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PREFERENCE FOR YOUNG WORKERS IN MID-CAREER RECRUITING USING ONLINE ADS FOR SALES JOBS: EVIDENCE FROM JAPAN

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Preference for Young Workers in Mid-career Recruiting Using Online Ads for Sales Jobs: Evidence from Japan[†]

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Abstract

This study uses an original dataset of online mid-career job ads for full-time sales jobs collected from July 2018 to December 2019 to examine the use of explicit and implied age limits on job applicants and characteristics of companies that set them. Although Japanese law prohibits age discrimination in employment, several exemptions are allowed, such as hiring young workers without prior work experience on regular contracts. Companies can set an age limit, require job-related experience, or search broadly; however, they can also express their age preference in other ways. In the sample, 24% of ads included explicit age limits generally capped at 35 years, 22% set experience requirements, and nearly all contained some form of implied age preference. Companies with higher capital, those with fewer employees, older companies and those located in urban centers tend to set requirements on applicants. Further, companies that are domestic, with fewer employees, in urban centers and companies using probation periods for new hires are more likely to set age limits. Furthermore, the role of company market power is considered a factor allowing companies to voluntarily limit the pool of applicants in a tight labor market. Companies that set age or experience requirements appear not to engage in wage competition related to labor market tightness. Companies that do not set either requirement partially respond to increased wage expectations related to population age while reducing labor costs by increasing working hours covered by the baseline salary.

Keywords: Mid-career recruiting; Age discrimination; Job ads; Monopsony; Japan
JEL Classification: J42, J63, J71

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1. Introduction

The aging population and the surplus of vacancies over jobseekers have been some of the persistent features of the Japanese labor market. Yet, looking at job ads aimed at mid-career jobseekers, finding explicit age limits for applicants is not uncommon. In many countries, restricting applicant eligibility based on age would be considered illegal discrimination. Although Japanese law prohibits age discrimination in employment, it allows for a few loosely defined exceptions, such as hiring young people on long-term contracts while treating them as fresh graduates. Preferential hiring of fresh graduates is another longstanding feature of the Japanese labor market and is not legally considered discriminatory under the relevant legislation. Exploiting this regulatory exemption allows to use job ads to directly analyze what type of companies set age limits in recruiting without the need to prove the presence of discriminatory practices first. In most cases, research on employment discrimination must rely on less direct methods, such as experiments or company surveys. As setting age limits on applicants is legal in Japan under the circumstances examined in this paper and as the word discrimination generally has a negative connotation, the term age targeting is used instead.

This paper examines an original sample of job ads for sales jobs collected from Doda, an online job ad site aimed at mid-career jobseekers, over an 18-month period from July 2018 to December 2019 prior to the outbreak of COVID-19. In general, the sales job title allows for the seamless application of young-age-related regulatory exemption. An explicit age limit was present in 24.4% of the 3,557 ads collected. However, an explicit age limit is not the only way to convey a preference for applicants' ages. Several types of indirect age targeting were identified, such as emphasizing how welcoming the company is to young workers in the job ad text or using age in the model salary. Depending on the definition, up to 96% of the ads in the sample used indirect age targeting.

The current paper describes the company characteristics associated with age targeting practices. A theoretical framework of employee search based on a model by Kuhn and Shen (2013) is proposed, hypothesizing that companies that can conduct more expensive search select targeted search strategy. The empirical results in this paper are generally consistent with the theoretical predictions. Furthermore, monopsony is proposed and tested as the underlying condition allowing companies to target age directly.

Voluntarily limiting the pool of potential applicants in a tight labor market may appear counterintuitive on the part of employers, and it may also have serious social consequences. Regardless of contract type, the job change rate in Japan in 2018 was 10% with significant differences based on age and gender. Although 17.5% of males under the age of 19 changed jobs, this rate dropped to 7.7% for males aged 35–39 and 4.7% for those aged 45–49. For females, the job change rates were higher, driven up by a higher ratio of part-timers who changed jobs more frequently, peaking in the 25–29 age group at 18.3% and decreasing to 13.1% and 11.3% in the 35–39 and 45–49 age groups, respectively (Ministry of Health, Labour and Welfare of Japan (MHLW), 2019d). Job advertisements are a crucial source of information for employees considering a job change and for individuals considering entering the labor market. Age restrictions in job advertisements, particularly easily accessible online job ads hosted on heavily advertised commercial sites, might discourage older workers from changing jobs, thereby contributing to their continued employment in unfavorable working conditions. Moreover, workers who entered the labor market during the 1990s economic downturn, known as the "employment ice age," had limited access to stable jobs and related stable income and social benefits, limiting their ability to start families and plan for retirement. These workers are now middle aged, and despite the high number of vacancies, they may no longer be eligible. People who dropped out of the labor force during their productive years, for example, raising children or becoming caregivers, might also find it difficult to return to their employment of choice. Furthermore, although the elderly population is growing and living longer and healthier lives, the elderly may have limited employment options while the pension system is struggling.

This study makes two major contributions. First, although ample research on age limits in recruiting exists in Japan, to the best of the author's knowledge, this study is the first to use the rich information found in online job ads to directly analyze the characteristics of companies in Japan that practice both direct and indirect age targeting in mid-career recruiting. Second, this study verifies whether monopsony in the labor market is a factor allowing companies to target employee search.

2. Related literature

The economic literature on discrimination, pioneered by Becker (1957), is extensive. However, because nearly all OECD countries have passed laws prohibiting employment discrimination, including age discrimination (OECD, 2019), explicit discriminatory practices in the workplace are uncommon in developed countries. Empirical studies must thus rely on indirect methods, typically including experiments or correspondence studies, such as sending out fictitious resumes that differ only in the aspect of interest and comparing call-back rates (Bertrand and Mullainathan, 2004). The primary goal of these studies is to identify discrimination. Using data with a clear preference for specific types of workers allows for skipping this step and focusing directly on determinants of company behavior. Arrowsmith and McGoldrick (1993) examined explicit and inferred age limits in job advertisements published in newspapers and magazines in the United Kingdom during 1981–1991 prior to the passage of anti-age discrimination legislation. Kuhn and Shen (2013) studied companies' preferences for gender, age, height, and beauty of applicants using job ads from a Chinese online job ad site in a country where employment discrimination is mostly unregulated. In a subsequent study Helleseter et al. (2020) expanded their dataset to include data from Mexico. Burn et al. (2021) discovered that age stereotypes in job ads sometimes predicted age discrimination by combining the mining of US job ads for ageist language with correspondence studies.

Turning to Japan, appreciation for young age in employment, lifetime employment for regular employees, and the corresponding low job mobility are some of the defining features of the Japanese postwar labor market. This system is dependent on companies' ability to hire young workers, particularly fresh graduates. Ono (2010) demonstrated that lifetime employment was a persistent practice, particularly among highly educated male regular employees in large corporations and the public sector. Because preferential hiring of young workers is a long-standing practice in Japan, it has been extensively researched, with most studies depending on company surveys. Company surveys are useful because they provide information on the company's internal operations; however, they tend to suffer from low response rates and response bias, particularly regarding sensitive topics.

Using job ads to study age targeting in Japan before the introduction of anti-age discrimination legislation, Kitaura (2003) found that only 1.6% of job ads registered with the public employment office in September 2001 excluded age restrictions on applicants. Tokunaga (2008) examined job ads from the 1985, 1995, and 2005 issues of a women-oriented job ad magazine and reported that around 97% of ads contained age limits at all three time points, with the maximum eligible age increasing over time. Okunishi (2008) discovered that younger companies and those that did not practice on-the-job training hired more mid-career workers, whereas larger companies expanded mid-career recruitment in the three years preceding the survey. Similarly, Ōta and Yasuda (2010) concluded that companies with well-developed training programs and high levels of firm-specific knowledge hired more fresh graduates than they did mid-career workers, thereby indicating a preference for younger workers. Finally, Kambayashi and Ōta (2010) used company survey data and found that companies with more employees and companies with higher quit rates tended to search for more workers. They further found differences in age limits in recruiting between industries and occupations.

Next, reviewing the monopsony in labor market literature, Manning (2020) observed that the idea of imperfect labor markets has been growing in popularity and was starting to gain traction among policymakers. Sokolova and Sorensen (2020) conducted the first meta-analysis of labor market monopsony literature and concluded that the evidence for monopsonistic competition was strong with a significant impact on wage markdowns while also highlighting the lack of empirical research examining potentially discriminatory wage gaps. The traditional approach towards analyzing company monopsony power was to use matched employer–employee data to compare workers' marginal productivity to wages (Scully, 1974) or estimate the (inverse) labor supply elasticity (Sullivan, 1989). One of the more recent approaches to the subject looks at the elasticity of recruitment. Dal Bó et al. (2013) used data from a Mexican government experiment to attract public servants to marginalized municipalities, wherein two different wage offers were randomly assigned across recruitment localities to conclude that higher wages attracted better applicants and helped close the recruitment gap in less desirable municipalities. Using job ads as a tool to assess labor market monopsony, Azar et al. (2020) used online job ads to examine the association between labor market concentration and posted wages in the US and observed lower posted wages in markets with fewer firms. Although both these papers had access to applicant information—data this study does not have—an approach primarily inspired by Azar et al. (2020) is used to evaluate the indicators of monopsony power in Japan and their relevance to age targeting in mid-career recruitment.

To the best of the author's knowledge, this paper is the first to investigate the company characteristics of companies in Japan that use age targeting in recruiting mid-career workers through online job ads and to link age targeting practices with company monopsony power.

3. Institutional setting

In Japan, discrimination in employment is governed by the Employment Measures Act (EMA), originally implemented in 1966. Age as a basis for discrimination was first referenced in the 2001 EMA revision, which stipulated duty to endeavor to provide equal opportunity to prospective workers regardless of age. The 2007 EMA amendment changed this duty to endeavor into an obligation with six exemptions. Every job ad stipulating age limit in the sample used in this study cited the following exemption:

> "Recruit only new graduates who are youth, or below certain ages, in order to give them the opportunity to develop and improve their occupational abilities over a long period of service." (Sakuraba, 2009)

This exemption shields the traditional recruiting process aimed at recent graduates from age discrimination lawsuits. Companies may set upper age limits when hiring youth on indefinite contracts; however, they may not require any work-related experience, licenses, or qualifications obtained only during the course of employment, thereby effectively treating applicants as fresh graduates. Employers who want to hire workers on a regular, non-fixed-term, contracts have three options: set a specific age limit for applicants, set experience requirements, or set neither. The exemption does not define "youth" or "below certain ages"; however, official explanatory materials frequently mention the age of 35 and in some cases 45 (MHLW, 2016, 2019a). Furthermore, because indirect age targeting is not addressed, employers are free to express their preference in other ways and are thus, in practice, permitted to require applicants to have both work experience and be of a specific age.

