Job applicant screening in China and its four pillars

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Abstract

Chinese employers practise extensive personal screening of applicants during the recruitment process. This study identifies four motives for these practices – statistical, customer taste, employer taste and regulatory. It discusses their distinctive roles in the Chinese labour market and in regard to labour-market regulations. Using a convenience sample of large Chinese employers, the study evaluates the economic and institutional determinants of screening approaches and implications for firms' performance. Statistical screening, based on the assumption that social group membership is an indicator of productivity or loyalty, is found to be related positively to employers' capitalisation, labour-market power and private ownership, and negatively to skill supply in provincial markets. Customer-taste screening is prevalent in the services and sales sectors, and interestingly in wealthy first-tier cities. Employer-taste screening endures in privately owned firms, and in skill-intensive industries and first-tier cities, and appears linked to customer-taste screening. Some forms of screening breach anti-discrimination laws and persist because of lax enforcement of such laws, but requests for personal data on job applications forms may also reflect compliance with equity indicators. Regulatory compliance-based screening is related positively to firms' market power, capitalisation and state ownership. The implications of the different screening practices for public policy and corporate strategy are examined.

JEL Codes: J7, J24, D83

Keywords

Chinese labour market, employment discrimination, *hukou*, job applicant screening, profiling, recruitment and selection, statistical and taste-based discrimination

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Introduction

Labour markets in the People's Republic of China (PRC, China) operate under a unique mix of market rules, intervention from government and other institutions, and social norms. In recruitment, Chinese employers solve a unique optimisation problem with unique constraints. As in other countries, they seek to hire the most desirable applicants from the available pool in the presence of uncertainty about applicants' skills. But in their choices over how to recruit, they are different in their ability to infer applicants' desirability and face different limitations on their practices. Workers' desirability is also judged by different criteria from elsewhere.

The broader topic of job applicant screening in China is important because Chinese employers practise it extensively, using factors that are actually illegal per se or thought of as inappropriate by various standards (Arvey and Renz, 1992; Gilliland, 1993; Truxillo et al., 2004). Yet, there is currently limited understanding of firms' motives for such screening, the prevalence of the different practices across firms and the implications for society. Better understanding may help identify pitfalls in firms' practices and in existing public policy in China. This study follows up on literature surveying Chinese firms' recruitment practices, particularly their motives for including preferences regarding applicants' personal characteristics in job advertisements (Hlasny and Jiang, 2013; Kuhn and Shen, 2009, 2013, 2015; Woodhams et al., 2009). The focus here in on choices made by large Chinese firms regarding the use of job applicants' personal information during the next stage of the recruitment process – that of screening applicants. Four types of screening are isolated theoretically, giving rise to testable hypotheses about the determinants, extent and consequences of such screening. Specifically, this study strives to answer the following four questions: If applicant screening is subject to a large body of anti-discrimination regulations in China, can firms' observed practices, particularly those contravening such regulations, be explained using the framework of rational, optimising behaviour? What types of screening should be distinguished? What risk factors are associated with the different types of screening? What are the implications for firms' observed profitability?

The empirical analysis begins in section 'Employee-selection practices by Chinese employers: A brief literature review and overview' with background information, describing the screening practices used, their prevalence across firms and their status vis-à-vis existing labour-market regulations. Section 'Model of firms' applicant screening and testable hypotheses' sketches a theoretical model identifying four distinct motives for applicant screening and their role in firms' recruitment. This model is used to classify all screening questions into the four types, and yields testable predictions regarding the form and extent of screening used by employers in different settings. Section 'Empirical strategy and data' describes the data used and the empirical approach to classifying personal characteristics screened by their inferred motive. Empirical analysis in section 'Findings' evaluates how firms' and market circumstances affect the extent of each type of screening and how advanced econometric techniques – including simultaneous equations models (SEMs) and Poisson count-variable regressions – are used to test hypotheses about the determinants. Finally, section 'Discussion and conclusion' discusses the implications of the findings.

Employee-selection practices by Chinese employers: A brief literature review and overview

Previous studies in China, by Woodhams et al. (2009) and Kuhn and Shen (2009, 2013), have evaluated employers' preferences stated in job advertisements, particularly relating to gender, age, height, beauty and residence status. Woodhams et al. (2009) found that gender discrimination was widespread across Chinese employers' job advertisements, either through explicit statements or implicitly in order to encourage only the desired applicants to apply. The authors thus recommended policy interventions to mitigate the practice and achieve greater gender equality. Kuhn and Shen (2009, 2013) found that the explicit statement of employers' preferences for workers' various personal traits could only partly be explained by statistical and customer-taste motives, with latent cultural factors overriding them in lower skill recruitment.

This study differs from these papers in its subject and analytical approach. It focuses on questions asked on firms' job application forms and looks at the more detailed second-stage screening practices following the posting of preliminary minimum specifications in job advertisements.

Chinese firms screen some of applicants' most highly personal characteristics (Roberts, 2012). The analysis here is limited to 10 personal questions that may be problematic from a legal or ethical viewpoint and that were asked by more than 2% of employers in the available sample (5 in a sample of 215 firms): *hukou* (household residential registration, asked by 81% of employers), marital status (69%), membership in the Communist Party (65%), ethnicity (60%), photograph (47%), height and weight (43%), family background (31%), health (12%), blood type (8%) and internal referral (5%).[1]

Chinese state-owned and private enterprises typically recruit externally, and for that purpose post job advertisements that list requirements, preferences or characteristics of ideal applicants. Applicants who pre-select themselves on these criteria are then asked detailed personal questions on application forms. The information requested on application forms includes detailed personal characteristics with bearing on workers' productivity, trustworthiness, sociability or likeability among customers and colleagues. Since these factors are the focus of this study, they are briefly introduced below (in alphabetical order).

