Title

Strengthening State Capabilities: The Role of Financial Incentives in the Call to Public Service

Authors
Dal Bó, Ernesto
Finan, Frederico
Rossi, Martín

Publication Date
2012-12-18

Series Name: WPS
Paper No.: 025
Issue Date: 18 December 2012

Strengthening State Capabilities: The Role of Financial Incentives in the Call to Public Service

Ernesto Dal Bó, Frederico Finan, and Martín Rossi

Working Paper Series
Center for Effective Global Action
University of California

NBER WORKING PAPER SERIES

STRENGTHENING STATE CAPABILITIES:
THE ROLE OF FINANCIAL INCENTIVES IN THE CALL TO PUBLIC SERVICE

Ernesto Dal Bó
Frederico Finan
Martín Rossi

Working Paper 18156
http://www.nber.org/papers/w18156

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
June 2012

We thank David Card, Larry Katz, Don Moore, Rohini Pande, Demian Pouzo, Bruce Sacerdote, Sinaia Urrusti-Frenk, Felix Vardy, Noam Yuchtman, and to various seminar and conference participants for helpful suggestions. We also thank Michael Anderson for generously providing us the code used in the multiple inference adjustments and the IT group at Berkeley-Haas for constructing the data-capturing application. Katherine Nguyen also provided invaluable help. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research.

Strengthening State Capabilities: The Role of Financial Incentives in the Call to Public Service
Ernesto Dal Bó, Frederico Finan, and Martín Rossi
NBER Working Paper No. 18156
June 2012
JEL No. H1,J24,J3,J42,J45

ABSTRACT

We study a recent recruitment drive for public sector positions in Mexico. Different salaries were announced randomly across recruitment sites, and job offers were subsequently randomized. Screening relied on exams designed to measure applicants' intellectual ability, personality, and motivation. This allows the first experimental estimates of (i) the role of financial incentives in attracting a larger and more qualified pool of applicants, (ii) the elasticity of the labor supply facing the employer, and (iii) the role of job attributes (distance, attractiveness of the municipal environment) in helping fill vacancies, as well as the role of wages in helping fill positions in less attractive municipalities. A theoretical model guides each stage of the empirical inquiry. We find that higher wages attract more able applicants as measured by their IQ, personality, and proclivity towards public sector work – i.e., we find no evidence of adverse selection effects on motivation; higher wage offers also increased acceptance rates, implying a labor supply elasticity of around 2 and some degree of monopsony power. Distance and worse municipal characteristics strongly decrease acceptance rates but higher wages help bridge the recruitment gap in worse municipalities.

Ernesto Dal Bó
University of California, Berkeley
Haas School of Business
545 Student Services Building #1900
Berkeley, CA 94720-1900
and NBER
dalbo@haas.berkeley.edu

Frederico Finan
Department of Economics
University of California
508-1 Evans Hall #3880
Berkeley, CA 94720-3880
and NBER
ffinan@econ.berkeley.edu

Martín Rossi
Universidad de San Andres
Vito Dumas 284
Buenos Aires (B1644BID)
Argentina
mrossi@udesa.edu.ar

1 Introduction

Despite continuing disagreements among economists over the size and scope of state intervention, two ideas seem beyond dispute. One, the ability of the state to implement policies, raise revenue, and protect property rights, is a central aspect of economic development; and two, improving state capacity requires attracting the resources the state needs to function well.[1]

Human capital is a key resource of the state enterprise: producing public goods and raising the revenue to finance them is surely better done by an adequate number of capable agents. But able agents constitute only one aspect of the well-functioning, professionalized bureaucracy that is the mark of the modern state (Weber (1911), Evans (1995)).[2] The state apparatus may also require individuals of integrity or with strong public sector motivation. This of course begs the question of what are the various dimensions of candidate quality, and how do we attract these qualities to the public sector.

In this paper we investigate the various dimensions of candidate quality and examine the role of incentives, both pecuniary and non-pecuniary, in attracting these qualities to the public sector. An essential ingredient needed to address this question is an estimate of the elasticity of the labor supply facing the firm (or in our case the government), and we provide the literature's first experimental estimate of this elasticity.[3]

Our analysis is based on an experiment conducted as part of an official program of Mexico's Federal government called the Regional Development Program (RDP). The program seeks to enhance state presence in 167 of some of Mexico's most marginalized municipalities. To this effect, the program has built a network of around fifty coordinators who supervise an even larger network of 350 community development agents. These public agents are to embed themselves in the local communities and identify areas where public good provision is deficient, and work with existing public programs as well as local authorities to remedy such deficiencies. To hire these agents, the RDP conducted a recruitment drive in the months of June to August of 2011, during which positions were advertised, candidates were screened,

[1]Abundant work in economics has emphasized the link between government and growth. More recently, Acemoglu (2005), Arias (2008), Besley and Persson (2009), and Besley and Persson (2010) have emphasized the importance of the operational capacity of the state.

[2]For earlier empirical work on the effects of bureaucratic structure on economic performance, see Rauch (1995) and Evans and Rauch (1999).

[3]Manning (2011) in his excellent review of the literature on monopsony in the labor market states: "An ideal experiment that one would like to run to estimate the elasticity of the labor supply curve to a single firm would be to randomly vary the wage paid by the single firm and observe what happens to employment. As yet, the literature does not have a study of such an experiment."We are aware of only two papers that rely on randomization of wages, by Fehr and Goette (2007) and Goldberg (2010). These papers are more safely interpreted as studying the important but different issue of the labor supply of individuals.

and jobs were offered to selected candidates. This process involved an exogenous assignment of wage offers across recruitment sites, as well as an exogenous assignment of job offers. With this dual experimental design, we investigate three key questions.

The first question is: do higher wages attract higher quality applicants? As we show through a simple model, if higher quality candidates as priced by the market demand higher compensation, higher wages in the public sector are a necessary condition for attracting those candidates. However, higher wages may improve quality at the cost of attracting candidates with weaker public service motivation–a concern motivating a literature in economics (Handy and Katz (1998), Delfgaauw and Dur (2007), Francois (2000), Prendergast (2007)). Although these questions are of high practical relevance, empirical progress has met with at least two important hurdles. First, it is difficult to measure an individual's quality. Secondly, and perhaps more importantly, different wage offers for a given position are not typically assigned exogenously.

In this study, we overcome these limitations by exploiting two features of the RDP. First, two different wage offers were randomly assigned across 106 recruitment sites. In one set of recruitment sites an offer of 5,000 Pesos per month was offered, while in the other sites, a wage of 3,750 Pesos was offered. Second, the RDP involved a screening session measuring a rich array of candidate characteristics. This allows us to classify candidate profiles along the dimensions of quality and motivation that have become standard in the human resources area, both in academic and industry circles. To our knowledge, the generation of a dataset with this wealth of candidate information in the context of an experimental design involving compensation is novel.

Our characterization of candidate profiles involves two main categories. One is related to raw "quality" understood as aptitude or the ability to perform. This is measured directly through the candidate's intelligence and other personality traits widely considered to affect job performance, and indirectly through the candidate's market value proxied by current or past earnings. The other category relates to motivational profile, or the desire to perform, particularly in the context of public service. The RDP screening exam included measures of motivation relating both to integrity and an index of public service motivation.

We find that higher wages help attract a better candidate pool both in terms of quality and motivation. In the places that announced a higher salary the average applicant was smarter, had better personality traits, had higher earnings and a better occupational profile (e.g., more experience and white collar background). These improvements go together with a stronger public service motivation profile. That is, we find no evidence that higher wages only improve candidate quality at the cost of attracting less motivated individuals.

The second question motivating our study is whether higher wages can help the state recruit more candidates. While a substantial literature in labor economics has debated the properties of the labor supply facing the firm, clean evidence stemming from exogenous wage variation has been lacking.[4] To investigate this, we start with the simple observation that real life recruitment is about more than posting wages. Positions must be advertised, applicants must express interest, and candidates must be screened and selected. Once selection is made, filling vacancies requires converting selections into accepted offers. This conversion process requires successfully re-contacting candidates first, and then having them accept the offer.

We incorporate the practical stages of recruitment into a simple theoretical model and decompose the labor supply elasticity into the elasticities of two subcomponents: the size of the applicant pool and the conversion rate of selected candidates into vacancies filled. Our point estimates indicate that the labor supply facing Mexico's government, while relatively elastic, is far from infinitely elastic and reflects monopsony conditions: a 33 percent increase in wages led to a 26 percent increase in applications and a 35 percent increase in the conversion rate, implying a labor supply (arc-) elasticity of around 2.15, which is similar in magnitude to the elasticity found in non-experimental studies (e.g. Falch (2011), Sullivan (1989)). Also noteworthy, a substantial role of higher wages is to increase conversion rates by raising the chance that candidates can be successfully recontacted.

The third question is: what are the effects on recruitment of job location disadvantages, such as commute distance or weak rule of law, and can higher wages help the state fill positions in less attractive locations? This is of direct policy relevance to governments seeking to improve public good delivery in remote and challenging areas. Unfortunately, progress on this topic remains limited – in large part because workers are not exogenously offered jobs with different characteristics. Candidates to the RDP who met certain eligibility criteria were randomly selected to work in a municipality within a particular geographical area, producing exogenous variation in terms of commuting (or relocation) distance, and work environment. We find that it is much harder to attract workers to municipalities that are distant, have more drug-related violence and score lower on the human development index. Higher wages, however, do help to bridge the recruitment gap in the worse municipalities.

The plan for the paper is as follows. The next section offers some background on the Regional Development Program. Section 3 explains the experimental design. In Section 4, we describe the data and also introduce and validate our measures of candidate quality and motivation. Section 5 introduces the core model in our theoretical approach and presents the results concerning the effects of financial incentives on the size and quality of the candidate pool. Section 6 presents both our theory and empirical results on how wages and job

[4] Manning (2011) provides an excellent review of the current state of the literature.

characteristics affect recruitment. Section 7 concludes.

2 Background

In 2011 the Mexican government began a program – the Regional Development Program (henceforth, RDP) – designed to increase the presence of the state in some of its most marginalized and conflict-ridden municipalities. To achieve this objective, the program has created a large network of public agents – 350 community development agents and the 50 coordinators who supervise them – whose primary responsibilities are to identify the needs of the community and to report them directly to the federal government, who will then seek to channel resources to meet these demands. By establishing a direct link to its citizens, the federal government hopes to establish a presence in several of the areas where the local government has proven to be ineffective.

The program has been implemented across ten regions containing 167 municipalities and thousands of localities.[5] Each of the 350 community development positions were assigned to a particular municipality. These municipalities were selected based on an index of their socio-economic characteristics. Table 1 highlights several of the economic and social disparities between the RDP municipalities and the rest of Mexico that the program hopes to redress.[6] Compared to other municipalities in Mexico, RDP municipalities fare much worse by virtually any measure of socio-economic development. Income per capita is almost half of that in the other municipalities, while infant mortality is 50 percent higher. The presence of drug cartels and subversive organizations is also a concern for these areas.

3 Experimental design

The process used to hire the public agents incorporated experimental variation in two consecutive stages. In the first stage, two separate wage offers were assigned across recruitment sites, which allows us to study how wages affect the applicant pool. Based on information gathered during the examination process, eligible candidates were then classified into two categories, those with normal IQ levels (scores of 7, 8, or 9 in the Raven's test to be described in detail later) and those with high IQ levels (scores of 10, 11 or 12).[7] This variation together

[5]The ten regions are Sierra Cora-Huichol, Costa Infiernillo, Huasteca Veracruzana, Montaña de Guerrero, Sierra Guerrero, Selva Lacandona, Sierra Tarahumara, Tierra Caliente-Oriente, Triqui-Mixteca, and Zapoteca Chontal.

[6]See Section B in the appendix for a description of the variables and data sources.

[7]Permission for use of the Raven's Exam in this study was granted by the Copyright holder NCS Pearson, Inc. Talent Assessment group, 19500 Bulverde Road, San Antonio, TX 78259 and at

with that of the wage posting under which each candidate applied for the job create four "type" categories. Each of the 350 municipal vacancies was randomly matched to one of the four categories. In the second stage, eligible applicants for each vacancy (drawn from those that fell within each region in the assigned type category) were selected at random to be offered a job, creating a random match between municipalities and candidates; this permits an assessment of how characteristics of the municipalities affect acceptance decisions.

3.1 Job postings

Recruitment took place during the months of June to August of 2011. The recruitment sites were located mostly within the ten target regions in localities with a small community college – in hopes of attracting a younger and more educated applicant pool.[8] Job postings were then sent out to 113 schools in 106 localities throughout the regions.

The job advertisements provided a general description of the job, along with a toll-free number and an email address for interested applicants (see Figure A1 in the appendix). Telephone operators would then register the callers by recording, in addition to their contact information, answers to some questions regarding the person's education level and employment background. After registering the applicant and depending on the locality in which the person had seen the advertisement, the operator would communicate the salary attached to the job (the wage was not announced within the job ad to avoid sorting effects), as well as the date and place for the candidate to show up and participate in the screening session.[9] All responses to questions concerning the job were given according to a pre-established script. In the end, 1,920 individuals registered; 1,665 did so by phone, 208 by email, and 47 individuals opted to do both.[10]

Salaries were randomly assigned across recruitment sites, with 65 out of 106 localities ($\simeq$ 61 percent) posting a wage of 5,000 Mexican Pesos per month and the remaining 41 out of 106 localities ($\simeq$ 39 percent) announcing a wage of 3,750 Pesos per month. As a point of comparison, 5,000 Mexican Pesos is roughly equivalent to 500 US dollars. Table 2 presents summary statistics for the localities in our sample, by wage offering. For each characteristic, we also present the difference between locations with high versus low wage offerings (column

http://www.talentlens.com/en/employee-assessments/ravens.php.

[8] While most of the recruitment sites were assigned to localities inside each targeted region, for logistical reasons a few were assigned to neighboring localities just outside of the region.

[9] All applicants attended screening sessions in the schools where the announcements were posted.

[10] Although the advertisement requested that interested applicants register, this was not a requirement. Among those who showed up for the exam, 37% had not registered, and conversely 71% individuals who had registered did not show up. The pattern of unregistered show ups and registered no shows did not vary significantly by treatment and control.

3), as well as the proportion of treatment assignments that yield a treatment effect that was greater or equal to the treatment effect from the actual treatment assignment, based on 1000 random draws (column 4). As expected from the random assignment, there are few meaningful differences between places where a high versus low wage was offered. Out of 15 characteristics, only one variable (share of indigenous population) is statistically significant at the 10 percent level. We also fail to reject the hypothesis that all the variables are jointly significant (F-test=1.17; *p*-value=0.30). Overall the results from Table 2 suggest that the randomization was effective.[11]

Given the experimental design, estimation of the causal effects of wages on the applicant pool is straightforward. We estimate the following regression model:

$$Y_{icr} = \beta_0 + \beta_1 T_c + \zeta_r + \epsilon_{icr}, \tag{1}$$

where Y_{icr} is a characteristic of individual i who applied for the job in locality c, located in region r. The variable T_c is an indicator equal to 1 if the locality received the high wage announcement, and ζ_r denotes region intercepts.[12] The error term ϵ_{icr}, is assumed to be independent across localities but in our estimation we allow for arbitrary correlation across observations within the same locality. Given random assignment, the coefficient β_1 captures the causal effects of wages on a particular feature of the applicant pool.

3.2 Job offers and assignment

To assess their qualifications, in the screening session applicants were administered a three-hour exam designed to measure three broad categories of personal characteristics: aptitude, personality, and motivations (especially inclination towards public sector employment). These data were then entered and analyzed, and the 379 individuals (out of 2254 total applicants) who scored below a 7 on the Raven exam were considered not eligible for employment. The remaining applicants were stratified into one of the four "type" categories defined earlier: 1) High wage announcement and high IQ; 2) High wage announcement and normal IQ; 3) Low wage announcement and high IQ; 4) Low wage announcement and normal IQ, where again "high IQ" is defined as someone who scored above a 9 on the Raven exam.

Each of the 350 vacancies, which had been assigned to a municipality, was randomly assigned to one the four type categories. Applicants were then randomly selected to fill each

[11] The employment figures may appear very high for a developing country but are in fact consistent with national averages. See http://www.inegi.org.mx.

[12] Given the experimental design, we only control for region intercepts or strata dummies when appropriate. Our results are unaffected if we also control for the share of that population that is indigenous, or any of the other variables presented in Table 2.

vacancy conditional on type, region of residence, and an indicator for whether the applicant was indigenous.[13] Approximately 3-4 weeks elapsed between the time the average person took the exam and the moment when the RDP attempted to contact the selected candidates to make a job offer. If the person was not reached, the operators would try again over the course of about a week. If after that time the person could not be reached or had rejected the offer, a new person was randomly selected from the pool (again conditional on type) to be contacted. We will focus our analysis on the first wave of offers since offers that are rejected, and hence re-sampled, are no longer truly random.[14]

Given that job offers under the announced wage were exogenously assigned to applicants, we can estimate the causal effect of higher wages on the likelihood that the applicant accepts the job using a regression model similar to the one presented in equation (1), where the dependent variable, A_{ics}, is an indicator equal to 1 if the selected applicant ended up accepting the job. Specifically, we estimate the following model:

$$A_{ics} = \gamma_0 + \gamma_1 T_c + X_i' \beta + \zeta_s + \epsilon_{ics}, \tag{2}$$

where the vector X_i is a set of individual characteristics, and ζ_s represents strata intercepts. The error term ϵ_{ics} again also allows for arbitrary correlation of observations within a locality.

When offered a position, candidates were also told the municipality in which they were expected to work. Because the assignment of the municipality was random, we can then estimate how the characteristics of the municipality m to which an applicant was assigned affected his likelihood of acceptance, and whether the higher wage offer had a differential effect based on these characteristics. In particular, we augment equation (2) as follows:

$$A_{icms} = \gamma_0 + \gamma_1 T_c + \gamma_2 (T_c \times W_m) + \gamma_3 W_m + X_i' \beta + \zeta_s + \epsilon_{icms}, \tag{3}$$

where W_m is a characteristic of the municipality to which the applicant was assigned. In estimating equation 3, we consider the following municipal characteristics: distance to the assigned municipality (from the candidate's home municipality), the municipality's Human Development Index, and the number of drug-related deaths per 1000 inhabitants.

[13] The last two strata were based on a preference of the program authorities to have the community development agents be able to speak an indigenous language and to work in the same region in which they reside.

[14] Applicants who were offered a salary of 3,750 pesos per month and rejected it were re-contacted several days later and offered a salary of 5,000 pesos per month, which elicited further acceptances. In the analysis that follows we abstract from all offers in subsequent waves.

4 Data

4.1 Measuring Candidate Characteristics

We group candidate characteristics into two broad categories. One is related to raw "quality" understood as aptitude or the ability to perform. The other relates to motivational profile, or the desire to perform, particularly in the context of public service. As explained before, the recruitment involved a screening session where candidates filled in a questionnaire designed to measure three broad categories of cognitive and non-cognitive traits: aptitude, personality traits, and motivations or inclinations that might affect vocation and performance.[15] In this section we describe these measures, and the applicant pool.

4.1.1 Quality

The enterprise of populating a workforce prompts the question of what makes a high quality candidate. While there may be diverging views on the matter, in this paper we take the view that quality relates to personal characteristics that make workers more productive and valuable to employers. We accept the conclusions of decades of research in personnel psychology indicating that job performance and earning potential are best predicted by intelligence and personality traits. We will also use a person's current and/or previous earnings ("outside wages") as an indication of the person's outside opportunity. This measure has the advantage of capturing other elements of skill or productivity that are valued by the market but not reflected in our measures of IQ and personality. Also, the outside opportunity is more directly linked to a person's decision to self-select into a job. A disadvantage of this measure is that realized past or current earnings may contain random shocks.

Outside opportunity

As part of the screening exam, and as is common on most job applications, candidates were asked to provide information about their last three places of employment.[16] This information included length of employment, employer's contact information (which signaled that information was potentially verifiable) as well as previous wages.

In Figure 1, we plot the distribution of the applicants' wages in their last employment (dashed line), along with the distribution of wages in 2010 for the population residing in the

[15] Thus, the questionnaire captured attributes belonging to three of the four domains of personality according to Roberts (2006), namely personality traits (e.g., Big 5), values and motives (e.g., goals, interests), abilities (verbal, quantitative, and spatial intelligence), and narratives (e.g., stories, memories).

[16] Based on a recent survey of a representative sample of U.S. workers, Hall and Krueger (2010) report that 50 percent of workers claimed that their new employers learned of the workers' earlier pay rates before making them job offers. Although we do not have comparable statistics for Mexico, we suspect they are similar if not higher.

same municipalities (solid line). The figure also depicts two vertical lines that correspond to the wage offers made in the context of the RDP. As we see from the figure, the distribution of applicants' outside wages is shifted slightly to the right of the distribution for the population, with median wages equal to $3,950$ and $2,571$ Pesos per month respectively. The wage offers of $3,750$ and $5,000$ Pesos correspond approximately to the 65^{th} and 80^{th} percentile of the wage distribution for the population.

IQ and personality characteristics

A vast body of research in psychology on the determinants of job performance and occupational attainment reveals cognitive ability to be an important predictor of earnings, job status, and job performance.[17] In order to evaluate an applicant's aptitude, the questionnaire included a series of questions intended to assess both raw cognitive ability ("general mental ability" or IQ), as well as standard market skills (e.g., computer use, years of schooling).

We measured IQ through the *Raven's Progressive Matrices* Set I published by Pearson. The Raven's test, which is one of the most widely used tests for abstract mental aptitudes, measures a person's capacity to think logically and solve abstract problems, independent of context or acquired knowledge. The test comprises a series of matrices, and for each matrix the test taker observes a visual pattern of abstract figures and must identify the missing piece from a set of available options. This requires the ability to perceive the logic of a whole by drawing out the relationships among the parts (a process labeled "eduction"). This test has the advantage of hinging far less than other tests on verbal and other skills acquired through a formal education. This test is also relatively quick and easy to administer, and there are available results from general populations in Mexico and elsewhere for comparison. Due to logistical constraints and the need to screen for various attributes, we administered the Set I, which only contains 12 matrices. Consequently, this shorter version of the test cannot usually discriminate within the top 5% of the distribution.