Exemptions for artistic reasons, hiring for jobs with statutory age limits, setting upper age limits to comply with mandatory retirement age, specifying the age range when a given age category is underrepresented in the company, and hiring seniors or other persons whose employment is encouraged by government policies are among the remaining exceptions. Under the current version

of the law, no other exemptions are specified, such as setting age limits to facilitate smooth business with customers of specific age groups or setting age limits to maintain an in-company pay structure.

4. Data

4.1. Data collection

The data for this study were gathered over an 18-month period from July 2018 to December 2019 from the Japanese online job ad site Doda (https://doda.jp/), a website aimed at mid-career jobseekers. Doda, founded in 2007, claimed to have approximately 4,100,000 registered users as of March 31st, 2018, with this number growing to 5,450,000 by March 31st, 2020. (Persol, 2018, 2020). Doda does not reveal the age breakdown of all registered users, only those who have recently registered. From October 2017 to March 2018, 19.5% of users registered during this period were under the age of 25, 30.9% were aged 25–29 years, 18.7% were 30–34 years, 11.6% were 35–39 years, and 19.4% were 40 and older. As previously registered users age, the average age of all Doda users is likely higher.

Doda was chosen as the data source for the following three reasons. First, Doda is a general job board that, in contrast to some of its primary competitors, does not operate sister sites aimed at a specific subset of jobseekers based on age, job title, or industry. Second, Doda claimed to host the most job ads among popular Japanese online job ad sites at the start of the sample collection period. Finally, the structure of the job ad itself is appropriate for this study because it provides employers with substantial space and is thus a rich source of information. Doda-affiliated companies draft the ads, thereby resulting in highly standardized language and ad structure while ensuring the ad complies with applicable legal requirements. Except for job ads for entities without registered capital, such as religious institutions or municipalities announcing job fairs, all new complete ads, ads with both company press page and job ad page, for full-time positions uploaded to the sales (*eigyō,* 営業) category were collected. After excluding job ads that lacked information that could not be obtained elsewhere, the final sample comprises 3,557 ads from 1,341 companies.

Doda allows businesses using its services to select from various ad formats. Ads with a dedicated company PR page and a dedicated job-posting page, as collected for this study, appear preferentially in both the overall list of ads regardless of posting date and the criteria-based search using filters. Doda categorizes job postings into 15 categories based on job title. This study chose the sales category because sales jobs can generally be transitioned into without specific education, licenses, or other qualifications, thereby allowing for compliance with the young-age-related EMA exemption. The sales category was the largest at the beginning of the sample collection period. Additionally, Doda divides postings into three categories based on employment contract type: regular employee (*seiki shain,* 正規社員), contract employee (*keiyaku shain*, 契約社員), and other (*sono ta*, その他). Approximately 95% of the ads posted in the sales category during the sample collection period advertised regular contract jobs.

4.2. Dataset

The complete sample comprises 3,557 ads from 1,341 companies; however, this sample contains reposts. Companies posting multiple ads often use a mix of targeting strategies for an otherwise identical ad. An ad is considered a repost if it matches a previously posted ad by the same company in all its job characteristics and search strategy attributes. Jobseekers are assumed to recognize a repost and always reject it if the terms are undesirable but are assumed to consider an ad that meets their criteria regardless of their possibly having rejected another ad by the same company. This study thus adopts an ad-based approach instead of a company-based approach, excluding

duplicates of the previously posted ads while keeping multiple ads from companies not considered reposts.

After excluding reposts, the reduced sample consists of 2,679 unique ads by 1,341 companies, with 790 of these companies posting a single unique ad, corresponding to 29.5% of ads and 58.9% of companies in this sample. The company with the most ads posted 173 ads, including reposts, with 34 of these ads identified as unique. The 10 most active companies posted 504 ads in total, 214 of which were unique, constituting 14.2% of the full and 8.0% of the reduced sample. Although the ad-based approach shrinks this gap, the most active companies are overrepresented.

Table A1 in Appendix 1 contains the descriptive statistics for both samples. Using the reduced sample, the average registered capital of a company posting an advertisement was 13.5 billion yen, with a median of 63.3 million yen. With a mean of 215 employees, the average number of employees was 3,302. The average company posting an ad was founded in 1992, whereas the median year of founding was 1999. Larger, older companies tended to post a variety of ads, pushing the sample means higher. Furthermore, a publicly traded companies posted 14.1% of the ads, and subsidiaries of one posted 19.2% of the ads. Domestic Japanese businesses posted 94.7% of the ads and 69.4% of ads were posted by a company claiming to be based in Tokyo or Osaka. A probation period was required in 66.0% of the ads. If the posting company's information was not included in the ad, it could be found elsewhere, such as on the company's website or in job ads on other job ad sites. In all cases, the ad included information about the industry wherein the company operates.

For this paper, two types of age targeting are defined: direct and indirect. Companies that impose an explicit age limit on applicants citing EMA's young-age-related exemption are considered to engage in direct age targeting. Direct age targeting was present in 23.7% of unique ads, whereas job experience was required in 25.0% of ads. In terms of maximum eligible age, 3.7% of ads in the reduced sample accepted only applicants aged 30 or younger, 15.7% of ads accepted only applicants aged 35 or younger, and 20.9% of ads set the maximum eligible age to 40 or younger. Figure 1 depicts the maximum eligible age distribution in a sample of ads with age restrictions. In 39.0% of these ads the cut-off age was 35, with the lowest limiting age being 25 and the highest being 49.

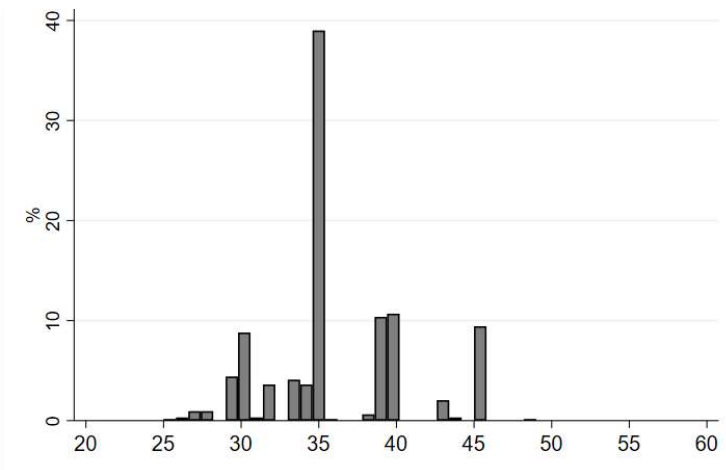

Figure 1: Age limit by cut-off age

Following that, indirect age targeting is defined as specifying a preference for young workers in the ad in ways other than explicitly setting an age limit. Within the highly standardized structure of the ads, six patterns were identified, five in writing and one visual. The six types were summarized into two variables: Age index 1, ranging from 0 to 6, and Age index 2, ranging from 0 to 5. Variable Age index 2 excludes visual-based age targeting. The average number of indirect age targeting types in

unique ads was 3.1 for Age index 1 and 2.4 for Age Index 2. A detailed discussion on the types of indirect age targeting is provided in Appendix 2.

All job ads collected contained a monthly salary offer upon completion of the probation period, with 48.3% of ads including overtime pay in the offer. The minimum number of overtime hours included in these ads was 10, the maximum 80 and the average stood at 38.2 hours. When salary offer was presented as a range, the lower bound was used, and for ads advertising vacancies in multiple locations, the salary offer corresponding to the reported company location was recorded. To describe the salary offer, two variables were created. First, the hourly wage was computed based on the average number of regular monthly contracted hours.[1] The hourly wage was then weighted by the minimum wage in the company's reported location's prefecture. The hourly wage is calculated in 2 ways: not reflecting the number of overtime hours included (variable Hourly wage ratio) and including overtime hours in contracted hours (variable Hourly wage ratio with overtime).

$$Hourly\ wage\ ratio = \frac{\frac{salary\ offer}{165}}{minimum\ wage}$$

$$Hourly\ wage\ ratio\ without\ overtime = \frac{\frac{salary\ offer}{165 + overtime\ hours}}{minimum\ wage}$$

Figure 2 depicts the distribution of Hourly wage ratio and Hourly wage ratio without overtime in the reduced sample. The average hourly wage ratio was 1.55 and 1.41 for hourly wage ratio with overtime, with the minimum and maximum values for both variables being 0.62 and 3.77, respectively. In some cases, the convoluted system of incentive pay pushed the hourly base rate below the minimum hourly wage.

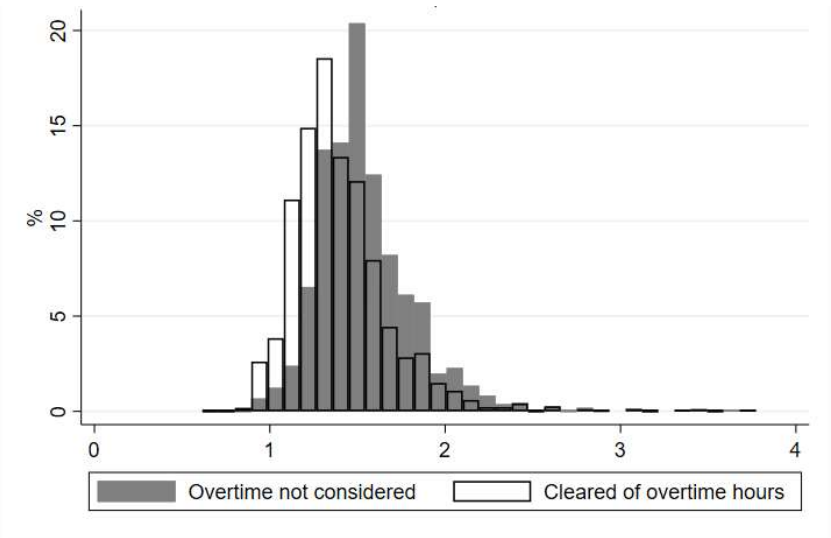

Figure 2: Hourly wage to minimum wage ratio

Finally, the local labor market, the definition of which is limited by data availability, is described by two variables: vacancy ratio and population age. The vacancy ratio is the number of job openings per jobseeker, published monthly at the prefectural level. The value for the prefecture of company reported location 1 month before the ad-posting month is used. The vacancy ratio ranged from 1.24 to 2.21, indicating that the job market is tight for all ads in both the full and redacted samples, with

[1] The average number of standard hours in a regular contract in 2018 was 165 (MHLW, 2019b).

more jobs available than jobseekers. Following that, population age displays the average population age in the city of the reported company location, as determined by the 2015 census. However, although the data were matched where possible, the location reported by the company may not be the same as the location of the job, particularly for job ads seeking to fill openings in multiple company locations.

