

Report on
Ronald Gerlib, et. al.
v
R.R. Donnelly and Sons

Prepared by:
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Personal Background

I am the chairman of the Economics Department and a Professor at the University of Texas at Austin. I have taught at the University of Texas since 1992, and I have been chairman of the Economics Department since September of 2000. Before teaching at the University of Texas, I was a tenured Associate Professor at the University of California, Santa Barbara. I received my Ph.D. in economics at the University of Chicago, in 1983. My primary area of research is labor economics. I have published a number of papers in this area, including papers on the migration of workers and their families. A full list of my publications and professional affiliations is included on my c.v.

Spectrum Economics hired me as a consultant for this case. My hourly rate is billed at \$350 per hour and the hours I have billed for this case are reported in an attached document prepared by Spectrum Economics.

I have served as a consultant in less than a dozen cases over the past five years. I have been deposed as an expert witness in 2 different cases over the past five years. I have testified in court once as an expert witness. I have provided a list of the cases in which I was deposed or testified in the past five years as an addendum to my c.v.

Introduction

The following statistical analysis is based on human resource databases provided to me by the attorneys for R.R. Donnelley and Sons (RRD). According to these records, there were 994 employees of the Chicago Manufacturing Division (CMD) of RRD, as of January 1, 1993. According to my calculations, 665 of these employees were permanent, 126 were temporary employees, and 203 were casual employees. Throughout the report I restrict the analysis to the 665 permanent employees of CMD who were on the payroll as of January 1, 1993. An important part of the transfer and retention process during the shutdown of the CMD involved completing and submitting transfer applications to a "placement center". I use information from a database from this placement center in the analysis below. 118 of these 665 permanent employees eventually received transfers to another position within RRD through the placement center and hence were retained by the firm. Another 8 employees received transfers without applying through the placement center.

The data reveal that 31.4% of permanent CMD employees, who were on the payroll as of January 1, 1993, used the placement center to apply for transfers to other divisions of RRD. There is a substantial difference in the transfer application rate across CMD employees, as a function of their age. Throughout the analysis, when I refer to an employee's age, I mean his or her age as of January 1, 1993.

The Economic Theory of Migration

Beginning with Larry Sjaastad, of the University of Chicago, economists have viewed migration decisions as investment decisions. In his article, “The Costs and Returns of Human Migration”, published in the *Journal of Political Economy* in October 1962, Sjaastad wrote that migration is “an investment increasing the productivity of human resources, an investment which has costs and which also renders a return”. Viewing migration as an economic investment generates a number of testable predictions of the theory. The most important and fundamental prediction is that older individuals will be less likely to move. Professor George Borjas of Harvard University, a leading expert on migration and immigration, writes in his *Labor Economics* textbook “Older workers are less likely to move because migration is a human capital investment. As a result, older workers have a shorter period over which they can collect the returns to the migration investment. The shorter payoff period decreases the net gains to migration, and hence lowers the probability of migration”.

The prediction that older workers are less likely than younger workers to move is a fundamental concept. The same human capital investment theory that I develop below can be used to explain why so few students in college and graduate school are over the age of 50. Even if the investment costs were similar for a 20-year old and a 50-year old, the 50-year old worker will make fewer human capital investments because he has a shorter time horizon to collect the returns on the investment. Older individuals are willing to make costly financial investments as long as the assets are fairly liquid and can be sold to other individuals. Human capital investments, however, cannot be easily traded from one owner to another. Once a worker decides to retire, the “scrap value” of his human capital investment is essentially zero. Workers cannot sell the time and effort they devoted to increasing their productivity to other workers.

Consider the following economic model of migration. Individuals either choose to stay in their current location (Chicago) or to move to the most attractive alternative location within the U.S. (another RRD plant). Let M denote the costs of this migration decision. These costs include, but are not limited to, the actual money costs of transporting a person’s family and household goods. Another important component of M is the dollar value of the “psychic cost” of moving from one’s home. All individuals are likely to experience some discomfort from moving away from family and friends. M is larger for individuals leaving behind more extensive social networks and for individuals contemplating moves over longer geographic distances.