Blood type

A minority of employers reportedly believe that blood type affects workers' personality and assign workers with a particular blood type to designated tasks or work teams where their personality would be an asset and would not clash with others' personalities. Since there is no recognised basis for such practices, this is thought of as discrimination based on idiosyncratic employer tastes. Not surprisingly, only a small portion of employers (8% in our sample) enquire about blood type on their application forms. However, some employers (none in our sample) even specify a prerequisite blood type on their job advertisements (Liu, 2001).

Ethnicity

Under the PRC Labour Law (1995), the PRC Labour Contract Law (2007) and the PRC Employment Promotion Law (2007), employers are advised to give adequate

consideration to ethnic-minority applicants. State-owned enterprise employers comply with this law and give no preferential treatment to any ethnic group. Private firms, however, exercise preferences over workers' ethnicity. This is because non-Han ethnic groups are widely stereotyped as having lower fluency in Mandarin, lower cognitive and non-cognitive skills, different demands on the employer regarding housing, other non-salary resources and administrative burdens, and different standards in regard to work habits and lifestyle.

Family background

Many employers enquire about applicants' upbringing, family status and living conditions, cohabitation and dependents, and family members' achievements. In this study, screening of family background refers to the surveying of any facts regarding applicants' family history and current family circumstances. Many employers also screen for education, occupation, job title or salary of applicants' parents and siblings. Through these questions, employers attempt to infer applicants' hereditary predispositions, personality traits, childhood and young-adulthood influences, and accumulated goodwill.

Height and weight

Appearance is important in recruitment in China. It affects workers' outcomes throughout the labour market, but mostly in occupations where appearance is likely to be productive. Appearance matters when it generates a sense of trust among participants, especially when such trust facilitates repeated business interaction (Hamermesh et al., 2002). Many job advertisements specify a minimum height, say 1.6 m for women and 1.7 m for men. Even workers applying for government jobs can be rejected if they are shorter than 1.5 m. Most service industry openings ask for 'good looking and fine-tempered' applicants presumably to please the eyes of customers and coworkers.

Health

Limitations on workers' health status may come from employers' and coworkers' prejudice against applicants with unusual physical conditions, fear of violating public-safety laws or fear of liability over workplace accidents. Employers fear that workers with long-term conditions may be less productive or more costly than other workers. Health screening is particularly difficult to tackle, as the national government itself imposes health standards in some industries and occupations. Employers from other industries have adopted those standards to screen health of all their applicants. In mining, oil and gas, food and pharmaceutical industries, over 60% of large state-owned firms require physical examination, particularly for hepatitis B (Yirenping Center, Beijing, 2010).

Hukou

Because applicants' residence status may proxy for the cost of relocating them and for their expected turnover, social status and other factors, most employers screen

applicants' residence-status registration (*hukou*). For instance, many openings in coastal provinces specify that they are 'open to people with Beijing or Shanghai *hukou*'. Reasons include prejudice towards outsiders, fear of workers' absenteeism or termination in order to return home, or lack of corporate housing to accommodate commuters. Personal prejudice may come from worries over criminal background or incompatible workplace habits. State-owned companies also have to follow quotas on *hukou* registrations of their workforce.

Health and *hukou* family registration are the primary factors surveyed for regulatory reasons. Their screening was initially promoted by government organisations to protect workers and customers in certain industries. Their unintended consequence was discrimination against workers with non-contagious diseases and workers with non-local *hukou*. Equal-opportunity and safety laws applying to a few specific occupations or industries inspired screening and discrimination at other employers because of trivial cost and positive potential benefit of such screening. Since the government did not issue clarifications on the relevant legislation and since the economy kept transitioning towards deregulation, the practices diffused and solidified.

Internal referral

Identifying potential job candidates through existing employees' social networks may help employers find more motivated and loyal workers and facilitate better cohesion among the company's workforce. Employers often ask whether the applicant has relatives or acquaintances among the company's workforce. In some consolidated industries dominated by large state-owned companies, such as tobacco or oil production, recruiting through connections and nepotism is pervasive (Chen, 2012). It has been argued that companies with monopoly rents are selective in whom they share rents with or have patriarchal bonding cultures among their workforce. This gives rise to the demand for internal referrals.

Marital status

Married workers are commonly perceived as more stable and devoted to their jobs than unmarried ones. On the other hand, married women of certain age are viewed as likely to exhibit absenteeism, inflexibility regarding work schedule, disinterest in team-bonding and risk of quitting due to child-bearing. Single women are at risk of quitting due to marriage plans. These factors affect employers' productivity and labour costs. Marital status also signals workers' family situation, need of care for dependents and so on. By screening marital status, employers may not need to screen for more detailed characteristics. For these reasons, most employers (69% in our sample) enquire about applicants' marital status.

Photograph

Photographs serve to verify applicants' identity but also to assess first impressions, important in interpersonal relations with customers, coworkers and business partners.

