People People[*]

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First draft: 4 March 2004

Preliminary

Abstract

There are many indicators that interpersonal interactions are important for understanding individual outcomes and are becoming more important. Yet, empirical work suggests that the returns to people skills have remained low and people people have not progressed to the top of the job hierarchy. This paper develops a unified model to understand the role of people skills in the labor market, including task assignment and wages. We model interactions between people, letting individuals feel social pressure to help others, and affect the amount of social pressure experienced by others. We assume that people are heterogeneous with respect to caring and that jobs are heterogeneous with respect to the importance of caring. Consistent with our model, we find that as people skills become more important, the women's share of an occupation increases, but the employment shares of blacks, Hispanics, immigrants, and people with poor English decrease. We also show in an assignment context that within caring jobs, the importance of caring is positively rewarded but that overall labor demand and supply may lead to a negative effect of being caring on wages. We present evidence that computers, team production and innovative work practices, complement people skills. Lastly, we present evidence that people people volunteer more, marry at younger ages, have children at younger ages, and have more children.

Keywords: People Skills, Wage Level and Structure, Assignment; Social Capital
JEL codes: J16; J21; J24; J31

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1. Introduction

There are many indicators that interpersonal interactions are important for understanding individual outcomes and are becoming more important. Psychologists have been broadening the traditional definition of intelligence to include interpersonal intelligence (e.g., Gardner, 1983 and Sternberg, 1984) and work on interpersonal interactions has entered the economics literature through research done by sociologists on social capital (e.g., Coleman, 1988 and 1990).[1] Popular perceptions and behavior indicate a widespread belief in the importance of interpersonal interactions (e.g., for managers it is important to be leader without giving offense or arousing resentment).[2] Finally, the shift in employment from manufacturing to services and the diffusion of computer technology, which has emphasized the performance of "soft" tasks that cannot be computerized, are likely to have increased the returns to interpersonal relations and the demand for people people.

There is, however, no empirical work suggesting significant returns to people skills; people people are not observed to be today's managers, nor have many women progressed to the top of the job hierarchy; the evidence for individual level social capital as a determinant of individual outcomes is at best weak and remains controversial relative to evidence on human capital (e.g., Durlauf, 2002); and despite the recent demographic and technological changes it remains unclear how people people have benefited from these changes.

This paper develops a unified model to understand the role of people skills in the labor market, including task assignment and wages. Interpersonal interactions are essential because the division of labor requires people to work with one another and not all interactions can be contracted. These contracting problems are frequently resolved by people taking other peoples' needs into account.[3] We model interactions between people in a principal-agent

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[1] In particular the relationship between social capital and racial income differences (Loury, 1977), economic development and growth (Putnam, 1993, and Knack and Keefer, 1997), the development of educational systems (Goldin and Katz, 1999), organizational change and performance of innovative human resource management practices (Gant et al., 2002) and individual investment decisions (Glaeser et al., 2002) have been explored. More generally, Putnam (1993), La Porta et al. (1997), Goldin and Katz (1999), Glaeser et al. (2000) and Bowles and Gintis (2002) and (2003) argue that more cohesive societies, or communities and societies in which there exists a high level of trust, are more likely to develop high quality institutions such as education and the judicial system.

[2] The massive market for material on *How to Win Friends and Influence People*, as Dale Carnegie's (1936) classic book is titled, indicates that people skills are widely believed to be important. Carnegie's work has sold over 15 million copies and, 68 years after it was first published, is ranked 67th of all books on Amazon.com.

[3] This feature of our model is also present in Arrow (1972) who argues that every commercial transaction has

context, letting individuals feel social pressure to help others and affect the amount of social pressure experienced by others. Sensitivity toward others, or caring, is the tendency to take costly actions that are beneficial for others. Charisma is the ability to influence others to take costly actions for the benefit of oneself or a third party. We assume that people are heterogeneous with respect to the level of caring they embody and that jobs are heterogeneous with respect to the importance of caring.[4] Jobs such as nursing and teaching emphasize taking actions that benefit others. Caring people will have a comparative advantage in these jobs and will be allocated to them. Effective performance in managerial jobs often requires making tough decisions regarding others, such as discipline or dismissal. Empathy hampers performance in these jobs and the least caring people will be assigned to them. Thus, the returns to caring may be positive or negative depending on the job. Charisma will be particularly valuable in managerial jobs because making others take costly actions in the manager's interest requires the ability to persuade, convince and maybe even overrule others' interests. Charisma will have positive returns, although they will vary across jobs.[5]