While the importance of intelligence for socio-economic outcomes has been well documented, other forms of cognitive skills as related to personality have until recently largely escaped the attention of economists.[18] That personality traits may matter for behavior is not terribly surprising, and in fact several studies have shown that personality measures predict a wide range of outcomes, involving education (e.g., Chamorro-Premuzic and Furnham (2003), Heckman, Stixrud, and Urzua (2006)), health (e.g. Roberts, Kuncel, Shiner, Caspi,

[17] Schmidt and Hunter (1998) conducted a meta-study summarizing a large body of research in personnel psychology. They concluded that "the most valid predictor of future performance and learning is general mental ability, i.e., intelligence or general cognitive ability."

[18] The relevance of personality traits is well established in psychology (see for example Schmidt and Hunter (1998)). Almlund, Duckworth, Heckman, and Kautz (2011) provide an excellent and thorough survey of the existing literature in both psychology and economics.

and Goldberg (2007)), and crime (e.g. John, Caspi, Robins, Moffitt, and Stouthamer-Loeber (1994), Cunha, Heckman, and Schennach (2010)). But personality is associated with purely economic outcomes as well, such as job performance.[19] Judge and Barrick (1999) report on a longitudinal study started in 1928 where nearly three hundred individuals born in Berkeley and Oakland were followed throughout their lives, with measurements of psychological traits starting in childhood. This study shows general mental ability and personality traits measured in childhood correlate with several measurements made later in life, including career success. Anderson, Burks, DeYoung, and Rustichini (2011) find that personality traits are better predictors of credit scores and job persistence than traditional economic preferences such as time discounting and attitudes to risk. Using a representative dataset from Germany, Störmer and Fahr (2010) find that individuals who are conscientious and agreeable are much less likely to be absent at work, whereas absenteeism is much higher among neurotic individuals.

While the literature has explored the effects of a wide range of personality traits, over time psychologists have grouped them into five categories labeled "the Big 5." These traits are openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. These traits are defined without reference to context and encompass clusters of more specific personality features. Conscientiousness is typically related to three characteristics: achievement orientation, organization and orderliness, and responsibility. Agreeableness is related to being empathetic and likable, caring and cheerful; Extroversion to being outgoing and sociable; neuroticism to having mood swings, emotional instability and feelings of victimization (those scoring high on neuroticism are more likely to suffer from anxiety, irritability, and depression). Openness to experience is related to curiosity, a taste for intellectualizing, and acceptance of unconventional things, and tends to correlate with IQ, although it is itself more directly an inclination than a capability. John, Naumann, and Soto (2008) offer an overview of the history and evolution of research on the Big 5 characteristics as well as an analysis of the comparative performance of different measurement instruments.

We measured the Big 5 personality traits using the Big Five Inventory (BFI) developed by John (1990). This is a 44-item questionnaire. An important advantage is it has been translated into Spanish for deployment in Mexico, and its use validated there (Benet-Martínez and John 1988). These authors did not find important differences between the Mexican and US populations. More generally, John, Naumann, and Soto (2008) report on extensive studies validating the Big Five Inventory both for internal consistency in terms of test-retest reliability, as well as convergence with other personality inventories such as McCrae and

[19]Besides Schmidt and Hunter (1998), see Barrick and Mount (1991) and Salgado (1997) for additional meta-studies on the relationship between personality and job performance.

Costa (1992) NEO Five Factor scale.

4.1.2 Public service motivation

In order to capture the motivation profile of candidates, we designed the questionnaire to measure an applicant's inclination towards public service. Research indicates that public sector employees have a different motivation profile in terms of values, inclination to public service activities and volunteering (Bright (2005), Rotolo and Wilson (2006)). Researchers in the area of public administration have explored the idea that public service motivation is central to the effective delivery of public goods and services (Perry and Wise 1990). Individuals with a strong desire to serve the public interest or who have higher levels of altruism are thought not only to be more attracted to public sector employment, but also perform better on the job, due perhaps to better match quality.

While estimating the extent to which public service motivation affects job performance remains an active area of research, recent meta-studies do suggest that public service motivation is positively correlated with job performance in the public sector, broadly defined (Petrovsky 2009). For instance, using a sample of over 8,000 U.S. Federal employees, Naff and Crum (1999) found that public sector motivation correlates with individuals' last performance evaluations. Park and Rainey (2008) analyze data from over 22 Federal Agencies in the U.S. and find that public service motivation is positively correlated with self-reported measures of job productivity and quality of work. Similar results are found using government data from Switzerland (Ritz (2009)) and the Netherlands (Steijn (2008)). To be sure, a lot of work is still needed before we can interpret these relationships as causal. Nonetheless, if public service motivation does underpin effective service delivery, as suggested in the public service motivation literature, then it is important to examine how financial incentives affect the applicant pool along the dimension of public service motivation. The concern is that raising wages could damage the vocational profile of workers through a form of adverse selection. If workers have both financial and non-financial motives to take a public sector job, then increasing financial rewards may encourage applicants with a relatively weaker public service motivation (Handy and Katz (1998), Delfgaauw and Dur (2007), Francois (2000), Prendergast (2007)).

To test for these negative selection effects, we measure an applicant's public service motivation using Perry's 1996 scale of Public Service Motivation (Perry 1996), which has become the gold standard in the literature on public service motivation. This index is constructed based on a questionnaire in which the subject must express agreement or disagreement with each of thirty-two statements. The questionnaire elicits opinions on the attractiveness of politics, public service, and prosocial activities. The questionnaire is subdivided into six modules labeled "Attraction to Policy Making" "Commitment to Policy Making," "Social Justice," "Civic Duty," "Compassion," and "Self-Sacrifice."

Given that public service motivation is in many respects closely related to pro-social behavior, we also collect information on various pro-social activities, such as volunteering, charity work, and political participation. We also observe the applicant's play in non-incentivized experimental games designed to capture social preferences.

4.1.3 Summary statistics

Table 3 shows summary statistics for five different families of candidate characteristics: basic socio-demographics (Panel A), aptitudes and skills (Panel B), personality traits (Panel C), Public Service Motivation (Panel D) and prosocial behavior (Panel E). The applicant pool is mostly males (60 percent), and the average age is 27 years old. Many of these candidates had recently finished studying and only a small fraction of them (14 percent) were employed at the time they applied. Forty percent of the candidates self-identify as belonging to an indigenous people. The average monthly wage reported for the last occupation of record is $4,276$ Pesos per month which lies squarely between the two wages offered in the program (3,750 and 5,000 Pesos per month).

The candidates reported an average of 14 years of schooling. Although some over-reporting is possible, this average mostly likely reflects how the recruitment was targeted towards localities with community colleges. The average IQ score in the Raven's Matrices test was 8.77. The median score is 9, which matches what studies have revealed for US and UK populations (Pearson 1998). This goes together with a striking fraction of the candidates (39 percent) making a mistake when confronted with a simple hypothetical choice between a certain outcome of 2.5 million Pesos and a lottery with equally probable prizes of 2.5 and 5 million Pesos.

Panel C in Table 3 reports summary statistics for personality traits. Except for two measures intended to capture integrity, the personality traits are those in the Big 5. We also created an index of the Big 5 as an equally-weighted average of the z-scores of each dimension, reverse-coding neuroticism which is widely considered to be a negative characteristic (the negative of neuroticism is usually labeled "emotional stability"). The standardization was based on the mean and standard deviation of the applicants in the low wage locations.

To capture an applicant's integrity level, we constructed two measures: 1) Integrity - direct; 2) Integrity - indirect. The direct measure of integrity is an indicator for whether or not the individual agrees with the statement that laws are made to be broken, which is also a common proxy for a lack of respect for laws and moral standards. Only 6 percent of applicants agree with this statement. Given that the direct measure is easily manipulated, we also rely on the indirect measure of integrity, which tracks a person's view about the likelihood that others will engage in honest behavior.[20] A pessimistic attitude towards the moral behavior of others is thought to correlate with weakness of one's own moral standards due to what psychologists' have termed projection bias –the belief that others must conform to our own inclinations. Interestingly, this measure of integrity correlates strongly (t-statistic above 3) with the direct measure of integrity.

In Panel D, we present summary statistics on the six dimensions of public service motivation as developed by (Perry 1996). Each dimension is an average of responses to several statements that are measured on a 5-point Likert scale, where a 5 represents strong agreement with the statement, and a 1 denotes strong disagreement. In addition to reporting the results for each dimension separately, we also construct an index, which is an equally weighted average of the z-scores of each dimension. Similar to the Big 5 index, each dimension is standardized based on the mean and standard deviation of the applicants in the low wage areas.

Panel E displays summary statistics for various measures of prosocial behavior, like engaging in volunteer work (71 percent), charity (54 percent) and having voted in the last election (76 percent).[21] The variable "Cooperation" tracks the contribution in a hypothetical voluntary contribution game where the person must decide how much out of fifty Pesos to contribute to a joint account, and how much to keep. Money in the joint account is multiplied by a factor of 1.4 and then divided between the two people participating. While the Pareto efficient allocation is to contribute all fifty Pesos, the Nash equilibrium is to contribute zero. "Altruism " tracks the amount the person gave out of the fifty Pesos to an anonymous individual in a hypothetical dictator game. In both games, we find that individuals, on average, contribute approximately half of their hypothetical endowment. "Negative reciprocity" records whether the person would reject an offer of one Peso in a hypothetical ultimatum game where the proposer keeps forty-nine Pesos. We find that 55 percent of the applicants exhibit traits of negative reciprocity. While the unincentivized nature of these various hypothetical games may be a limitation, there is some evidence that choices in incentivized experiments are often in line with choices in hypothetical games (Ben-Ner and Levy 2004). The choices made do in fact correlate with the rest of the self-declared pro-social

[20]Concretely, the question asked, if you dropped a wallet with $200, what is the likelihood on a scale of 0 to 100 that a stranger would return it intact.

[21]According to the International Institute for Democracy and Electoral Assistance (IDEA), turnout for the presidential 2006 election in Mexico was short of 59 percent.

activities and with the patterns observed in incentivized experiments.

4.2 Are these measures trustworthy?

Through the screening session we were able to collect a rich and comprehensive dataset on individual characteristics. However, the fact that the information is self-reported raises the concern that individuals may have misrepresented themselves if they thought that the information would be used in the evaluation process.[22]

There are however at least four reasons why we think the amount of misreporting is in fact minimal and – more relevant to the validity of the analysis – not correlated with treatment. First, all applicants were asked to sign an honor code verifying that the information provided in the questionnaire was accurate, which should raise the psychological cost of manipulating responses. Second, the contact information of the applicant's previous employers was collected, which provides an implicit threat of verification. Third, the measures we use are standard not only in the academic side of personnel psychology, but also in industry and consulting. Thus, these type of measures inform, at least partially, actual personnel decisions; this is suggestive of some validity. Fourth and perhaps most important, as we discuss in the next two sections the correlations in the data do not seem to suggest serious misreporting.[23]

4.2.1 Quality

As we discussed above, our more encompassing measure of quality is the individual's reservation wage proxied by the wage the person received in his latest employment spell. While measurement error is unavoidable, the bigger concern would be if individuals were systematically misreporting their previous salaries based on the wage offers made by the RDP. In this case, the measurement error would be correlated with treatment. One advantage of our data is that we can study the relationship between the previous wages declared by candidates and the determinants of earnings usually considered in the literature, which are in many cases directly observable. A dilution or distortion of the recovered relationship between declared wages and the determinants of earnings could be expected in the presence of strategically-motivated misreporting. It is therefore pertinent to ask whether our data displays familiar

[22] Applicants were not told one way or the other whether the questionnaire would be used in the evaluation process.

[23] Some specialists in personnel psychology have come to the view that "Results suggest that intentional distortion of self-descriptions may not be the problem it has often been assumed to be (Hough and Ones 2002)." These authors still advice to design tests with a clear request for truthful reporting and the potential for verification, as we have done.

patterns in terms of the determinants of earnings, and whether these patterns change with treatment assignment.

In Table 4 we present estimates based on variations of a standard Mincerian wage regression, using the wage reported in the last employment as a dependent variable.[24] In columns 1-7, we estimate a semi-log specification, and hence restrict the sample to positive wages, whereas in column 8 we use wages in levels as the dependent variable and also treat declarations of no wages as zero wages.

In columns 1-3, we see that these applicants' data yield estimates similar to the ones typically found in the existing literature. For instance, the salaries that the men report are on average 15-19 percent higher than those reported by females. This is consistent with estimates within Mexico, but also with those documented in the U.S. literature (e.g., see Blau and Kahn (2006)). The coefficients on experience and its squared-term imply an experience-earning profile that peaks at around 25 years, and we also find a correlation between wages and the applicant's height; both of which are again consistent with the existing literature (e.g., Persico, Postlewaite, and Silverman (2004)). The returns to schooling for this sample are a familiar 8 percent. Indigenous status is also associated with a 13.4 percent decrease in wages, which is again consistent with other studies using Mexican data. The inclusion of an applicant's indigenous status is enough to knock out the height effect, suggesting that height was merely serving as a proxy for being of indigenous origin.

In column 4 we find, unsurprisingly, that IQ correlates significantly with earnings even after controlling for schooling. The coefficient implies that, compared to the median applicant, applicants who scored 3 points higher were earning salaries that were 6.3 percent higher. In column 5, we re-estimate the regression presented in column 4, but using data from the 2005 Mexican Family Life Survey (MxFLS).[25] To make the sample comparable, we reweight the observations in the MxFLS to have the same set of observable characteristics as those in our applicant's data.[26] As seen in column 5, with the exception of height, the coefficients estimated using the MxFLS data are very similar to those obtained using the applicants' data.

In addition to exploring these standard determinants of wages, in column 6 we examine whether personal traits predict wages as suggested by the literature in psychology. Consistent

[24]The results are similar if we use the average of all the reported wages in the last three jobs as the dependent variable.

[25]The MxFLS is a nationally-representative, longitudinal database which collects a wide range of information on socioeconomic indicators, demographics and health indicators on the Mexican population (Rubalcava and Teruel 2008).

[26]Specifically, we estimate the probability of belonging in the applicant sample as a flexible function of the observable characteristics. We then use the estimated propensity score to reweight the MxFLS observations (Fortin, Lemieux, and Firpo 2011).

with this literature, the Big 5 traits do correlate with earnings (joint test p-value = 0.08), but not always in the expected way. Neuroticism is significantly and negatively correlated with wages, as expected, but conscientiousness is insignificantly related with earnings. In unreported explorations, conscientiousness is a strong predictor of wages when we exclude experience. But the inclusion of experience (or similarly of age), which does not appear to be a norm in the psychology studies of career success, eliminates conscientiousness as a significant correlate of earnings (age and conscientiousness are positively and significantly correlated in our sample, which is consistent with Roberts and Mroczek (2008) who show that individuals become more conscientious with age).[27] In addition, extraversion is significantly and negatively correlated with wages. The effect sizes for both neuroticism and extraversion are of comparable magnitudes to the one reported for IQ, suggesting that personal traits are also important predictors of earnings.[28] In columns 7 and 8, we see that all of the previous correlations reported in the first six columns are robust to the inclusion of region fixed-effects, or using wages in levels as the dependent variable.

Although not reported, we also test whether all of these correlations differ between treatment and control and do not find any evidence that they do. Not only are none of the individual correlations statistically significant across treatment and control, but we also fail to reject a test of joint significance (p-value = 0.69).

Overall, the results from Table 4 suggest that although wages are self-reported, they do correlate well with the standard predictors of wages, as emphasized in the literature. It seems unlikely that we would have found these results if individuals had been strategically mis-reporting their previous earnings based on the wage announcements of the RDP. For these reasons, we are confident that the applicant's previous wage can serve as an adequate proxy for their reservation wage.

The IQ results are harder to "fake," in that individuals cannot pretend to be smarter than they actually are. But there is some evidence that incentives can increase effort and performance on IQ tests, which would confound our interpretation of the effects of higher wage postings on the intelligence of interested candidates. Importantly, however, these studies find that effort-driven effects tend to be concentrated in the lower third of the distribution (Heckman, Malofeeva, Pinto, and Savelyev 2010). As we will discuss later, we find effects

[27]While it may seem puzzling given the meta-studies of Barrick and Mount (1991)and Salgado (1997) that we do not find a positive association between conscientiousness and wages, both Mueller and Plug (2006) and Nyhus and Pons (2005) find similar results to ours after adjusting for IQ and other socio-economic characteristics.

[28]A one standard deviation increase in Raven's score is associated with an 8 percent increase in wages; Neuroticism and Extroversion are associated with a 9.5 percent and 7.4 percent decrease in wages, respectively.

at the upper tail of the distribution. Moreover, in Table A1 of the appendix, we examine whether applicants in the higher wage condition are less likely to make careless mistakes in answering a set of individual questions – a pattern of differential mistake rates could reflect differential effort.[29] We do not find any evidence of differences in error rates between treatment and control.

The measurement of personality traits through the five factor categorization is elicited through self-reports, but research has shown the classification is stable to reports by others (McCrae and Costa 1987) and over time (McCrae and Costa 1990). As with any measure based on self-reports, faking is a possibility but research on distortions tends to show that tests remain valid (Hough and Ones 2002).

4.2.2 Public service motivation

Even if applicants did not strategically misreport their wages in view of the verifiability of their report, they may have nonetheless manipulated their responses on questions about pro-social behavior or their inclination for public service. In Table 5, we examine the correlations between PSM and various forms of pro-social behavior. Given that public service motivation is defined in relation to one's inclination to do good for others and shape the well-being of society (Perry and Hondeghem 2008), we would expect PSM to be correlated with one's likelihood to engage in pro-social behavior. This is precisely what we find. Individuals who score higher on the PSM index are more likely to engage in charity, volunteer work, or belong to a political party. They are also more likely to exhibit altruistic tendencies in the hypothetic experimental game. For instance, they are more likely to cooperate in the public goods game and give more to an anonymous player in the dictator game. All these correlations are not only robust to controlling for demographic characteristics (e.g., gender, age, and years of schooling), but also the person's IQ and the Big 5 personality traits, which are strongly correlated with PSM.[30]

Although PSM, and to a lesser extent the Big 5 traits, are good predictors of pro-social behavior, IQ however is not.[31] This raises an important point: If smarter candidates were

[29] These questions were selected because they do not require intelligence to be answered and are not likely to be answered in a strategic manner.

[30] The correlation between PSM and IQ is 0.12, whereas the correlation between PSM and Big 5 is 0.54.

[31] An unpacking of the personality measures (not reported in the table) shows an intuitive pattern. Traits such as agreeableness and extroversion are tied to most prosocial activity, except in the case of voting, which is a legal obligation, and is significantly related to conscientiousness. Similarly, educational attainment appears relevant only for voting. We also find that agreeableness and conscientiousness are positively correlated with giving in the dictator game, which is consistent with the results found in Ben-Ner and Kramer (2011). Also, Dohmen, Falk, Huffman, and Sunde (2008) find that agreeableness is negatively correlated with negative reciprocity. While we also uncover this correlation using play in the ultimatum game, we find a negative

manipulating their responses to questions on pro-social behavior and other forms of other-regarding attitudes, we would expect a positive association between IQ and these"desirable" traits. But IQ does not correlate positively with any form of pro-social involvement outside of the screening session, and even has a strong negative correlation with altruism, membership with a political party, and the belief that wealth is not important. One may expect strategic misreporting, if it occurs, to be driven by more sophisticated people who to tend to overstate their pro-social and public service motivation. The results in Table 5 speak against such possibility, as the correlation between PSM and pro-social behavior is not stronger among individuals with higher IQs.[32]

In addition to this evidence using PSM, we can also test for strategic manipulation using our measures of integrity. One way a candidate might avoid appearing dishonest on the exam is to simply not answer the questions on integrity. As such, we created an indicator for whether or not the person failed to answer an integrity question. Using this measure of strategic manipulation, we do not find any evidence of a differential effect between treatment and control sites. Another test we performed was to compute the residuals from a regression of our direct measure of integrity on the indirect measure of integrity, as well as some additional individual characteristics (e.g., Raven's score, trust). Controlling for these other characteristics, the residual can be interpreted as a proxy for the extent to which individuals manipulated their answer of the direct measure. Again, using this measure of strategic manipulation, we do not find any evidence of differential effects across treatment and control.

5 Effects of financial incentives on the applicant pool

Our paper contains two sets of empirical results. The first, presented in this section, concerns the effects of financial incentives on the applicant pool. The second, presented later, investigates the effects of financial incentives on the ability of the recruiter to fill vacancies given a set of candidates. We begin by presenting a simple theoretical model, which we then modify as needed in the following sections to shed light on the corresponding evidence.

Our basic model will echo the classic framework by Weiss (1980) in that it captures the self-selection decisions made by workers of different quality. We will modify this framework in various ways, however. Importantly, we will add a temporal dimension and the possibility that alternative opportunities arise after the first match between the worker and employer.

correlation between openness and negative reciprocity.

[32]The interaction term between Raven's and PSM involves the two variables at their sample means, so as to facilitate the interpretation of the direct effects.

These elements evoke the motivating considerations of Lang (1991), although we abstract from the symmetric (and formally instantaneous) competition among employers and deal explicitly with the dynamic process of self-selection into the applicant pool, selection by the employer, and vacancy-filling.

5.1 Theory: core model and the effects of wages on candidate quality

Consider an employer who faces a residual labor supply made up of a potentially large number of workers. There are two periods and no discounting. In period 1, each worker must decide whether to incur a cost $c > 0$ to show up for a job interview with our employer. Should the worker decide to show up, he will receive an offer with probability $\rho \in (0, 1]$, in period 2. This probability reflects the fact that the employer may fail to recontact the candidate due to the candidate not making efforts to be reachable, or that there may be fewer vacancies than candidates. Let us assume our employer posts a wage w and that the job has an associated vector of conditions X, so taking the job yields utility $u = U(w, X)$, where $U_w > 0$. Assume further that, given the posted wage, $u > \frac{c}{\rho}$ to guarantee a nonempty applicant pool. To save on notation, let us for now obviate the dependence on X. The individual has an expected reservation utility for period 2 equal to $v_i + \varepsilon_i$. The term ε_i captures an idiosyncratic shock to reservation utility that is realized and observed in period 2, before the individual is made an offer for this job; ε is unbounded and is distributed according to the function $G(\varepsilon)$, with mean zero and associated density $g(\varepsilon)$. The term $v_i \in [0, \infty)$ captures the expected reservation utility, to which we will also refer as *market quality* or just *quality*, for short. The individual knows his own quality from the beginning of period 1. Individuals are indexed by their personal v_i, which is distributed according to the function $F(v)$ and density $f(v)$ (in what follows we obviate the subscript i when no confusion arises).