The practice of screening applicants' family background and requesting a photograph in recruiting is widespread in China and thought as non-controversial, rendering the implicit cost of these practices to be low. The society accepts the practice, and government tacitly tolerates it and participates in it. In fact, private employers have adopted the practice from governmental central-planning and civic-control procedures of previous decades. The implicit cost to employers of asking about family background and requesting a photograph is thus low.

Political affiliation

Government organisations and state-owned companies put great emphasis on support for the Communist Party among their workers and indicate 'Party membership required' or 'priority given to Party members' in recruitment. Foreign-owned and private employers may use applicants' membership in the Party as a signal of applicants' motivation, sociability, political consciousness or value of reputation. The government encourages employers to give priority to Party members. The proportion of party members has thus been increasing in the workforce of even non-state-owned companies.

The discussion above suggests four principal motives why employers screen applicants' personal characteristics. A statistical motive is that the collected information on workers' membership in various social groups may help employers infer their productivity or loyalty. The customer-taste-based motive is that firms' customers may value certain characteristics in the personnel serving them, which is believed to affect their willingness to pay for firms' product. The employer-taste-based motive follows the hiring manager's own preferences over workers' characteristics, in addition to their impact on firm profits. Finally, the regulatory motive is the drive to comply with explicit or implicit rules over information collection and recruitment, as perceived by employers.

Anti-discrimination laws regulating firms' screening practices

Despite their prevalence, most of these screening practices are illegal or officially discouraged by the central government. The first general anti-discrimination provisions appeared in the national Constitution and in the Labor Law. Building on the basic provisions of the latter, the Employment Services and Management Regulations (2000), the Labor Contract Law (2008) and the Employment Promotion Law (2008) were subsequently introduced.

Chapter 3 of the PRC Employment Promotion Law (2008) prescribes that the employer shall offer equal employment opportunities, terms and conditions to all employees regardless of gender, ethnicity, disability, non-contagious diseases or residence. Section 12 of China's Labor Law also prohibits employers from taking into account national registration, ethnicity, gender and religion in labour relations. Article 13 of the Labor Law and Articles 2, 22, 23 and 24 of the Law on the Protection of the Rights and Interests of Women (2005) reiterate equal employment opportunities for women and men. In 2000, the Diagnostic Standard from the National Program for Prevention and Treatment of Viral Hepatitis ruled that hepatitis B carriers could work anywhere except in ready-to-eat food processing and nursery work. Under Article 19 of the Employment Services and Management Regulations, signed in the same year, employers were banned

from refusing to employ carriers of infectious pathogens. Article 5 of the Employment Services and Management Regulations provides that rural workers seeking employment in urban areas shall enjoy same rights as urban workers.

The 1991 Law on the Protection of Disabled Persons (amended in 2008) requires all private and public employers who employ more than 20 staff to meet a quota of at least 1.5% in hiring employees with disability or pay a levy to the Disabled Persons' Employment Security Fund, controlled by the China Disabled Persons' Federation (CDPF, 2016). While the levy provides for training, employment support and assistance, Chinese media reported as recently as 2016 that some private employers preferred paying into the fund rather than employing the disabled (Fu, 2016).

In sum, while the existing body of laws prohibits discrimination on the basis of gender, ethnicity, religion, health and disability, and age, enforcement is extremely lax. Employers also discriminate on a far wider array of personal factors. To fill the gaps, the Chinese central government drafted the Employment Anti-Discrimination Law of the PRC (2009, expert opinion draft) and submitted it for approval to the National People's Congress and Chinese People's Political Consultative Conference (Ma, 2011). The law would prohibit discrimination in employment on the basis of ethnicity, gender, social class, religion, beliefs, disability, physical traits, age, health, sexual orientation and other personal factors. However, the proposal is under consideration to this day.

The fact that employers defy this large body of publicly known regulations in order to screen applicants' personal characteristics suggests that the benefits they expect to receive exceed costs of screening as well as any explicit and implicit repercussions of their practices.

The following section sketches employers' trade-off of benefits and costs of applicant screening theoretically in order to illustrate the problem in general terms and to formulate hypotheses about the extent of each type of screening and about conditions conducive to more extensive screening. The aim is to validate the framework proposed here and to inform about the determinants and implications of applicant screening.

Model of firms' applicant screening and testable hypotheses

Suppose that employers face an applicant pool of size N and strive to hire a worker with the most desirable set of values of four characteristics A, B, C and D. For idiosyncratic taste-based reasons, employers prefer hiring workers possessing high values of an inherent characteristic A. High values of A give employers a greater taste value than low values of A. Workers' productivity is a function of their possession of an inherent characteristic B. Workers with high values of B have greater productivity than workers with low B. Furthermore, suppose that firms' customers prefer dealing with workers possessing high values of an inherent characteristic C. Customers have a greater willingness to pay for a firm's product when transacting with workers with higher C. Finally, the state regulator may mandate that firms hire workers possessing particular personality or demographic characteristic D, else they would face the risk of penalties or litigation costs. Employers thus have an incentive to practice *taste-based discrimination* against low-A workers, *statistical discrimination* against low-B and low-C workers and *regulatory discrimination* against low-D workers.

If employers are heterogeneous – in terms of technology, demand for skills, supply of skills in applicant pool, customers' and own tastes for discrimination, recruiting costs and regulatory restrictions – they may each conduct applicant screening of various extent in order to identify workers with the preferred set of characteristics *A, B, C* and *D*.

