities by given name and then surname. LSDI uses linguistic rules about linguistic rules about pre- and suffixes as well as information on location-specific naming practices to determine the ethnic origins of names. For example, surname ending in “dda” or “ddo” are assigned to Sardinia and therefore Italy. This algorithm creates unique ethnicity matches for 85.5 percent of buyers and 85.2 percent of sellers, yielding a total of 7,097 observations.

Data are divided into four time periods: pre- World War I, World War I to 1929, 1929 to 1945 and 1945 to 1973. The pre-World War I period begins with the first

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<sup>6</sup> Applications after 1973 are not yet accessible to protect the privacy of current members. Figure 1 illustrates the movement of price over time: Seat prices rose from 30,000 nominal US dollars in 1883 to 625,000 in 1929. Prices declined sharply during the Great Depression and began to rebound during the 1960's, reaching highs of \$450,000 in 1967. For the entire period, the average real price for the whole data set was 1,231,231 in year 2000 U.S. dollars. In spring 2005, a seat at the NYSE sold for \$2,400,000.

<sup>7</sup> The ledgers include some additional information which I plan to use in future research about the importance of ethnic and other social networks. This information consists of the names of two existing members who sponsored the application are also recorded in the ledgers as well as some notes on the margins that indicate the reason for the sale, if it was initiated because the seat's owner was deceased or expelled from the exchange.

<sup>8</sup> List Service Direct, Inc. at [http://listservicedirect.com/ethnic\\_religious.html](http://listservicedirect.com/ethnic_religious.html)

recorded transaction on January 3, 1883 and ends on June 28, 1914 with the assassination of Archduke Franz Ferdinand of Austria by Gavrilo Princip in Sarajevo. This cut-off point is chosen, because the stock exchange closes in July and re-opens on November 28, 1914 to trade bonds. The next period, from World War I to 1929 ends with the first dividend sale on February 13, 1929. This date is followed by the stock market crash on the Black Thursday of October 24, 1929, and the sell-off panic on Black Tuesday, October 29, which precipitated the Great Depression. It also includes the adoption of a fifteen-point program aimed to upgrade protection for the investing public on October 31, 1938. The period ends on August 15, 1945 when Emperor Hirohito accepts the terms of the Potsdam Declaration. For the post-war period, transactions can be recorded up to January 1974.

Figure 2 illustrates changes in the ethnic composition of the applicant pool over time. In the early history of the exchange, from 1883 to 1914, every second applicant to the exchange was English, but this share declines over time, and after World War II, English applicants make up less than one third of the total. Over time, diversity, as measured by the share of distinct Caucasian groups increases, probably reflecting the movement of these groups into the main stream. The share of Irish buyers more than doubles from less than 6 percent from 1883 to 1914 to more than 13 percent after World War II, and the share of Jewish buyers increases from 9 to 13 percent.<sup>9</sup> Diversity is limited to white males; by 1973 one woman and fewer than four non-white males have been admitted to the exchange.

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<sup>9</sup> I am currently collecting data about the ethnic composition in New York to create a baseline for comparisons.

### *A. Potential Weaknesses of the Data*

The main weakness of the data is that names may be an imperfect measure of ethnicity. If the presence of ethnic discrimination motivates people to change their names to majority names, matching applicants to ethnicities by names may lead to an overestimate of majority members. In 1918, the *New York Times* reports that “Loyal citizens who possess German forms of the patronymic are striking them out, and similarly in the case of those becoming citizens” (*New York Times*, June 2, 1918). Baseball players Heinie Groh of Cincinnati and Heinie Zimmerman of the New York Giants chose to be addressed as “Henry” (*New York Times*, July 3, 2005). If minority members anglicize their names, LSDI’s algorithm may assign them to be English. Then, if the members of the exchange are able to identify these members as minority, while LSDI cannot, the NYSE ethnicity data may underestimate the rejection rates for minorities.<sup>10</sup>

## **II. Estimating the Effect of Ethnicity on Admission to the Exchange**

This section uses the ethnicity data for NYSE applicants to assess the influence of ethnicity on the Admission’s Committee decision to accept or reject an application. Each week, the admissions committee decided on an average of 2.4 applications, which allows me to test whether members of different ethnicities faced distinct probabilities of rejection under identical conditions at the exchange. A logit regression model with weekly fixed effects is the most natural estimation approach.