4.3. Representativeness

A company with an opening to be filled with a mid-career employee is faced with a choice of a recruiting channel, such as the public employment office, referrals, or online job ad sites. Although the selection likely depends on the job itself, the jobseekers the company wants to reach, and the corresponding costs, the popularity of online job ad sites in Japan is growing, evidenced by the increasing number of registered Doda users. Kambayashi and Ota (2010) found that vacancies advertised using a job ad attracted more applicants while pointing out that these vacancies could be for less specialized jobs, which would be expected to attract more applicants than highly specialized positions. Since 2010, Internet usage and overall digitalization of all aspects of society further increased and the number of online job ad sites in Japan with it. It is likely that accordingly, the choice of the online job ad site channel for a company looking to fill a sales, not a highly specialized, position became more widespread. However, as this study only examines the online job ad site recruiting channel, its conclusions can only be viewed in the appropriate context.

In terms of the data's main limitations, because the sample was collected from a single source, for regular contract jobs in a single job title category only, it is not representative of the Japanese mid-career job market. In 2018, 37.8% of workers in Japan were in non-regular jobs (Statistics Bureau of Japan, 2019). Another limitation of this sample is that it is based on self-reported data that may not be consistent across companies, such as the inclusion or exclusion of non-regular employees from the total number of employees. Furthermore, companies that do not set age limits in their job ads may engage in age discrimination later in the recruiting process, particularly if they choose to set experience requirements while preferring to hire young applicants. Another limitation of this study is that there is some subjectivity in evaluating ad content, particularly the visual aspects, as discussed in Appendix 2.

Furthermore, if the job on offer does not appeal to older jobseekers, companies may not need to set age limits. Table 3 shows the average monthly salary offer in the reduced sample broken down by age, experience, and educational requirements. Panel A describes the salary offer in its current form, and Panel B reports it cleared of overtime using the following formula:

$$Salary\ offer\ without\ overtime = salary\ offer * \frac{165}{165 + overtime\ hours}.$$

Table 4 shows the average monthly salary in Japan in Japanese yen by the age group and contract type in Panel A and the average first job starting monthly salary by educational level in Panel B to assess the data's representativeness.

TABLE 3: Average monthly salary offer – sample (unique ads)

A. OVERTIME NOT CONSIDERED

AGE/EXPERIENCE REQUIREMENT EDUCATION	NONE (n = 1375)	AGE LIMIT (n = 634)	EXPERIENCE (n = 670)
All	238,245	233,827	263,923
No requirement	239,819	241,018	258,314
High school	231,073	215,465	247,936
Vocational, 2-year college	229,432	221,853	265,613
University	245,664	231,813	285,513

B. CLEARED OF OVERTIME

AGE/EXPERIENCE REQUIREMENT EDUCATION	NONE (n = 1375)	AGE LIMIT (n = 634)	EXPERIENCE (n = 670)
All	215,954	209,907	243,081
No requirement	217,519	213,665	232,663
High school	206,104	195,274	235,565
Vocational, 2-year college	218,264	214,092	258,429
University	231,824	227,310	268,792

TABLE 4: Average monthly salary - population

A. BY AGE GROUP AND CONTRACT TYPE

	2018		2019	
	REGULAR	OTHER	REGULAR	OTHER
Under 19	179,200	165,500	180,200	168,000
20 – 24	213,200	182,100	214,600	180,800
25 – 29	245,700	198,200	249,500	198,900
30 – 34	282,400	204,900	284,800	204,700
35 – 39	313,300	207,700	317,100	207,600
40 – 44	342,100	205,600	344,400	208,200
45 – 49	372,800	206,100	368,900	208,100
50 – 54	400,000	204,300	398,600	206,600
55 – 59	400,200	206,200	396,300	205,500
60 – 64	316,700	236,500	325,100	237,900
65 – 69	283,300	208,200	286,500	216,500
Over 70	281,000	199,500	274,700	195,800
Average	323,900	209,400	325,400	211,200

MHLW (2019b, 2020b)

B. FIRST JOB BY EDUCATIONAL LEVEL

	2018	2019
High school	165,100	167,400
Vocational school	181,400	183,900
Bachelor's degree	206,700	210,200
Master's degree	238,700	238,900

MHLW (2019e)

Comparing Tables 3 and 4, the offered salary in job ads on Doda is likely to attract predominantly young regular workers, especially when overtime hours are taken into account, and non-regular workers of all ages. The average offered salary in ads with an age limit and requiring university education is for master's degree holders lower than the average first job salary. Age restrictions may thus be intended to discourage primarily non-regular workers from applying. Even job advertisements with the most stringent requirements, such as experience and a university degree, offer a lower salary than that a regular employee in the 35–39 age group earns on average. However, the salary offer included in job ads likely functions as a reference for salary negotiations, with the actual starting salary being higher. Nevertheless, the jobs posted in the sales category on Doda generally seem to be aimed at younger workers, specifically those below the age of 30 in the case of regular workers.

5. Theoretical framework

The model proposed in this paper is based on Kuhn and Shen's (2013) non-sequential search model of discrimination in job ads. A company with an opening chooses the type of candidate to invite to apply in both the original model and the version proposed in this paper based on perceived productivity and corresponding search costs. Companies can choose to search broadly, with no requirements, or narrowly, with conditions imposed on applicants. In the work of Kuhn and Shen (2013), the option was gender-based, with preference for one automatically disqualifying preference for the other. Although the choice between age and experience requirements is binary in this paper, the underlying preferences are not mutually exclusive..

First, let's assume that companies operate in a monopsonic local labor market. Manning (2003, 2011) proposed that wage-setting power of companies stems from the existence of search frictions, such as the costs associated with job change or reservation wages, factors incorporated into the following model. In a monopolistic setting, worker discrimination can be consistent with company profit maximization.

The number of job separations company m faces, $s_m(n)$, is assumed to be a non-decreasing function of the number of employees n:

$$s'_m(n) \geq 0.$$

For a company to maintain its size, each quit is turned into an opening, the number of openings is thus a non-decreasing function of the number of employees. This setting is consistent with Kambayashi and Ota (2009), who found that companies with more regular employees and companies with higher quit rates post more mid-career job ads in Japan.

Further, the total search cost $\sum SC$ company m is willing to spend searching for workers to fill all their openings is at maximum a fixed portion t, $0 < t < 1$, of their assets c_m:

$$\sum SC \leq tc_m.$$

Turning to the supply side, each jobseeker i is assumed to possess several characteristics:

1) productivity x_i defined as $x_i = \bar{x} + \varepsilon_i$, where $\bar{x}$ is the average productivity for the advertised job after undergoing relevant training and ε_i is i's deviation from $\bar{x}$
2) reservation wage W_i
3) experience e_i
4) age y_i
5) location l_i the jobseeker is willing to work in.

These attributes have the following probability distribution functions:

1) productivity distribution function $F(x)$
2) reservation wage distribution function $G(W)$
3) experience distribution function $H(e)$
4) age distribution function $J(y)$.

The probability P of an applicant being suitable for an opening with an offered wage W, productivity requirement $\bar{x}$, experience requirement e and age requirement y by a company located in location k is

$$P = \big(1 - F(\bar{x})\big)G(W)\big(1 - H(e)\big)J(y)$$

and the number of applicants A for this opening is

$$A = PL_k$$

where L_k is the total number of available jobseekers in a location k. As such, A is an increasing function of L, W, y and is decreasing in $\bar{x}$ and e.

Introducing the attractivity coefficient μ, $0 \leq \mu \leq 1$, which reflects attractivity of the company, the number of arrivals is modified to the following:

$$A = \mu_m PL_k.$$

Companies searching broadly see a higher number of suitable applicants arriving

$$A_B = \mu_m P_B L_k, P_B = \big(1 - F(\bar{x})\big)G(W)$$

than companies searching narrowly do, targeting either age or experience with the corresponding number of applicants A_Y and A_E

$$A_Y = \mu_m P_Y L_k, P_Y = (1 - F(\bar{x}))G(W)J(y)$$

$$A_E = \mu_m P_E L_k\,, P_E = (1 - F(\bar{x}))G(W)(1 - H(e)).$$

Broad search is associated with search cost $SC(A_B)$, targeted search results in search cost $SC(A_Y)$ or $SC(A_E)$. Search costs are decreasing in the number of applicants A, $SC'(A) < 0$, reflecting the additional costs of targeted search, such as the costs needed to reach jobseekers with specific characteristics or the smaller pool of applicants and thus likely longer time the opening goes unfilled. Hence search costs decrease with higher wages, higher age limits, a larger jobseeker population, and a higher attractivity coefficient, and increase with tighter productivity or experience requirements. Costs incurred during the subsequent stages of the hiring process, such as application processing or interviews, are not considered.

For a single opening, company m chooses the type of applicant to invite based on maximizing the following profit function π:

$$\pi = max\{E\big[R\big(U_i; D^j\big)\big] - D^j\big(W^j + SC(A_j) + TC^j\big)\}$$

$$where\ U_i = x_i + D^j x^j, j \in (B, Y, E), x^B = 0$$

$$s.t. A_j \geq 1$$

$$SC(A_j) \leq tc_m$$

where $R(U_i)$ is a revenue function, $R'(U_i) > 0$ and $R''(U_i) < 0$. The variable of choice is D^j, a search type indicator equal to 1 if the strategy is chosen and 0 otherwise, $j \in (B, Y, E)$, where B stands for broad search, Y for age-targeted search and E for experience-targeted search. The term x^j is a company's perceived bonus in productivity associated with a given type of worker. A

company's perceived young-age productivity bonus x^Y can stem both from taste-based or statistical discrimination, x^E is company's perceived productivity bonus from relevant experience and $x^B = 0$. TC^j is the cost of training allocated to a worker hired through the respective type of search, where $TC^Y > TC^B > TC^E$. W^j is the wage associated with the productivity level $\bar{x}$ and $W^Y < W^B < W^E$.