First, employers may differ in the sensitivity of their productivity to workers' type *B*. Employers with skill-intensive technology are predicted to strive more to hire workers with high values of *B* than non-skill-intensive employers. Employers also differ according to the intensity of their taste for particular workers. Employers whose preferences are sensitive to workers' type will strive more to hire workers with high values of *A* than other employers. Similarly, employers may differ according to whether their customers have high or low intensity of taste for particular employees. Employers with taste-intensive customers will strive more to hire workers with high *C*. Regulatory constraints on employers' hiring may also be differently binding for different employers. Employers with more stringent constraints will screen more of characteristics associated with *D*.

The higher the marginal recruiting cost, the less inclined employers are to search for applicants with high values of *A, B* and *C*. Finally, employers may face small or large applicant pools per opening. The larger the applicant pool, the greater the difference between the unconditional expectations of characteristics of the hired worker and their conditional expectations. Hence, the higher the marginal benefit of screening. This model outline yields four primary hypotheses about the determinants of the extent of firms' screening:

> *Hypothesis 1*. Marginal recruiting cost affects the extent of statistical and taste-based screening of workers' *A, B* and *C* negatively. The greater the degree of government scrutiny and the greater the firm's reliance on operations abroad or on government contracts, the lower the expected applicant screening of the statistical and taste-based type. On the other hand, stringency of the regulatory constraint on hiring, such as at state-owned firms, affects firms' need to screen regulatory-motivated characteristics positively.

> *Hypothesis 2*. The intensity of the employer's or customers' taste for discrimination affects taste-based screening of *A* and *C* positively. Urban firms, with more formal human resource management (HRM) policies and more professional recruiting officers, are expected to rely less on employer-taste-based screening, while service-sector and rural firms are expected to rely on it more.

> *Hypothesis 3*. Skill and capital intensity of production at a firm affects the extent of statistical screening of *B* positively, as the firm's performance is more sensitive to worker's skills.

> *Hypothesis 4*. The greater the available supply of skills in the firms' applicant pool, the lower the incentive to screen applicants statistically, under the assumption that marginal benefit of hiring more productive workers diminishes, while screening cost is assumed fixed regardless of applicants' type. Relatedly, applicant pool size affects the extent of statistical and taste-based screening positively because it widens the distribution of skills in the applicant pool, increasing the risk of hiring a suboptimal

applicant and increasing the expected benefit of screening. Firms with market power in local labour markets screen their applicants more heavily.

One may formulate other hypotheses regarding the drivers of intrusive screening of job applicants, but some hypotheses cannot be tested using the available data, or the direction and magnitude of the hypothesised effects are conceptually unclear.

Empirical strategy and data

In order to assess the extent of the four types of applicant screening at various firms, as well as to test model hypotheses about their determinants, we must compare the joint prevalence of various screening practices at different types of firms. One way to operationalise this is to observe questions asked by various employers on their application forms, classify them according to their expected motive at firms, add them together to construct the counts of screening of each type (*A, B, C* and *D*) and regress the four counts on firms' characteristics. The counts of questions are made functions of employers' recruiting costs, intensity of their taste or statistical need for particular screening, and the size and characteristics of the employers' applicant pools.

Because of the mutual determination among the four screening counts and covariance among model errors across the four equations, the equations are estimated in an SEM. Furthermore, because the four screening counts take on only non-negative low-integer values, the distribution of errors in the relationships between covariates and the screening counts is modelled as Poisson. Poisson regression model is used because it is conceptually well suited to the distribution of the dependent variables because it yields measures of fit comparable to other regression models (Cameron and Windmeijer, 1996) and because it performs well compared to the linear ordinary least-squares alternative.[2]

Data on employers' screening practices and other characteristics

The model sketched out in section 'Model of firms' applicant screening and testable hypotheses' and Hypotheses 1–4 can be evaluated using publicly available data on employers' recruiting practices and other relevant practices, characteristics and performance. Job application forms available on employers' own recruitment webpages represent the main source. A sample of the largest 250 companies in China was compiled based on firms' 2010 sales revenues reported by Damodaran (2012). A total of 226 unique application forms for the 2010 recruiting season were collected among them. While this convenience sample is not representative of the entire universe of large Chinese firms and job openings, the sample comprises firms from 26 provinces, from all major industry groups, with revenues ranging from less than RMB 10 billion to nearly RMB 500 billion. The results of the analysis can thus plausibly be extrapolated to other large firms and various job openings across all of China.

Table A1 in Supplementary Appendix A (available on the journal website at http://journals.sagepub.com/home/elr) provides further details of the sampling frame. Only employers' own screening practices (rather than screening practices of recruiting agencies) and application forms posted on employers' own websites (rather than applications

with unclear source or date) were considered. We limit our analysis to 10 questions that may be problematic legally or ethically and that were asked by more than five employers: party affiliation, height and weight, blood type, photograph, *hukou* family registration, family background, ethnicity, marriage, health and internal referral.[3]

Besides the content of firms' application forms, information on firms' characteristics and their market and regulatory circumstances was collected from companies' websites and annual reports filed with the National Bureau of Statistics of China (NBSC, 2011). Table A1 in Supplementary Appendix A provides the sources, definitions and descriptive statistics of variables used in estimation.