Our model yields strong predictions for the effect of people skills on occupational assignment. Psychologists have argued that women place more weight on the effects of their actions on others (Gilligan, 2001) and women report being better in interpersonal tasks, especially those involving caring. It is also likely that racial, ethnic, linguistic and cultural differences interfere with interpersonal interactions. Supporting these hypotheses, we find that as people skills become more important, women's share of an occupation increases, but the share of blacks (especially black men), Hispanics, immigrants, and people with poor English decreases.

Existing empirical work finds little return to people skills. Our model provides a number of reasons for this weak (or negative) relationship between caring and wages. As indicated, while caring raises productivity in jobs where the person helps others, it is a disadvantage in jobs that require tough decisions. If the supply of caring workers is high

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within itself an element of trust, certainly any transaction conducted over a period of time. In that way social interrelatedness substitutes for formal or legal rules.

[4] This way of modeling altruism is related to Prendergast's (1993) theory of "yes men". He shows a trade-off between inducing workers to exert effort and encouraging them to be honest in reporting their performance.

[5] If people have to invest to be able to behave well in certain circumstances, human capital effects enter into the model. This argument has been put forward by Glaeser et al. (2002). Eshel et al. (1998) offer a model of altruism in which altruists exists in concentrated groups and enjoy the public goods provided by other altruists. By assuming an imitation process they show how altruists survive in the presence of egoists. They abandon the assumption of rational agents whereas in our model a person's personal characteristics determine rational behavior.

relative to the demand, caring may be associated with lower wages. With variation in the scope for caring across jobs, caring people enter jobs where they can exercise their desire to care for others, receiving lower wages in return. Finally, jobs where caring is important, may inherently pay lower wages than those where it is detrimental. Our model predicts and our estimates support a positive relationship between charisma and wages.

We show that new technologies, including the use of computer technology, team production and innovative work practices complement people skills, which may help to explain the decline in the gender wage gap. We present suggestive evidence that both caring and charisma have become more important in the face of the recent changes in workplace organization and technology adoption, with charisma becoming particularly important. We find that people who were more sociable when they were young are more likely to be in jobs where they influence large numbers of people such as managerial jobs, entertainment, and sales. They are more likely to supervise others at work, less likely to have supervisors themselves, and have greater authority over the people they supervise.

Lastly, we consider a few non-labor market outcomes. We present evidence that people people volunteer more, marry at younger ages, have children at younger ages, and have more children. These findings are consistent with people people caring more about others.

If people skills are indeed important, it is natural to ask whether people skills can simply be incorporated into the standard human capital model of individual outcomes as a particular form of human capital or whether understanding people skills requires a new model of individual outcomes.[6] Our model shows that people skills that can be advantageous in one stetting can be disadvantageous in others circumstances. Earnings are non-decreasing in human capital – at the worst a particular type of human capital may be irrelevant for a particular job – but people skills raise productivity in some tasks while lowering it in others.[7] Our paper falls into the emerging literature on "soft skills" (see Bowles et al., 2001 for a survey). The returns to beauty found by Hamermesh and Biddle (1994) and Pfann et al. (2000) support our result of positive labor-market returns to charisma, but beauty is only one

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[6] Glaeser et al. (2000) and Glaeser et al. (2002) present suggestive evidence that if situations in which social interactions occur more frequently are likely to induce the employment of workers embodying higher levels of people skills. They treat people skills as the analogue of cognitive skills in which people invest if there are returns.

[7] For this reason, the term people "skills" is a bit of a misnomer. A better term might be interpersonal styles or characteristics. Nevertheless, we use the term "skill" because it is familiar and because both interpersonal styles raise productivity in the tasks for which they are most relevant even if they may lower wages because of general

aspect of charisma. In addition, Machin et al. (2001) find positive but rather small labor-market returns to sociability variables in the United Kingdom, but mainly focus on differences in the respondents' attitudes toward education at age 16. They do not distinguish between caring and charisma as we do. They also do not consider the assignment of people with different attitudes to different jobs. For male workers Kuhn and Weinberger (2002) find for a U.S. sample positive returns to being a leader in high school, especially in managerial jobs. We look at a broader set of implications than this paper and distinguish caring from charisma in addressing labor-market success.