A company facing q number of openings v chooses a mix of search strategies to jointly maximize profit Π, subject to constraints on the minimum number of wanted applicants and the maximum affordable search costs.

$$\Pi = max \sum_{v=1}^{q} \{E[R_v(U_{vi}; D_v^j)] - D_v^j(W_v^j + SC_v(A_{vj}) + TC_v^j)\}$$

$$s.t. \sum_{v=1}^{q} A_{vj} \geq s_m(n)$$

$$\sum_{v=1}^{q} SC_v(A_{vj}) \leq tc_m$$

The dataset compiled for this study allows for a direct observation of the chosen search strategy D^j.

Based on this model, several hypotheses are proposed:

1) Companies for which targeting is comparatively more expensive tend to target less.

   This includes companies that can allocate less money to search activities, companies experiencing more quits, or companies struggling to attract applicants, such as those in locations with fewer jobseekers or companies with low attractivity coefficient.

2) Companies highly valuing young age tend to age target more.

   These are companies with a high perceived productivity bonus of young age x^Y. Companies with highly developed on-the-job training programs or those with an established rigid inner structure might place more value on young age. Companies investing heavily in training workers, which might be observed as utilization of a probation period, might want to gain the benefits over a long period of employment. The impact of unobserved company inner structure or culture might manifest as a difference between younger and older companies or between domestic Japanese and foreign-owned companies.

3) Companies with a higher degree of market power tend to search narrowly.

   Market power allows companies to set wages lower than workers' marginal product, enabling them to cover additional costs stemming from targeted search. This is especially relevant to age-targeted search, as the young-age-related perceived productivity bonus x^Y might not be realized as an actual productivity bonus.

Besides search type, companies reveal their preference for young age by employing indirect age targeting practices. In ads that set experience requirements but are unable to set age limits simultaneously, indirect age targeting may be used as a substitute for age limits. In ads with an age limit, indirect age targeting may be used to target specific age groups more precisely.

6. Empirical strategy

The first part of the empirical analysis discussed in Section 7.1 examines the association between company characteristics and targeted employee search. Narrow search dummy variable for unique

job ad *i* is regressed on company characteristics and a set of controls using the following linear probability model:

$$Narrow\ search_i = \alpha + \boldsymbol{\beta} * \boldsymbol{Company\ characteristics_i} + \gamma * Controls_i + \varepsilon_i \tag{1}$$

Where Narrow search takes five forms based on the type of targeting used: Age limit + experience indicating narrow search in general, Experience for experience-targeted narrow search, Age limit for age-targeted narrow search, Under 40 for age-targeted search with the maximum eligible age of 40 and Under 35 for age-targeted search with the maximum eligible age of 35. The coefficient of interest is β, a vector of parameter estimates of variables describing company characteristics. Controls is a vector of control variables always including month and industry dummy variables and a combination of variables describing job characteristics, local job market or specifics of the selected search strategy. For all models, the error term ε_i is clustered at a company level.

Additionally, Indirect age targeting categorical variable for unique job ad *i* is similarly regressed on company characteristics and a set of controls in a linear regression model:

$$Indirect\ age\ targeting_i = \alpha + \boldsymbol{\beta} * \boldsymbol{Company\ characteristics_i} + \gamma * Controls_i + \delta * Narrow\ search_i + \varepsilon_i \tag{2}$$

including Narrow search in the form of age-targeted and experience-targeted search dummy variables. Indirect age targeting takes the form of Age index *1* (0–6 range) and Age index 2 (0–5 range). The error term ε_i is analogously clustered at the company level. Furthermore, models (1) and (2) for all outcomes were additionally estimated using probit (model (1)) and ordered logit (model (2)) to check the robustness of the results, producing generally qualitatively identical results with higher statistical power.

Next, Section 7.2 provides the discussion of the role of monopsony power in enabling companies to target search using an approach inspired by Azar et al. (2020). Companies that operate in a competitive environment should theoretically raise wages in response to a tightening labor market, whereas companies that exercise market power would be unaffected. Assessing the relationship between local labor market conditions and the salary offer may thus reveal the type of market in which the company operates. Both the reduced and full datasets are analyzed to capitalize on the dynamic nature of the labor market during the data collection period.

To examine the association between the salary offer and the local labor market conditions, Wage offer variables Hourly wage ratio and Hourly wage ratio without overtime of a unique job ad *i* or a job ad *j* are regressed by a linear regression model on variables describing the local labor market and a set of controls using the following model:

$$Log(Wage\ offer_k) = \alpha + \boldsymbol{\beta} * \boldsymbol{log(Vacancy\ ratio_k)} + \boldsymbol{\gamma} * \boldsymbol{Population\ age_k} + \delta * Controls_k + \mu * Narrow\ search_k + \varepsilon \tag{3}$$

where $k \in (i, j)$, using complete samples and subsamples based on the type of search used.

Hourly wage ratio and Hourly wage ratio without overtime depict the salary offer as an hourly wage weighted by the local minimum wage, respectively, ignoring and accounting for the number of overtime hours included in the salary offer. Vacancy ratio is the number of open job positions to the number of jobseekers in the prefecture of the company location 1 month before the posting month.

Population age represents the average population age in the city of company reported location. Controls is a vector of control variables including month and industry dummy variables and a combination of variables describing company, job, and search strategy characteristics. Equivalently to equation (2), Narrow search is a vector of age-targeted and experience-targeted search dummy variables. The error term ε is clustered at the company level for the sample of unique ads *i* (reduced sample) and two-way clustered at the company level and a job ad level for the sample of all ads *j* (full sample).

7. Results and discussion

7.1 Company characteristics as determinants of narrow search

This section examines the relationship between company characteristics and a narrow employee search strategy. Table 5 displays the results of the narrow search model from equation (1) with a variable set of controls and an outcome variable Age limit in columns (1)-(3), and Experience in columns (4)-(6). Columns (1) and (4) show the results of estimation with only the month and industry controls. Without controlling for job and search characteristics, Japanese companies, companies in Tokyo and Osaka, and companies that used a probation period were significantly more likely to target age than their respective counterparts, a result that is most consistent with hypothesis 2 – appreciation for young-age channel. Companies targeting experience, on the other hand, were of the type generally assumed to be able to afford more expensive search strategies, as proposed in hypothesis 1; richer companies, companies with fewer quits, and older companies, which may have higher recognition value than young companies. Furthermore, companies assumed to have a more flexible internal structure, foreign-owned companies, and subsidiaries of publicly traded companies were also significantly more likely to target experience. Companies may be inclined to target only specific types of sales jobs; the inclusion of job-related controls in columns (2)-(3) and (5)-(6) filters this effect out, weakening the significance of the effect of company characteristics. Columns (3) and (6) also show results with search-related controls that separate out the effect of search intensity, such as the number of ads and reposts posted, the length of time the ad was set to be visible on the job board, or the number of locations the company advertised for in an ad. Column (3) results show that the company characteristics associated with age targeting survive the inclusion of control variables, gaining significance. Controlling for search intensity in column (6), on the other hand, causes company characteristics associated with experience targeting to lose significance in general. While the significance of the coefficient estimates varies with the controls, their direction and effect sizes remain largely stable. The specification used in columns (3) and (6), controlling for month, industry, job, and search strategy characteristics, thus revealing underlying preferences, is selected for the remainder of this section. Results of models including company characteristics variables separately without additional controls and with job and search-related controls are presented in Appendix 3.

Table 6 displays the results for all the introduced narrow search dummy variables (equation 1) and age indices (equation 2). Column (1) shows the results of an overall narrow search, columns (2) and (3) show the results of mutually exclusive types of narrow searches, and columns (4) and (5) show the results of age targeting by eligibility cut-off ages (40, 35). Columns (6) and (7) show the relationship between the company characteristics and the revealed preference for young age at the top of the selected search type.

The results in Table 6 generally align with the proposed hypotheses. Companies with higher capital are on a 1% level of significance more likely to choose an overall narrow search, however, the effect on experience and all types of age targeting is significant only marginally or non-significant. This result suggests that while richer companies do not necessarily prefer young age or experience specifically, they can undergo a more expensive search, even after controlling for search intensity.

Further, the effect of the number of employees is similarly consistent with hypothesis 1, as the increasing number of employees, understood as more vacancies to fill, shows the expected opposite trend to capital size. Bigger companies do not differ from smaller companies in terms of targeting experience or showing a preference for young age indirectly but are highly significantly less likely to choose an overall narrow search and target age at all thresholds. Experience is assumed to bring a realized productivity bonus, possibly offsetting higher search costs. Comparing the effect sizes across eligibility cut-off ages, 1% increase in the number of employees results in a 2.7% lower likelihood of targeting age overall, but 3.5% and 3.2% lower probability of setting the maximum eligible age to 40 and 35, respectively. This finding suggests that larger companies are more likely to broaden eligibility before abandoning age targeting. The impact of the foundation year follows a similar pattern as the number of employees. Younger companies are at a 5% level of significance less likely to practice narrow search, with one year translating into a 0.17% lower likelihood, but they do not differ from older companies in terms of experience or direct age targeting, apart from not targeting jobseekers aged 35–40. Younger companies, on the other hand, are highly significantly more likely to use more indirect age targeting practices, displaying a strong preference for young age without acting on it, possibly due to low attractivity caused by low name recognition or uncertainty about the future.

Analyzing the role of company ownership type, publicly listed companies do not differ from private companies in terms of likelihood and willingness to target both age and experience. While subsidiaries of publicly traded companies do not differ from private companies in terms of overall narrow search and direct age targeting at all thresholds, they are 7% more likely to target experience and tend to use fewer indirect age targeting practices than private companies with the significance level of this effect standing at 1%. Because one application of indirect age practices is to signal young-age preference when age limits cannot be set due to the inclusion of experience requirements, one possible explanation for this result is that subsidiaries of publicly traded companies are more welcoming to outside experience regardless of applicant age.

Examining the impact of ownership origin, domestic Japanese companies are 11.4% less likely to target experience than foreign-owned companies, and 13.5% and 9.6% more likely to target age overall and ages 40 and younger, respectively. This trend may indicate a company culture that relies on internal training or seniority systems and places a premium on youth. However, these results are significant only at 10% and 5% thresholds, and no statistically significant difference is found for targeting ages 35 and younger, implying identical preference for very young workers. Furthermore, foreign-owned companies tend to use more indirect age targeting methods, which is consistent with practices used in an environment where age limits are illegal, as examined in Burn et al. (2021).