Classification of questions into the four types

To test the hypotheses about the extent and type of applicant screening at different firms, it is first necessary to classify application-form questions into the four conceptual types. An underlying assumption is that each personal characteristic screened has a purpose: ascertaining applicants' latent values of *A, B, C* or *D*. Each question was classified by considering (1) questions' perceived information content, (2) patterns of joint occurrence across application forms and (3) prevalence across firms with different labour needs. For validation, classification was conducted independently by two researchers, and any disagreements were formally debated. Clearly, we expect some overlap in characteristics ascertaining the four latent variables of interest. With respect to information content, questions about height and weight, family background, marital status, health and internal referral strive to identify agile, strong, socially skilled and dependable workers (Hlasny and Jeung, 2014). Height and weight, ethnicity and good looks on photographs are easily noticeable and valued by firms' customers in their short interactions with the firms. Certain blood types and internal referrals are traditionally used in East Asia as predictors of workers' personality and long-term relations and are only detectable by the employer, not by customers. Finally, party affiliation, *hukou*, ethnicity and health are screened in pursuit of compliance with equal-opportunity or data-collection laws. Table 1 reports the assignment of each of these application-form questions to the four types of screening across sample firms.

With respect to joint occurrence of individual questions across application forms, it is confirmed that questions classified under the same type are more highly correlated with one another, in part due to apparent hierarchical relationships among factors screened (Hlasny, 2011, 2014): Firms are significantly more likely to screen workers' party affiliation if they also screen *hukou*, and ethnicity if they screen party affiliation and *hukou*. Similarly, firms are significantly more likely to screen height and weight if they screen marital status, and health if they screen marital status, height and weight, or family background. Firms screening health are much less likely to screen blood type. These patterns suggest that employers follow a systematic routine when designing application forms. The observed patterns help to validate the proposed classification, particularly for statistical and regulatory motives. Customer-taste-based and employer-taste-based factors are not as clearly delineated, presumably because characteristics appealing to customers – in employers' view – appeal to employers themselves.

The final test of the classification uses the prevalence of individual questions at firms of different types. The observed screening practices were compared against those predicted for firms in particular settings. Firms' reliance on various worker attributes (author-coded

Table 1. Factors screened on applications: Prevalence and classification by presumed motive.

	Prevalence among 225 application forms (%)	Statistical	Customer taste	Employer taste	Regulatory
Blood type	8.41			Y	
Ethnicity	59.73		Y		Y
Family background	31.42	Y			
Height and weight	42.92	Y	Y		
Health status	12.39	Y			Y
Hukou	80.97				Y
Internal referral	4.87	Y		Y	
Marital status	68.58	Y			
Party affiliation	65.04				Y
Photo	47.35		Y		

Prevalence is among 225 application forms.

Likert scale), detailed industry classification, strategic nature of industry and Herfindahl–Hirschman index in the industry labour market were used to differentiate firms. This exercise revealed that screening of family background, marital status and internal referral is significantly more prevalent at firms relying more on workers' cognitive skills, self-motivation, professionalism and trustworthiness, indicating a statistical motive. Screening of height and weight, marital status and health is more prevalent at firms relying on precision and physical skills, flexibility and irregular-status labour. Firms relying on workers' social skills – services, sales, high-tech manufacturing and telecom – screen height and weight, ethnicity and internal referrals more frequently, indicating customer or employer tastes as motives. Firms in strategic industries, and in public utility, mining and construction industries, tend to screen party affiliation, *hukou*, ethnicity and health, suggesting regulatory motives. Firms with greater market power screen more questions, especially party affiliation, marital status and health, suggesting regulatory and statistical motives.

Table 2 shows the distribution of the types of screening across all sampled firms. Regardless of the overall extent of screening, most firms are shown to practise some regulatory screening. Firms screening few factors tend to screen statistical and regulatory factors. Firms screening more factors tend to screen more for statistical and customer-taste motives. Only employers practising other forms of screening extensively also choose to screen employer-taste factors. Figure 1 shows the distribution of all factors screened, taken all together – most firms screen between three and six of applicants' various personal characteristics, but some screen as many as nine. Table A2 in Supplementary Appendix A (available on the journal website at http://journals.sagepub.com/home/elr) shows pair-wise correlations among the screened factors.

Findings

This section presents the main results of regression models evaluating the hypotheses about the extent and type of applicant screening at different firms. Table 3 presents the results of two model specifications explaining the extent of the four types of personal

Table 2. Summary statistics of the count of screened personal factors by presumed motive.

	Mean	SD	Min	Max	Skewness	Kurtosis	Firms with #>0
All questions	4.217	2.104	0	9	−0.057	2.518	96.02%
Statistical	1.603	1.151	0	5	0.656	3.554	81.42%
Customer taste	1.500	0.953	0	3	−0.123	2.076	81.86%
Employer taste	0.142	0.375	0	2	2.563	6.046	13.27%
Regulatory	2.181	1.130	0	4	−0.434	2.242	90.27%

SD: standard deviation.
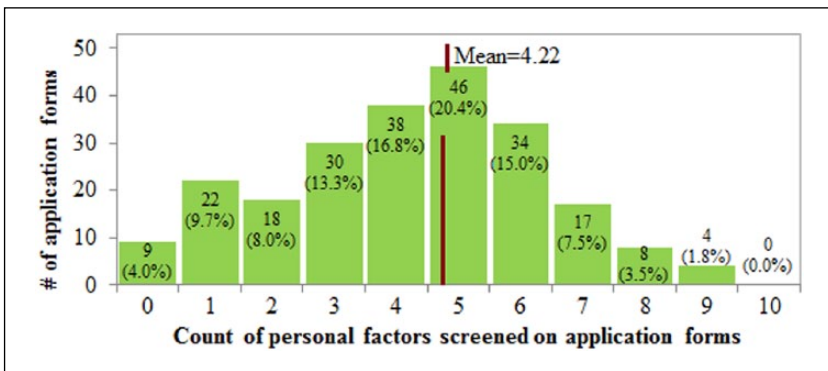Statistics are for 225 application forms.