We now study the different decisions facing a worker in each period and solve the model by backward induction.

Period 2. Each individual that paid c and attended the interview receives an offer with probability ρ. If an offer is received, the individual accepts it if and only if $u \geq v + \varepsilon$, which occurs with probability $G(u - v)$. Thus, individuals of higher quality are less likely to accept the job. Individuals that reject the offer, do not receive one, or that did not attend the interview, get $v + \varepsilon$.

Period 1. The candidate must decide whether to pay c to buy the option embodied in a (potential) offer that might be better than his realized reservation utility. The worker will decide to pay the cost c if $v \leq \psi(v, u, \rho)$, where $\psi(v, u, \rho)$ is the expected payoff from paying and attending the interview, and given by the expression,

$$\begin{aligned} \psi &= -c + G(u-v)\{\rho u + (1-\rho)[v + E(\varepsilon|\varepsilon < u-v)]\} \\ &+ [1 - G(u-v)](v + E(\varepsilon|\varepsilon > u-v)). \end{aligned} \tag{4}$$

The value of attending the interview is that if $\varepsilon < u - v$ (realized reservation utility is low), then the candidate has, with probability ρ, the option to take the job.

Proposition 1 *a) There exists a finite type $\bar{v}$ that is indifferent between attending the interview or not. All $v \leq \bar{v}$ prefer to attend and enter the candidate pool, while all $v > \bar{v}$ stay out.*

b) The separating type $\bar{v}$ is increasing in the value of the job $u = U(w)$.

Proof: a) It follows from the fact that the function ψ crosses the function v from above once in the space (v, ψ). To see this, note ψ is continuously increasing in v, with intercept $-c + \rho\{G(u)u + [1 - G(u)]E(\varepsilon|\varepsilon > u)\} > 0$ (by virtue of assumption $u > \frac{c}{\rho}$) and slope $1 - \rho G(u-v) \in [0, 1)$.

b) We need to show that ψ is increasing in u. Note $\frac{d\psi}{du} = \rho G(u-v) > 0$.■

Part a) of this proposition offers a simple characterization. Under the reasonable assumption $\rho u > c$ (the direct expected return of showing up for an interview compensates the cost) we will have a non empty applicant pool. However, types with very high expected reservation utility will prefer to stay out rather than pay for an option they are unlikely to exercise. In fact, the applicant pool will have size $F(\bar{v})$, where $\bar{v}$, the highest type that enters, is the type who is indifferent between entering the pool and staying out. Part b) tells us that a higher utility from the job – for example when the wage is higher – will expand the applicant pool to include individuals with higher market quality.

5.2 Empirics

Table 6 presents evidence that speaks to proposition 1. We estimate a series of models based on equation (1). Each row corresponds to a separate regression. Column 1 presents the number of observations used in the estimation. Column 2 reports the mean of the dependent variable among the sites that were offered a low wage, whereas column 3 presents the estimates of the coefficient, β_1, which measures the difference in the dependent variable between high versus low wage places after adjusting for region fixed-effects. In column 4, we use randomization inference to compute p-values, which measure the proportion of random treatment re-assignments that yield estimates greater than or equal to the actual treatment assignment, based on 1000 random draws. In column 5, we report p-values that control for the false discovery rate (FDR); that is, the proportion of rejections that are Type I errors. These FDR-adjusted p-values account for the fact that we are testing multiple outcomes (e.g. Anderson (2008)).

Consistent with the theory, the recruitment sites that offered higher wages (*treatment areas*) attracted 4.8 more applicants on average than those that posted the low wage announcement (*control areas*). Although this represents a 26.3 percent increase over the control areas, the difference is not statistically significant. In Figure 2, we plot the distribution of the number of applicants per site by treatment assignment. The distribution for the treatment areas appears slightly shifted to the right relative to the control areas and the support is extended. But overall the two distributions are fairly similar.

Higher wage places did however attract applicants with potentially higher reservation wages, as the theory predicts. The outside salaries of applicants in places with the high-wage announcement are on average 820 Pesos higher than in the places with a low wage announcement; a difference that represents a 22 percent increase from the average among the control. While these results suggest a significant mean effect, Figure 3 shows that the higher wage offering also impacted the upper tail of the distribution. From panel A of Figure 3, we see that the density of outside wages in the treatment sites has been shifted to the right of the density in the control sites.[33] Moreover, whereas the maximum outside wage in the control areas was $14,000$ Pesos, it was above $20,000$ Pesos in the treatment areas.[34] Panel B of Figure 3 plots the treatment effect on the number applicants per site by six evenly distributed wage categories. The high wage treatment had a significant effect on the number of applicants per site for each of the three wage categories above 3,000 Pesos per month. For instance, the treatment led to a 105 percent increase (treatment effect of 3.03; baseline=2.88) in the number of applicants per site who earned more than 5,500 Pesos per month in their previous employment.

Consistent with these findings on outside wages, applicants from the treatment sites are much more likely to be currently employed, to have had work experience, and to have been previously employed in a white collar position.[35] In Panel A, we also present results using an applicant's predicted wages as the dependent variable. The predicted wages, which were computed based on the coefficients estimated from the MxFLS data (column (5) of Table

[33] We can reject the hypothesis that the two distributions are the same, based on a Kolmogorov-Smirnov test (p-value=0.00).

[34] Recall that most of these applicants are unemployed and hence report past, rather than current wages. Currently employed individuals may still apply to a job paying less than their current wage if they are pessimistic about their prospects in the current job.

[35] We define white collar as any worker who performs professional, managerial, or administrative work.

4), are less susceptible to the concern of strategic misreporting. Although this measure in our opinion provides a poorer estimation of an applicant's reservation wage compared to our main measure, we still find a strong positive selection effect (point estimate=0.111; s.e.=0.045).

In addition to these findings on outside wages and employment, we also find significant impacts when using various measures of cognitive traits. Applicants in the treatment areas scored 0.51 points higher on the Raven test. This represents an increase of 0.19 standard deviations relative to the control. This mean impact appears to have come from both an increase in the number of above average IQ candidates, as well as a decrease in the number of below average IQ candidates (see Figure 4).[36] In line with the favorable impact on IQ, we also find that applicants from the higher wage sites were much less likely to choose a dominated strategy in the risk game. Interestingly, we do not find that higher wages attracted individuals with more education, or who are more likely to be able to use a computer (not reported). While it is hard to know for sure, we suspect the lack of effects along these dimensions is most likely a manifestation of the recruitment targeting, which led to an applicant pool with extremely high schooling and where 92 percent know how to use a computer.

In Panel B, we examine the effects of wages on personality traits, which as we discussed above are considered to be important determinants of job performance and earning potential. Higher wages attract individuals who are more conscientious, less neurotic, and to a lesser extent individuals who are more open to new experiences. While these are only mean impacts, we find in Figure 5 that the high-wage postings attracted significantly more individuals per site who are from the upper quintile of the distribution in terms of conscientiousness and emotional stability (i.e. not neurotic). While higher wages appear effective at attracting candidates with a better personality profile, as measured by the Big 5 personality traits, we do not find any evidence that wages impacted the applicant pool with regards to integrity.

5.3 Public service motivation (PSM)

5.3.1 Theory

In order to relate the theory to additional aspects of the data, we enrich the model to consider an additional dimension of individual heterogeneity, namely the inclination towards public

[36] A potential explanation for the decrease in the number of below average IQ candidates is that candidates weigh the costs and benefits of sinking the cost to attend a screening session. When the announced wage is higher, and the expectation is that more high IQ candidates will show up, those with lower IQs could anticipate tougher competition and desist. We do not find this pattern in other dimensions of quality, however, and it is an aspect of strategic behavior that our theory abstracts from by considering a fixed ρ.

service (or public service motivation (PSM)). An individual's type is now a pair (v, π), where v denotes market quality and $\pi \in [0, \infty)$ captures the additional utility an individual receives from holding a public sector job. The public sector job now yields a utility $u = U(w + \pi, X)$. To keep things simple, we again abstract from the job characteristics X, and consider the payoff from the public sector job to be $w + \pi$, while the outside opportunity is, as before, given by $v + \varepsilon$. All other aspects of the model remain unchanged except to simplify notation we consider $\rho = 1$.

We will develop two cases. In the first case π and v are independently distributed in $[0, \infty) \times [0, \infty)$ among the population, and in the second π and v are positively correlated. To simplify the treatment of the positive correlation case, let us focus on the extreme case in which all types (v, π) are contained in the graph of the function $v = m(\pi)$ (effectively, the type space becomes unidimensional), which satisfies $m'(\pi) > 0$, and $m(0) \geq 0$. This positive correlation case is not so much meant to generate general insights, as to provide a contrast with the independence case that helps us examine the data.

If offered a job in period 2, a candidate with realized outside opportunity $v + \varepsilon$ will accept the job whenever $v + \varepsilon < w + \pi$, which for a type (v, π) will happen with probability $G(w + \pi - v)$. In period 1, entry decisions depend on the relationship between v and π.

What is the pattern of entry into the applicant pool when candidates differ in terms of quality and PSM? The answer is in the following,

Proposition 2 *a) v* ***and*** *π* ***independent:*** *There exists a function $\bar{v}(\pi) = a + \pi$ (with $a > 0$, and inverse $\bar{\pi}(v) = -a + v$) describing the locus of all types (v, π)who are indifferent between entering the applicant pool and staying out. Given v, those with $\pi' > \bar{\pi}(v)$ $(< \bar{\pi}(v))$ strictly want to enter (stay out); given π, those with $v' < \bar{v}(\pi)$ $(> \bar{v}(\pi))$ strictly want to enter (stay out).*

b) v ***and*** *π* ***positively correlated:*** *There exists a type $(\bar{v} = m(\bar{\pi}), \bar{\pi})$ who is indifferent between entering the applicant pool and staying out. If $w - c > m(0)$ and $\frac{dm}{d\pi} > 1$, then all types $\pi \leq \bar{\pi}$ enter, and types $\pi > \bar{\pi}$ stay out.*

Proof: See Appendix.

This proposition tells us that the type space (v, π) can be divided into two sets containing respectively the types who apply and who do not. When the type dimensions are independent, all PSM types who are also low enough quality (formally, who have $v \in [0, a]$) apply, but as v increases, only those types with $\pi \geq \bar{\pi}(v)$ apply. Thus, very high quality candidates are observed in the pool only if they also have a very high PSM. A first corollary is that when type dimensions are independent, any positive correlation in the data between quality and PSM among applicants is due to self-selection.

When the type dimensions are positively correlated along the function $m(\pi)$ with $m' > 1$ (a condition we assume henceforth), the applicant pool contains all types (v, π) up to $(\bar{v} = m(\bar{\pi}), \bar{\pi})$. A second corollary is that when type dimensions are positively correlated in the population the applicant pool will display a positive correlation between quality and PSM that is inherited from the population.

The selection pattern varies across the independent and the positively correlated cases. In the independent case, each candidate dimension is selected in opposite directions: the relatively low quality but relatively high PSM individuals opt in – the explanation is simply that the expected value of entering the pool increases in PSM but decreases in quality. In the positively correlated case with $m' > 1$, the individuals with both high quality and high PSM stay out. The intuition is that when the two dimensions are collapsed into one, the opposite effects of the independent case net out in one direction or another depending on the slope of $m(\pi)$. If quality rises with PSM more than one for one, the quality effect dominates and the relatively high types stay out.

This part of our analysis is related to an interesting model by Delfgaauw and Dur (2007). The authors also derive an indifference condition in the space of quality and PSM in the context of a competitive economy, but abstract from the application costs, and the option value of paying them. This difference plays a role in part b) of our last proposition, and in the contrasting effects of higher wages on the applicant pool that we derive next.

Proposition 3 *a) Given the assumptions of our model, an increase in wages increases the average quality of the applicant pool.*

b) In the case when PSM and quality are independent in the population, an increase in wages decreases the average PSM of the applicant pool.

c) In the case when PSM and quality are positively correlated according to the function $m(\pi)$, an increase in wages increases the average PSM of the applicant pool.

Proof: See Appendix.

Higher wages should always increase the quality of the applicant pool, but whether they will increase PSM depends on the underlying correlation between quality and PSM in the population. In the independent case, we should expect higher wages to worsen PSM.[37] This result is in sharp contrast with what we obtain for the case where PSM and quality are

[37] This result parallels several others studies in the literature (e.g. Handy and Katz (1998), Delfgaauw and Dur (2007), Francois (2000), Prendergast (2007)). Of these models, Delfgaauw and Dur (2007) is perhaps the closest to our set up for this section. Two important differences are that in their model the outside opportunity is unrelated to individual quality, and that they model PSM as inducing a taste for effort in a setting where moral hazard is a concern.

positively correlated. In the latter situation we can expect wages not to worsen PSM, but rather to increase it alongside quality. We will let the data speak to this matter.

5.3.2 Empirics

While higher wages may have attracted individuals with a higher reservation wage, higher IQ and better personality traits, an important policy question is whether this comes at the expense of attracting an applicant pool that is less motivated by public service. If public service motivation correlates with public sector job performance as the literature suggests, providing higher salaries may not help build up the human capacity of the state. But as shown above, the theoretical prediction is ambiguous and ultimately depends on the correlation between a person's PSM and his or her outside option. If the traits that define public service motivation are valued by the market or correlate positively with traits valued by the market, then the effects of offering higher wages on PSM can in fact be positive. In Table 7, we test this hypothesis.

In Panel A of Table 7, we find that the applicants who were recruited under the high wage offering scored much higher on the PSM index than applicants from the lower wage sites. Relative to the control sites, applicants who applied in the treatment sites found policy making more attractive, were more compassionate, and had a stronger belief in social justice. Similar to the effects involving the Big 5 personality traits, the high-wage postings attracted significantly more individuals per site who are from the upper quintiles of the distribution both in terms of the overall index (see Figure 6), as well as the subcomponents of commitment, compassion, and social justice (see Figure 7).

The empirical findings suggest that higher wages cause no harm to public service motivation. This is consistent with a world where quality and PSM are positively correlated as characterized in the context of our model. In the case of a deterministic, positive relationship between quality and PSM, increases in wages improve PSM through their effect of attracting individuals with higher earning potential. If the relationship is not deterministic, one may wish to empirically disentangle the effect of wages on PSM conditional on quality from the effects that operate by increasing quality. Such an exercise would require different instruments to separately affect the quality and the PSM of applicants. What we can say however is that if the effects of wages on PSM conditional on quality are negative, they are not strong enough so as to induce an overall crowding out of PSM.

In Panel B, we explore the effects of the treatment on other measures of pro-social behavior. Overall the findings are mixed. For some measures, we do not find any effects (volunteer and altruism). For some other measures, we find negative effects (charity work and political party membership). And yet for some others the effects are positive (cooperation and willingness to pay a private cost in order to punish stingy behavior (negative reciprocity)).

In sum, we find strong evidence that higher wages attract individuals with higher quality, without any indication that this harms public service motivation. While enticing qualified applicants to apply with higher wage offers is a necessary first step for building up the human capacity of the state, it is by no means sufficient. In the next section we examine whether higher wages help fill vacancies.

6 Effects of financial incentives on recruitment

6.1 Theory

Consider the classic formalization postulating an employer for whom each employee produces one unit of output that can be sold at a price p. The employer is a price-taker in the market for goods, and with no fixed costs of production he maximizes profits $\pi = (p - w)\, S\,(w)$, where S is the labor that is supplied to the firm at wage w. If the producer selects w to maximize profits, the first order condition immediately yields the equality $\frac{p-w}{w} = \frac{1}{\eta}$, which is the familiar relation stating that the profit margin from the marginal employee must equal the inverse of the labor supply elasticity η. Employers that are price-takers in the labor market face an infinitely elastic labor supply, in which case profit margins are zero.

A key assumption in this simple model is that the employer simply posts wages, and workers somehow materialize in their positions – there is no wedge between wage posting and vacancy filling. Reality is messier in two ways. First, the process extends through time and decisions to enter the pool, to remain in it, and to accept an offer entail different trade-offs for the candidate. Second, when posting different wages employers may take different actions that affect recruitment. In order to estimate the parameter η we need both the randomized variation in wages, but also an adequate approach to measurement in order to ensure exogeneity. The next subsection will address our approach to measurement, and after that we will enrich our core model to derive predictions about the magnitudes of interest.

Measurement approach – magnitudes of interest Suppose that a firm advertises a job at two different wage levels, and attains two levels of recruitment, yielding two pairs of wage-employment data. The first inclination might be to compute the (arc-) elasticity defined by the two wage-employment pairs – after all, the firm's recruitment equals the labor effectively supplied to the firm. This could be misleading. Let us write the effective recruitment by the firm as $R = m \times \nu \times \sigma \times \rho \times \alpha$ where m captures the size of the population exposed to news on the job opening, $\nu \equiv \frac{n}{m}$ is the share of those who, being informed about the job, decide to apply, $\sigma \equiv \frac{s}{n}$ is the share of the applicants who are selected to receive an offer, $\rho \equiv \frac{r}{s}$ is the share of the selected who are successfully recontacted and $\alpha = \frac{a}{r}$ is the share of those recontacted that accept the offer. The latter two elements ρ and α together determine the "conversion rate" $\gamma = \rho \times \alpha$ – the share of those selected who end up filling vacancies.

The elasticity of recruitment can then be written as the sum of the elasticities of its components, i.e., $\frac{dR}{dw}\frac{w}{R} = \xi_m + \xi_\nu + \xi_\sigma + \xi_\gamma$. Now suppose that the firm advertised more strongly the jobs that pay higher wages and that more offers per candidate were planned for those positions. Then $\xi_m, \xi_\sigma \neq 0$. These two elements, however, do not reflect on the interest of workers for the job. They reflect on actions taken by the employer. Thus, the use of employment-wage data to measure the labor supply elasticity may confound aspects of the labor supply with aspects of the labor demand. Even if wages were randomized, actions of the employer have violated the exclusion restriction. Therefore, the safe approach is to use information on the directly relevant elements ξ_ν and ξ_γ (the elasticities of the applicant pool size and of the conversion rate) needed to cleanly identify the elasticity of the labor supply facing the firm. This is the approach we will follow here although in our case, by design, the advertising intensity per recruitment site was held constant across wage conditions and the selection intensity varied only marginally.[38]

When we do the actual numeric computation we will take into account that the wage variation in our setting is not infinitesimal, but large: 33 percent. So we will compute an arc-elasticity. Moreover, the arc-elasticity of a product is not equal to the sum of the arc-elasticities of its factors. Given the product $R(w) = P(w) \times \sigma \times \gamma(w)$, where $P(w) = m \times \nu(w)$ is the size of the applicant pool and $\gamma(w)$ is the conversion rate, the arc-elasticity of R, denoted ξ'_R, is given by $\xi'_P + \xi'_\gamma + \xi'_P \xi'_\gamma \times \frac{\Delta w}{w}$ (where $\frac{\Delta w}{w}$ is the rate of wage increase and primes denote arc-elasticities). This is the formula we will use for the numeric calculation of the elasticity of the labor supply.

Theoretical predictions on the magnitudes of interest We return to our model in order to investigate theoretical restrictions on the expected signs of the elasticities of the applicant pool and of the conversion rate. We introduce one modification that further highlights the role of the temporal dimension in our analysis. The initial cost to enter the

[38]The changes in m may reflect some supply side aspects, such as word of mouth among workers expanding the number of people who learn about a vacancy. To the extent that those effects are present, we will capture them empirically as changes in the size of the applicant pool. What is important is to make sure that demand-side factors are held constant across wage categories or purged from the computation by focusing on the relevant elements ξ_ν and ξ_γ.

applicant pool to the public sector job is now labeled c_1, and every entrant faces the prospect of being eventually recontacted to be made an offer for that job with a baseline probability $\underline{\rho} \in (0, 1]$. However, after learning ε in period 2, the applicant must decide whether to pay an additional cost c_2 to increase the chance, from $\underline{\rho}$ to $\bar{\rho} > \underline{\rho}$, that a contacting attempt by the employer is successful. This captures the possibility that the candidate may have to forgo entering into activities that are rewarding but would reduce his likelihood of being reachable.[39] We will make the assumption that $\underline{\rho}w > c_1$, namely that it is worth attending an interview even if one expects only the baseline chance of being recontacted to be made an offer, and will use the notation $\Delta\rho \equiv \bar{\rho} > \underline{\rho}$. We again solve the model by backward induction.

Period 2 Consider an applicant who observes ε at the beginning of period 2. Would he want to pay c_2 in order to enhance the chance of receiving an offer? The following lemma characterizes the optimal decision.

Lemma 1 *a) if $\varepsilon \leq w - v - \frac{c_2}{\Delta\rho}$, the candidate pays c_2, and expands his recontacting rate to $\bar{\rho}$ (and will accept the job if he is recontacted).*

b) If $\varepsilon \in \left(w - v - \frac{c_2}{\Delta\rho}, w - v\right]$, the candidate does not pay c_2, keeps his recontacting rate $\underline{\rho}$, but will accept the job if offered.

c) If $\varepsilon > w - v$, the candidate does not pay c_2, keeps his recontacting rate $\underline{\rho}$, and will reject the job if offered.

Proof: See Appendix.