Results in Table 2 and 3 indicate that German and Jewish applicants were more likely to be rejected, whereas Irish buyers faced slightly more favorable terms. In

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<sup>10</sup> Another shortcoming of the data is that they cannot distinguish Eastern European from German or Sephardic Jews, which were better integrated into New York society.

regressions for the entire data set in Table 2, coefficients on the variable that denotes an Irish buyer range from -1.1 to -1.3, implying a rejection probability between 22 and 24 percent.<sup>11</sup> Effects for German and Jewish buyers are insignificant (and positive) for the entire data set. An interaction between the WWI period and a German buyer, however, is positive at 2.0 to 3.1 and statistically significant at the 5 percent level, implying a rejection probability of 88 to 96 percent from the beginning of World War I. Similarly, coefficients of 1.5 to 2.1 for the interaction between the World War I period and the Jewish buyer variable (significant at the 10 percent level) indicate that Jewish buyers faced rejection probabilities between 83 and 89 percent. Alternative regressions yield no significant effects for other ethnicities or alternative interactions between time and ethnicity.

Table 3 reports equivalent results for a data set that is split according to time periods. Results for German and Jewish buyers are largely unchanged, whereas rejection probabilities for Irish buyers are slightly higher, at approximately 11.5 percent. Table 2 and 3 reveal that ethnicity effects are robust to accounting for nominal transfers, accounting for the dividend sale of 1929 (column I and II in Table 2, column II, IV, and VI in Table 3) and including the suggested sales price for each seat (column III, Table 2). Ethnicity dummy variables for Dutch, English, Italian, and Scottish buyers had no effect in similar regressions.

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<sup>11</sup> The Irish buyer coefficient of -1.3 in Table 2, column I, yields a conditional probability of rejection of  $P(\text{reject} \mid \text{Irish})$  of  $\exp(-1.3)/(1+\exp(-1.3))$  or 21.53 percent.

### III. Historical Evidence of Discrimination against Irish and Jewish New Yorkers

The negative effect of the Irish variable on the probability of rejection is surprising, but consistent with the history of Irish Americans in New York. In the mid nineteenth century, the slogan “no Irish need apply” was familiar in the advertising columns of New York’s papers (Jacob Riis 1890, p. 21). By 1890, more than one third of New York City’s population were either Irish immigrants or Irish Americans (Ronald Bayor and Timothy Meagher, 1996, p. 302). For 27 years, beginning with “Honest John” Kelly in 1871, Irish Catholic politicians led Tammany Hall, the Democratic organization that dominated the city’s political affairs.<sup>12</sup> Between 1902 and 1932 the organization was at the peak of its power. During that period, Irish Americans controlled New York’s government and politics, dominated construction and building, and moved into the professions and managerial classes (Bayor and Meagher 1996, p.337-8).

Discrimination against Jewish applicants is also consistent with the historical records, though the timing and intensity of discrimination during World War I up to 1929 is somewhat surprising. It may have been a response to the arrival of more than one million Eastern European Jews in New York from 1880 to 1920. In 1880, approximately 60,000 Jews lived in New York City. By 1914, the Jewish population of the city exceeded 1.5 million. Hundreds of thousands of these immigrants initially settled in the tenements of New York City's "Lower East Side", which Jacob Riis (1890) describes in

#### *How the Other Half Lives:*

Every fresh persecution of the Russian or Polish Jew on his native soil starts greater hordes hitherward to confound economical problems, and recruit the sweater’s phalanx. The curse of