Figure I. Distribution of the count of personal factors screened on application forms and job advertisements.
The count of personal factors screened (for 225 application forms) refers to the 10 categories in Table 1. Actual format of application forms, such as the count of individual questions screening a particular personal factor, is not taken into consideration.

screening at Chinese firms, using firms' characteristics and circumstances. These models assume exponential relationship between explanatory variables and the four screening counts, and asymptotic Poisson distribution of model errors. Columns 1–4 present a benchmark model using only theoretically motivated covariates of interest, while Columns 5–8 present a full specification including control variables deemed conceptually relevant. Coefficients in these regressions have the interpretation as the percentage impacts of a 0.01-unit increase in covariates on the count of personal questions. Multiplied by the sample mean of the count of questions, these coefficients can be interpreted as average partial effects. To preserve space, only qualitative trends apparent across rows and columns will be discussed, but not the magnitudes of individual coefficients.

Determinants of statistical screening

Hypotheses 1–4 suggest that the extent of statistical screening should depend positively on the skill and capital intensity of production, negatively on the available supply of

Table 3. Results of Poisson simultaneous equations models using instrumental variables for the extent of screening of other types.

	Basic model (224 observations)				Complete model (204 observations)			
	Statistical	Customer	Employer	Regulatory	Statistical	Customer	Employer	Regulatory
Skill-intensive industry	−0.009 (0.104)	0.124** (0.061)	1.342** (0.604)	−0.142*** (0.046)	0.125 (0.124)	0.070 (0.080)	0.126 (0.786)	0.014 (0.085)
Market share	0.004** (0.002)	−0.002 (0.002)	−0.031** (0.014)	0.004*** (0.001)	0.008** (0.004)	−0.003 (0.003)	−0.065* (0.036)	0.005*** (0.001)
% College educated in province	−0.005* (0.003)			−0.000 (0.001)	−0.012*** (0.005)	0.000 (0.002)	0.047 (0.036)	−0.005** (0.002)
First-tier city	−0.094 (0.100)		1.773*** (0.480)	−0.114* (0.067)	−0.006 (0.099)	0.141* (0.078)	0.321 (0.828)	0.088 (0.060)
State-owned			−0.941** (0.427)	0.110** (0.049)	−0.133 (0.151)		−1.833** (0.782)	0.112*** (0.043)
Government customers		0.073 (0.068)				0.002 (0.087)		−0.052 (0.056)
Operations abroad	0.154* (0.085)	−0.051 (0.059)		0.011 (0.046)	0.074 (0.089)	−0.025 (0.056)	0.246 (0.425)	−0.024 (0.040)
Service and sale industry		0.099 (0.073)				0.196** (0.093)		
Statistical count		0.105 (0.083)	0.776* (0.476)	−0.065 (0.077)		0.096* (0.146)	0.596 (0.558)	−0.093 (0.069)
Customer-taste count	0.415* (0.242)		−2.472** (1.060)	0.581*** (0.104)	0.407 (0.398)		−4.536** (2.236)	0.234** (0.101)
Employer-taste count	0.477 (0.336)	0.108 (0.250)		0.447*** (0.172)	0.063 (0.409)	−0.425** (0.199)		0.239* (0.144)
Regulatory count	0.110 (0.174)	0.250*** (0.075)	0.625 (0.940)		−0.259 (0.385)	0.254*** (0.089)	5.174* (2.818)	
Capital-labour ratio					0.015** (0.008)		−0.006 (0.080)	0.006** (0.003)
Unemployment rate					−0.126** (0.061)	−0.002 (0.031)	0.365 (0.402)	−0.045* (0.025)
Construction industry					−0.202 (0.332)		3.559 (2.559)	−0.420*** (0.096)
Manufacturing industry					−0.246 (0.206)	0.144 (0.102)	3.117** (1.491)	−0.227*** (0.048)
$Corr. (count, E(count))^2$	0.060	0.080	0.043	0.129	0.111	0.115	0.129	0.174
LR/Wald Chi²	32.64***	52.96***	23.99***	66.42***	100.22***	69.96***	68.49***	109.07***
Pseudo R²	0.029	0.028	0.105	0.028	0.037	0.027	0.142	0.034
Pearson var(ε)	0.790	0.590	0.930	0.556	0.736	0.559	0.848	0.510
$E(count_k)$	1.603	1.500	0.142	2.188	1.632	1.559	0.137	2.255

LR: likelihood ratio.

Pearson var(ε), computed as $var(count_k/x)/E[(count_k/x)]$, evaluates over-/underdispersion of model errors. In this case, mild underdispersion is identified.

Overdispersion- and heteroskedasticity-robust, covariance-corrected standard errors in parentheses. Count of questions on application forms is as reported in Table 2. Models include firms' log-workforce and an intercept.