Since the probability that an applicant pays c_2 is $G\left(w - v - \frac{c_2}{\Delta\rho}\right)$, the last lemma immediately implies,

Corollary 1 *Wage increases raise the probability that infra-marginal v types decide to pay c_2 and increase the rate at which they can be recontacted.*

Thus, wages can play a role in improving the re-matching process. This is an important aspect that we will take to the data. In addition,

Corollary 2 *Higher quality types are less likely to pay c_2 and increase the rate at which they can be recontacted.*

[39] The recontacting rate can reflect both labor demand and labor supply elements. That is, we could write $\rho = \rho_d\rho_s$ where ρ_d is the probability that any one candidate is called, and which reflects labor demand, and ρ_s is the probability that, conditional on being called, a candidate is reachable, which reflects labor supply decisions. Note if $\rho_d < 1$ recruitment does not equal labor supply (more labor is available than is recruited). When we compute the labor supply, and its elasticity, given that by design in our experiment ρ_d is constant, the only relevant variation is on supply-related elements affecting ρ_s, to the model can be interpreted as entailing the innocuous normalization $\rho_d = 1$, and the recontacting rates reflecting labor supply factors only.

Period 1 Now we study decisions to pay the cost c_1 and enter the applicant pool. Given the last lemma, for entry to be deemed convenient, it must be true that the expected value of remaining outside the applicant pool, v, is no larger than the expected returns $\psi\left(v, w, \bar{\rho}, \underline{\rho}, c_1, c_2\right)$ from attending the interview. Note these returns are sensitive to the fact that the applicant will have an option to exert some effort in expanding the recontacting rate if he deems it convenient later on. The entry condition is $v \leq \psi\left(v, w, \bar{\rho}, \underline{\rho}, c_1, c_2\right)$.[40] We now state,

Proposition 4 *If* $\underline{\rho} w > c_1$*we have an equilibrium with positive entry for all types* $v \leq \bar{v}$*,where* $\bar{v}$ *satisfies* $\bar{v} = \psi(\bar{v})$*, and where* $\bar{v}$ *increases in* w*.*

Proof: See Appendix**.**

In this equilibrium, types $v \leq \bar{v}$ pay c_1 and enter the pool. Later, they pay c_2, or not, depending on the realization of ε. This proposition establishes that the possibility of candidates affecting the recontacting rate does not change the selection pattern: higher quality types will opt out; however, the behavior characterized in lemma 1 will have important consequences for how we interpret the empirical evidence on the role of wages on labor supply.

Having characterized the self-selection process, we now investigate the comparative statics of wages, and the expected predictions for the magnitudes of interest. From proposition 4, the type $\bar{v}$ determines the size of the applicant pool at $F(\bar{v})$, and this magnitude increases with w. However, not all types below $\bar{v}$ who become candidates will automatically fill a vacancy. Successful recruitment requires recontacting, which happens at rate $\underline{\rho}$ or $\bar{\rho}$ depending on the realization of ε, and acceptance decisions α, which also depend on such realization, as per lemma 1. For all those with $\varepsilon \leq w - v$, $\alpha = 1$, and $\alpha = 0$ otherwise. Thus, recruitment by the firm, and the effective amount of labor supplied, is the measure of candidates that, having applied, are recontacted and accept the offer. This is equivalent to the product of the size of the applicant pool and the conversion rate. We can now state,

Proposition 5 *a) The measure of recruited candidates in our model, and the labor supplied to the firm in equilibrium, can be written as the product* $F(\bar{v})\,\gamma(w, \bar{v})$ *(the applicant pool size*

[40] The expected value of attending the interview $\psi\left(v, w, \bar{\rho}, \underline{\rho}, c_1, c_2\right)$ is,

$$
\begin{aligned}
&-c_1 + G\left(w - v - \frac{c_2}{\Delta\rho}\right)\left\{-c_2 + \bar{\rho} w + (1-\bar{\rho})\left[v + E\left(\varepsilon | \varepsilon < w - v - \frac{c_2}{\Delta\rho}\right)\right]\right\} + \\
&\quad + \left[G(w-v) - G\left(w - v - \frac{c_2}{\Delta\rho}\right)\right]\left\{\underline{\rho} w + (1-\underline{\rho})\left[v + E\left(\varepsilon | \varepsilon \in (w - v - \frac{c_2}{\Delta\rho}, w - v]\right)\right]\right\} + \\
&\qquad + \left[1 - G(w-v)\right]\left[v + E\left(\varepsilon | \varepsilon > w - v\right)\right].
\end{aligned}
$$

times the conversion rate). Thus, the elasticity of the labor supply facing the employer is $\eta = \frac{dS}{dw}\frac{w}{S} = \xi_{F(\bar{v})} + \xi_{\gamma(w,\bar{v})}$.

b) Under the assumptions of the model, $\xi_{F(\bar{v})} > 0$*, while the sign of* $\xi_{\gamma(w,\bar{v})}$ *is ambiguous.*

Proof: See Appendix.

This proposition establishes that a wage increase should enlarge the applicant pool (from proposition 4) so we expect $\xi_{F(\bar{v})}$ to be positive. However, it is not necessarily true that the average conversion rate must go up with wages. This might be surprising, but is due to the fact that both average recontacting rates and average acceptance rates respond ambiguously to an increase in wages. A higher wage will make all the infra-marginal types $v < \bar{v}$ in the pool more likely to be recontacted, and also to accept, but the marginal type that is added is less likely to want to expand the recontacting rate, or to accept. Thus, the conversion elasticity has an ambiguous sign if individuals are more likely to sort into the applicant pool when they expect a worse reservation utility.

6.2 Empirics

In this section, we examine the extent to which higher wages help the recruiter fill vacancies and present our estimate of the elasticity of the labor supply facing the RDP. Table 8 presents the estimation results for a series of models based on equation (2). The dependent variable is equal to 1 if the person selected to receive an offer accepted the position, and 0 if the person declined the initial offer or could not be reached after several attempts.[41] Among individuals selected to receive a salary of $3,750$ Pesos, 42.9 percent accepted the position. An offer of $5,000$ Pesos increased conversion rates by 15.1 percentage points, or approximately 35.2 percent (see column 1). This yields an arc-elasticity for the conversion rate of $\xi'_{\gamma(w,\bar{v})} = 35.2/33 = 1.07$.

It is worth recalling that proposition $5b$ did not pin down the sign of the elasticity of the conversion rate. Higher wages raise the probability that any given quality type will accept a job if offered, or that he will exert effort to raise the chance he can be recontacted (from corollary 1). But higher wages also attract higher quality types on the margin who are less likely to accept a job if offered, and who are less likely to make an effort to aid recontacting (recall corollary 2). Our empirical findings suggest that the inframarginal effects dominate, and therefore higher wages raise the conversion rate.

In column 2, we re-estimate the model including several of the characteristics of the applicant pool that differed across the two wage offers. The inclusion of these individual

[41]The regressions include stratification intercepts.

characteristics does not affect our point estimate of the effect of wages on conversion (point estimate = 0.160; s.e. = 0.054). Moreover, most of these characteristics do not affect conversion rates. Our theory predicts that the conversion rate should be lower for higher quality individuals. Although the sign of quality-related variables is correctly negative in four out of five cases, only years of schooling appears statistically significant.

As explained in the previous section, the way to estimate the elasticity of the labor supply facing the firm is to sum the elasticity of the conversion rate we just calculated to the elasticity of the size of the applicant pool (plus the correction $\xi'_{F(\bar{v})}\xi'_{\gamma(w,\bar{v})}\frac{\Delta w}{w}$ to account for the fact that we are dealing with arc-elasticities). If we incorporate the possibility that higher wages led, according to our point estimate in Table 6, to a 26.31 percent increase in the number of applicants, the arc-elasticity of the applicant pool is $\xi'_{F(\bar{v})} = 26.31/33 = 0.8$. Then the arc-elasticity of the labor supply facing the employer is $\eta' = 2.15$.

How does our estimate of the elasticity of the labor supply compare with those in the literature? To our knowledge, no other study has estimated the elasticity of the labor supply facing the employer using randomized wages. But there are a number of quasi-experiments that estimate labor supply elasticities, and typically find estimates in range of 0.1 – 3.9. For instance, Staiger, Spetz, and Phibbs (2010) examine the effects of a legislated increase in the wages at the Veteran Affairs hospitals, and finds that a 10 percent increase in wages increased labor supply by between 0-2 percent. Falch (2011)analyzes an exogenous wage change paid to teachers in Norway, and estimates a labor supply elasticity of 1.4. Sullivan (1989) estimates the wage elasticity of the supply of nurses to individual hospitals by exploiting a shock to the demand curve. Using measures of hospital caseload as instruments, he estimates a long run elasticity of 3.86.

An interesting fact arises when we unbundle the effect of wages on the conversion rate. Recall that the dependent variable denotes as zero those individuals who declined the initial offer and those individuals who could not be reached after several attempts. There may be various reasons why these individuals were unreachable. For instance, they may have taken another job or decided against this job, and as a result may have chosen not to make themselves available.[42] Alternatively, they may have been busy during the call-back period, or their contact information was invalid.[43] In any case, as we see from column 3 and 4, much of the effect of wages on conversion rates comes from individuals not being recontacted as opposed to rejecting the offer directly. In other words, the impact of wages on the conversion

[42]Recall that 3-4 weeks had elapsed between the time the average individual took the exam and when the RDP attempted to recontact candidates.

[43]In 23 of the cases, or 6 percent, the contact information was incorrect. For these cases, there is no difference between treatment and control.

rate $\gamma = \rho \times \alpha$ is largely driven by changes in the recontacting rate ρ. This suggests an interesting nuance to the practical challenges of recruitment. Higher wages help attract more and better applicants, and they certainly do not hurt a recruiter's ability to convince a selected candidate to say "yes." But crucially, higher wages help increase the chance of a successful matching process with the selected candidates, which can be rationalized through our corollary 1.[44]

Our theory does not pin down predictions on how the effects of wages on recruitment vary with individual characteristics. Nonetheless we explore this in the Appendix Table A2. We investigate whether wages help recruitment differently along various dimensions, such as IQ, previous earnings, personality, and gender, and do not find important effects.[45]

6.3 The role of financial incentives in overcoming challenging job characteristics

Our research design provides a unique opportunity to investigate how the characteristics of the municipality to which the applicant was assigned affect the acceptance decision. Because individuals were randomly assigned to a municipality, the characteristics of the municipality constitute an exogenous shock to their choice sets. Again we begin by invoking our theory to frame the posterior empirical exploration.

6.3.1 Theory

We expand the model to study the effects of job characteristics on acceptance, and the role of wages in overcoming the problems posed by undesirable job characteristics. Examples of these characteristics are geographic location, and a safe or affluent social environment. To do this, we go back to the basic version of the model with $\rho = 1$, utility from the public sector job $u(w, X)$ and a single interview cost $c > 0$. The job offer, when it materializes, will be associated with a wage $w = \{\underline{w}, \bar{w}\}$ known to the candidate at the time of application, and a job type parameter x, which is the only element in X. To make things as simple as possible we take the attribute x to affect linearly the utility from taking the job, so $u(w, x) = w + x$. The job characteristic x is only revealed to the candidate at the time when the job offer is

[44] While one might be concerned that the operators may have put more effort into contacting high wage applicants, this was certainly not the case. The call-back process was both completely centralized and scripted.

[45] There is an extensive literature suggesting that in developed countries the elasticity of labor supply of women is higher than for men. Although our estimates are not measured with much precision, our point estimates corroborate that picture. Women are 25.2 percentage points more likely to end up accepting the offer if the wage is high compared to only 6 percentage points for men (see column 3 in Table A2).

made, and is drawn from a cdf $H(.)$ with associated density $h(.)$ with unbounded support. The realization of x is independent from that of ε.

In **period 2**, and given an applicant pool with highest quality $\bar{v}$, an individual of type v and realized shock ε accepts the job whenever $v+\varepsilon \leq w+x$. That is, if $\varepsilon - x \leq w - v$. Note that acceptance now does not just depend on the realization of ε, but also of x, or on the realization of a new random variable $z = \varepsilon - x$. Define the cumulative distribution function (cdf) $J_z(w-v) \equiv (z = \varepsilon - x \leq w - v)$ with associated density $j_z(w-v)$. The cdf is given by the usual convolution formula, yielding,

$$\begin{aligned} J_z(w-v) &\equiv P(z \leq w-v) = \int_{-\infty}^{\infty} P(\varepsilon < w-v+x)\, h(x)\, dx \\ &= \int_{-\infty}^{\infty} \left(\int_{-\infty}^{w-v+x} g(\varepsilon)\, d\varepsilon \right) h(x)\, dx = \int_{-\infty}^{\infty} G(w-v+x)\, h(x)\, dx, \end{aligned}$$

while the associated density is $j_z(w-v) \equiv P(dz = w-v) = \int_{-\infty}^{\infty} g(w-v+x)\, h(x)\, dx$.

In **period 1** an individual of type v applies if and only if the usual entry condition $v \leq \psi(v)$ holds, where this condition now reads,

$$v \leq -c + J_z(w-v)\{w + E[x|z \leq w-v]\} + [1 - J_z(w-v)]\{v + E[\varepsilon|z > w-v]\}. \quad (5)$$

We can now state,

Lemma 2 *If the application cost c is small relative to the utility from the wage and expected job attributes, the entry equilibrium is analogous to that in the basic model: there exists a finite type $\bar{v}$ that is indifferent between attending the interview and staying out. All $v \leq \bar{v}$ prefer to attend and enter the candidate pool, while all $v > \bar{v}$ stay out, and the separating type $\bar{v}$ is increasing in w.*

Proof: See Appendix.

The last lemma establishes that the added complexity of uncertainty over job attributes does not alter the essence of self-selection into the applicant pool. As in the basic model, a wage w leads to an applicant pool of size $F(\bar{v}(w))$. Therefore, conditional on the wage and the realized attribute x, the acceptance rate in period 2 is

$$\begin{aligned} P(acc|w,x) &= \int_0^{\bar{v}(w)} P(\varepsilon < w-v+x)\, \frac{f(v)}{F(\bar{v}(w))} dv \\ &= \int_0^{\bar{v}(w)} G(w-v+x)\, \frac{f(v)}{F(\bar{v}(w))} dv \end{aligned}$$

Now we can establish,

Proposition 6 *a) The conditional acceptance rate $P\left(acc|w,x\right)$ is increasing in x.*

b) The interaction of wages and job attribute x is generally ambiguous. However, if the densities g and f are decreasing, the interaction is negative.

Proof: See Appendix.

This proposition tells us that acceptance rates improve with the realization of good job attributes, and that if high outside options and high quality types are less likely than low ones, then the interaction of attributes and wages is negative. This means higher attributes make less of a difference when wages are high, or alternatively, that wages are particularly useful at mitigating the negative effects of bad job attributes.

6.3.2 Empirics

In Figure 8 we examine whether acceptance decisions are affected by the distance to the municipality (Panel A), drug violence in the municipality (Panel B), and the municipality's degree of human development as measured by the Human Development Index (Panel C). For each characteristic, we use a locally-linear regression to plot the probability that an applicant conditional on being contacted accepted the position, distinguishing between applicants who received the low-wage offers (dashed blue line, confidence intervals in short-dashed blue lines) versus the high-wage offers (solid red line, confidence intervals in dotted red lines).

Among the applicants who were offered a lower wage, we find a strong negative relationship between acceptance rates and the distance of the assigned municipality from the applicant's home municipality, which is consistent with the theoretical prediction in part *a*) of our last proposition. For instance, 80 percent of the applicants who were offered a job in a municipality located less than 100 kilometers away accepted the position across both wage conditions. Among those who were offered a job located more than 200 kilometers away, the acceptance rate fell to 25 percent in the low wage condition. This stands in striking contrast to the case of those in the high wage condition, whose acceptance rates remain around 80 percent even when offered a job located more than 200 km. This suggests a negative interaction between wages and job attributes (wages matter more for worse municipalities), and according to part *b*) of our last proposition it can be rationalized in a world with decreasing densities for reservation wage shocks and quality types.

We find similar patterns when considering either drug-related violence, as measured by the number of drug-related deaths per 1000 inhabitants, or the municipality's human development score. In both cases worse conditions cause lower acceptance rates, and this difference is strongly mitigated by high wage offers.[46]

[46]The results for the number of drug-related deaths per 1000 inhabitants are measured with less precision.

In Table 9, we present the regression counterparts to the results displayed in Figure 8. Each column presents regression coefficients from estimating variants of the model presented in equation 3, where the dependent variable equals 1 if the applicant accepted the offer, conditional on being re-contacted. In columns 1-3 we estimate separately the effects for each of the three municipality characteristics and its interaction with the treatment indicator; in column 4 we jointly estimate the effects of all three municipal characteristics. The specifications estimated in columns 1-4 are conditional on individuals who were successfully re-contacted since otherwise the individual would not know to which municipality he or she had been assigned. These estimates must be interpreted with care since those who are re-contacted do not constitute a random sample. However, this potential selection will most likely dampen the estimated effects: if those who made an effort to be reached are the ones with a stronger interest in the job, they should display less elastic responses to wage and job conditions. Moreover, it might be argued that the estimates in columns 1-4 are exactly the estimates of interest from the standpoint of the recruiter, as they are uncontaminated by the response of individuals who are unreachable and therefore unrecruitable.

The findings presented in Table 9 are consistent with the patterns depicted in Figure 8. The direct effects presented in Table 9 provide causal estimates of the effects of the work environment on the ability to recruit. In addition, the interaction effects show that the wage increase in the RDP largely compensated for the less desirable job conditions. For instance, the point estimates in column 1 suggest that while 10 extra kilometers of commuting distance reduced acceptance rates by 2.7 percentage points for those offered the low wage, distance had virtually no effect on the acceptance decisions of those offered a high wage. A similar calculation can be made with respect to drug-related deaths and the Human Development Index. An extra death per 1000 inhabitants (column 2) reduces acceptances by around 10 percentage points among the applicants offered the low wage. For those offered the higher wage, an extra death per 1000 inhabitants only reduces acceptance rates by 2.2 percentage points. Shifting a job from the municipality with the highest Human Development Index value (0.78) to that with the lowest (0.44) lowers acceptance rates by around 50 percentage points, and again the effect of the wage increase is sufficient to undo the effect of the worse municipal environment. When we estimate the effects of all three characteristics jointly, we find that the differential effect by drug violence falls in magnitude and loses precision (see column 4). Overall, these estimates demonstrate that the municipal environment has substantial effects on the cost of doing business facing an employer.

As a way to gauge sensitivity to the exclusion of the candidates who could not be reached, in column 5 we re-estimate the specification presented in column 4 using the entire sample. This specification preserves the experimental design and except for the addition of municipal characteristics (and the interaction terms) it is similar to the regressions presented in Table 8, in which we estimate the effects on recruitment. In this context, this specification implicitly assumes that candidates who were not reached still learned the job conditions. This assumption is obviously inaccurate and is likely to attenuate the findings in columns 1-4. As shown in column 5, while the point estimates do attenuate slightly, the effects remain quite similar.

One may wonder about why high wage offers do not shift acceptance rates up for all levels of job attributes including the very best. Note that our last proposition 6 does not make a prediction about the level effects of wages, only on the effects of job attributes and their interaction with wages. As was made clear in proposition $5b$, the level effects of wages on acceptance rates are ambiguous in the presence of selection effects.

Overall these findings highlight the importance of financial incentives in not only attracting qualified individuals but also inducing them to work in hard-to-fill positions.

7 Conclusion

In June of 2011, Mexico's federal government set out to hire 350 public servants. These individuals were to work in a program designed to strengthen the state's presence in some of the country's most marginalized communities. As part of the recruitment process, two different wage offers were randomly assigned across recruitment sites, and applicants were administered a screening test designed to measure their cognitive and non-cognitive traits, as well as their motivations and inclination towards public service. Based on the experimental design, we show that offering higher wages attracts individuals with higher previous earnings, and who have both higher IQ and more desirable personality traits, as measured by the Big 5 personality and public service motivation tests.

These novel findings have implications for policy that ultimately depend on the screening capabilities of the state. On the one hand, in places where the ability of the state to screen candidates is low, finding instruments that improve the average quality of the applicant pool would be useful. On the other hand, if the state's ability to screen candidates is high, then costly instruments (such as high wages) would be attractive only if they extend the support and/or affect the upper tail of the quality distribution. We find that wages favorably impact the upper tail of the quality distribution, and they do so without lowering the public sector inclination of applicants. In other words, we do not find a tradeoff between quality in terms of features valued by the market and public service motivation. Of course, whether a tradeoff would have occurred at different levels of wage offerings or different job types remains an interesting area for future research.

The power of wages is not limited to attracting a larger and better applicant pool. Higher wages also increase the state's ability to fill vacancies. We estimate what we believe to be the first experiment-based elasticity of the labor supply curve facing a firm or government. We show, consistent with a large non-experimental literature, that the labor supply facing an employer is far from infinitely elastic, with an elasticity of 2.15. It is worth noting that this is a short run elasticity which may be reduced once competitors adjust, and which may also change as the RDP reaches its employment steady state.

Presumably, the wage is not the only aspect of a job that influences a person's willingness to accept the position. Our findings highlight the importance of other job attributes in the acceptance decision. Distance and bad characteristics of the municipal environment appear to be important hurdles to filling vacancies. Fortunately, higher wages appear to be an effective instrument to overcome these hurdles. These causal estimates allow us to quantify the effects on the cost of doing business of the general socioeconomic environment facing employers.

Our findings have important implications for those concerned with the development of state capabilities. Attracting individuals with the characteristics valued by markets and personnel specialists is probably a necessary first step towards building a competent public bureaucracy. However, our results do not necessarily imply that those who appear to be more able individuals will perform better once hired in the context of a program like the RDP–more research is certainly needed. Hopefully our approach offers a blueprint that can be combined in the future with the measurement of bureaucratic performance and impact.

References

Acemoglu, D. (2005, October). Politics and economics in weak and strong states. *Journal of Monetary Economics 52*(7), 1199–1226.

Almlund, M., A. L. Duckworth, J. J. Heckman, and T. Kautz (2011, February). Personality psychology and economics. IZA Discussion Papers 5500, Institute for the Study of Labor (IZA).

Anderson, J., S. Burks, C. DeYoung, and A. Rustichini (2011). Toward the integration of personality theory and decision theory in the explanation of economic behavior. *Unpublished*.

Anderson, M. L. (2008). Multiple inference and gender differences in the effects of early intervention: A reevaluation of the abecedarian, perry preschool, and early training projects. *Journal of the American Statistical Association 103*(484), 1481–1495.