In this simple economic model of migration, the expected benefits of moving equal the difference between the wage income of workers in their most attractive alternative location and their expected wages in Chicago. After leaving the job at CMD, assume that a worker can expect to earn WC (in salary and benefits) per year in Chicago from another employer and WR per year in another RRD plant elsewhere in the US. Thus the annual net “benefit” to moving is $WR-WC$. If WR exceeds WC , there is a gain to moving away from Chicago. For workers who must switch occupations to stay with RRD, $WR-WC$ may be negative and it would be optimal these workers to stay in Chicago and search for

a new job in their preferred occupation. In contrast, the more difficult it is to find a job in Chicago in a worker's preferred occupation after leaving CMD, the more likely it is that the worker applies for a transfer.

If a worker expected to work one more year the total benefits to moving would be WR-WC and a rational worker would apply for a transfer if WR-WC exceeded M. If a worker expects to be employed for years into the future, the lump sum costs of moving, M, must be compared to the present value of all future benefits from migration. For an individual who expects to work T more years, the expected present value of benefits from moving are:

$$(WR-WC) + \frac{(WR-WC)}{(1+r)} + \frac{(WR-WC)}{(1+r)^2} + \dots + \frac{(WR-WC)}{(1+r)^{T-1}} \quad (1)$$

where r is the interest rate used to discount the future. Whenever the sum of benefits in equation (1) exceeds M, the worker would prefer to be transferred, and move away from Chicago. It is immediately apparent that the smaller T is, the smaller the summation of expected benefits, and the less likely it is that an individual will apply for a transfer.

The fundamental insight that older workers are less geographically mobile than younger workers is apparent in U.S. data. Table 1 below is reproduced from the U.S. Census Bureau's Current Population Report, "Geographic Mobility March 1998-March 1999". The data show that individuals age 25 to 29 are more than 7 times more likely to move across state lines in a given year than individuals age 65 or older, and 3.5 times more likely to move out-of-state than individuals in the 45-64 age group.

	Age 25-29	Age 30-34	Age 35-44	Age 45-64	Age 65+
Migration Rate	7.08%	4.61%	3.12%	1.93%	0.98%

The problem faced by CMD workers at the time of the shutdown is somewhat different than the migration decisions encountered by many other workers. It is the impending loss of their CMD job that precipitates the migration and transfer decision. These workers leave Chicago, in large part, because their most preferred job in Chicago has ended, rather than because of career opportunities in another city. In the context of the model above, some employees choose to transfer because WC, the income from their best available job in Chicago, is lower after the shutdown. (WC falls whenever a worker views their current job, which is about to be eliminated by the shutdown, as their most preferred job in Chicago.) This may result in transferred workers accepting jobs in other divisions of the firm at lower pay than before the shutdown. I expect a newly transferred job, with lower pay than a worker's previous job, to have a shorter duration.

In contrast, workers in a more stable work environment may only choose to move if their new opportunities are substantially better than their current jobs. In the context of the

model above, these workers move because WR has risen enough in another city to offset the costs of moving. In a random cross-section of migrants, some workers move because of a separation from their current employer (WC falls), others move to pursue new and better career opportunities in another city (WR rises), and still others move for family and non-job related reasons. On average, I expect a high separation rate and shorter job durations when moves are precipitated by a plant shutdown and layoffs, compared to workers who quit their jobs and move. This distinction is important in analyzing the transfer application rate. If workers anticipate short job durations after the transfer, the model described by (1), which assumes that workers remain in their transferred job until retirement, will be inaccurate.