Following that, companies reporting their location in Tokyo or Osaka have, on a 1% level of significance, a 16.5% higher likelihood of targeting age overall, a 16.4% higher likelihood of targeting the 40 and younger age category, and an 11.7% higher likelihood of targeting the 35 and younger age groups than companies reporting their location in other locations, but they do not differ in terms of experience targeting. Companies in these urban centers have access to a larger pool of applicants, making targeted searches with uncertain realization of perceived productivity bonuses less expensive. Companies in urban areas also tend to use more indirect age targeting practices, possibly taking advantage of the large jobseeker pool to reach age groups that are more precisely defined than age limits allow.

Finally, companies that use a probation period, which is interpreted as an indicator of intensive training practices, are on a 5% level of significance more likely to target age at all thresholds, with the effect sizes ranging from 6.0% to 7.0%, and to employ indirect age targeting to a greater extent. The use of a probation period is, albeit marginally, negatively associated with experience-targeted search, which supports the hypothesis linking training costs and young-age appreciation. Okunishi (2008) and Ota and Yasuda (2010) support this interpretation by linking more developed in-company training practices to a preference for young workers.

NARROW SEARCH IDENTIFICATION – OLS ESTIMATES						
	AGE LIMIT			EXPERIENCE		
	(1)	(2)	**(3)**	(4)	(5)	**(6)**
Capital (log)	0.000784	0.00723	0.0101	0.0249***	0.0142*	0.0160*
	(0.00945)	(0.00925)	(0.00928)	(0.00907)	(0.00840)	(0.00867)
Employees (log)	0.0175	0.00652	-0.0268**	-0.0358***	-0.0215**	-0.00881
	(0.0122)	(0.0120)	(0.0120)	(0.0101)	(0.00919)	(0.0101)
Foundation year	0.000250	-0.000195	-0.000693	-0.00238***	-0.00132**	-0.000965
	(0.000785)	(0.000709)	(0.000695)	(0.000689)	(0.000670)	(0.000664)
Listed company	-0.0838	-0.0655	-0.0858	0.0564	0.0428	0.0653
	(0.0681)	(0.0587)	(0.0525)	(0.0516)	(0.0459)	(0.0452)
Subsidiary of listed company	-0.0265	-0.0103	-0.00436	0.114***	0.0767**	0.0717**
	(0.0487)	(0.0483)	(0.0429)	(0.0437)	(0.0351)	(0.0356)
Japanese company	0.177***	0.111*	0.135**	-0.226***	-0.0964	-0.114*
	(0.0565)	(0.0571)	(0.0564)	(0.0689)	(0.0653)	(0.0653)
Tokyo, Osaka	0.128***	0.148***	0.165***	0.0401	-0.00526	-0.00154
	(0.0294)	(0.0310)	(0.0306)	(0.0244)	(0.0227)	(0.0224)
Probation period	0.0512*	0.0582**	0.0696**	-0.0255	-0.0354	-0.0424*
	(0.0296)	(0.0286)	(0.0272)	(0.0266)	(0.0222)	(0.0218)
Job		✓	✓		✓	✓
Search			✓			✓
N	2,679	2,679	2,679	2,679	2,679	2,679
R^2	0.108	0.148	0.188	0.135	0.240	0.250

Notes: Coefficient estimates from linear probability model. Dependent variable is indicator of presence of targeting. Month and industry dummies included in all models. Inclusion of variables controling for type of advertised job (Job) and search strategy (Search) indicated. Job controls are Starting salary, Inclusion of overtime in salary, Education, B-to-B, B-to-C, 9AM shift, Flextime, 2 days week off, Transfer possibility. Search controls are Ads per company, Number of duplicates, Posting period, Number of locations, Number of locations squared, Hiring 5+ workers. Robust standard errors in parentheses clustered at company level. Significance levels: *** p<0.010, ** p<0.05, * p<0.10.

Table 5: Narrow search – identification

NARROW SEARCH – OLS ESTIMATES							
	AGE LIMIT + EXPERIENCE	**EXPERIENCE**	**AGE LIMIT**	**UNDER 40**	**UNDER 35**	**AGE INDEX 1**	**AGE INDEX 2**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Capital (log)	0.0262***	0.0160*	0.0101	0.00237	-0.00113	-0.0498	-0.0485*
	(0.00843)	(0.00867)	(0.00928)	(0.0119)	(0.00803)	(0.0308)	(0.0284)
Employees (log)	-0.0356***	-0.00881	-0.0268**	-0.0346***	-0.0321***	0.0690*	0.0472
	(0.0127)	(0.0101)	(0.0120)	(0.0120)	(0.0104)	(0.0396)	(0.0364)
Foundation year	-0.00166**	-0.000965	-0.000693	-0.00169**	-0.000763	0.0113***	0.00991***
	(0.000737)	(0.000664)	(0.000695)	(0.000838)	(0.000629)	(0.00239)	(0.00217)
Listed company	-0.0205	0.0653	-0.0858	-0.0966	0.0150	0.145	0.116
	(0.0536)	(0.0452)	(0.0525)	(0.0601)	(0.0525)	(0.178)	(0.167)
Subsidiary of listed company	0.0673	0.0717**	-0.00436	-0.0572	0.00436	-0.611***	-0.536***
	(0.0446)	(0.0356)	(0.0429)	(0.0386)	(0.0370)	(0.131)	(0.121)
Japanese company	0.0212	-0.114*	0.135**	0.0957*	0.0624	-0.363**	-0.250*
	(0.0710)	(0.0653)	(0.0564)	(0.0511)	(0.0469)	(0.168)	(0.150)
Tokyo, Osaka location	0.163***	-0.00154	0.165***	0.164***	0.117***	0.275***	0.230***
	(0.0339)	(0.0224)	(0.0306)	(0.0283)	(0.0259)	(0.101)	(0.0880)
Probation period	0.0272	-0.0424*	0.0696**	0.0600**	0.0615**	0.223**	0.203**
	(0.0287)	(0.0218)	(0.0272)	(0.0277)	(0.0253)	(0.0884)	(0.0790)
N	2,679	2,679	2,679	2,679	2,679	2,679	2,679
R^2	0.197	0.250	0.188	0.140	0.116	0.244	0.228

Notes: Coefficient estimates from linear probability model in colums (1)–(5), linear regression model for colums (6)–(7) . Dependent variables in columns (1)–(5) are dummy variables, dependent variable in columns (6) ranges from 0–6, in column (7) from 0–5. All models control for month, industry, job and search strategy characteristics. Robust standard errors in parentheses are clustered at company level. Significance levels: *** p<0.010, ** p<0.05, * p<0.10.

Table 6: Narrow search

In conclusion, the determinants of the likelihood of overall narrow search and specific types of targeted search generally agree with the hypotheses derived from the presented theoretical model: companies that can afford more expensive narrow search are more likely to search narrowly. Other factors, such as location, company ownership type, or the use of a probation period, influence the type of search chosen, implying that in-company structure and company culture play an important role. However, as the sample used in this study excludes information about the inner workings of the observed companies and is limited by the data source, more detailed research into the determinants of preference for young age is needed.

7.2. Company market power and narrow search

For all ads in both the restricted and full samples, the local labor market is characterized by an excess of vacancies over jobseekers, with on average 1.57 openings per jobseeker. A higher vacancy ratio indicates a tighter labor market, which should be positively correlated with wage offer in a competitive environment. As a result, the expected signs on the vacancy ratio estimates in equation (3) for both outcome variables are positive. A negative or statistically insignificant result would imply that the company has market power. Similarly, the expected impact of average population age on both outcomes is either null or positive. Companies in locations with older workers may reflect the average level of productivity of potential applicants in the salary offer, as productivity generally increases with experience and correspondingly age.

However, this analysis does not intend to measure the degree of market power, instead it aims to detect its indicators in the sample used in this study with all its limitations. The local labor market is defined spatially based on the company reported location and related data availability; thus, the variables describing the local labor market may not accurately reflect the conditions that companies face. This setting also assumes low job mobility, which is consistent with the observed mobility in the Japanese labor market, assuming that mid-career jobseekers generally search for jobs in the city of their residence or in cities with comparable population age. Because of these considerations, this analysis of labor market power is limited and should be interpreted accordingly.

Table 7 shows the estimation results using equation (3) with an expanding set of controls. Panels A and B present the results for the restricted sample, reflecting the circumstances at the time of the initial ad posting. Panels C and D contain identical analysis for the full sample, including ad reposts, taking advantage of the changing nature of the labor market during the sampling period. The mechanism behind not reposting an ad is unclear from the available data; a company may stop posting an ad once the advertised position is filled, when they deem the cost of advertising to be too high, or when they update an ad that is not attracting desirable applicants, resulting in a new type of ad. While the sample used for analysis in panels C-D more accurately showcases a casual jobseeker's experience on Doda, it likely includes multitudes of comparatively unpopular ads or ads that have not been updated to match jobseekers' demands. Panels A-B and C-D thus analyze different company behavior with panels C-D expected to show a weaker link between salary offer and labor market conditions, understood as a stronger evidence of market power. Further, panels A and C show results for the variable Hourly wage ratio, not considering overtime hours in the hourly wage calculation, and panels B and D display the results for Hourly wage ratio without overtime, clearing the hourly wage of included overtime hours. However, the realized overtime hours might eventually be lower than the number included in the salary offer, pushing the hourly wage closer to the figures used in panels A and C.