Arias, L. M. (2008). A theory of the origins of coercive enforcement: The provision of public goods in colonial mexico. Technical report, University of California, San Diego.

Barrick, M. R. and M. K. Mount (1991). The big five personality dimensions and job performance: A meta-analysis. *Personnel Psychology 44*(1), 1–26.

Ben-Ner, A. and A. Kramer (2011). Personality and altruism in the dictator game: Relationship to giving to kin, collaborators, competitors, and neutrals. *Personality and Individual Differences 51*(3), 216 – 221.

Ben-Ner, A. and O. Levy (2004). Economic and hypothetical dictator game experiments: Incentive effects at the individual level. *Unpublished*.

Benet-Martínez, V. and O. P. John (1988). Los cinco grandes across cultures and ethnic groups: Multitrait method analyses of the big five in spanish and english. *Journal of Personality and Social Psychology 75*(3), 729–750.

Besley, T. and T. Persson (2009, September). The origins of state capacity: Property rights, taxation, and politics. *American Economic Review 99*(4), 1218–44.

Besley, T. and T. Persson (2010, 01). State capacity, conflict, and development. *Econometrica 78*(1), 1–34.

Blau, F. D. and L. M. Kahn (2006, October). The u.s. gender pay gap in the 1990s: slowing convergence. *Industrial and Labor Relations Review 60*(1), 45–66.

Bright, L. (2005). Public employees with high levels of public service motivation. *Review of Public Personnel Administration 25*(2), 138–154.

Chamorro-Premuzic, T. and A. Furnham (2003). Personality predicts academic performance: Evidence from two longitudinal university samples. *Journal of Research in Personality 37*(4), 319–338.

Cunha, F., J. J. Heckman, and S. M. Schennach (2010, 05). Estimating the technology of cognitive and noncognitive skill formation. *Econometrica 78*(3), 883–931.

Delfgaauw, J. and R. Dur (2007, April). Signaling and screening of workers' motivation. *Journal of Economic Behavior & Organization 62*(4), 605–624.

Dohmen, T., A. Falk, D. Huffman, and U. Sunde (2008, 01). Representative trust and reciprocity: Prevalence and determinants. *Economic Inquiry 46*(1), 84–90.

Evans, P. and J. E. Rauch (1999). Bureaucracy and growth: A cross-national analysis of the effects of "weberian" state structures on economic growth. *American Sociological Review 64*(5), pp. 748–765.

Evans, P. B. (1995). Princeton, NJ: Princeton University Press.

Falch, T. (2011, May). Teacher mobility responses to wage changes: Evidence from a quasi-natural experiment. *American Economic Review 101*(3), 460–65.

Fehr, E. and L. Goette (2007, March). Do workers work more if wages are high? evidence from a randomized field experiment. *American Economic Review 97*(1), 298–317.

Fortin, N., T. Lemieux, and S. Firpo (2011, October). *Decomposition Methods in Economics*, Volume 4 of *Handbook of Labor Economics*, Chapter 1, pp. 1–102. Elsevier.

Francois, P. (2000, November). 'public service motivation' as an argument for government provision. *Journal of Public Economics 78*(3), 275–299.

Goldberg, J. (2010). Kwacha gonna do? experimental evidence about labor supply in rural malawi. *Mimeo*.

Hall, R. E. and A. B. Krueger (2010, May). Evidence on the determinants of the choice between wage posting and wage bargaining. NBER Working Papers 16033, National Bureau of Economic Research, Inc.

Handy, F. and E. Katz (1998). The wage differential between nonprofit institutions and corporations: Getting more by paying less? *Journal of Comparative Economics 26*(2), 246 – 261.

Heckman, J. J., L. Malofeeva, R. Pinto, and P. A. Savelyev (2010). Understanding the mechanisms through which an influential early childhood program boosted adult outcomes. *Unpublished manuscript*.

Heckman, J. J., J. Stixrud, and S. Urzua (2006, July). The effects of cognitive and noncognitive abilities on labor market outcomes and social behavior. *Journal of Labor Economics 24*(3), 411–482.

Hough, L. M. and D. S. Ones (2002). *The Structure, Measurement, Validity, and use of Personality Variables in Industrial, Work, and Organizational Psychology.*

John, O. P. (1990). *The "Big Five" factor taxonomy: Dimensions of personality in the natural language and in questionnaires.*, pp. 66–100. New York, NY: Guilford Press.

John, O. P., A. Caspi, R. W. Robins, T. E. Moffitt, and M. Stouthamer-Loeber (1994). The "little five": Exploring the nomological network of the five-factor model of personality in adolescent boys. *Child Development 65*(1), pp. 160–178.

John, O. P., L. P. Naumann, and C. J. Soto (2008). *Paradigm Shift to the Integrative Big-Five Trait Taxonomy: History, Measurement, and Conceptual Issues.* New York, NY: Guilford Press.

Judge, Timothy, C. H. C. T. and M. Barrick (1999). The big five personality traits, general mental ability, and career success across the life span. *Personnel Psychology 52*, 621–652.

Kasser, T. and R. M. Ryan (1996). Further examining the american dream: Differential correlates of intrinsic and extrinsic goals. *Personality and Social Psychology Bulletin 22*, 280–287.

Lang, K. (1991, February). Persistent wage dispersion and involuntary unemployment. *The Quarterly Journal of Economics 106*(1), 181–202.

Manning, A. (2011, October). *Imperfect Competition in the Labor Market*, Volume 4 of *Handbook of Labor Economics*, Chapter 11, pp. 973–1041. Elsevier.

McCrae, R. and P. Costa (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology 52*, 81–90.

McCrae, R. and P. Costa (1990). *Personality in adulthood.* New York, NY: Guilford Press.

McCrae, R. and P. Costa (1992). *NEO PI-R professional manual.* Odessa, FL.: Psychological Assessment Resources, Inc.

Mueller, G. and E. Plug (2006). Estimating the effect of personality on male and female earnings. *Industrial and Labor Relations Review 60*(1), pp. 3–22.

Naff, K. C. and J. Crum (1999). Working for america. *Review of Public Personnel Administration 19*(4), 5–16.

Nyhus, E. K. and E. Pons (2005, June). The effects of personality on earnings. *Journal of Economic Psychology 26*(3), 363–384.

Park, S. M. and H. G. Rainey (2008). Leadership and Public Service Motivation in U.S. Federal Agencies. *International Public Management Journal 11*(1).

Pearson (1998). *Raven's Advanced Progressive Matrices (APM).* San Antonio, Texas: Pearson Education, Inc.

Perry, J. (1996). Measuring public service motivation: An assessment of construct reliability and validity. *Journal of Public Administration Research and Theory 6*(1), 5–22.

Perry, J. and A. Hondeghem (2008). *Motivation in public management: the call of public service*. Oxford University Press.

Perry, J. L. and L. R. Wise (1990). The Motivational Bases of Public Service. *Public Administration Review 50*(3), 367–373.

Persico, N., A. Postlewaite, and D. Silverman (2004, October). The effect of adolescent experience on labor market outcomes: The case of height. *Journal of Political Economy 112*(5), 1019–1053.

Petrovsky, N. (2009). Does public service motivation predict higher public service performance? a research synthesis. *Mimeo*.

Prendergast, C. (2007, March). The motivation and bias of bureaucrats. *American Economic Review 97*(1), 180–196.

Rauch, J. E. (1995). Bureaucracy, infrastructure, and economic growth: Evidence from u.s. cities during the progressive era. *The American Economic Review 85*(4), pp. 968–979.

Ritz, A. (2009). Public service motivation and organizational performance in swiss federal government. *International Review of Administrative Sciences 75*(1), 53–78.

Roberts, B. W. (2006). *Research in Organizational Behavior*, Volume 24, Chapter 1, pp. 1–41. Elsevier.

Roberts, B. W., N. R. Kuncel, R. Shiner, A. Caspi, and L. R. Goldberg (2007, December). The Power of Personality: The Comparative Validity of Personality Traits, Socioeconomic Status, and Cognitive Ability for Predicting Important Life Outcomes. *Perspectives on Psychological Science 2*(4), 313–345.

Roberts, B. W. and D. Mroczek (2008). Personality trait change in adulthood. *Current Directions in Psychological Science 17*(1), 31–35.

Rotolo, T. and J. Wilson (2006). Employment sector and volunteering: The contribution of nonprofit and public sector workers to the volunteer labor force. *Sociological Quarterly 47*(1), 21–40.

Rubalcava, L. and G. Teruel (2008). User's guide for the Mexican family life survey second wave.

Salgado, J. F. (1997). The five factor model of personality and job performance in the european community. *Journal of Applied Psychology 82*(1), 30–43.

Schmidt, F. and J. Hunter (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological Bulletin 124*(2), 262–274.

Staiger, D. O., J. Spetz, and C. S. Phibbs (2010, 04). Is there monopsony in the labor market? evidence from a natural experiment. *Journal of Labor Economics 28*(2), 211–236.

Steijn, B. (2008). Person-Environment Fit and Public Service Motivation. *International Public Management Journal 11*(1), 13–27.

Störmer, S. and R. Fahr (2010, May). Individual determinants of work attendance: Evidence on the role of personality. IZA Discussion Papers 4927, Institute for the Study of Labor (IZA).

Sullivan, D. (1989, October). Monopsony power in the market for nurses. *Journal of Law & Economics 32*(2), S135–78.

VandenBos, G. and A. P. Association (2007). *A.P.A. dictionary of psychology*. American Psychological Association.

Weber, M. (1904-1911). New York: Bedminster.

Weiss, A. (1980, June). Job queues and layoffs in the labor markets with flexible wages. *Journal of Political Economy 88*, 526–38.

A Theory appendix

Proof of Proposition 2. a) v **and** π **independent:** infinite pairs (v, π) satisfying,

$$v = -c + G(w+\pi-v)(w+\pi) + [1 - G(w+\pi-v)][v + E(\varepsilon|\varepsilon > w+\pi-v)], \tag{6}$$

define types who are indifferent between applying and not. The implicit function theorem guarantees that a continuous function $\bar{v}(\pi)$ exists, mapping the PSM parameter to the highest quality type $\bar{v}$ that will choose to enter the applicant pool. Rewrite (6) as returns to entry net of expected outside opportunity: $-c + G(w+\pi-v)(w+\pi-v) + \int\limits_{w+\pi-v}^{\infty} \varepsilon g(\varepsilon) d\varepsilon = 0$, from which it is clear $\frac{d\bar{v}}{d\pi} = 1$. From proposition 1, if $\pi = 0$, then $\bar{v} > 0$. Thus, the function $\bar{v}(\pi)$ can be written as $\bar{v} = a + \pi$, with $a > 0$ (a depends on w, c and $\int\limits_{w-v}^{\infty} \varepsilon g(\varepsilon) d\varepsilon$). Invertibility yields $\bar{\pi} = v - a$. To see the second part of the statement in a), consider the indifferent type (v^i, π^i). The claim is a type (v^i, π') would strictly prefer to enter if $\pi' > \pi^i$. Suppose not. Then net returns to entry must be negative: $-c + G(w+\pi'-v^i)(w+\pi'-v^i) + \int\limits_{w+\pi'-v^i}^{\infty} \varepsilon g(\varepsilon) d\varepsilon < 0$. Then, by virtue of $\pi' > \pi^i$ and net returns being increasing in π (the derivative of the net returns with respect to π is just $G(.) > 0$), we must have $-c + G(w+\pi^i-v^i)(w+\pi^i-v^i) + \int\limits_{w+\pi^i-v^i}^{\infty} \varepsilon g(\varepsilon) d\varepsilon < 0$, which is a contradiction. Similar logic proves the rest of the statement.

b) v **and** π **positively correlated:** given $v = m(\pi)$, a type π is indifferent between paying the cost c and not iff,

$$m(\pi) = -c + G(w+\pi-m(\pi))(w+\pi) + [1 - G(w+\pi-m(\pi))][m(\pi) + E(\varepsilon|\varepsilon > w+\pi-m(\pi))]. \tag{7}$$

To prove statement b) we need the LHS of (7) to be smaller (larger) than the RHS for $\pi \leq \bar{\pi}$ ($> \bar{\pi}$). A sufficient condition for this is that the LHS have a smaller intercept and a steeper slope than the RHS. For lower intercept we need,

$$m(0) < -c + G(w-m(0))w + [1 - G(w-m(0))][m(0) + E(\varepsilon|\varepsilon > w-m(0))],$$

which obtains whenever $w - c > m(0)$. The LHS has a steeper slope than the RHS iff $\frac{dm}{d\pi} > G(.) + [1 - G(.)]\frac{dm}{d\pi}$ or $\frac{dm}{d\pi} > 1$.■

Proof of proposition 3. a) In the independent case the function mapping π to the highest quality type who applies is characterized implicitly by (6), and it depends on w, so we write $\bar{v}(\pi, w) = a(w) + \pi$. Showing this function increases in w will establish statement

a) for the independent case. By invertibility $\bar{\pi}(v,w) = v - a(w)$, so the same proof will establish statement b). Rewriting (6) in the implicit function, differentiating wrt w and canceling terms, we get $\frac{d\bar{v}}{dw} = 1 > 0$, which proves a) and b) for the independent case.

In the positively correlated case, we can simultaneously prove the statements in a) and c) by showing that the indifferent type $\bar{\pi}$ increases in w yielding that $\bar{v} = m(\bar{\pi})$ must also increase by virtue of m being increasing (recall $\bar{\pi}$ is the locus where $m(\pi)$ cuts the RHS of (7) from below). Again, it is easily seen the implicit function $\bar{\pi}(w)$ exists as characterized by (7). Writing this expression in the implicit function, differentiating with respect to w and rearranging, we get,

$$\frac{dm}{d\bar{\pi}}\frac{d\bar{\pi}}{dw} = G(.) + \frac{d\bar{\pi}}{dw}\left\{G + \frac{dm}{d\pi}(1-G)\right\} \tag{8}$$

$$\frac{d\bar{\pi}}{dw} = \frac{1}{\frac{dm}{d\bar{\pi}} - 1} > 0 \tag{9}$$

where the inequality follows from the assumption $\frac{dm}{d\pi} > 1$.■

Proof of Lemma 1: The following argument proves the three statements. If $\varepsilon + v > w$ the individual knows he does not want the job and will never pay c_2. Thus, for every type v, a share $1 - G(w-v)$ immediately decides not to pay; of these, a share $\underline{\rho}$ will be recontacted and receive an offer that they will reject. If, on the contrary, $\varepsilon + v < w$, the individual would prefer to receive an offer. But whether paying c_2 is worthwhile is not obvious. For every type v in the applicant pool, the share $G(w-v)$ of individuals who want a public sector job will pay c_2 iff $-c_2 + \bar{\rho}w + (1-\bar{\rho})(v+\varepsilon) > \underline{\rho}w + \left(1-\underline{\rho}\right)(v+\varepsilon)$, or equivalently, iff $\varepsilon < w - v - \frac{c_2}{\Delta\rho}$.■

Proof of proposition 4: The entry condition is $v \leq \psi\left(v, w, \underline{\rho}, \bar{\rho}, c_1, c_2\right)$, where $\psi\left(v, w, \underline{\rho}, \bar{\rho}, c_1, c_2\right)$ equals,

$$-c_1 + G(w-v)\left\{\underline{\rho}w + \left(1-\underline{\rho}\right)[v + E(\varepsilon|\varepsilon < w-v)]\right\} + [1 - G(w-v)][v + E(\varepsilon|\varepsilon > w-v)] +$$
$$+ G\left(w - v - \frac{c_2}{\Delta\rho}\right)\left\{-c_2 + \Delta\rho\left[w - v - E\left(\varepsilon|\varepsilon < w - v - \frac{c_2}{\Delta\rho}\right)\right]\right\}.$$

Note that the first line of ψ is isomorphic to that in the problem with a fixed recontacting rate $\rho = \underline{\rho}$. Hence, the assumption $\underline{\rho}w > c_1$ will be sufficient to ensure the top line of ψ is positive. The term in curly brackets in the second line is necessarily positive, since the cost c_2 is only paid whenever $\varepsilon < w - v - \frac{c_2}{\Delta\rho}$. In other words, the option to later pay a cost c_2 and raise the chance of recontacting when ε is extremely low can only help the expected value of entry that is attained by paying c_1 now. It follows that the assumption $\underline{\rho} w > c_1$ is sufficient to ensure the function $\psi(v)$ has a positive intercept. Thus, if $\psi'(v) < 1$, an equilibrium with entry in the model with variable recontacting rates is guaranteed. But is $\psi'(v) < 1$ true? Note by isomorphism of first line of ψ with case with fixed ρ, the slope of the first line is $1 - \underline{\rho} G(w - v)$, so $\psi'(v)$ can be computed to satisfy $\psi'(v) = 1 - \underline{\rho} G(w - v) - G\left(w - v - \frac{c_2}{\Delta\rho}\right)\Delta\rho < 1$. To see that the marginal applicant $\bar{v}$ is increasing in w, note that straightworward differentiation of the equality $v = \psi\left(v, w, \underline{\rho}, \bar{\rho}, c_1, c_2\right)$ implies $\frac{d\psi}{dw} > 0$.■

Proof of Proposition 5: a) From lemma 1 and proposition 4, the measure of candidates recruited, and the effective amount of labor supplied is,

$$
\begin{aligned}
R &= S = \left[\begin{array}{c} \bar{\rho}\int_0^{\bar{v}} G\left(w - v - \frac{c_2}{\Delta\rho}\right) f(v)\, dv + \\ \int_0^{\bar{v}} \underline{\rho}\left[G(w - v) - G\left(w - v - \frac{c_2}{\Delta\rho}\right)\right] f(v)\, dv \end{array}\right] \alpha(\varepsilon \leq w - v) + \\
&\quad + \int_0^{\bar{v}} [1 - G(w - v)]\, \underline{\rho}\alpha(\varepsilon > w - v) f(v)\, dv \\
&= \left[\Delta\rho \int_0^{\bar{v}} G\left(w - v - \frac{c_2}{\Delta\rho}\right) f(v)\, dv + \int_0^{\bar{v}} \underline{\rho} G(w - v) f(v)\, dv\right].
\end{aligned}
$$

It is immediate we can write R as the product of the applicant pool size, and the average conversion rate γ across the applicant pool, which depends on recontacting and acceptance rates:

$$
\begin{aligned}
S &= F(\bar{v}) \underbrace{\left\{\left[\Delta\rho \int_0^{\bar{v}} G\left(w - v - \frac{c_2}{\Delta\rho}\right) \frac{f(v)}{F(\bar{v})} dv + \int_0^{\bar{v}} \underline{\rho} G(w - v) \frac{f(v)}{F(\bar{v})} dv\right]\right\}}_{\gamma = conversion\ rate} \\
&= F(\bar{v})\, \gamma(w, \bar{v}).
\end{aligned}
$$

Note we can write the wage elasticity of labor supply S as,

$$
\begin{aligned}
\eta &= \frac{dS}{dw}\frac{w}{S} = \left[f(\bar{v}) \frac{d\bar{v}}{dw} \gamma(w, \bar{v}) + F(\bar{v}) \frac{d\gamma(w, \bar{v})}{dw}\right] \frac{w}{S} \\
&= \xi_{F(\bar{v})} + \xi_{\gamma(w, \bar{v})}.
\end{aligned}
$$

b) Clearly $\xi_{F(\bar{v})} > 0$ from $F' > 0$. Ambiguity of $\xi_{\gamma(w,\bar{v})}$ follows from the fact that although $\frac{d\bar{v}}{dw} > 0$, $\bar{v}$ has ambiguous effects on γ.■

Proof of Lemma 2: Positive, bounded entry is ensured by $\psi(0) > 0$ and $\psi' < 1$, so we show these inequalities hold under the assumptions made.

$\psi(0) > 0$: Tedious algebra shows that the conditional expectations in the entry condition can be written as,

$$
\begin{aligned}
E\left(x|z \leq w-v\right) &= \int\limits_{-\infty}^{\infty} x.h\left(x|z \leq w-v\right)dx \\
&= \frac{1}{J\left(w-v\right)} \int\limits_{-\infty}^{\infty} x.\left(\int_{-\infty}^{w-v} g\left(z+x\right)dz\right)h\left(x\right)dx. \\
E\left[\varepsilon|z \geq w-v\right] &= \int_{-\infty}^{\infty} \varepsilon g\left(\varepsilon|z \geq w-v\right)d\varepsilon \\
&= \frac{1}{1-J\left(w-v\right)} \int_{-\infty}^{\infty} \varepsilon.\left(\int_{w-v}^{\infty} h\left(\varepsilon-z\right)dz\right)g\left(\varepsilon\right)d\varepsilon.
\end{aligned}
$$

Then we can rewrite $\psi\left(v\right)$ in the entry condition as,

$$
\begin{aligned}
\psi &= -c+J_z\left(w-v\right)w+\int\limits_{-\infty}^{\infty} x.\left(\int_{-\infty}^{w-v} g\left(z+x\right)dz\right)h\left(x\right)dx+ \\
&\quad +\left[1-J_z\left(w-v\right)\right]v+\int\limits_{-\infty}^{\infty} \varepsilon.\left(\int_{w-v}^{\infty} h\left(\varepsilon-z\right)dz\right)g\left(\varepsilon\right)d\varepsilon.
\end{aligned}
$$

The value of this expression at $v=0$ is,

$$
\begin{aligned}
&-c+J_z\left(w\right)\left[w+\frac{1}{J\left(w\right)}\int\limits_{-\infty}^{\infty} x.\left(\int_{-\infty}^{w} g\left(z+x\right)dz\right)h\left(x\right)dx\right]+ \\
&+\int\limits_{-\infty}^{\infty} \varepsilon.\left(\int_{w-v}^{\infty} h\left(\varepsilon-z\right)dz\right)g\left(\varepsilon\right)d\varepsilon.
\end{aligned}
$$

The gross value of applying (given by the second and third terms in the latter expression) increases in w, so w high enough guarantees $\psi\left(0\right)>0$ and a positive measure of applicants.