Effects are significant at ***1%, **5%, and *10%; two-sided tests.

skills in the applicant pool and negatively on the degree of government or public scrutiny. Under the hypothesis that statistical screening is important for firms whose performance is sensitive to workers' skills, we expect that firms in skill- and capital-intensive industries will practise it most extensively. The lower the mean educational achievement in a province, the greater the right skew of the distribution of skills and the greater the risk that firms would hire a low-skill worker – the greater the benefit of statistical screening. Finally, employers operating under stricter labour-market constraints, such as in foreign jurisdictions, are less able to statistically screen candidates. State-owned firms and firms facing more competition in labour market are also thought to have lower incentives and ability to practise statistical screening.

Columns 1 and 5 in Table 3 report on the statistical-screening equation in the benchmark and fully specified SEM models. These columns provide modest support for most of our conjectures. While coefficients on skill-intensive industry fail to confirm that firms with demand for skills ask more questions, coefficients on capital-labour ratio carry the expected positive sign. Proxying for the supply of skills in the applicant pool, the share of college-educated population in a province is associated negatively with firms' screening as expected, suggesting a lesser need for the screening of applicants' skills. Firms' output-market share, the available measure of employers' ability to be selective in the labour market, is associated positively with statistical screening, as expected.

Coefficients on state ownership and on firms' reliance on government contracts mostly carry the expected signs (insignificant), weakly supporting the conjecture that these firms are less motivated to pursue financial performance, or face more stringent constraints on their recruiting practices.

Determinants of customer-taste-based screening

Hypotheses 1–4 state that the extent of consumer-taste based screening depends positively on the intensity of taste for discrimination by firms' customers, and negatively on the degree of government or public scrutiny. Employers in service and sales industries are expected to conduct more of customer-taste screening. Firms' reliance on public-sector orders and on business abroad are expected to be related negatively to the extent of customer-taste screening because public sector and overseas customers have less taste for discrimination and shun intrusive taste-based practices. Regulation in these sectors is also expected to present stricter constraints on firms' practices.

Results in Columns 2 and 6 in Table 3 confirm that employers in service and sales industries screen more personal characteristics classified as customer taste. Prevalence of government customers among firms' customers has a small, mixed effect on customer-taste screening, failing to confirm our a priori conjecture. There is also only weak evidence that employers with operations abroad practise less of customer-taste screening.

Employers in first-tier cities screen more of customer-taste questions than rural employers, suggesting that urban consumers' valuation for firms' product depends more on the appearance and demographic features of firms' staff. Either the willingness to pay of urban consumers is more responsive to workers' characteristics than that of rural

consumers, or regulatory and media oversight is less effective in first-tier cities. This corroborates anecdotal reports that urban middle-class consumers like to see themselves transacting with equals and discriminate against workers from other backgrounds in a climate of social, regulatory and media acceptance.

Determinants of employer-taste-based screening

Employers' taste-based screening was thought to be associated negatively with the degree of formality of employers' HRM and stringency of firms' regulatory climate. In Table 3, Columns 3 and 7, standing for the degree of formality of firms' HRM, are state ownership and location in cities. Standing for regulatory climate are firms' market share and an indicator for whether firms have primarily government customers. The formality of firms' HRM has a mixed effect. On one hand, state-owned firms screen applicants less extensively for taste-based reasons, as would be expected. State-owned firms operate more bureaucratically and are more closely overseen by the government. However, firms in large cities appear to screen applicants more extensively than rural firms. The role of firms' regulatory constraints, proxied by firms' market share, is of the expected negative sign.

Determinants of regulatory screening

Regulatory pressures for appropriate screening are thought to be strongest in state-owned firms and firms with high market power in the output market – because securing of a preferential market position or sufficient capital requires administrative intervention and because labour at more powerful firms is likely to interact with public authorities. Firms relying on government contracts and those in large cities are also thought to face stricter regulations. However, firms with operations abroad may be exempted from strict regulatory standards so that they could comply with equal-opportunity laws and norms in foreign jurisdictions.

Columns 4 and 8 in Table 3 confirm that state-owned firms, firms with a stronger market position and capital-intensive firms practise more of regulatory screening. The results fail to confirm the conjectures about the impact of firms' government contracts, city size or operations abroad on firms' regulatory screening, as their coefficients are insignificant or switch signs.

Models estimated in Table 3 explain firms' screening practices modestly, explaining only 4.3%–17.4% of variation in them across firms. However, all models are significant compared to intercept-only models or models with limited sets of control variables, as evidenced by joint F-tests of coefficients and overall-model Wald tests. The conjecture that personal screening practices do not systematically vary across firms are clearly rejected. Most coefficients in Table 3 support our hypotheses regarding firms' motives for screening, consistently across columns, particularly for statistical and customer-taste-based screening. This helps to validate our classification of questions, most strongly for statistical questions and to some degree for customer-taste-based and employer-taste-based and regulatory questions. Customer-taste-based screening appears driven by similar factors as employer-taste-based screening, and the two types are harder to set apart.

Discussion and conclusion

This study has reviewed applicant-screening practices conducted by Chinese firms and identified four distinct motives for them – statistical, customer-taste-based, employer-taste-based and regulatory. To illustrate their role in firms' recruitment and to formulate testable hypotheses about the extent of each screening type at different employers, a theoretical model was sketched out. Empirical analysis of 225 application forms from the 250 largest Chinese employers was then undertaken to survey actual prevalence of various forms of screening, and to evaluate the hypotheses.