MARKET POWER ANALYSIS – OLS ESTIMATES

OFFERED HOURLY WAGE TO MINIMUM WAGE RATIO (log)

	PANEL A: OVERTIME NOT CONSIDERED UNIQUE ADS				**PANEL B: CLEARED OF OVERTIME HOURS UNIQUE ADS**			
	(1)	(2)	(3)	**(4)**	(5)	(6)	(7)	**(8)**
Vacancy ratio (log)	0.100	0.0937	0.0917	0.0813	0.0732	0.0752	0.0835	0.0800
	(0.0737)	(0.0773)	(0.0724)	(0.0680)	(0.0707)	(0.0754)	(0.0726)	(0.0740)
Population age	0.0125*	0.00968	0.0126**	0.0129**	0.0121	0.00921	0.0124*	0.0135*
	(0.00655)	(0.00653)	(0.00604)	(0.00578)	(0.00793)	(0.00780)	(0.00736)	(0.00701)
Company		✓	✓	✓		✓	✓	✓
Job			✓	✓			✓	✓
Search				✓				✓
N	2,679	2,679	2,679	2,679	2,679	2,679	2,679	2,679
R^2	0.042	0.098	0.176	0.189	0.059	0.094	0.168	0.183

	PANEL C: OVERTIME NOT CONSIDERED ALL ADS				**PANEL D: CLEARED OF OVERTIME HOURS ALL ADS**			
	(9)	(10)	(11)	**(12)**	(13)	(14)	(15)	**(16)**
Vacancy ratio (log)	0.125	0.123	0.116	0.114	0.0601	0.0701	0.0790	0.0803
	(0.0896)	(0.102)	(0.0853)	(0.0870)	(0.0770)	(0.0905)	(0.0850)	(0.0846)
Population age	0.0143**	0.00939	0.0132**	0.0133**	0.0108	0.00641	0.0102	0.0115
	(0.00727)	(0.00698)	(0.00644)	(0.00637)	(0.00882)	(0.00845)	(0.00793)	(0.00757)
Company		✓	✓	✓		✓	✓	✓
Job			✓	✓			✓	✓
Search				✓				✓
N	3,557	3,557	3,557	3,557	3,557	3,557	3,557	3,557
R^2	0.059	0.117	0.196	0.217	0.078	0.111	0.177	0.197

Notes: Coefficient estimates from linear regression model. Dependent variable in panels A and C is log of Hourly wage ratio, in panels B and D log of Hourly wage ratio without overtime. Vacancy ratio (log) is log of vacancy ratio in prefecture of reported company location month before ad posting. Population age is average population age in city of reported company location. Month and industry dummies included in all models. Inclusion of variables controling for company characteristics (Company), type of job advertised (Job) and search strategy (Search) indicated. Robust standard errors in parentheses are clustered at company level for panels A and B and two-way clustered at company and ad level for panels C and D. Significance levels: *** p<0.010, ** p<0.05, * p<0.10.

Table 7: Market power analysis

MARKET POWER ANALYSIS BY SEARCH TYPE – OLS ESTIMATES

OFFERED HOURLY WAGE TO MINIMUM WAGE RATIO (log)

	PANEL A: OVERTIME HOURS NOT INCLUDED UNIQUE ADS				PANEL B: OVERTIME HOURS INCLUDED UNIQUE ADS			
Subsample	**Age limit**	**Experience**	**Narrow search**	**Broad search**	**Age limit**	**Experience**	**Narrow search**	**Broad search**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Vacancy ratio (log)	0.215	-0.0517	0.0423	0.116	0.132	0.0905	0.119	0.0872
	(0.168)	(0.129)	(0.106)	(0.0719)	(0.214)	(0.142)	(0.124)	(0.0782)
Population age	0.0229	0.000122	0.00595	0.0194***	0.0177	0.00482	0.00822	0.0185**
	(0.0140)	(0.0123)	(0.00928)	(0.00697)	(0.0139)	(0.0149)	(0.0101)	(0.00851)
N	634	670	1,304	1,375	634	670	1,304	1,375
R^2	0.378	0.262	0.292	0.170	0.361	0.264	0.299	0.149

	PANEL C: OVERTIME HOURS NOT INCLUDED ALL ADS				PANEL D: OVERTIME HOURS INCLUDED ALL ADS			
Subsample	**Age limit**	**Experience**	**Narrow search**	**Broad search**	**Age limit**	**Experience**	**Narrow search**	**Broad search**
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Vacancy ratio (log)	0.231	-0.0119	0.0663	0.134*	0.162	0.158	0.162	0.0512
	(0.155)	(0.131)	(0.101)	(0.0764)	(0.195)	(0.151)	(0.123)	(0.0862)
Population age	0.0216	-0.00250	0.00441	0.0186**	0.0177	0.00281	0.00853	0.0142
	(0.0143)	(0.0124)	(0.0100)	(0.00744)	(0.0127)	(0.0145)	(0.0101)	(0.00953)
N	869	795	1,664	1,893	869	795	1,664	1,893
R^2	0.414	0.271	0.308	0.234	0.457	0.285	0.347	0.162

Notes: Coefficient estimates from linear regression model. Dependent variable in panels A and C is log of Hourly wage ratio, in panels B and D log of Hourly wage ratio without overtime. Vacancy ratio (log) is log of vacancy ratio in prefecture of reported company location month before ad posting. Population age is average population age in city of reported company location. Month and industry dummies included in all models. Inclusion of variables controling for company characteristics (Company), type of job advertised (Job) and search strategy (Search) indicated. Robust standard errors in parentheses are clustered at company level for panels A and B and two-way clustered at company and ad level for panels C and D. Significance levels: *** p<0.010, ** p<0.05, * p<0.10.

Table 8: Market power analysis by search type

The effect of the vacancy ratio on both measures of salary offer is not statistically significant for all models and samples, implying that companies do not respond to the tightness of the local labor market with wage competition. However, examining the time of the initial posting in panels A and B, higher population age is associated with a higher salary offer, especially when job characteristics and search strategies are controlled for. For models in columns (3)–(4) and (7)–(8), clearing the salary offer of overtime hours weakens the significance of the effect from 5% to 10%. One year increase in average population age resulted in 1.29% increase in Hourly wage ratio in column (4) and 1.35% increase in Hourly wage ratio without overtime in column (8). However, this trend no longer holds for the entire sample in panels C and D, where the association between population age and salary offer disappears once overtime hours are considered. While the sample companies were not sensitive to local labor market tightness, which is more transient than population age profile, indicating the presence of market power on their side, they appear to consider the likely heightened salary expectations of prospective applicants, with the inclusion of overtime pay in baseline salary weakening the association. Furthermore, the inclusion of a specific number of overtime hours that results in a weakening or effectively erasing of the relationship suggests a strategic use of overtime hours in salary offer.

To put these claims to the test, Table 8 shows the results of the model used in Table 7 columns (4), (8), (12), and (16) for targeting type-based subsamples. The chosen model accounts for the main factors influencing search type selection, as described by the theoretical model revealing baseline company behavior. In accordance with Table 7, the analyses presented in panels A-B and C-D use the redacted and full samples, respectively. Columns (1), (5), (9), (13) show the results for a sample of ads with age limits, columns (2), (6), (10), (14) for a sample of ads with experience requirements, columns (3), (7), (11), (15) for a sample of ads searching narrowly, and finally columns (4), (8), (12), (16) for a sample of ads with neither requirement.

Columns (1)-(3), (5)-(7), (9)-(11), and (13)-(15) do not confirm any association between either measure of salary offer and local labor market conditions for all targeted subsamples. The relationship between salary offer and average population age in Table 7 appears driven by non-targeted ads, supporting the hypothesis that market power allows companies to choose a narrow search strategy regardless of targeting type. Furthermore, the trend of companies nominally raising salary offers in response to a tightening local labor market while compensating for higher labor costs by increasing working hours is more pronounced in the non-targeted subsample compared to the original samples, and even more so in the non-targeted subsample including reposts, as expected. For the sample of unique non-targeted ads, one year increase in average population age leads to 1.94% increase in Hourly wage ratio, with this effect being highly significant, and 1.85% in Hourly wage ratio without overtime, with the significance standing at 5%. While companies not targeting their ads appear to engage in wage competition, they seem to use overtime hours covered by baseline salary to suppress the hourly rate growth.

The collective evidence presented in this section points to the presence of monopsony in the Japanese labor market. Further, indirectly analyzing the link between wage setting behavior and targeted search practices, companies directly targeting their searches do not seem to engage in labor market tightness induced wage competition. Likewise, companies searching broadly do not respond to labor market tightness but seem to adjust their salary offers to jobseekers' average salary expectations based on population age, while strategically using overtime hours to push the real salary offer downward. These results are consistent with the proposed hypothesis stating that market power enables companies to undergo more costly targeted search. However, the analysis in this section relies on indirect methods only, is restricted to the sample used and is not designed to provide definitive evidence of monopsony or its degree in the Japanese labor market.

8. Conclusion

The labor market in rapidly aging Japan is generally characterized by low job mobility and a persistent excess of vacancies over jobseekers. However, companies in Japan can legally set explicit age limits on applicants under certain circumstances. One permitted exemption is the hiring of young workers on regular contracts without requiring previous job-related experience, a statute protecting the traditional practice of preferentially hiring fresh graduates. Recruiting companies thus face a choice between setting age or experience requirements or neither. Using an original sample of job ads for regular contract sales jobs collected from July 2018 to December 2019 from a large Japanese online job ad site targeting mid-career jobseekers, this study analyzes the company characteristics related to the use of age limits and other practices showing age preference on applicants. Out of the total 3,557 job ads, containing 2,679 unique ads from 1,341 companies, 24% included explicit age limits, with the most frequent eligibility cut-off age standing at 35 years of age. Additionally, up to 96% of ads included other content revealing preference for young age, depending on the definition. Online job ad sites are an easily accessible source of information for people contemplating job change or entering the workforce. This tool designed to promote job mobility might thus come to discourage jobseekers if they find themselves excluded from visible job offers.

By proposing a theoretical framework of targeted employee search, three possible mechanisms behind targeted search are introduced: search costs related, appreciation for young age related, and labor market monopsony related. Empirically testing the model's implications, this paper observes that in general, companies that can afford more expensive search strategies tend to search narrowly, setting either age or experience requirements on applicants. Companies with fewer employees, domestic companies, companies located in urban centers and companies that use a probation period for new hires were more likely to set age limits than their counterparts. The use of indirect age targeting did not show a clear trend, implying that the inclusion of young-age references in the body of a job ad is situational. Further, indirectly analyzing the role of labor market power, the link between wage setting behavior and local labor market conditions is examined, concluding that, consistent with theoretical predictions, only the sample of non-targeted ads responded to the state of labor supply, albeit in a limited way. Companies that do not target their ads were found to respond to the average age of the population in the city where they are located, possibly reflecting higher wage expectations. However, including overtime pay in the baseline salary weakened this association, implying that businesses use overtime hours to manipulate labor costs. Furthermore, regardless of the sample or subsample examined or the wage offer definition used, offered wage did not appear to be related to labor market tightness as represented by the local vacancy ratio, indicating that companies do not engage in labor market tightness induced wage competition.