$\psi'<1$: Note that,

$$
\frac{d\psi\left(v\right)}{dv} = -j\left(.\right)w-\int\limits_{-\infty}^{\infty} x.g\left(w-v+x\right)h\left(x\right)dx+j\left(.\right)v+1-J\left(.\right)+\int\limits_{-\infty}^{\infty} \varepsilon.h\left(\varepsilon-w+v\right)g\left(\varepsilon\right)d\varepsilon.
$$

Making the change of variable $x = \varepsilon - w + v$, the last equality becomes,

$$\begin{aligned}\frac{d\psi(v)}{dv} &= 1 - J(.) - j(.)(w-v) + (w-v)\int_{-\infty}^{\infty} g(\varepsilon)\, h(\varepsilon - w + v)\, dx - \\ &\quad - \int_{-\infty}^{\infty} \varepsilon . g(\varepsilon)\, h(\varepsilon - w + v)\, dx + \int_{-\infty}^{\infty} \varepsilon . h(\varepsilon - w + v)\, g(\varepsilon)\, d\varepsilon,\end{aligned}$$

and given $(w-v)\int_{-\infty}^{\infty} g(\varepsilon)\, h(\varepsilon - w + v)\, dx = j(.)$, we get,

$$\frac{d\psi(v)}{dv} = 1 - J(.) < 1,$$

implying there exists a finite, highest type $\bar{v}$ who applies.

To see the marginal type $\bar{v}$ increases in w, note that the applicant pool is determined by the equality $\bar{v}(w) = \psi(\bar{v}(w))$. Totally differentiating,

$$\frac{d\bar{v}}{dw} = \frac{d\psi(v)}{dv}\frac{d\bar{v}}{dw} + \frac{d\psi}{dw},$$

so $\frac{d\bar{v}}{dw}\left(1 - \frac{d\psi(v)}{dv}\right) = \frac{d\psi}{dw}$. It is easy to show that $\frac{d\psi(v)}{dv} = 1 - \frac{d\psi}{dw}$, readily implying $\frac{d\bar{v}}{dw} = 1 > 0$.■

Proof of Proposition 6: a) Note $\frac{dP(acc|w,x)}{dx} = \int_0^{\bar{v}(w)} g(w - v + x)\frac{f(v)}{F(\bar{v}(w))}dv > 0$.

b) Note

$$\begin{aligned}\frac{d^2P(acc|w,x)}{dxdw} &= \frac{f(\bar{v}(w))}{F(\bar{v}(w))}\left[g(w - \bar{v}(w) + x) - \int_0^{\bar{v}(w)} g(w - v + x)\frac{f(v)}{F(\bar{v}(w))}dv\right]\frac{d\bar{v}}{dw} + \\ &\quad + \int_0^{\bar{v}(w)} \frac{dg(w-v+x)}{dw}\frac{f(v)}{F(\bar{v}(w))}dv.\end{aligned}$$

Now consider g increasing (decreasing). Then the term in square brackets is negative (positive), while $\int_0^{\bar{v}(w)} \frac{dg(w-v+x)}{dw}\frac{f(v)}{F(\bar{v}(w))}dv > 0 (< 0)$, and the sign of $\frac{d^2P(acc|w,x)}{dxdw}$ is ambiguous. The term in square brackets reflects changes in the applicant pool driven by self-selection, while the integral $\int_0^{\bar{v}(w)} \frac{dg(w-v+x)}{dw}\frac{f(v)}{F(\bar{v}(w))}dv$ reflects direct effects of wages on acceptance rates by inframarginal types.

To verify that $g' < 0$ and $f' < 0$ yield a negative interaction, assume $g' < 0, f' < 0$ and recall $\frac{dg(w-v+x)}{dw} = -\frac{dg(w-v+x)}{dv}$, and that, from lemma **2**), $\frac{d\bar{v}}{dw} = 1$. Then the interaction is negative iff

$$f\left(\bar{v}\left(w\right)\right)\left[g\left(w-\bar{v}\left(w\right)+x\right)-\int_{0}^{\bar{v}(w)}g\left(w-v+x\right)\frac{f\left(v\right)}{F\left(\bar{v}\left(w\right)\right)}dv\right]<\int_{0}^{\bar{v}(w)}\frac{dg\left(w-v+x\right)}{dv}f\left(v\right)dv.$$

Iterated integration by parts and some rearranging yield,

$$\frac{\int_0^{\bar{v}(w)}f\left(v\right)\frac{dg}{dv}dv}{\int_0^{\bar{v}(w)}F\left(v\right)\frac{dg}{dv}dv}>\frac{f\left(\bar{v}\left(w\right)\right)}{F\left(\bar{v}\left(w\right)\right)}.$$

By virtue of $g'<0$, $\frac{dg}{dv}>0$, and we can write,

$$\frac{\int_0^{\bar{v}}f\left(v\right)\frac{\frac{dg}{dv}}{g(\bar{v})-g(0)}dv}{\int_0^{\bar{v}}F\left(v\right)\frac{\frac{dg}{dv}}{g(\bar{v})-g(0)}dv}>\frac{f\left(\bar{v}\right)}{F\left(\bar{v}\right)}.$$

Note that $\int_0^{\bar{v}}\frac{\frac{dg}{dv}}{g(\bar{v})-g(0)}dv=1$, and therefore for a generic function $\phi\left(v\right)$ we have $\int_0^{\bar{v}}\phi\left(v\right)\frac{\frac{dg}{dv}}{g(\bar{v})-g(0)}dv>$ $(<)\int_0^{\bar{v}}\phi\left(\bar{v}\right)\frac{\frac{dg}{dv}}{g(\bar{v})-g(0)}dv\equiv\phi\left(\bar{v}\right)$ whenever $\phi\left(v\right)$ is decreasing (increasing), yielding the inequality.■

B Data appendix

The data used for this analysis come from two sources. The first is the information that was gathered as part of the recruitment exam. The second source is Mexico's National Statistical Office (Instituto Nacional de Estadística y Geografía), which collects and maintains many of the country's official datasets, including the population censuses. In this section, we describe these data sources and the variables that we use in the analysis.

B.1 Recruitment exam

These data are at the level of the individual. They were collected during a 3-hour exam held at the recruitment sites during a 3 week period in July 2011. We use the following variables from these data:

- *Age* - Age measured in years, constructed from the applicant's birth year
- *Years of schooling* - Measured in years and constructed based on the individual's highest education level. We assumed the following formula: preschool = 3 years; primary education = 6 years; secondary education = 9 years; high school = 12 years; college = 16 years; post-graduate = 20 years.

- *Male* - an indicator equals 1 if person is a male, zero otherwise
- *Height* - Person's self-reported height measured in meters
- *Speaks Indigenous Language* - an indicator equals 1 if person is speaks an indigenous language, zero otherwise
- *Indigenous* - an indicator equals 1 if person self-identifies as being indigenous, zero otherwise
- *Uses Computer* - an indicator equals 1 if person reports knowing how to use a computer, zero otherwise
- *Previous Wage* - Monthly wage the person reported receiving in their last job
- *Employed* - an indicator equals 1 if person reports being currently employed, zero otherwise
- *Raven* - The number correct (out of 12) the person correctly answered in the Raven Progressive Matrices, Set I (source: Pearson)
- *Chose dominated risk option* - an indicator equals 1 if person chose a certain outcome of $2.5 million instead a lottery with equally probable prizes of $2.5 and $5 million, zero otherwise
- *Voted* - an indicator equals 1 if person voted in the last Federal elections, zero otherwise
- *Volunteer* - an indicator equals 1 if person reports having done any volunteer work, zero otherwise
- *Charity* - an indicator equals 1 if person reports having done charity work in the last year, zero otherwise
- *Extravert* -An orientation of one's interests and energies toward the outer world of people and things rather than the inner world of subjective experience; characterized by positive affect and sociability (VandenBos and Association 2007). Computed as the average response to 8 questions from the Big Five Inventory Test.
- *Agreeable* -The tendency to act in a cooperative, unselfish manner (VandenBos and Association 2007). Computed as the average response to 9 questions from the Big Five Inventory Test.

- *Conscientious* - The tendency to be organized, responsible, and hardworking (VandenBos and Association 2007). Computed as the average response to 9 questions from the Big Five Inventory Test.

- *Neurotic* - neuroticism is a chronic level of emotional instability and proneness to psychological distress. Emotional stability is predictability and consistency in emotional reactions, with absence of rapid mood changes (VandenBos and Association 2007). Computed as the average response to 8 questions from the Big Five Inventory Test.

- *Open* - The tendency to be open to new aesthetic, cultural, or intellectual experiences (VandenBos and Association 2007). Computed as the average response to 10 questions from the Big Five Inventory Test.

- *Big 5 Index* - an index of the Big 5 as an equally weighted average of the z-scores of each dimension, reversing neuroticism which is widely considered to be a negative characteristic.

- *PSM Index* - This measure relies on a questionnaire in which the subject must express agreement or disagreement with each of thirty-two statements. The questionnaire elicits opinions on the attractiveness of politics, public service, and prosocial activities. The questionnaire is subdivided into six modules labeled "Attraction to Policy Making" (which includes items such as "Politics is a dirty word"), "Commitment to Policy Making," "Social Justice," "Civic Duty," "Compassion," and "Self-Sacrifice." We then create an weighted average of the z-scores of each dimension.

- *Cooperation* - contribution in a hypothetical voluntary contribution game where the person must decide how much out of $50 to contribute to a joint account, and how much to keep. Money in the joint account is multiplied by a factor of 1:4 and then divided between the two people participating. While the Pareto efficient allocation is to contribute all $50, the Nash equilibrium is to contribute zero.

- *Altruism* - amount the person gave out of $50 in a hypothetical dictator game.

- *Negative reciprocity* - an indicator equals 1 if person would reject an offer of $1 in a hypothetical ultimatum game where the proposer keeps $49.

- *Wealth Important* - One of the 7 components of the Aspiration Index (see Kasser and Ryan (1996). It is intended to measure how important wealth is to the individual. It is constructed based on the average of answers to 5 questions that were asked on a 7-point response scale.

- *Fame important* - One of the 7 components of the Aspiration Index (see Kasser and Ryan (1996). It is intended to measure how important fame is to the individual. It is constructed based on the average of answers to 5 questions that were asked on a 7-point response scale.

- *Integrity (projection bias)* - Constructed based on the following three questions: "If a person found your wallet with $200 Pesos in it, what is the probability that it gets returned to you with all the money in it, if it was found a 1) neighbor; 2) policeman, 3) a stranger". The answers to these three questions are then averaged.

- *Integrity (simple)* - an indicator equals 1 if person agreed with the statement "Laws are meant to be broken", zero otherwise.

B.2 Instituto Nacional de Estadística y Geografía

The following databases were obtained from INEGI (http://www.inegi.org.mx/).

Anuario estadístico - a compilation of municipal-level statistics published on an annual basis by state. The

- *Population* - population size (source: 2005 population census)

- *Infant mortality* - number of infant deaths per 1000 births (source: 2005 population census)

- *Literacy* - share of people 15 years or old who are literate (source: 2005 population census)

- *Income per capita* - average monthly income per capita (source: 2005 population census)

- *Gini* - income inequality (source: 2005 population census)

- *Altitude variation* - standard deviation of altitudes in the municipality (source: Información Geográfica y del Medio Ambiente, a branch of INEGI)

- *Average annual precipitation* - Average annual rainfall in milimeters (source: Información Geográfica y del Medio Ambiente, a branch of INEGI)

- *Narco presence* - an indicator equals 1 if municipality has a drug cartel, zero otherwise

- *Subversion* - an indicator equals 1 if municipality has a subversive group, zero otherwise
- *Corruption* - an indicator equals 1 if municipality has found to have corruption, zero otherwise
- *Marginality index* - an index of the degree of marginality in the municipality (based on a principal commponent analysis of socio-economic factors)
- *Human Development Index* - the human development index constructed from data from Mexico's municipalities
- *Homicides per 100,000 inhabitants* - number of homicides per 100,000 inhabitants

2010 Population census These data are at the level of the locality.

- *Population* - population size of the locality
- *Number of households* - number of households in the locality
- *Share of population between 15-65 years old* - share of the population in the locality between 15-65 years old
- *Share of male population* - share of population in locality that is male
- *Share of indigenous population* - share of population in the locality that is indigenous
- *Illiteracy rate* - share of the population 15 and older who is illiterate
- *Average years of schooling* - Average years of schooling among the adult population in the locality
- *Number of live births per number women* - Number of live persons in 2009 per number of women
- *Employment rate* - The number of individuals employed divided by the number of individuals actively searching for employment in 2009
- *Share of female-headed households* - share of households with a female-head
- *Share of households with access to electricity, water, and sanitation* - share of households with access to electricity, water, and sanitation
- *Share of households with a dirt floor* - share of households with a dirt floor

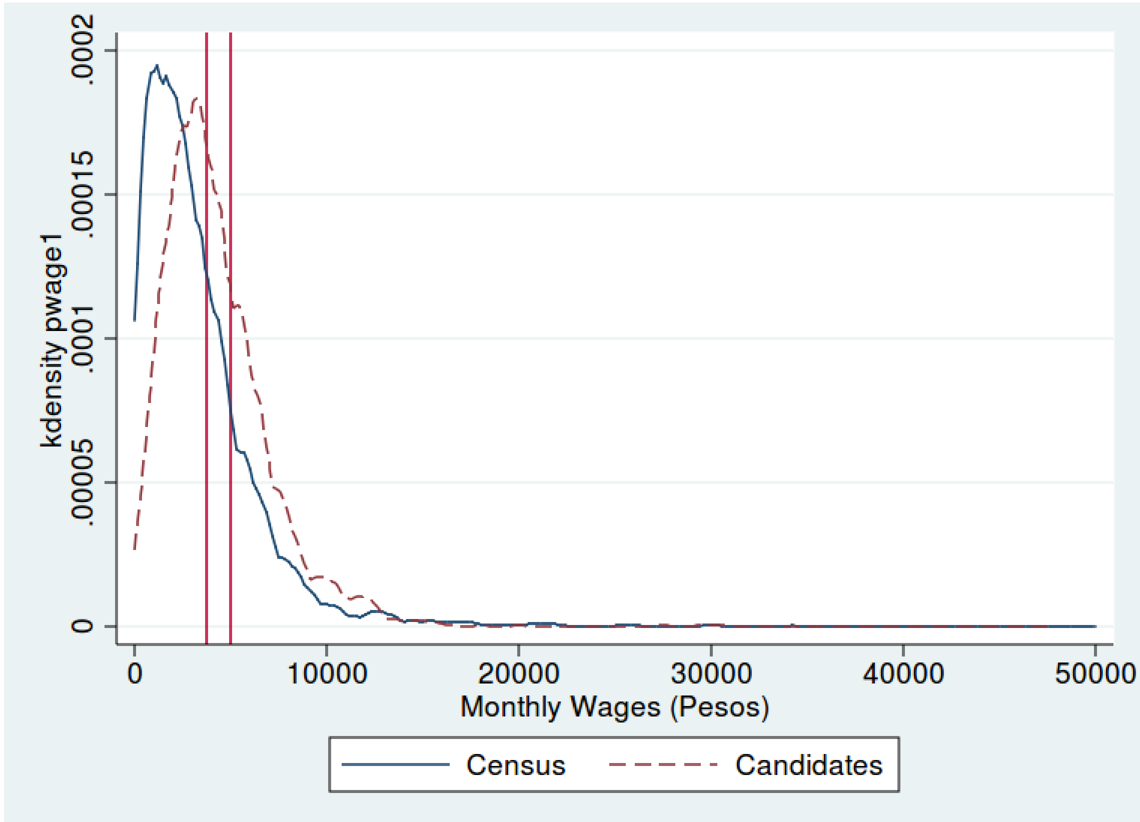


FIGURE 1: DISTRIBUTIONS OF WAGES

Figure Notes: This figure plots the distributions of wages for the applicant pool (dashed line) and the population (solid line) in the 10 regions in which the program is operating. Each density was estimated using an Epanechnikov kernel and an optimal bandwidth. The vertical lines denote the experimental wage offers of 3,750 and 5,000 pesos. The wage data for the population come from the 2010 population census.

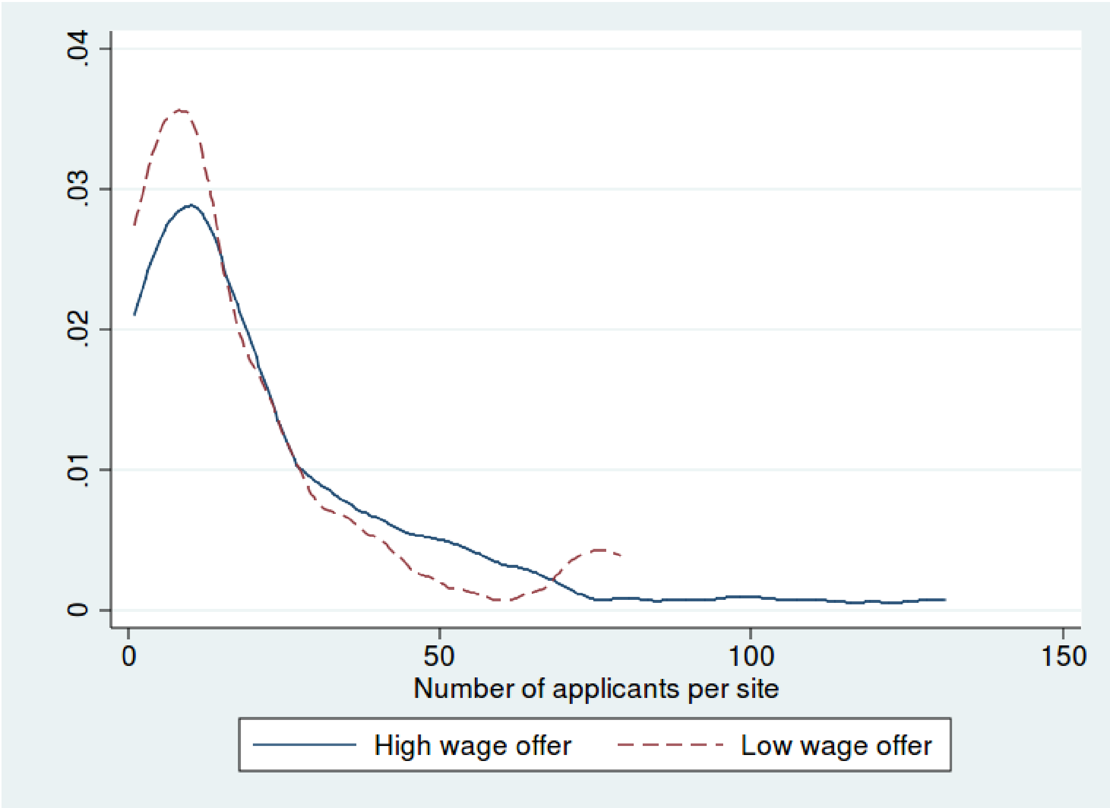
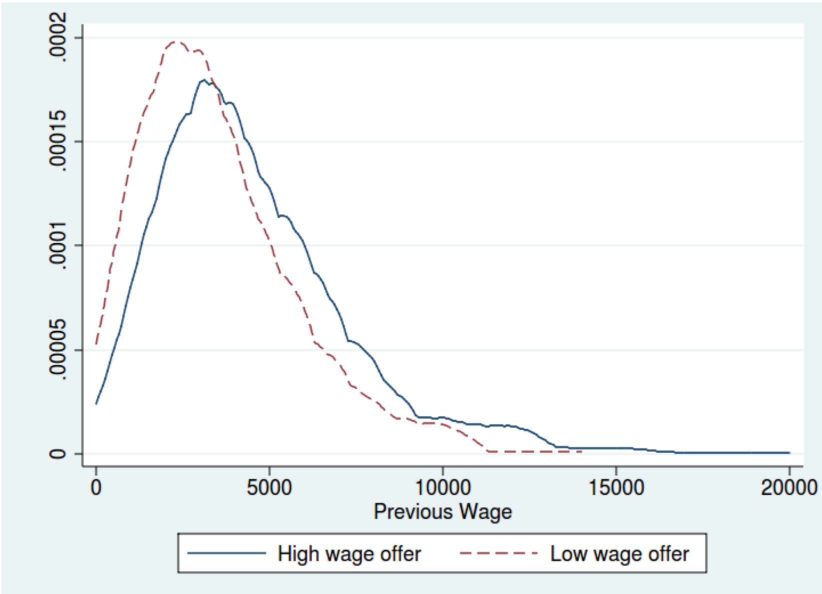
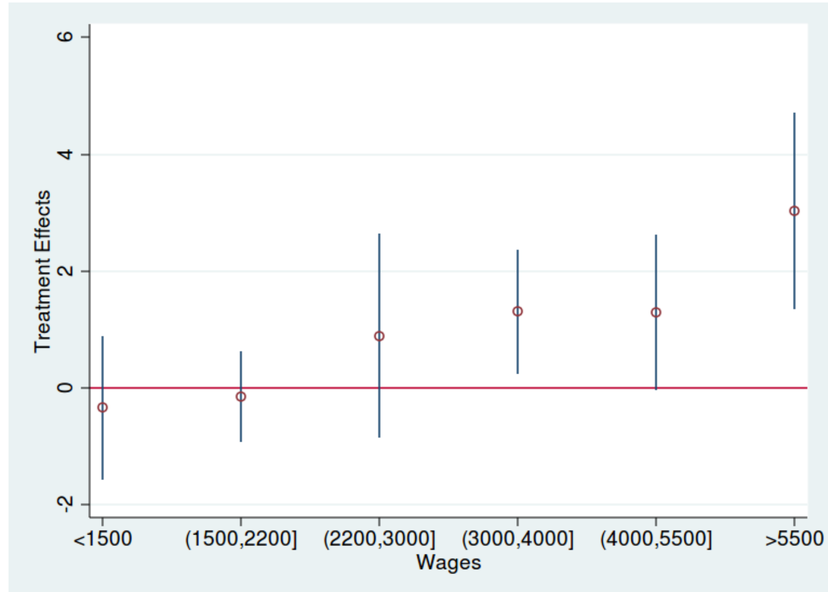


FIGURE 2: NUMBER OF APPLICANTS BY TREATMENT ASSIGNMENT

Figure Notes: Each plot depicts the distributions of applicants by treatment assignment. Each density was estimated using an Epanechnikov kernel and an optimal bandwidth.