Many empirical results agree with the theoretical predictions. This validates the model as well as the classification of factors screened. Employers conduct applicant screening in a systematic manner that can be partially explained by their economic and institutional circumstances and surprisingly even quite systematic tastes. The empirical analysis confirms that, on the skill-demand side, the form of applicant screening is systematically related to capital and skill intensity of firms' production, their industry and their main customers. On the supply side, firms' position in the labour market, urban versus rural locality and local demography affect screening. Finally, government oversight over industries, firms' ownership and operation under foreign jurisdictions contribute. These findings validate most predictions about the role of statistical and regulatory screening and some predictions about customer-taste-based and employer-taste-based screening in firms' recruitment.

Across the different motives for screening, statistical and regulatory screening is the most prevalent, by the number of factors screened and the number of firms conducting it. Statistical screening is related positively to employers' capital intensity, labour-market power and private ownership, and negatively to the supply of skills in provincial labour markets. These results agree with predictions from the theoretical model. Regulatory screening is well explained by firms' market position, capital intensity and state ownership, agreeing with our institutional understanding. Customer-taste-based screening is linked positively to service and sales industries, in agreement with theory, and interestingly to wealthy first-tier cities. Determinants of employer-taste-based screening are less significant and clear, in part because it is far less prevalent. The best predictors of taste-based screening are private ownership and, surprisingly, location in major cities. This presumably reflects some confoundedness between employer-taste and customer-taste screening. Either our classification of the two forms of screening is imprecise or employers are subject to the same biases that they cater to in their customers. Like Kuhn and Shen (2013), we conclude that taste-based screening observed at firms corresponds to our economic understanding only partially.

There is one notable limitation of the empirical analysis in this study. Its reliance on a convenience sample of large corporations puts in question whether the results are representative of the underlying population of all privately owned firms in China. To the extent that smaller firms are monitored less strictly, are managed less professionally and operate predominantly domestically, we would expect the problematic screening practices to be even more prevalent in the Chinese economy at large. Hence, the prevalence of problematic screening practices identified here may be viewed as a lower estimate for the country at large. On the other hand, it is unclear how the addition of smaller firms

would affect the estimated regression coefficients. We may speculate that the effects could be smaller. Smaller firms may not follow market conditions as carefully as large firms for lack of managerial astuteness, out of inertia or because recruiting practices affect their bottom lines less in absolute value, even though the cost of validating and adjusting their recruiting practices may be large. In any case, this study shows that the practice of intrusive applicant screening is highly prevalent and quite consistent across China, and adding other types of firms to the analysis is unlikely to overturn these central findings.

These findings should prompt introspection by firms' human resource departments and regulators about the types of applicant-screening practices that are justified with respect to market performance and social-welfare objectives. Regulators should enforce market conditions conducive to desirable practices for the collection and management of information by employers – through relaxation of certain regulatory constraints, providing firms with essential information on workers in more transparent and coordinated ways, civic education campaigns publicising appropriate social norms and stricter enforcement of standards of responsible recruiting practices. Urgent adoption of the Employment Anti-Discrimination Law of the PRC is needed.

Since residence registration (*hukou*) is the most often screened characteristic of applicants, it is also high time to overhaul relevant residency, employment and benefit-eligibility regulations. Chinese central government should liberalise the market for labour by allowing free movement of workers across urban and rural areas without penalising them by limiting their access to social protections and public services. The government has toyed with deregulation of the *hukou* system for two decades, without results. Moreover, the time is ripe for the central government to enforce standard recruiting practices at state-owned firms, just as the Regulations of Personnel Management Institutions call for. As a by-product, this would send a signal to privately owned firms regarding acceptable recruiting practices. Finally, encouraging applicants and workers to speak out about their ordeal or to lie in their responses to inappropriate questions – and at the same time protecting them from backlashes from employers' side – would be a worthy goal for the longer term.

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Notes

1. While the prevalence of these intrusive questions is high, such screening practices are not limited to China, in view of available historical evidence from Organisation for Economic Co-operation and Development (OECD) countries (Bennington and Wein, 2000; Harcourt and Harcourt, 2002; Hlasny, 2009; Jolly and Frierson, 1989; Saunders et al., 1992; Wallace et al., 2000).
2. One assumption underlying the Poisson model is that the various questions within each type of screening should be chosen independently, giving rise to various counts of questions asked

across employers. Indeed, there is great heterogeneity across firms regarding how many questions of each type they ask, and which particular questions they ask. Refer to Table 1 for the prevalence of individual questions and to Table 2 for the distribution of each type of screening. Table A2 in Supplementary Appendix A also shows that the pair-wise correlations between various questions asked are modest. These empirical properties are taken as evidence that the assumption is satisfied and that Poisson model is appropriate considering its alternatives. The reported Poisson model results can be compared to results of linear model specifications (available on request).

3.   In addition, 52% of companies asked about applicants' hobbies or interests; 92% about present or expected salary; 56% about work, other experience or training; 37% about years of experience, present job or reasons for switching jobs; and over 40% about educational major, classes failed, awards won or other special skills. Some companies also asked about reasons for applying, self-evaluation, career plans, military experience, experience abroad and tenure of membership in the Communist party.

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