Suppose instead that the transferred job at a new division in RRD will survive with probability P each period. For simplicity, assume that if the new job at RRD fails to survive, the individual faces the same job search in his new location as he would have in Chicago, in the absence of the transfer. In other words, assume that the worker faces an expected income of WC in their new location (instead of WR) if their new job does not last. Alternatively, we could assume that if workers separate from their new RRD job, they will move back to Chicago to search for work. The latter assumption would not change the essential predictions of the model, but would complicate the algebra.

For the case of non-durable jobs that result from transfers after a plant shutdown, the expected gains from migration can be written:

$$(WR-WC) + \frac{P(WR-WC)}{(1+r)} + \frac{P^2(WR-WC)}{(1+r)^2} + \dots + \frac{P^{T-1}(WR-WC)}{(1+r)^{T-1}} \quad (2)$$

where P is the probability that the new transfer job survives for another year. The key insight from equation (2) is that workers who expect to separate from the transferred job at a higher rate due to family or career concerns will find the migration decision less attractive. Even if WR is currently higher than WC, if workers do not expect to remain with the firm for very long (P is relatively low), the present value of benefits from migration and transfer can be quite low. It is well known that job separation rates decline sharply with job tenure (see for example Chapter 9 in Borjas' *Labor Economics* textbook). Among permanent employees, the average worker under the age of 30 at CMD had 3.06 years of service (tenure), while the average worker in his 30's had 12.46 years of service, and the typical worker in his 40's had 23.73 years of service. Given the inverse relationship between job tenure and the separation rate, the typical worker under the age of 30, who has only worked for RRD for about 3 years, should expect a low job survival rate in the new transferred job (a low P). These young workers are likely to have lower expected benefits from moving because their likelihood of turnover after the transfer is higher.

There is one other important difference between the textbook model of migration and the transfer decision faced by CMD employees age 55 and over. Employees of RRD were offered severance pay and early retirement incentives, such as reduced penalties for early retirement and increases in the years of service used to calculate retirement benefits, if

these older workers agreed to take an early retirement. According to lawyers for RRD, these retirement incentive benefits were offered to all CMD permanent employees age 55 and older, with at least 10 years of service. According to the human resources database, this implies that all permanent workers age 55 and older at CMD were eligible for these benefits. In the context of the model, the potential to lose retirement incentives for workers age 55 and older, implies that the costs of transfer/moving, M , are substantially higher for older workers. For example, if a 56-year old worker accepts a transfer to another RRD plant and then wishes to retire three years later at the age of 59, he/she would face substantial early retirement penalties. These penalties were waived by RRD for workers who retired early in the wake of the CMD shutdown.

To summarize, the theory outlined above predicts that both young and old workers are less likely to benefit from a transfer and migration. Old workers are less likely to transfer because as retirement nears, the gains from migration will accumulate over a shorter time horizon. Young workers are less likely to transfer because their attachment to their current firm is lower and their expected separation rate from the firm is higher. In addition, older workers face an additional cost from accepting a transfer – the loss of valuable early retirement benefits if a job transfer is accepted. Thus we expect to observe an inverse U relationship between the job transfer application rate and a worker's age, with very low transfer application rates for workers age 55 and over.

Evidence on Transfers at CMD from the Human Resource Database

Table 2 shows the average separation rate at CMD in 1992, and the average rate at which CMD employees applied for transfers, by the worker's age group. Both separation and transfer rates exhibit a strong relationship to the worker's age. Many of the differences in both separation rates and application rates across age groups are statistically significant at the 5% level. More importantly, the figures in Table 2 indicate that older workers have both a higher separation rate from the firm in 1992 and are the least likely to apply for a transfer within RRD. In other words, for workers who are likely to retire or separate in the near future the expected benefits from migration and transfer are low. It is noteworthy that about 27% of CMD employees, who would have turned age 60 before January 1, 1993, separated from their job during 1992. Over 8% of workers age 55-60, as of January 1, 1993, left the firm in 1992. These separations occurred before the CMD shutdown during a period in which RRD offered special retirement incentives to workers age 55 or older with at least 10 years of service at RRD.