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<sup>12</sup> Jacob Riis (1890) writes: “The Irishman’s genius runs to public affairs rather than domestic life; wherever he is mustered in force the saloon is the gorgeous center of political activity. The German struggles vainly to learn his trick; his Teutonic wit is too heavy.” (Riis 1890, p. 25)

bigotry and ignorance reaches half-way across the world, to sow its bitter seed in fertile soil in the East Side tenements. (Riis 1890, p. 95)

Anti-semitism in New York began to intensify in the 1870s in the wake of Jim Crow legislation. Even leading New York Jewish families such as the Seligmans found themselves excluded from posh resorts in Saratoga Springs, New York. In 1908, an "official" New York City Kehillah, headed by Judah L. Magnes, was formed in response to inflated police charges that over fifty percent of crimes in New York City were committed by Jews. The Kehillah included a "Bureau of Social Morals," among its many agencies. In 1913, the Anti-Defamation League was organized in New York in response to the lynching of Leo Frank in Georgia. At a local level, particularly in New York City, Jewish-Irish relations were often tense and "blood libel" charges briefly surfaced in Massena, New York, in 1927.

Discrimination against Jewish applicants abated in the 1930s, when Hitler's rise to power brought a small but culturally significant group of German Jews to New York, and Washington Heights in particular.<sup>13</sup> The German language newspaper, *Aufbau*, recorded the life of these new immigrants from its office on Broadway. Many of the new German Jewish immigrants were distinguished in the Arts and Sciences; Henry Kissinger and Ruth Westheimer were among the German Jewish children who moved to New York. Jewish life in the suburbs accelerated the process of assimilation and by the early 1960s, demographers predicted soaring rates of mix marriage. By 1990, the rate of mixed marriage exceeded 42 percent nationally although it remained lower in many of New York's more intensely Jewish neighborhoods.

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<sup>13</sup> "...the rapid economic and educational advances of Jewish New Yorkers, apparent as early as the first decades of the early twentieth century, were carrying that group to the center of New York's ethnic kaleidoscope. (Bayor and Meagher 1996, p.337)

### **III. Conclusions**

This paper has used data on more than 7,000 applicants to the NYSE between 1883 and 1973 and the ethnic origins of their names to examine whether minority applicants were more likely to be rejected under the subjective criteria of “personal and financial integrity”. The paper takes advantage of German aggression in World War I to examine the effect of an exogenous change in preferences over ethnicity. Contemporary accounts present overwhelming evidence of a significant shift in American attitudes towards Germans and German Americans at the beginning of World War I. Regression results from the NYSE ethnicity data reveal that the probability of a German applicant being rejected increased by 10 percent between 1914 and 1929. Applicants with German names faced rejection probability exceeding 80 percent, based on the NYSE’s assessment of their “personal and financial integrity”. World War II did not have a similar effect. At that time, German immigrants had been integrated into American society and their contributions during World War I had established their loyalties.

Jewish applicants were also significantly more likely to be rejected between 1914 and 1929. Discrimination against Jewish applicants is likely to at least partially reflect a negative spillover from American dislikes for German, when the large majority of Jewish applicants were German Jews. Jewish applicants may have been further disadvantaged by their association with the more recent wave of Eastern European Jewish immigrants, who lived in poverty in the lower East side of New York. Discrimination against Jewish applicants subsided in the 1930s, as Jewish New Yorkers moved towards the center of New York’s intellectual and social life.

Ethnicity data also reveal a small but persistent positive effect of being Irish on acceptance. These results suggest that Irish applicants may have benefited from the prominent role that Irish Americans played in the city's business and government from the late nineteenth century into the 1930s.