In 2019, the Japanese government announced a plan to promote mid-career hiring, increase household income, and secure employment opportunities until the age of 70 (Cabinet Office of Japan, 2019a). The practice of large companies traditionally once a year hiring fresh graduates was also called out, highlighting the need for more flexible hiring practices. The government implemented a three-year program to support the employment of the now middle-aged “employment ice age” generation, who struggled to find secure jobs as fresh graduates, as part of its policy to increase household income (Cabinet Office of Japan, 2019b). The program primarily targeted jobseekers through counseling, training programs, and support from local government offices, while also organizing seminars for small and medium-sized businesses to introduce the benefits of a diverse workforce. As a result, the “employment ice age” generation was added to the EMA exemption permitting the use of age restrictions on applicants whose employment is encouraged by government policies, allowing businesses to specifically target this age group. Because of the timing of the legislative change, no conclusions can be drawn about this specific exemption application in this study; however, no job ad in the sample cited the broad employment-encouragement exemption as a basis for age limits. Using a previous amendment to the EMA, Sasaki and Yasui (2014) investigated the impact of stricter anti-age discrimination rules adopted in 2007

and concluded that the legislative tightening resulted in increased employment of the elderly in both part-time and full-time jobs without displacing younger workers. While the Japanese government appears aware of the difficult situation many mid-career workers face due to limited and age-restricted employment opportunities, perhaps fewer rather than more exemptions from anti-age discrimination legislation should be the way forward. Particularly if, as the study's findings suggest, the presence of market power emboldens companies to limit eligible jobseekers based on age, making crafting specific company-targeted policies difficult.

While this study, to the best of the author's knowledge, provides the first evidence on the link between age targeting in Japanese online job ads and company characteristics and company market power, the results are limited by the data source which is not representative of the overall labor market. As this paper analyzed only a specific section of the job market, it cannot provide a discussion of larger trends. More research is needed to generalize the findings to other job types and recruiting channels on the demand side and examine the supply side: jobseekers' abilities, needs, and limitations related to age targeting and company market power.

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Appendix 1: Summary statistics

	ALL JOB ADS					UNIQUE JOB ADS				
Variable	N	Mean	Std. Dev.	Min	Max	N	Mean	Std. Dev.	Min	Max
Search										
Company	3557	715.123	385.354	1	1,341	2679	693.789	385.097	1	1341
Job ads per company	3557	16.712	37.266	1	173	2679	4.983	6.489	1	34
Ad duplicates	3557	2.771	5.564	1	42	2679	0	0	0	0
Posting period (month)	3557	1.812	0.892	0.250	5	2679	2.017	0.890	0.250	5
Hiring 5+ workers	3557	0.497	0.500	0	1	2679	0.502	0.500	0	1
Multiple locations	3557	0.701	0.458	0	1	2679	0.686	0.464	0	1
Number of locations (50 cap)	3557	17.322	20.667	1	50	2679	15.063	19.437	1	50
Targeting										
Age limit	3557	0.244	0.430	0	1	2679	0.237	0.425	0	1
Under 40	3557	0.216	0.411	0	1	2679	0.209	0.407	0	1
Under 35	3557	0.163	0.369	0	1	2679	0.157	0.364	0	1
Experience	3557	0.224	0.417	0	1	2679	0.250	0.433	0	1
Age index 1	3557	3.068	1.592	0	6	2679	3.132	1.510	0	6
Age index 2	3557	2.331	1.378	0	5	2679	2.368	1.322	0	5
Age in text	3557	0.563	0.496	0	1	2679	0.583	0.493	0	1
Recent graduate	3557	0.455	0.498	0	1	2679	0.478	0.500	0	1
Age in salary	3557	0.588	0.492	0	1	2679	0.589	0.492	0	1
In-company age	3557	0.316	0.465	0	1	2679	0.314	0.464	0	1
PR page - text	3557	0.432	0.495	0	1	2679	0.430	0.495	0	1
PR page - photo	3557	0.737	0.440	0	1	2679	0.764	0.425	0	1
Company										
Capital stock	3557	1.45E+10	1.43E+11	100000	5.40E+12	2679	1.35E+10	1.49E+11	100000	5.40E+12
Employees	3557	3725.12	20665.98	2	307275	2679	3301.759	20968.41	2	307275
Foundation year	3557	1991.591	21.437	1880	2019	2679	1992.244	21.766	1880	2019
Listed company	3557	0.184	0.387	0	1	2679	0.141	0.348	0	1
Subsidiary of listed company	3557	0.181	0.385	0	1	2679	0.192	0.394	0	1
Domestic	3557	0.942	0.235	0	1	2679	0.947	0.223	0	1
Tokyo, Osaka	3557	0.697	0.460	0	1	2679	0.694	0.461	0	1
Probation period	3557	0.643	0.479	0	1	2679	0.660	0.474	0	1
Job										
Starting salary	3557	241820.0	45554.26	100000	600000	2679	243621.5	47048.52	100000	600000
Overtime in salary	3557	0.478	0.500	0	1	2679	0.483	0.500	0	1
Overtime hours	3557	18.648	21.749	0	80	2679	18.469	21.437	0	80
Wage ratio	3557	1.541	0.291	0.62	3.77	2679	1.552	0.299	1	4
Wage ratio without overtime	3557	1.398	0.291	0.62	3.77	2679	1.409	0.301	1	4

Education										
None	3557	0.679	0.467	0	1	2679	0.688	0.463	0	1
High school	3557	0.200	0.400	0	1	2679	0.192	0.394	0	1
Vocational, 2-year college	3557	0.019	0.137	0	1	2679	0.023	0.149	0	1
University	3557	0.101	0.302	0	1	2679	0.097	0.296	0	1
B-to-B	3557	0.442	0.497	0	1	2679	0.455	0.498	0	1
B-to-C	3557	0.294	0.456	0	1	2679	0.308	0.462	0	1
9 AM shift	3557	0.375	0.484	0	1	2679	0.353	0.478	0	1
Flextime	3557	0.051	0.219	0	1	2679	0.057	0.232	0	1
2 days week off	3557	0.480	0.500	0	1	2679	0.493	0.500	0	1
No transfer	3557	0.608	0.488	0	1	2679	0.606	0.489	0	1
Local labor market										
Vacancy ratio	3557	1.571	0.127	1.240	2.210	2679	1.567	0.126	1.240	2.210
Population age	3557	44.956	0.787	40.543	51.007	2679	44.965	0.810	40.543	51.007

Table A1: Summary statistics

Appendix 2: Indirect age targeting

Indirect age targeting refers to the practice of indicating a preference for young workers in a job ad in ways other than explicitly setting an age limit. Within the highly standardized job ad structure, six patterns were identified, five written, and one visual.

The first type of indirect age targeting is the inclusion of the words "recent graduate" (*dai ni shinsotsu,* 第二新卒) in the body of the ad, in expressions such as the position being suitable for recent graduates, a large number of recent graduates joining the company, or that recent graduates are encouraged to apply. In 47.8% of the restricted sample, the term "recent graduate" was used.

The second type of indirect age targeting is a reference to a specific age group in the ad's text. The typical language referencing age was pointing out the young age of employees, using phrases such as young employees playing an active role in the company or that all employees being approximately the same young age creates a comfortable work environment. Figure A2 depicts the distribution of the referenced average age (age if a specific age is mentioned, average age for age range, none if only the words "young" and similar were used), revealing that it is concentrated in the late 20s and early 30s. According to the actual use of age limits, where the maximum cut-off age was set at 49, ads containing references to people in their 50s and up were not considered targeted. This type of indirect age targeting was present in 58.3% of ads. The lowest average age mentioned in targeted ads was 22, the average was 29.8, and the maximum was 48.

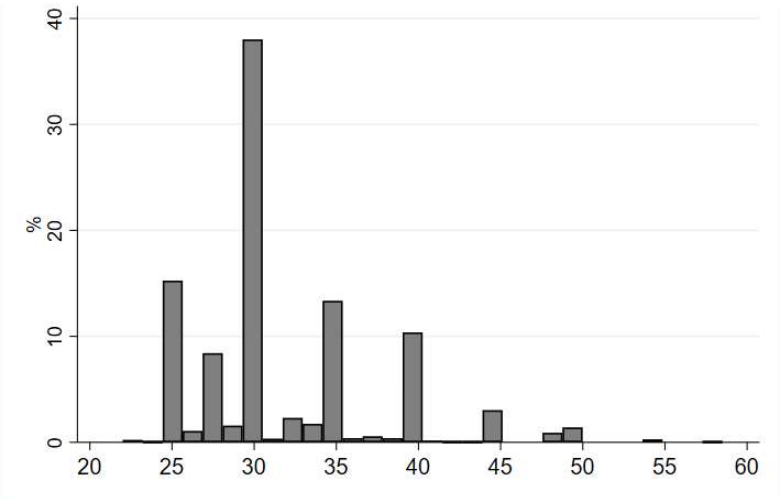

Figure A2: The average *age mentioned in* the ad's *body*

Similarly, mentioning a young age on an ad's PR page is considered a separate, third type of indirect age targeting. Interviews with employees, typically including their ages, were frequently featured on the PR page. When a specific age of an employee was mentioned, the maximum age considered as targeted was set to 44 years old to provide leeway for assessing indirect age targeting in visuals used on the PR page. Other references to youth, such as the words "young," "new graduate," or "recent graduate," are also considered examples of age targeting. On the PR page, 43.0% of ads in the restricted sample made reference to a young age.

The inclusion of average employee age in company overview is the fourth type of indirect age targeting. This information was included in 31.4% of the ads, and Figure A3 depicts the distribution of average in-company age in these ads. Assuming a typical retirement age of 60, only ads with a posted average employee age of less than 40 were classified as targeted. Out of all ads, 29.0% stated that the average age of employees was under 40, which corresponds to 92.0% of ads containing this information, indicating that it is used strategically to age target. In targeted ads, the minimum average employee age was 24, the average was 31, and the maximum was 39.6.