Table 2						
Separation Rates and Job Transfer Application Rates by Age Group						
	Age Group					
	Under 30	30-40	40-50	50-55	55-60	60 and over
Separation Rate in 1992	18.18 %	3.08%	5.60%	2.16%	8.33%	26.87%
Transfer Application Rate in 1993-1994	55.56%	68.25%	69.49%	28.18%	11.76%	1.01%

The data in Table 2 provide strong support for the theory. Workers over the age of 55, and especially those over the age of 60, anticipate retirement in the near future. It is therefore not surprising that 99% of workers over the age of 60 determined that the cost of moving was so high relative to the benefits, that it was not worth the effort to even apply for a transfer. Workers between the ages of 55 and 60 applied for transfers at less than 1/5 the rate of workers between the ages of 30 and 50. The extremely low transfer application rate for workers age 55 and older indicates that the implicit costs of foregoing retirement incentives by accepting a transfer are quite high for these workers.

Workers between the ages of 50 and 55 applied for transfers at less than half the rate of workers between the ages of 30 and 50. The relatively low application rate for workers age 50 to 55 also indicates that the majority of these workers believe that the costs of migration and transfer to outweigh the potential benefits. The costs of a transfer tend to outweigh the benefits for these workers because they are likely to have strong ties to their community and they anticipate retirement in the near future.

At the other extreme, about 18% of CMD employees under the age of 30 separated from their job in 1992. For the workers in this age group, who were still employed at CMD at the time of the shut down, the anticipated job survival probability for a transferred job is about 82% per year. For workers in this situation the benefits of migration and transfer are also fairly low; there is only a 55% chance that the transfer job would survive for 3 more years. Consequently, it is not surprising that the youngest workers have a somewhat lower transfer application rate than workers between the ages of 30 and 50. It would be costly for a young worker to transfer within RRD, relocate to another area and perhaps change occupations, only to quit their new position in the next few years due to changes in their family or career situation.

The placement center proved to be an almost essential component in the process for receiving a transfer to another job within RRD. The data show that 56% of the individuals who applied for a new position through the placement center received a transfer. It is important to note that only 42.2% of workers who applied for exactly one position received a transfer, while 62.1% of workers who applied for multiple jobs received a transfer. Thus, a worker was able to significantly increase his/her chance of

receiving a transfer by applying for more positions in RRD. It was virtually impossible to receive a transfer if a worker did not apply for one. Less than 2% of the workers who did not utilize the placement center received a transfer within the company (8 transfers out of 456 non-applicants). Based on these facts it is important to test for age discrimination after accurately controlling for the transfer application history of each employee. It is inappropriate to compare the fraction of workers receiving transfers across age groups without first controlling for the transfer application process. The primary reason why few individuals age 55 and over received a transfer at RRD was because they did not apply for transfers at the same rates as other workers.

Table 3 presents information about the retention (transfer) rates for the CMD employees who applied for a transfer through the placement center, by age group. Although there are some differences in retention rates across age groups 55 and under, a formal statistical test of multiple comparisons indicates that none of the pair-wise comparisons across these age groups are significantly different from zero at even the 75% level of significance. In other words, although workers age 50 to 55 have a retention rate 7.2 percentage points lower than workers in their 40's, we expect to observe a pair-wise difference at least this large 75% of the time when, in fact, all age groups faced identical success rates in the transfer process. Suppose that a random process that is neutral with respect to the age of the applicant determines the retention decision. After the decisions are made, some groups of workers will be more successful in receiving transfers than others. This will occur even though the resulting differences are completely due to the luck of the draw. The statistical theory of multiple comparisons indicates that when comparing success rates across age groups, with the relatively modest sample sizes in the applicant pool, we would expect to observe differences in success rates of at least 7.2 percentage points across randomly selected age groups at least 3 out of 4 times. Thus, the data described in Table 3 for workers age 55 or under is consistent with the hypothesis that all workers face the same probability of being retained (regardless of their age). Random events and chance are likely to account for the different retention rates across the age groups for ages 55 and under. The primary reason for the low success rate of transfer applicants over the age of 55, conditional on using the placement center, is the fact that these older workers applied for substantially fewer jobs than younger workers in the applicant pool, as explained below.