The current analysis has focused on ethnic discrimination and acceptance by the exchange as the second hurdle that potential applicants must clear. To win a seat, however, potential applicants must first find out about a vacancy and agree on a price with its current owner. The absence of non-white or female applications up to the 1970s may suggest that a large share of potential applicants were excluded from this process, or that applicants from certain groups might be favored at that stage. In future work I will explore data on negotiated prices along with information on the social and professional links between sponsors and their applicants to explore the importance of ethnic and other social networks in providing access to the exchange.

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TABLE 1 – APPLICATIONS FOR MEMBERSHIP AT THE NEW YORK STOCK EXCHANGE – SUMMARY STATISTICS

<i>Year</i>	<b>1883-1913</b>	<b>1914-1918</b>	<b>1919-1928</b>	<b>1929-1933</b>	<b>1934-1945</b>	<b>1946-1974</b>	<b>1883-1974</b>
Dutch	1.89%	1.75%	2.34%	2.29%	2.30%	1.79%	2.01%
English	49.79%	45.61%	41.93%	40.32%	42.11%	29.18%	41.34%
German	9.31%	11.93%	10.55%	10.64%	9.80%	12.66%	10.65%
Irish	5.42%	7.37%	8.07%	13.15%	9.49%	13.55%	9.50%
Italian	0.89%	1.40%	1.43%	0.89%	1.84%	6.30%	2.42%
Jewish	9.24%	7.72%	10.03%	10.64%	11.49%	12.95%	10.64%
Scottish	13.10%	10.53%	12.11%	10.04%	11.33%	9.58%	11.34%
Other	10.35%	13.68%	13.54%	12.04%	11.64%	14.00%	12.11%
Lowest Price	\$197,368	\$453,704	\$528,455	\$386,847	\$150,709	\$213,816	\$150,709
Average Price	\$703,505	\$715,322	\$1,278,044	\$3,269,297	\$655,543	\$696,351	\$1,231,231
Highest Price	\$1,666,667	\$1,043,724	\$5,042,373	\$5,221,387	\$3,297,759	\$2,067,443	\$5,221,387
Nominal Transactions	356	61	147	301	267	1046	2178
<i>(% of all observations)</i>	<i>12.71%</i>	<i>21.40%</i>	<i>19.14%</i>	<i>22.23%</i>	<i>40.74%</i>	<i>48.38%</i>	<i>22.35%</i>
Rejected Transactions	62	20	9	21	20	16	154
<i>(% of all observations)</i>	<i>1.80%</i>	<i>5.81%</i>	<i>1.27%</i>	<i>1.31%</i>	<i>2.34%</i>	<i>0.61%</i>	<i>1.58%</i>
Attempted and Rejected Transactions (Per Year)	172	86	100	399	78	93	107
<i>Total Observations</i>	<i>3,441</i>	<i>344</i>	<i>898</i>	<i>1,597</i>	<i>853</i>	<i>2,612</i>	<i>9,745</i>

*Notes:* Data on price and admissions decisions were collected from the Archives at the New York Stock Exchange. Applicants' names were assigned to ethnicities by a commercial algorithm from List Service Direct Inc. (LSDI) that is used for marketing purposes. Prices are in year 2000 U.S. dollars.