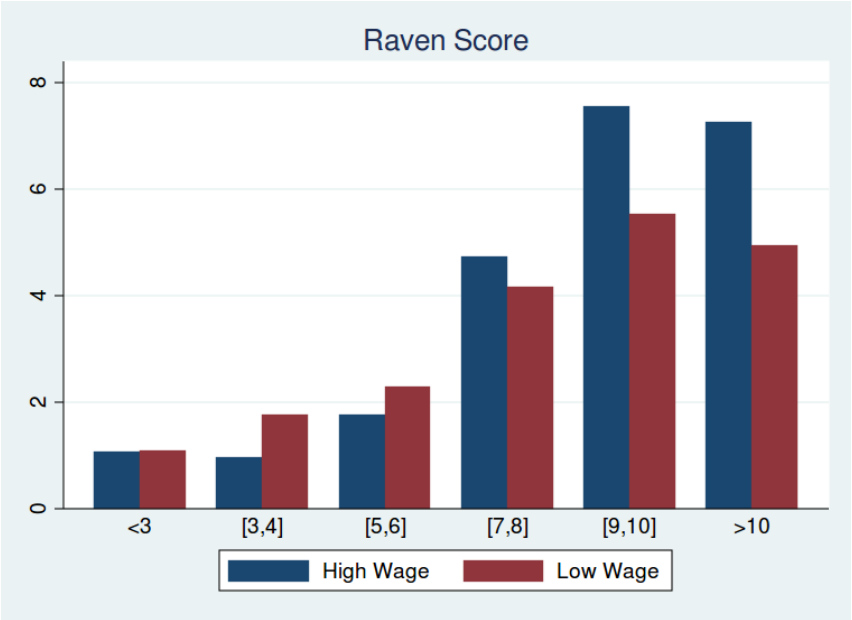
Panel A. Previous Wage Distribution by Treatment Assignment



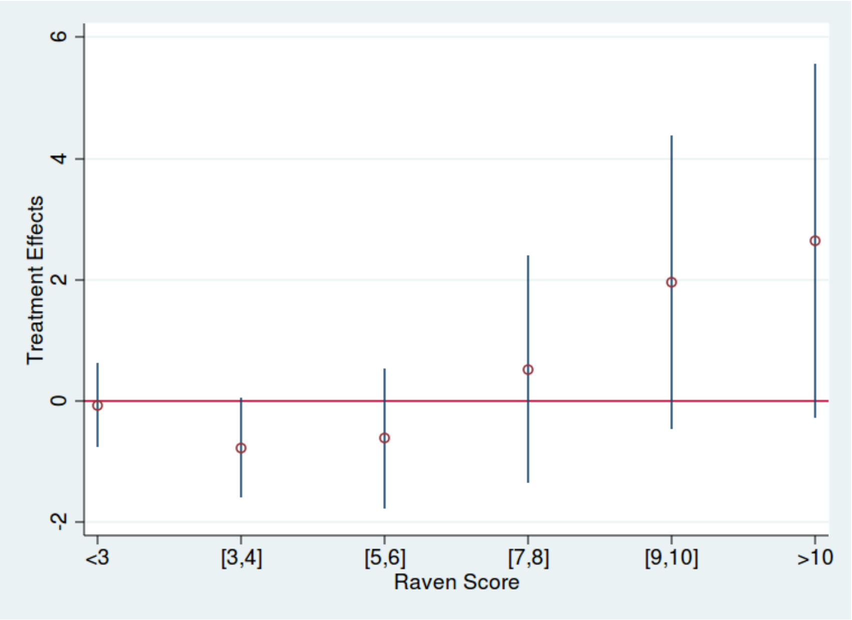
Panel B: Effects of Financial Incentives on the Number of Applicants by Wage Category

FIGURE 3: THE EFFECTS OF FINANCIAL INCENTIVES ON THE APPLICANT POOL – PREVIOUS WAGE

Figure Notes: Panel A depicts the distributions of wages by treatment assignment. Each density was estimated using an Epanechnikov kernel and an optimal bandwidth. Panel B depicts the effects of financial incentives on the average number of applicants per site for different wage categories. The computation of the treatment effects accounts for region intercepts. The vertical bars denote 95 percent confidence intervals. The standard errors are clustered at the locality level.



Panel A. Number of Applicants per Site by Raven's Score and Treatment Assignment



Panel B: Effects of Financial Incentives on the Number of Applicants per Site by Raven's Score

FIGURE 4: THE EFFECTS OF FINANCIAL INCENTIVES ON THE APPLICANT POOL – RAVEN EXAM

Figure Notes: Panel A depicts the distributions of the number of applicants per site by raven's score and treatment assignment. Panel B depicts the effects of financial incentives on the average number of applicants per site for different raven categories. The computation of the treatment effects accounts for region intercepts. The vertical bars denote 95 percent confidence intervals. The standard errors are clustered at the locality level.

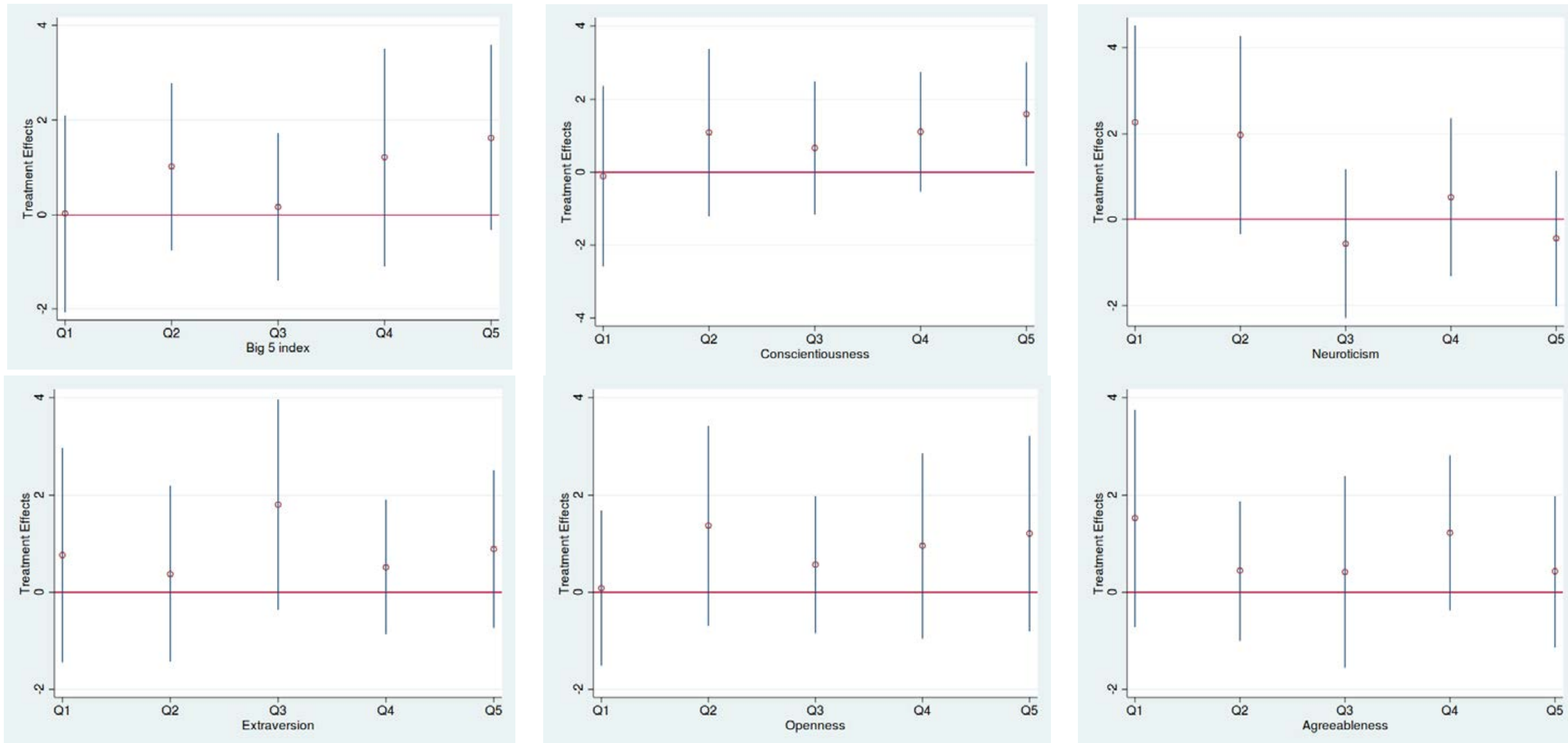


FIGURE 5: THE EFFECTS OF FINANCIAL INCENTIVES ON THE APPLICANT POOL – BIG 5 PERSONALITY TRAITS

Figure Notes: Each plot depicts the effects of financial incentives on the average number of applicants per site grouped by quintiles. The upper left plot depicts the effect for the Big 5 Personality Index, and the remaining plots depict the effects for each of the 5 personality traits separately. The computation of the treatment effects accounts for region intercepts. The vertical bars denote 95 percent confidence intervals. The standard errors are clustered at the locality level.

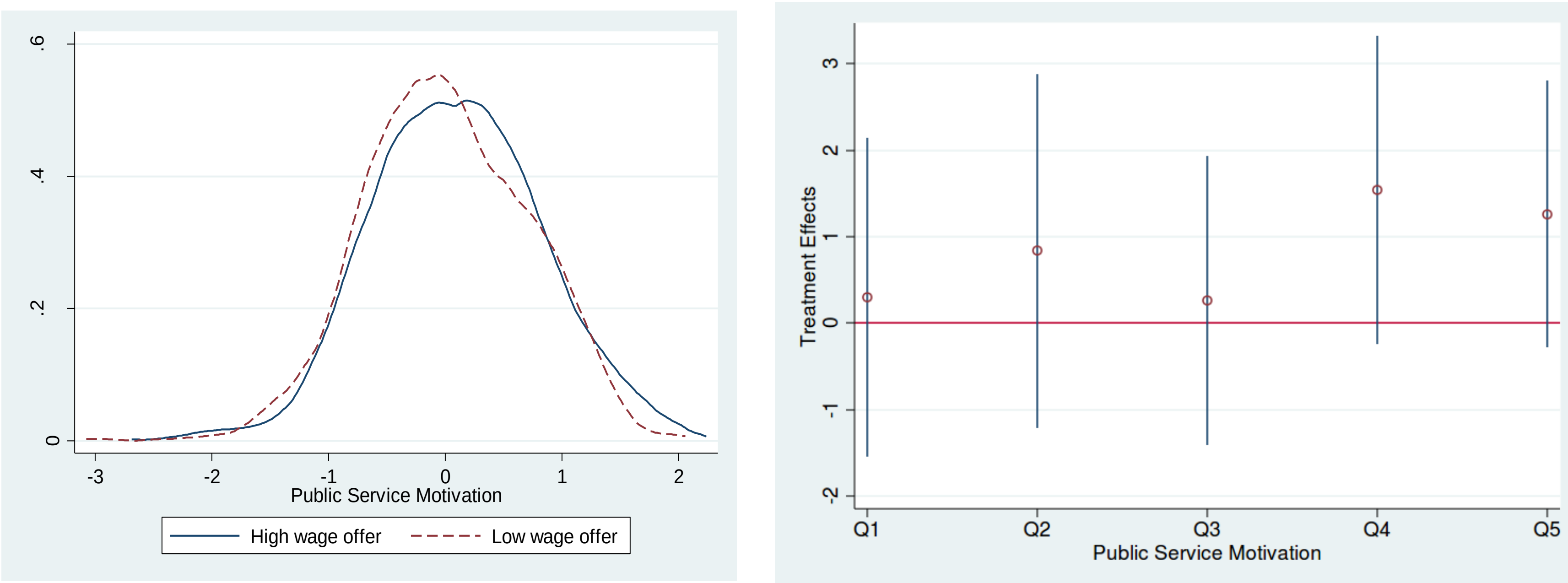


FIGURE 6: THE EFFECTS OF FINANCIAL INCENTIVES ON THE APPLICANT POOL – PUBLIC SERVICE MOTIVATION

<u>Figure Notes:</u> Each plot depicts the effects of financial incentives on the average number of applicants per site grouped by quintiles of the public service motivation index. The computation of the treatment effects accounts for region intercepts. The vertical bars denote 95 percent confidence intervals. The standard errors are clustered at the locality level.

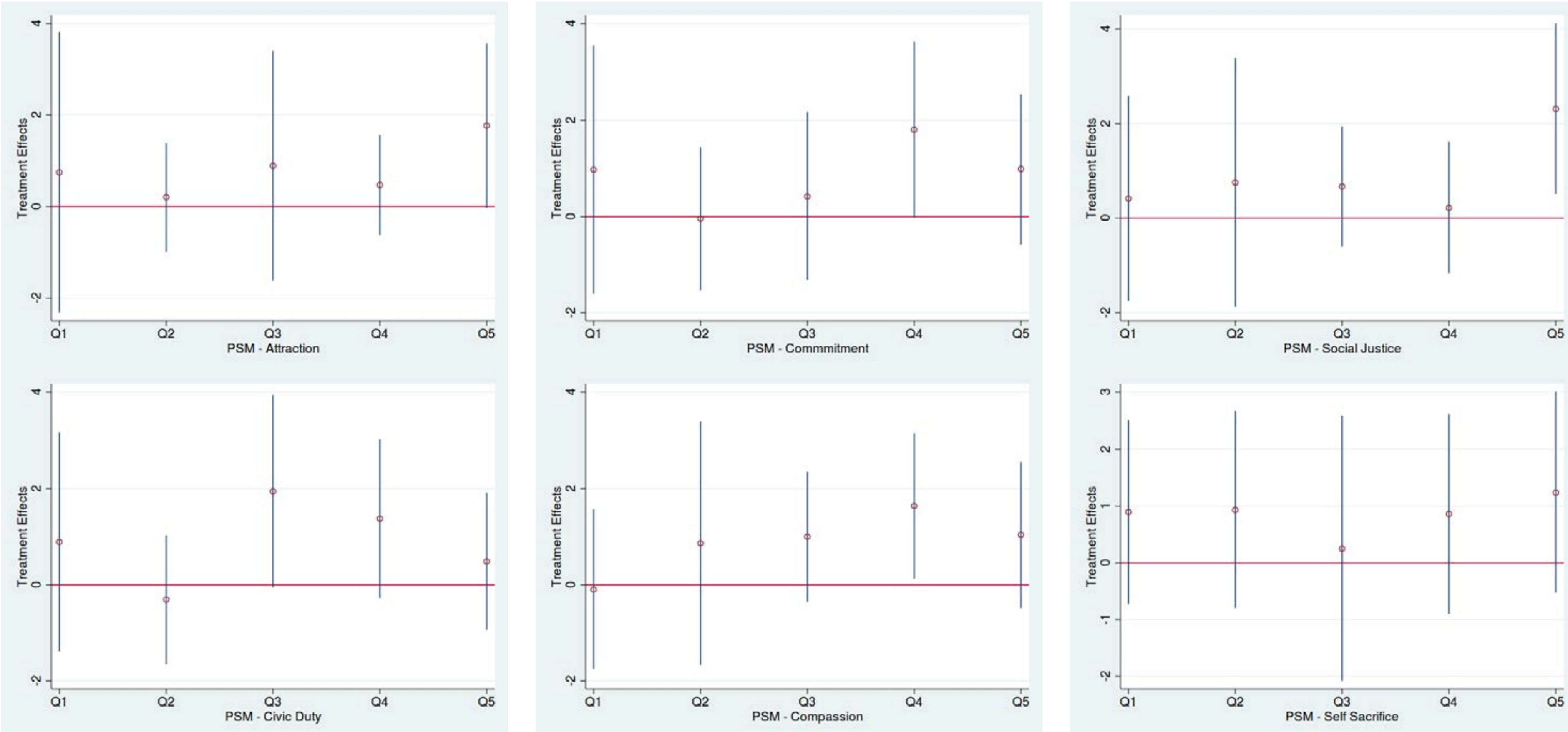
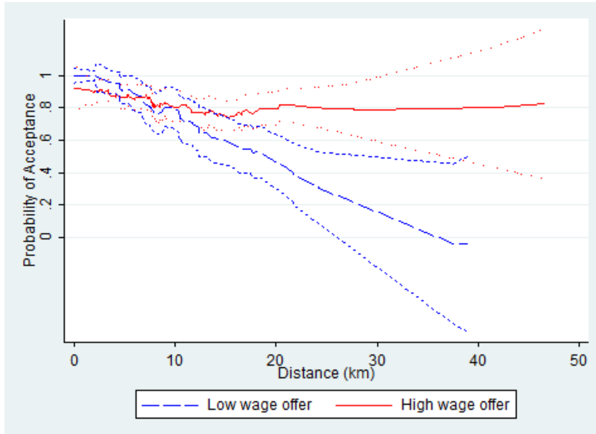
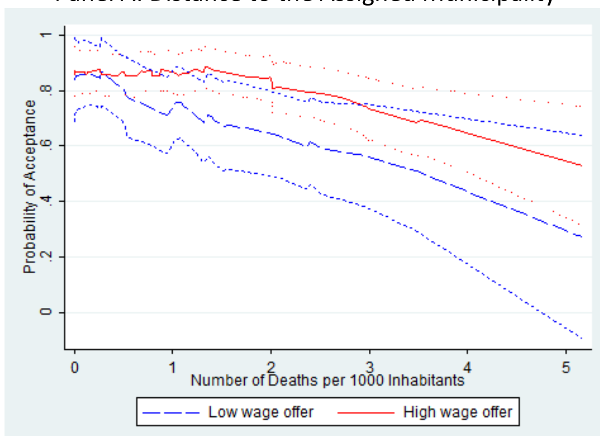


FIGURE 7: THE EFFECTS OF FINANCIAL INCENTIVES ON THE APPLICANT POOL – PUBLIC SERVICE MOTIVATION TRAITS

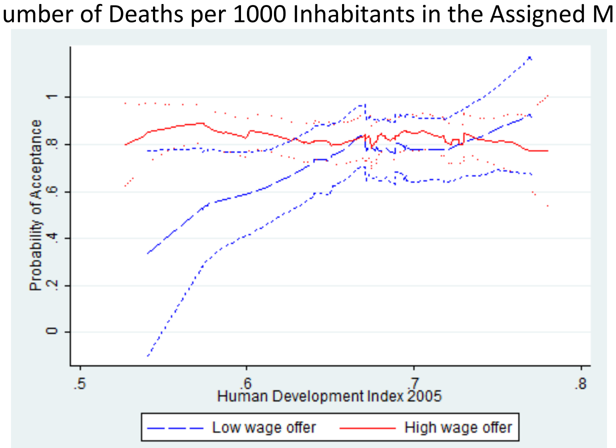
Figure Notes: Each plot depicts the effects of financial incentives on the average number of applicants per site grouped by quintiles. The plots depict the effect for each of the 6 components that measure public service motivation. The computation of the treatment effects accounts for region intercepts. The vertical bars denote 95 percent confidence intervals. The standard errors are clustered at the locality level.



Panel A: Distance to the Assigned Municipality



Panel B: Number of Deaths per 1000 Inhabitants in the Assigned Municipality



Panel C: Human Development Index of the Assigned Municipality

FIGURE 8: THE EFFECTS OF FINANCIAL INCENTIVES ON ACCEPTANCE RATES BY MUNICIPAL CHARACTERISTICS

Figure Notes: Each plot depicts the effects of financial incentives on acceptance rates, by characteristic of the municipality to which the applicant was assigned. Each line was estimated using a locally-linear regression for the sample of applicants who were re-contacted.

Vivir Mejor

ANUNCIO PARA EMPLEO

ESTADOS UNIDOS MEXICANOS

GOBIERNO FEDERAL

El Gobierno Federal, a través del Proyecto para el Desarrollo de Regiones Vulnerables, va a contratar

PROMOTORES SOCIALES

REQUISITOS:

1. SER MEXICANOS (HOMBRES Y MUJERES)
2. MAYORES DE 18 AÑOS
3. DEDICACIÓN DE TIEMPO COMPLETO
4. CON DISPOSICION PARA TRABAJAR Y VIVIR EN COMUNIDADES DE ALTA Y MUY ALTA MARGINACIÓN
5. CAPACES DE EXPRESARSE CLARAMENTE POR ESCRITO Y VERBALMENTE
6. CON BUEN TRATO INTERPERSONAL

RESPONSABILIDADES

El Promotor Social trabajará directamente con las autoridades y los habitantes de municipios de alta y muy alta marginación, proporcionando apoyo para la identificación de necesidades y demandas sociales de la comunidad, facilitando procesos de organización, orientando a la población y sus autoridades sobre las posibilidades de apoyo del gobierno federal para el desarrollo de sus comunidades, y facilitando su vinculación.

$$ SALARIO ATRACTIVO $$

Para registrarte en el proceso de selección y obtener mayores informes sobre el trabajo, llama al

01-800-XXX-XXXX

(teléfono gratuito; no se cobra la llamada)

O escribe al correo electrónico*: XXXX@gmail.com

*Si usted decide escribir un correo electrónico, favor de mencionar su nombre completo, así como el nombre de la localidad en donde usted vio este anuncio.

FECHA LÍMITE PARA REGISTRARTE: Viernes, 4 de junio, 2011, 17 horas

FIGURE A1: THE ANNOUNCEMENT

Table 1. Comparison of RDP Municipalities to the Rest of Mexico

	Non RDP municipalities (1)	RDP municipalities (2)	Difference (3)	Standard error (4)
Population	43659	20456	23202	3306
Infant mortality (deaths x 1000 births)	22.36	32.73	10.37	0.84
Literacy rate (% of literate 15 year olds)	84.19	69.64	14.54	0.91
Human Development Index 2005	0.76	0.67	0.09	0.00
Income per capita 2005 (monthly, Pesos)	6148.55	3663.75	2484.80	120.26
Drug cartel is present	0.29	0.37	-0.08	0.04
Subversive group is present	0.04	0.50	-0.45	0.04
Drug-related deaths per 1000 inhabitants	19.12	16.32	2.80	4.58
Altitude variation (standard deviation)	192.28	340.46	-148.18	12.46
Average annual precipitation (mms^3)	1060.14	1278.91	-218.77	33.17
Observations	2289	167		

Notes: This table compares the mean socio-economic characteristics of the municipalities in the program to those not in the program. Column (1) reports the mean of the corresponding variables among municipalities that are not in the program. Column (2) reports the mean of the corresponding variables among municipalities in the program. Column (3) reports the difference in the mean and column (4) reports the standard error of the difference. Demographic data is from 2005. See the data appendix for more information on the variables including their sources.