Table 3				
Retention Rates by Age Group for CMD Employees who Applied for a Transfer				
	Age Group			
	Under 40	40-50	50-55	55 and over
Received transfer after applying	64.15%	60.98%	56.86%	17.39%
Number of Applicants	53	82	51	23
Note: Because only one CMD employee over the age of 60 actually applied for a transfer, I deleted all workers over 60 and grouped individuals into 4 different age categories.				

There are substantial differences in the number of applications filed by employees using the placement center. Half of the placement center sample filed just 1 or 2 applications, while 9.5% of the placement center sample filed 10 or more job applications. Table 4 compares the average number of job applications for the workers who used the placement center, by age group. Workers age 55 and older applied for only about 55% as many jobs, on average, as other workers in the firm. It is also worth noting that workers age 55 and older that applied for 4 or more positions had a success rate of 50% in receiving transfers. As I show below, there is a strong positive relationship between the number of job applications and the probability of receiving a transfer. Workers who expended more effort in searching for a new job were significantly more likely to receive a transfer.

Table 4				
Average Number of Job Applications by Age Group				
	Age Group			
	Under 40	40-50	50-55	55 and over
Number of Job Applications	4.17	4.60	4.32	2.35

Brief Critique of Plaintiff’s Expert Report

The plaintiff’s expert, Christopher Ross, filed a report claiming that the retention rate for workers age 40 or higher is statistically significantly lower than for workers under the age of 40. He also claims that workers age 50 or higher face lower retention rates than workers under the age of 50. His report does not acknowledge that it was extremely difficult to be retained by RRD if the worker failed to apply for a transfer through the placement center. Ross’s analysis is plagued with a fundamental problem: he specifies a statistical model of the retention process that is completely unrelated to the facts of the case. In particular, the regression models in Table 2 (on page 5 of his report) require that an individual’s probability of receiving a transfer is related to the number of job applications in an approximately linear way. In fact, there is an enormous effect of making just a single transfer application and using the placement center. After making a first job application, there are steeply diminishing returns to making additional applications for a transfer. Workers who did not apply for any job had a transfer rate of less than 2%, while workers who applied for exactly one job had a transfer rate of 42.2%, workers with exactly two applications had a rate of 53.7%, and workers with 3 or more job applications had a transfer rate of 65.4%. In contrast, Ross’s statistical model assumes that the transfer rate increases by roughly the same amount when an individual moves from 0 to 1 and 1 to 2 job applications.

The Ross report is also difficult to interpret because it fails to divide the sample into mutually exclusive age groups. The report’s comparison of workers age 40 and above to those under 40 is not statistically independent of the analysis of workers age 50 or above. Many of the workers under 50 are also under 40, and many of the workers over the age of 40 are also over the age of 50.

A Statistical Model of the Transfer Process

The results from Tables 3 and 4 indicate a lack of age discrimination for workers age 40 to 55, because their transfer rates, conditional on an application, are statistically insignificantly different from the transfer rates of workers under the age of 40. Table 5 reports the results of a logit model of the transfer process, conditional on using the placement center, using the worker's age and the number of applications that the worker filed as explanatory variables. (Logit models are the appropriate statistical technique when the outcome variable takes on the values of 0 or 1, as in the job transfer decision). The goal of the statistical model is to assess whether there is age discrimination in the transfer process for workers age 55 and older.