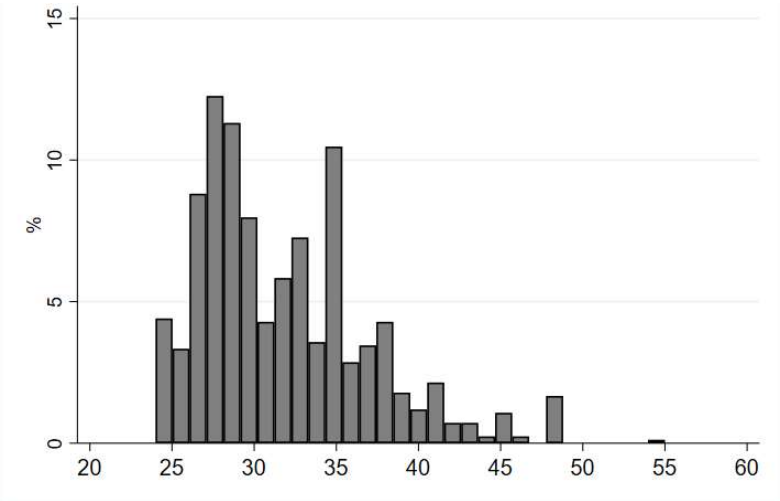

Figure A3: Average in-company age

The inclusion of age in model salary is the fifth type of indirect age targeting. Job ads typically showed examples of salary growth that an applicant could expect, with the majority of ads including age in addition to the length of employment and some ads only including age. Age in model salary was used in 58.9% of ads. The distribution of maximum age included is presented in Figure A4. Out of the ads including age in model salary, 69.5% of ads set the maximum age to 35 or less. Maximum age higher than 45 was included in 5% of the ads, and over 50 in 0.8% of the ads. However, when the length of employment was considered, indicating the age an applicant would need to join the company to earn the example salary, all ads with age in model salary were classified as targeted. In model salary, the minimum, average and maximum ages were 22, 33.8, and 67, respectively.

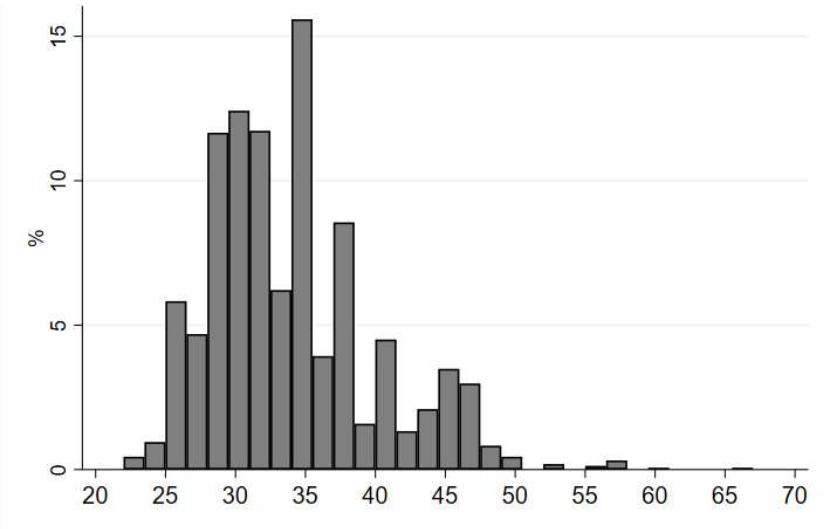

Figure A4: Maximum age in model salary

The sixth and final type of indirect age targeting takes into account the visuals that the company chose to use on its PR page. If only images of young people are shown in an advertisement, it is considered targeted. In terms of the graphics used on the PR page, the company posting an ad has several options. Some companies choose not to include photographs of their employees and instead highlight their products, offices, or customers, whereas others use illustrations or photographs with no visible faces. After opening a full ad on Doda, the PR page appears first, creating a first impression of the company. As a result, the choice of visuals is an important tool for conveying information, including preferences regarding the age of applicants. However, all ads were evaluated by the

author only, resulting in a high degree of subjectivity. As previously stated, some companies disclose the age of employees featured on the PR page; in this case, the maximum targeted age was set at 44. When age was not disclosed and the pictures were not of clearly young people, information from the ad's body was used as a guide. If no age-related information was available, the ad was deemed untargeted. To ensure consistency, ads from the same company were cross-referenced. However, the issue of subjectivity remains unresolved, therefore any analysis utilizing indirect age targeting data employs indicators both with and without this type. Pictures of only young people were included in 76.4% of ads.

TABLE A5: Indirect age targeting in subsamples

	ALL	AGE LIMIT	EXPERIENCE	NO REQUIREMENT
	(2679)	(634)	(670)	(1375)
Recent graduate	47.8%	52.5%	28.5%	55.1%
Age in text (ad)	58.3%	65.3%	51.5%	58.3%
Age in text (PR)	43.0%	55.2%	34.9%	41.3%
Age in model salary	58.9%	67.5%	50.0%	59.3%
Average in-company age	31.4%	35.8%	31.5%	29.2%
Targeted PR pictures	76.4%	84.2%	75.5%	73. 2%

Table A5 shows the prevalence of each type of indirect age targeting in the sample – the total sample, the sample of ads with age limits, the sample of ads requiring experience, and finally the non-targeted sample. In general, ads that set age limits make the most use of indirect age targeting, possibly to target more precisely within the eligible age range.

TABLE A6: Indirect age targeting indices

PANEL A	ALL	AGE LIMIT	EXPERIENCE	NO REQUIREMENT
Age index 1	(2679)	(634)	(670)	(1375)
0	3.8%	1.4%	6.4%	3.6%
1	11.8%	5.2%	16.0%	12.9%
2	19.2%	16.4%	23.3%	18.6%
3	23.2%	23.0%	24.9%	22.5%
4	21.9%	23.7%	19.3%	22.4%
5	14.6%	23.0%	7.5%	14.3%
6	5.4%	7.3%	2.7%	5.9%
Total	100%	100%	100%	100%

PANEL B	ALL	AGE LIMIT	EXPERIENCE	NO REQUIREMENT
Age index 2				
0	7.6%	4.3%	13.4%	6.3%
1	20.4%	14.2%	26.4%	20.4%
2	26.7%	24.0%	28.4%	27.2%
3	23.6%	23.7%	20.9%	25.0%
4	16.2%	26.5%	8.1%	15.3%
5	5.5%	7.4%	2.8%	5.9%
Total	100%	100%	100%	100%

The various types of age targeting are added together to form a categorical variable age index, which shows the extent to which the company indirectly targets its ads. Variable Age index 1 includes all six types and thus ranges from 0 to 6, whereas Age index 2 excludes targeting in PR images and thus ranges from 0 to 5. Table A6 describes Age index 1 and Age index 2. The most frequently used number of indirect age targeting types in the restricted sample was three (23.2%) for Age index 1,

and more ads used all 6 types (5.4%) than none (3.8%). In terms of Age index 2, the most ads (26.7%) used two types, with 5.5% using all five and 7.6% using none. Comparing subsamples, similarly to Table A5, the least indirect age targeting was generally observed in the sample of ads requiring experience and the most in ads containing an age limit.

Appendix 3

AGE LIMIT – OLS ESTIMATES														
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Capital (log)	0.00573	-0.000264												
	(0.00715)	(0.00722)												
Employees (log)			0.0120	-0.0128										
			(0.00844)	(0.00927)										
Foundation year					-4.10e-05	0.000143								
					(0.000673)	(0.000700)								
Listed company							-0.00940	-0.0483						
							(0.0584)	(0.0486)						
Subsidiary of listed company							0.00307	-0.00722						
							(0.0451)	(0.0404)						
Japanese company									0.170***	0.136**				
									(0.0513)	(0.0541)				
Tokyo, Osaka location											0.128***	0.152***		
											(0.0297)	(0.0302)		
Probation period													0.0394	0.0558*
													(0.0309)	(0.0288)
Job		✓		✓		✓		✓		✓		✓		✓
Search		✓		✓		✓		✓		✓		✓		✓
N	2,679	2,679	2,679	2,679	2,679	2,679	2,679	2,679	2,679	2,679	2,679	2,679	2,679	2,679
R^2	0.079	0.151	0.086	0.153	0.077	0.151	0.078	0.152	0.084	0.155	0.094	0.174	0.079	0.155

Notes: Coefficient estimates from linear probability model. Dependent variable is indicator of presence of age limit. Month and industry dummies included in all models. Inclusion of variables controling for type of advertised job (Job) and search strategy (Search) indicated. Job controls are Starting salary, Inclusion of overtime in salary, Education, B-to-B, B-to-C, 9AM shift, Flextime, 2 days week off, Transfer possibility. Search controls are Ads per company, Number of duplicates, Posting period, Number of locations, Number of locations squared, Hiring 5+ workers. Robust standard errors in parentheses clustered at company level. Significance levels: *** p<0.010, ** p<0.05, * p<0.10.

Table A6: Age limit – extended identification

EXPERIENCE – OLS ESTIMATES														
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Capital (log)	0.0216***	0.0196***												
	(0.00700)	(0.00649)												
Employees (log)			0.0120	0.0181**										
			(0.00844)	(0.00810)										
Foundation year					-0.00237***	-0.00138**								
					(0.000725)	(0.000678)								
Listed company							0.106**	0.105**						
							(0.0504)	(0.0421)						
Subsidiary of listed company							0.143***	0.0884***						
							(0.0397)	(0.0322)						
Japanese company									-0.270***	-0.125*				
									(0.0670)	(0.0641)				
Tokyo, Osaka location											0.0590**	0.0115		
											(0.0252)	(0.0225)		
Probation period													-0.0127	-0.0342
													(0.0270)	(0.0220)
Job		✓		✓		✓		✓		✓		✓		✓
Search		✓		✓		✓		✓		✓		✓		✓
N	2,679	2,679	2,679	2,679	2,679	2,679	2,679	2,679	2,679	2,679	2,679	2,679	2,679	2,679
R^2	0.098	0.241	0.086	0.236	0.096	0.237	0.102	0.241	0.101	0.236	0.087	0.233	0.084	0.234

Notes: Coefficient estimates from linear probability model. Dependent variable is indicator of presence of experience requirements. Month and industry dummies included in all models. Inclusion of variables controling for type of advertised job (Job) and search strategy (Search) indicated. Job controls are Starting salary, Inclusion of overtime in salary, Education, B-to-B, B-to-C, 9AM shift, Flextime, 2 days week off, Transfer possibility. Search controls are Ads per company, Number of duplicates, Posting period, Number of locations, Number of locations squared, Hiring 5+ workers. Robust standard errors in parentheses clustered at company level. Significance levels: *** p<0.010, ** p<0.05, * p<0.10.

Table A7: Experience – extended identification