Table 2. Validation of the Experimental Design

	Low wage offer (1)	High wage offer (2)	Difference (3)	Randomization inference p-value (4)
Latitude	191833.775	195361.455	3527.680	0.56
			[5,505.608]	
Longitude	988409.100	999524.227	11115.127	0.21
			[7,941.892]	
Altitude (mts.)	732.450	898.242	165.792	0.30
			[158.536]	
Population (logs)	9.219	9.373	0.154	0.67
			[0.331]	
Number of households (logs)	7.825	7.971	0.145	0.71
			[0.335]	
Share of population between 15-65 years old	0.620	0.624	0.004	0.56
			[0.007]	
Share of male population	0.480	0.482	0.002	0.49
			[0.003]	
Share of indigenous population	0.275	0.160	-0.115	0.05
			[0.061]*	
Illiteracy rate	0.104	0.096	-0.008	0.45
			[0.013]	
Average years of schooling	8.335	8.251	-0.084	0.75
			[0.249]	
Number of live births per woman	2.517	2.518	0.001	0.99
			[0.081]	
Employment rate	0.965	0.960	-0.004	0.88
			[0.008]	
Share of female-headed households	0.275	0.265	-0.009	0.28
			[0.008]	
Share of households with access to electricity, water, and sanitation	0.715	0.756	0.040	0.41
			[0.049]	
Share of households with a dirt floor	0.106	0.111	0.005	0.80
			[0.018]	
Number of observations	41	65		

Notes: This table compares the observable characteristics of the localities in which high wage announcements were made to those where the low wage was announced. Column (1) reports the mean of the corresponding variable among localities where a wage offer of 3,750 Pesos per month was announced. Column (2) reports the mean of the corresponding variable among localities where a wage offer of 5,000 Pesos per month was announced. Column (3) reports the difference between the two means, along with the standard errors. Column (4) reports the p-values based on a two-sided test statistic that the placebo coefficients are larger than the actual. The p-values were computed based on 1000 random draws. These data were computed at the locality-level by INEGI based on the 2010 population census. See the data appendix for more information on the variables including their sources. * indicates statistical significance at the 10% level, ** at the 5% level and *** at the 1% level. Robust standard errors are reported in brackets.

Table 3. Summary Statistics of Candidate Pool

	Obs (1)	Mean (2)	Standard deviation (3)	p10 (4)	p50 (5)	p90 (6)
Panel A: Socio-demographic characteristics						
Male	2244	0.60	0.49	0.00	1.00	1.00
Age	2231	27.34	6.89	20.00	26.00	37.00
Height	2191	1.63	0.10	1.50	1.63	1.76
Indigenous	2253	0.40	0.49	0.00	0.00	1.00
Wage in previous job	1584	4276.18	3078.61	1300.00	3800.00	8000.00
Previous job was white collar	1784	0.30	0.46	0.00	0.00	1.00
Currently employed	2250	0.14	0.34	0.00	0.00	1.00
Currently attending school	2252	0.18	0.39	0.00	0.00	1.00
Years of experience in past 3 spells	2237	1.36	2.45	0.00	0.25	4.00
Has work history	2237	0.56	0.50	0.00	1.00	1.00
Panel B: Aptitudes and skills						
Raven's score	2254	8.77	2.69	5.00	9.00	12.00
Years of schooling	2223	14.45	2.45	12.00	16.00	16.00
Chose dominated risk option	2238	0.39	0.49	0.00	0.00	1.00
Panel C: Personality traits						
Conscientiousness	2188	4.28	0.47	3.67	4.33	4.89
Extraversion	2206	3.67	0.55	3.00	3.63	4.38
Openness	2193	3.93	0.49	3.30	4.00	4.60
Agreeableness	2214	4.11	0.43	3.56	4.11	4.67
Neuroticism	2216	2.19	0.53	1.50	2.13	2.88
Big 5 Index	2120	0.05	0.73	-0.87	0.09	0.96
Integrity - Indirect measure	2206	45.01	22.62	13.33	46.67	75.00
Integrity - Direct measure	2248	0.06	0.24	0.00	0.00	0.00
Panel D: Public Service Motivation						
Commitment	2195	3.35	0.59	2.57	3.29	4.14
Social Justice	2204	3.70	0.57	3.00	3.80	4.40
Civic Duty	2183	3.94	0.63	3.14	4.00	4.71
Compassion	2192	3.05	0.55	2.38	3.00	3.88
Self sacrifice	2192	3.72	0.61	3.00	3.75	4.50
Attraction	2242	2.86	0.59	2.00	2.80	3.60
PSM index	2096	0.07	0.72	-0.79	0.05	1.01
Panel E: Prosocial behavior						
Volunteered in the last year	2249	0.71	0.46	0.00	1.00	1.00
Did charity work in the past year	2248	0.54	0.50	0.00	1.00	1.00
Voted in last election	2250	0.76	0.43	0.00	1.00	1.00
Belongs to a political party	2250	0.10	0.30	0.00	0.00	0.00
Altruism	2223	23.52	7.34	20.00	25.00	25.00
Negative Reciprocity	2231	0.55	0.50	0.00	1.00	1.00
Cooperation	2182	26.40	10.71	10.00	25.00	40.00
Importance of wealth	2048	3.22	1.38	1.40	3.20	5.20

Notes: This table reports summary statistics for the applicant pool. Column (1) reports the number of non-missing observations. Column (2) reports the mean of the corresponding variable, and column (3) reports the corresponding standard deviation. Columns (4)-(6) report the 10th, 50th, and 90th percentiles. The statistics are computed based on the responses from the recruitment exam. See the data appendix for more information on the variables including their sources.

Table 4. The Correlates of Previous Earnings

Dependent variable	Log wages							Wages
Data source	Applicants' data				MxFLS	Applicants' data		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Male	0.193	0.141	0.174	0.181	0.132	0.178	0.188	585.822
	[0.040]***	[0.049]***	[0.050]***	[0.050]***	[0.066]**	[0.041]***	[0.041]***	[135.633]***
Experience	0.047	0.047	0.048	0.050	0.077	0.048	0.045	296.641
	[0.008]***	[0.008]***	[0.008]***	[0.008]***	[0.010]***	[0.008]***	[0.008]***	[29.821]***
Experience^2	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-5.419
	[0.000]***	[0.000]***	[0.000]***	[0.000]***	[0.000]***	[0.000]***	[0.000]***	[1.139]***
Education	0.078	0.078	0.078	0.073	0.082	0.071	0.072	287.282
	[0.009]***	[0.009]***	[0.009]***	[0.009]***	[0.011]***	[0.010]***	[0.010]***	[32.790]***
Height		0.390	0.168	0.071	0.561			
		[0.209]*	[0.219]	[0.221]	[0.311]*			
Indigenous			-0.134	-0.120	-0.119	-0.115	-0.106	-645.339
			[0.041]***	[0.041]***	[0.114]	[0.040]***	[0.041]**	[132.242]***
IQ				0.025	0.055	0.022	0.022	93.558
				[0.008]***	[0.011]***	[0.008]***	[0.008]***	[26.201]***
Big 5 Personality Traits								
Extrovert						-0.092	-0.078	-122.038
						[0.039]**	[0.038]**	[125.622]
Agreeable						-0.029	-0.008	-73.821
						[0.053]	[0.053]	[167.851]
Conscientious						0.011	0.003	-111.196
						[0.054]	[0.053]	[224.794]
Neurotic						-0.119	-0.111	-361.174
						[0.048]**	[0.046]**	[187.351]*
Open						0.026	0.032	413.209
						[0.044]	[0.044]	[149.963]***
Number of observations	1433	1433	1433	1433	1569	1433	1433	2006
R-squared	0.11	0.11	0.12	0.13	0.13	0.13	0.16	0.18
Joint significance of Big 5								
(p-value)	n/a	n/a	n/a	n/a	n/a	0.08	0.12	0.04
Region intercepts	N	N	N	N	N	N	Y	N

Notes: This table reports estimates from OLS regressions. In columns (1)-(4) and (6)-(7), the dependent variable is the monthly wage the candidates reported in their previous jobs, expressed in logarithms. In column (8), the dependant variable is the candidate's previous wage in levels, where missing wages have been replaced with zero. In column (5) the dependent variable is the current monthly wage of respondents to the MxFLS 2005 survey. The regression presented in column (5) has been reweighted so that the observables characteristics in the MxFLS sample match the observable characteristics in the applicant data. See the data appendix for more information on the variables including their sources. * indicates statistical significance at the 10% level, ** at the 5% level and *** at the 1% level. Robust standard errors are reported in brackets.

Table 5. The Correlates of Pro-social Behavior

Dependent variable	Charity (1)	Volunteer (2)	Belongs to a political party (3)	Voted (4)	Altruism (5)	Negative reciprocity (6)	Cooperation (7)	Importance of wealth (8)
PSM index	0.076	0.070	0.020	-0.010	1.242	-0.065	1.311	-0.154
	[0.019]***	[0.017]***	[0.011]*	[0.015]	[0.282]***	[0.019]***	[0.405]***	[0.054]***
Raven score	-0.008	0.004	-0.009	-0.002	-0.280	-0.010	-0.065	0.026
	[0.005]*	[0.004]	[0.003]***	[0.004]	[0.076]***	[0.005]**	[0.104]	[0.014]*
Raven score × (PSM index-E(PSM index))	0.004	0.000	0.002	0.012	-0.306	-0.006	0.260	-0.022
	[0.006]	[0.006]	[0.004]	[0.005]**	[0.118]***	[0.006]	[0.142]*	[0.019]
Big 5 index	0.042	0.046	0.001	0.052	-0.112	0.010	-0.316	-0.056
	[0.019]**	[0.017]***	[0.011]	[0.015]***	[0.255]	[0.019]	[0.401]	[0.053]
Male	-0.001	0.062	0.023	-0.015	-0.639	0.001	1.751	0.210
	[0.023]	[0.021]***	[0.013]*	[0.018]	[0.326]**	[0.023]	[0.490]***	[0.067]***
Years of schooling	-0.001	0.006	-0.002	0.044	-0.002	-0.006	0.080	0.015
	[0.005]	[0.005]	[0.003]	[0.004]***	[0.073]	[0.005]	[0.107]	[0.014]
Age	-0.001	0.003	0.004	0.018	-0.013	0.000	0.050	-0.003
	[0.002]	[0.001]**	[0.001]***	[0.001]***	[0.028]	[0.002]	[0.040]	[0.005]
Number of observations	1941	1942	1945	1944	1932	1934	1907	1819
R-squared	0.02	0.04	0.02	0.16	0.03	0.01	0.02	0.02

Notes: This table reports estimates from OLS regressions, where the dependent variable is as indicated in each column. See the data appendix for more information on the variables including their sources. * indicates statistical significance at the 10% level, ** at the 5% level and *** at the 1% level. Robust standard errors are reported in brackets.

Table 6: Effects on Financial Incentives on Applicant Pool - Productive Attributes

	Obs (1)	Control (2)	Treatment Effect (3)	Randomization inference p-value (4)	FDR q-value (5)
Number of applicants	106	18.093	4.714	0.36	n/a
			[4.430]		
Panel A: Market skills					
Wage in previous job	1572	3479.667	819.154	0.00	0.00
			[174.703]***		
Wage in previous job - predicted (logs)	2105	7.694	0.111	0.06	0.06
			[0.045]**		
Previous job was white collar	1170	0.243	0.069	0.01	0.02
			[0.029]***		
Currently employed	2225	0.104	0.053	0.01	0.02
			[0.019]***		
Work experience	2212	0.459	0.167	0.00	0.00
			[0.048]***		
Years of experience in past 3 spells	2212	1.185	0.284	0.08	0.06
			[0.171]		
IQ (Raven test)	2229	8.488	0.506	0.01	0.02
			[0.223]**		
Raven score> =9	2229	0.572	0.091	0.01	0.02
			[0.039]**		
Chose dominated risk option	2213	0.431	-0.064	0.01	0.02
			[0.025]**		
Years of schooling	2198	14.552	0.091	0.40	0.14
			[0.308]		
Panel B: Personality traits					
Extraversion	2189	3.674	0.013	0.37	0.14
			[0.036]		
Agreeableness	2167	4.107	0.004	0.44	0.15
			[0.022]		
Conscientiousness	2191	4.235	0.063	0.03	0.04
			[0.030]**		
Neuroticism	2168	2.254	-0.099	0.01	0.02
			[0.033]***		
Openness	2168	3.910	0.042	0.08	0.06
			[0.028]		
Big 5 index	2099	0.000	0.087	0.07	0.06
			[0.049]*		
Integrity - direct	2223	0.067	-0.009	0.73	0.26
			[0.013]		
Integrity - indirect	2099	44.424	0.602	0.33	0.14
			[1.232]		

Notes: This table estimates the effects of higher wages on characteristics of the applicant pool. Each row is a separate regression using the variable listed as the dependent variable. Column (1) reports the number of observations in the regression. Column (2) reports the mean of the variable in the control group (low wage announcement), column (3) reports the coefficient on the treatment in a regression that includes region intercepts. Column (4) reports the p-values based on a one-sided test statistic that the placebo coefficients are larger than the actual. The p-values were computed based on 1000 random draws. Column (5) reports the q-value associated with the False Discovery Rate test, which accounts for the multiple testing. See the data appendix for more information on the variables including their sources. * indicates statistical significance at the 10% level, ** at the 5% level and *** at the 1% level. Clustered standard errors at the level of the locality are reported in brackets.

Table 7: Effects on Financial Incentives on the Applicant Pool - Motivation Profile

	Obs (1)	Control (2)	Treatment Effect (3)	Randomization inference p-value (4)	FDR p-value (5)
Panel A: Public service motivation traits					
Public service motivation index	2074	0.000	0.092	0.05	0.09
			[0.046]**		
Attractiveness	2217	2.803	0.070	0.05	0.14
			[0.041]*		
Commitment	2170	3.316	0.045	0.15	0.18
			[0.035]		
Social Justice	2180	3.646	0.075	0.01	0.04
			[0.026]***		
Civic Duty	2158	3.924	0.027	0.25	0.22
			[0.033]		
Compassion	2168	3.001	0.066	0.04	0.14
			[0.031]**		
Self sacrifice	2168	3.687	0.039	0.15	0.18
			[0.034]		
Panel B: Prosocial behavior					
Altruism	2199	23.491	0.039	0.53	0.29
			[0.291]		
Negative reciprocity	2206	0.508	0.075	0.00	0.00
			[0.023]***		
Cooperation	2157	26.174	0.675	0.08	0.16
			[0.404]*		
Did charity work in the past year	2223	0.605	-0.096	0.01	0.05
			[0.041]**		
Volunteered in the past year	2224	0.710	-0.006	0.38	0.34
			[0.027]		
Importance of wealth	2025	3.159	0.107	0.14	0.18
			[0.087]		
Belongs to a political party	2225	0.113	-0.026	0.07	0.16
			[0.014]*		
Voted	2225	0.758	0.019	0.33	0.26
			[0.035]		

Notes: This table estimates the effects of higher wages on characteristics of the applicant pool. Each row is a separate regression using the variable listed as the dependent variable. Column (1) reports the number of observations in the regression. Column (2) reports the mean of the variable in the control group (low wage announcement), column (3) reports the coefficient on the treatment in a regression that includes region intercepts. Column (4) reports the p-values based on a one-sided test statistic that the placebo coefficients are larger than the actual. The p-values were computed based on 1000 random draws. Column (5) reports the q-value associated with the False Discovery Rate test, which accounts for the multiple testing. See the data appendix for more information on the variables including their sources. * indicates statistical significance at the 10% level, ** at the 5% level and *** at the 1% level. Clustered standard errors at the level of the locality are reported in brackets.

Table 8: The Effects of Financial Incentives on Recruitment

	Accepted	Accepted	Rejected	Not reachable
	(1)	(2)	(3)	(4)
High wage offer	0.151	0.160	-0.017	-0.135
	[0.054]***	[0.054]**	[0.034]	[0.054]***
Characteristics:				
Male		-0.080		
		[0.058]		
Years of schooling		-0.022		
		[0.008]**		
High IQ		-0.017		
		[0.053]		
Wage in previous job > 5,000		-0.007		
		[0.067]		
Big 5 index		0.042		
		[0.038]		
PSM index		-0.024		
		[0.044]		
Mean of dependent variable	0.55	0.55	0.13	0.32
Observations	350	343	350	350
R-squared	0.10	0.12	0.09	0.13

Notes: This table estimates the effects of higher wages on conversion, or vacancy-filling. In columns (1) and (2), the dependent variable is an indicator equal to 1 if the person accepted the offer, zero if the person rejected or could not be reached. In column (3), the dependent variable is an indicator equal to 1 if the person rejected the offer, zero otherwise. In column (4), the dependent variable is an indicator equal to 1 if the person could not be contacted about the offer, zero otherwise. In addition to the controls listed in the table, all regressions included strata dummies used in the random assignment of the job offers. See the data appendix for more information on the variables including their sources. * indicates statistical significance at the 10% level, ** at the 5% level and *** at the 1% level. Clustered standard errors at the level of the locality are reported in brackets.

Table 9: Effects of Municipal Characteristics on Acceptance Decisions

Dependent variable	Acceptance				
	(1)	(2)	(3)	(4)	(5)
High wage offer	0.047	0.066	0.075	0.056	0.147
	[0.037]	[0.047]	[0.053]	[0.041]	[0.047]***
High wage offer × Distance	0.026			0.028	0.010
	[0.005]***			[0.007]***	[0.007]
Distance	-0.027			-0.028	-0.017
	[0.004]***			[0.007]***	[0.005]***
High wage offer × Drug-related deaths/1000		0.078		-0.033	-0.025
		[0.039]*		[0.037]	[0.040]
Drug-related deaths per 1000 inhabitants		-0.107		0.000	-0.022
		[0.044]**		[0.045]	[0.040]
High wage offer × Human development index			-1.482	-0.913	-1.368
			[0.738]**	[0.645]	[0.589]**
Human development index			1.526	1.044	1.002
			[0.673]**	[0.598]*	[0.521]*
Observations	238	238	238	238	348
R-squared	0.25	0.21	0.2	0.26	0.18

Notes: This table estimates the effects of municipal characteristics on acceptance decisions. In all columns, the dependent variable is an indicator equal to 1 if the person accepted the offer, zero otherwise. In columns (1)-(4) the sample has been restricted to the applicants who were successfully contacted. In addition to the controls listed in the table, all regressions included strata dummies used in the random assignment of the job offers. See the data appendix for more information on the variables including their sources. Distance is measured in tens of kms. * indicates statistical significance at the 10% level, ** at the 5% level and *** at the 1% level. Clustered standard errors at the level of the locality are reported in brackets.

Table A1: Fill-in Errors by Treatment Status

Question topic	Control	Treatment Effect
	(1)	(2)
Date of birth	0.016	-0.010
		[0.006]
Gender and Civil Status	0.012	-0.002
		[0.005]
Education level	0.151	0.014
		[0.028]
Parent's education	0.061	-0.018
		[0.012]
Household characteristics	0.427	-0.016
		[0.032]
Religion	0.052	0.011
		[0.012]
Identification	0.170	0.025
		[0.058]
Total	0.948	-0.025
		[0.089]

Notes: This table estimates the effects of higher wages on the number of mistakes made by the applicant in filling in the questionnaire for a subset of questions. Each row is a separate regression using the variable listed as the dependent variable. Column (1) reports the mean of the variable in the control group (low wage announcement), column (2) reports the coefficient on the treatment variable in a regression that includes region intercepts. The variable `Household characteristics' refers to questions about family size, number of kids, number of family members living abroad, and head of household status. `Identification' refers to 6 questions about possession of different identification cards (e.g. passport, driver's license, etc.) * indicates statistical significance at the 10% level, ** at the 5% level and *** at the 1% level. Clustered standard errors at the level of the locality are reported in brackets.

Table A2: The Effects of Financial Incentives on Recruitment by Applicant Characteristics

Dependent variable	Acceptance					
	(1)	(2)	(3)	(4)	(5)	(6)
High wage offer	0.160	0.204	0.252	0.150	0.156	0.299
	[0.080]**	[0.066]***	[0.093]***	[0.053]***	[0.054]***	[0.125]**
High wage offer × High IQ	-0.016					-0.008
	[0.112]					[0.113]
High IQ	-0.010					-0.023
	[0.091]					[0.093]
High wage offer × High outside wage		-0.251				-0.237
		[0.153]				[0.164]
High outside wage		0.169				0.157
		[0.138]				[0.141]
High wage offer × Male			-0.177			-0.164
			[0.121]			[0.119]
Male			0.027			0.035
			[0.097]			[0.090]
High wage offer × (Big 5 index-E(Big 5 index))				-0.052		0.064
				[0.070]		[0.091]
Big 5 index				0.053		-0.060
				[0.056]		[0.075]
High wage offer × (PSM index-E(PSM index))					0.015	-0.058
					[0.084]	[0.082]
PSM Index					-0.019	0.076
					[0.068]	[0.067]
Observations	350	350	350	349	344	344
R-squared	0.1	0.11	0.12	0.13	0.13	0.13

Notes: This table estimates whether the effects of higher wages on conversion (a selected candidate filling a vacancy) vary with applicant characteristics. In all columns, the dependent variable is an indicator equal to 1 if the person accepted the offer, zero if the applicant rejected the offer or could not be reached. In addition to the controls listed in the table, all regressions included strata dummies used in the random assignment of the job offers. See the data appendix for more information on the variables including their sources. * indicates statistical significance at the 10% level, ** at the 5% level and *** at the 1% level. Clustered standard errors at the level of the locality are reported in brackets.