In contrast to Dr. Ross's report, I do not estimate a logit model across all individuals whether or not they applied for a transfer. I estimate a model conditional on use of the placement center because failure to file a job application almost perfectly predicts a "failure" in the transfer process. (Below I discuss the exceptions to this rule for 8 individuals who received a transfer without applying through the placement center). In statistical jargon, the full data set is ill-conditioned for estimation of a logit model. If I had attempted to model the statistical process for transfers using all workers, and included a categorical variable for whether a worker used the placement center, the estimation procedure would have indicated that the placement center variable was extremely important in explaining the transfer process. In other words, this single variable, whether the placement center was used, would have almost perfectly predicted that a worker did not receive a transfer, regardless of the worker's other characteristics (such as age). The appropriate response in this situation is to exclude the data that are nearly perfectly predicted by the variable, and restrict the sample to those who visited the placement center. Dr. Ross did not include a categorical variable for whether or not an application was filed, which would have almost perfectly predicted outcomes for non-applicants, but instead included only a variable measuring the number of applications filed. His approach assumes that there is an approximately linear relationship between the probability of transfer and the number of job applications as workers move from 0 to 1, and from 1 to 2 applications, which is inconsistent with the facts of the case. This type of mis-specified model grossly over predicts the probability of a transfer when no job applications are filed. Ross's model predicts that about 8% of non-applicants would receive transfers, when in fact the true transfer rate was about 2% for non-applicants.

Table 5 report results for a model of the transfer process for individuals under the age of 60. The logit model includes categorical variables for age. Because of the strong diminishing returns to job applications, I include the natural logarithm of job applications as an explanatory variable. This functional form allows the 10th job application to have a smaller impact on the transfer rate than the 2nd job application, which is something that is apparent in the data. Finally, I allow the effect of the number of job applications to differ for workers age 55 or older. I find that the impact of an additional job application is about 4 times stronger for workers age 55 and older than it is for workers under 55. These older workers tended to file fewer job applications and consequently had the lowest success rate. On average, workers under the age of 55 applied for 4.40 jobs

through the placement center. I use this statistical model to predict the transfer rate that workers age 55 and older would have faced if they had applied for 4.40 jobs, and then test whether this predicted transfer rate, holding constant differs from the predicted rate for workers under 40. I find that if workers age 55 and older had behaved the same as other workers, and filed 4.27 applications, on average, they would have received transfers 43.6% of the time. In contrast the younger workers would be expected to receive transfers 69.3% of the time, on average. This 15.7 percentage point differential in the expected transfer rate is not statistically significantly different from zero at the .15 level of significance. The results of the logit model also indicate that there is no age bias in the transfer process for workers between the ages of 40 and 55. Holding the number of job applications constant at 4.4 per worker, on average, the predicted transfer rate for workers between the ages of 40 and 50 is 66.7%, and the predicted transfer rate for workers between the ages of 50 and 55 is 61.5%. Neither of these rates is significantly different from the predicted transfer rate for workers under the age of 40, conditional on the number of applications filed.

Table 5	
Logit Model of the Transfer Process	
Variable	Coefficient
Age<40 (reference group)	
Age 40-50	-.121 (z=0.33) (p=.745)
Age 50-55	-.349 (z=0.85) (p=.396)
Age 55	-3.290 (z=2.53) (p=.012)
Log Number of Job Applications (for those under age 55)	.484 (z=2.68) (p=.007)
Log Number of Job Applications (for those age 55 and over)	1.980 (z=1.88) (p=.060)
Sample Size	208

Home Ownership and Job Transfers

Individuals who have stronger ties to the community face a higher cost of moving and are less willing to apply for a job transfer, even though their employer would be willing and able to facilitate the job change. In economics jargon, these community ties would raise the “psychic costs” of moving, raise M , and reduce an individual’s incentive to apply for a transfer. Many individuals in this situation will not apply for a transfer and be

terminated by their employer (because the costs of moving exceed the benefits), while other equally productive co-workers would apply for and accept the transfer because they have weaker ties to the community.