TABLE 2 – FIXED EFFECT LOGITS 1883-1973  
DEPENDENT VARIABLE IS 1 FOR REJECTED APPLICANTS, 0 FOR ACCEPTED

	I	II	III	IV
German Buyers	-1.352 [1.148]	-0.287 [0.554]	-0.962 [0.795]	0.467 [0.414]
Irish Buyers	<b>-1.293</b> <b>[0.586]*</b>	<b>-1.188</b> <b>[0.565]*</b>	-1.002 [0.664]	<b>-1.136</b> <b>[0.556]*</b>
Jewish Buyers	-0.291 [0.698]	0.053 [0.458]	-0.105 [0.556]	0.473 [0.379]
1883-1914 * German	1.848 [1.402]			
1914-1929 * German	<b>3.106</b> <b>[1.351]*</b>	<b>2.044</b> <b>[0.900]*</b>	<b>2.988</b> <b>[1.259]*</b>	
1929-1945 * German	1.025 [1.671]			
1883-1914 * Jewish	1.077 [1.071]			
1914-1929 * Jewish	<b>1.89</b> <b>[1.077]+</b>	<b>1.553</b> <b>[0.940]+</b>	<b>2.053</b> <b>[1.112]+</b>	
1929-1945 * Jewish	-0.116 [1.200]			
Nominal Transfers	-0.599 [0.489]	-0.58 [0.482]		
Quarter Seat Dividend	0.03 [1.059]	0.02 [1.049]		
Log(Price)			0.366 [1.473]	
Observations	465	465	332	465
Number of weeks	92	92	59	92
Log Likelihood	21.2	18.22	13.33	9.40
P-Value	.0313	.011	.0381	.0244

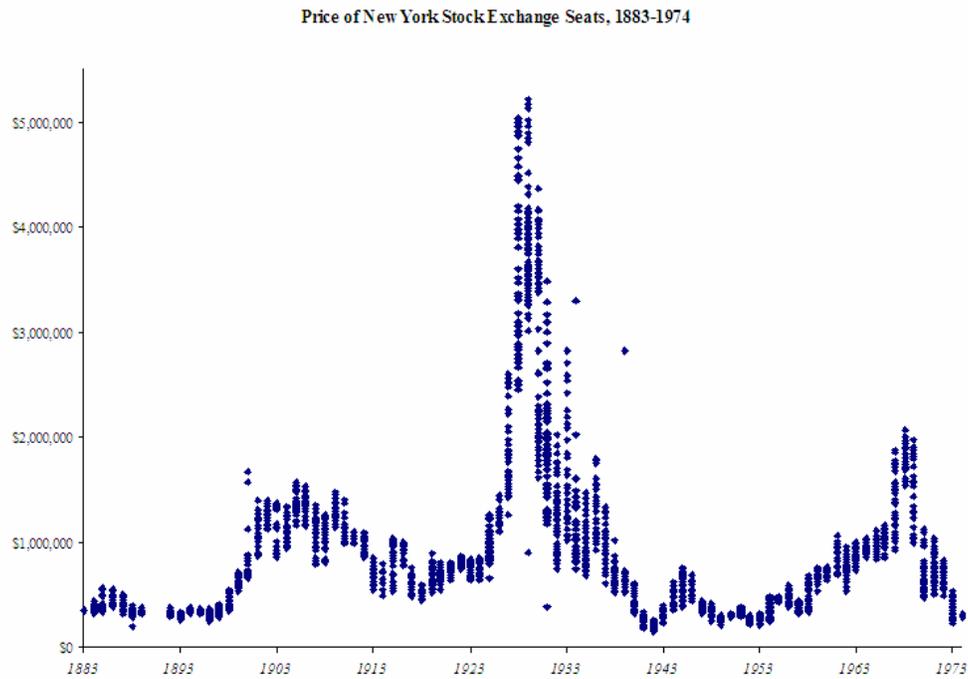
Notes: + denotes significance at 10%; \* at 5%; \*\* at 1%

TABLE 3 – FIXED EFFECT LOGITS 1883-1945, BY TIME PERIOD  
 DEPENDENT VARIABLE IS 1 FOR REJECTED APPLICANTS, 0 FOR ACCEPTED