Although this description of the impact of community ties on the job transfer is simple, in theory, it is difficult to accurately measure an individual's ties to a particular community. In a special survey of 200 former CMD employees, conducted with court approval, a number of important questions were asked about the former employee's individual and family characteristics. In particular, information was collected concerning the former employee's residence at the time of their termination, and whether or not that residence was owned or rented. I believe that home ownership is a valid proxy variable for community ties, even though RRD employees were eligible for special augmented separation pay if they received a transfer. These supplemental benefits were paid to workers not normally eligible for reimbursed moving expenses. Despite the fact that RRD reimbursed some of the financial costs of moving, it is likely that for many employees the psychic costs of moving would be not compensated by these augmented benefits. I expect that the psychic costs of moving will be much greater for individuals who own their homes and have established roots in their community. If this hypothesis is correct, renters will be more likely than homeowners to apply for a job transfer.

The survey responses indicate that there are sizable differences in the transfer application rates between owners and renters. Among workers age 40 or older, 18.8% of renters applied for a job transfer, while only 10.7% of homeowners utilized the job placement center. Therefore renters were almost twice as likely as homeowners to apply for a transfer. Due to relatively small sample sizes (98 survey respondents over the age of 40, who were permanent employees, with valid information about their home ownership status) this sizable difference is not statistically significant at conventional levels. The survey data, however, is consistent with the view that older employees, especially those who owned their homes, were less likely to apply for a job transfer because they considered the non-monetary or psychic costs of leaving their Chicago home to be too large.

Transfers without Placement Center Activity

All of the analysis to this point has focused on transfers that occurred through job applications filed with the placement center at RRD. There are eight instances in which transfers occurred before the shutdown of CMD through an informal network at the firm. These transfers occurred disproportionately for management employees and older workers (Workers over the age of 40 received seven out of these eight transfers). This is not surprising given that it would take years of service at a given firm to form the informal networks that are required to facilitate such transfers across plants. Unfortunately there isn't adequate data to estimate a statistical model of the informal transfer process. Nonetheless, it is apparent that by excluding these informal transfers, the statistical analysis in this report contains a downward biased estimate of the true transfer rate for older workers. It is important that given this bias, I still fail to find a

significant difference in transfer rates across age groups, after controlling for the rate at which workers applied for job transfers.

Conclusion

Based on the databases made available to me by the lawyers for RR Donnelly, I find no credible statistical evidence of age bias in the retention and transfer process for CMD employees. My analysis indicates that it was extremely unlikely to receive a transfer to another division of RRD if a worker did not apply for such a transfer. Over 55% of workers who applied for a transfer did transfer to another division of RRD. Fewer than 2/10 of one percent of workers who did not utilize the placement center were transferred within RRD.

Workers in different age groups were differentially likely to apply for a transfer, and these differences are easily explained by economic theory. Older workers were less likely to apply for a transfer because many of them preferred early retirement, with financial incentives and reduced penalties for early retirement, relative to a transfer to another geographic area. Only 1 worker over the age of 60 even applied for a transfer, and very few workers between the ages of 55 and 60 applied for a new job. More importantly, when these older workers did apply, they only applied for about half as many jobs as their co-workers. The statistical model I estimate shows that if older workers had behaved in the same way as younger workers, and applied for as many job transfers as their co-workers, they would have received approximately the same fraction of transfers as the younger workers in the firm.

Economic theory can easily explain these findings. Younger and middle aged workers apply for transfers in greater numbers because more of them view the potential benefits from transfer and migration as being larger than the costs. Older workers view the costs of migration and job transfer to be sufficiently higher than the potential benefits. Thus these workers do not apply for transfers, because it is rationally not worth the effort for them to even apply for the transfer. The evidence indicates that many of the older workers who did not apply for a transfer would probably have declined a job transfer had it been offered by the firm.

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