	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>	<b>VI</b>
<i>Years</i>	<i>1883-1914</i>	<i>1914-1929</i>	<i>1914-1929</i>	<i>1929-1945</i>	<i>1929-1945</i>	<i>1929-1945</i>
German Buyers	0.582 [0.806]	<b>1.807</b> [ <b>0.718</b> ]*	<b>1.799</b> [ <b>0.714</b> ]*	-1.345 [1.079]	-1.383 [1.082]	-1.378 [1.085]
Irish Buyers	-0.231 [0.909]	-1.044 [1.190]	-0.994 [1.124]	<b>-2.047</b> [ <b>1.050</b> ]+	<b>-2.024</b> [ <b>1.051</b> ]+	<b>-2.022</b> [ <b>1.052</b> ]+
Jewish Buyers	0.762 [0.771]	<b>1.655</b> [ <b>0.829</b> ]*	<b>1.649</b> [ <b>0.827</b> ]*	-0.578 [0.688]	-0.621 [0.698]	-0.625 [0.704]
Nominal Transfers		0.12 [0.919]			-0.323 [0.685]	-0.316 [0.697]
Quarter Seat Dividend						0.056 [1.073]
Observations	<i>90</i>	<i>107</i>	<i>107</i>	<i>252</i>	<i>252</i>	<i>252</i>
Number of weeks	<i>34</i>	<i>31</i>	<i>31</i>	<i>21</i>	<i>21</i>	<i>21</i>
Log Likelihood	<i>1.51</i>	<i>11.18</i>	<i>11.17</i>	<i>7.91</i>	<i>8.15</i>	<i>8.15</i>
P-Value	<i>.6803</i>	<i>.0246</i>	<i>.0109</i>	<i>.0478</i>	<i>.0864</i>	<i>.1482</i>

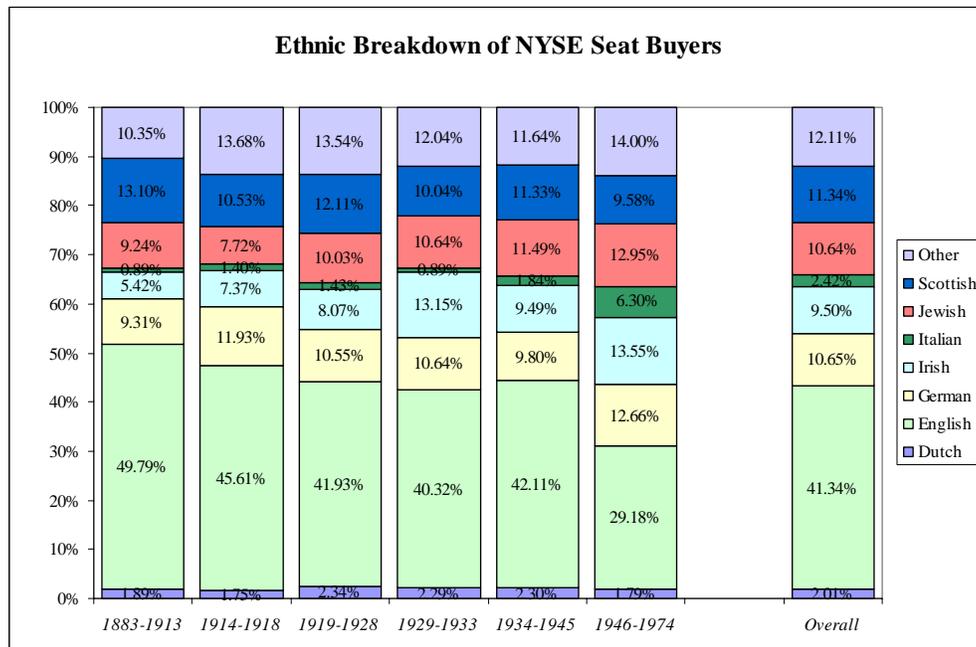
Notes: + denotes significance at 10%; \* at 5%; \*\* at 1%

FIGURE 1 -- NEW YORK STOCK EXCHANGE MEMBERSHIP SEAT PRICES, 1883-1974



Notes: Price data were collected from the ledgers of transactions in the Archives of the NYSE Archives.

FIGURE 2 – BUYERS OF NYSE SEATS BY ETHNICITY FROM 1883 TO 1973



Notes: Price and name data were collected from the ledgers of transactions in the archives of the New York Stock Exchange. List Service Direct, a commercial data base firm, matched names to ethnicities.