Our approach also differs from the small theoretical literature on social incentives in organizations in that we allow firms to directly compensate workers who are sensitive to social pressure. Not allowing for direct compensation, Rotemberg (1994) identifies markedly different and more restrictive conditions under which workers benefit from developing altruism toward one another. Kandel and Lazear (1992) show that $1/N$ problems are a barrier to collective investments in social pressure. With direct compensation workers have an incentive to sensitize themselves to social pressure, making social motivation possible without collective investments.[8] Ferreira (2002) studies peer pressure and altruism, but he focuses exclusively on teams. We also consider the ability of charismatic leaders to generate social pressure on others, a novel superstar effect (Rosen, 1981).

This paper proceeds as follows. Section 2 develops the basic theory of people people and discusses a number of implications and results of this set up. Section 3 presents the data. Section 4 presents evidence consistent with the model. Section 5 concludes.

2. Theory

2.1. General Setting

2.1.1. Workers

We build on standard principal-agent models to understand the role of interpersonal relations in the labor market. The agent deals with a person, referred to as a third party, who may be a client, colleague, patient, pupil, subordinate, or even the principal himself. The agent chooses an action $a \in [0,1]$. The third party receives benefits of θa from the action. In nursing, teaching, and many service jobs, the action helps the third party, so $\theta > 0$ (if the third party is

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equilibrium effects.
[8] Foreign automobile manufacturers are known for choosing rural sites for their factories in the United States because workers are perceived to have a stronger work ethic (Levin, 1999).

the principle himself $\theta > 0$ as well). In other jobs, such as supervisory jobs, the action that benefits the principal or firm is frequently detrimental to the third party, such as deciding whether to hire, dismiss, or discipline the third party, so $\theta < 0$. High-pressure sales jobs would be similar.

We model relationships in a reduced form manner using altruism. True altruism can arise between people with ongoing relationships. Our formulation can also capture the effect of social pressure arising through networks or repeated interactions, in which people can reward or punish the agent through other people or in the future.[9] In both cases the third party will use social pressure to make the agent do the thing that raises his utility, which will make the agent behave as if he is altruistic.

We note that these channels – true altruism on the one hand and social pressure on the other – have different welfare implications for the agent. Let $\alpha(x_A, x_P)$ denote the benefits the agent receives per unit increase in the utility of the third party, that is the agent's altruism for the third party. The agent's altruism toward the third party depends on the characteristics of the agent, x_A, and the characteristics of the principal or firm, x_P, although these are suppressed when possible. The principal's characteristics incorporate the characteristics of third parties the agent will encounter while working for the principal. Let $\tilde{\alpha}(x_A, x_P)$ denote total social pressure. Like altruism, social pressure affects the agent's actions, but unlike altruism it does not generate utility directly. Thus, under pure altruism the following holds: $\tilde{\alpha} = \alpha > 0$; under pure social pressure $\tilde{\alpha} > \alpha = 0$. Hybrid cases can be modeled as combinations of these two extreme cases.[10]

The cost of the action to the agent is $c(a)$, where $c'(a) > 0$ and $c''(a) > 0$. The firm does not observe a, but observes a binary signal whose realization is affected by the agent's action. The probability of the high signal is given by $\rho(a)$, where $\rho'(a) > 0$ and $\rho''(a) \le 0$. The firm conditions the worker's wages on the signal, paying w_H (w_L) if the signal is high (low).

The agent chooses a to maximize his expected utility, $E[U]$, i.e.,

$$\max_{\{a\}} \rho(a)\ln(w_H) + (1 - \rho(a))\ln(w_L) + \tilde{\alpha}\theta a - c(a),$$

where consumption utility is assumed to be the natural logarithm of income. The first order

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[9] It can also capture the ability to negotiate areas of common interest between the principal and the agent.
[10] Although it is not considered below, it is possible that heavy social pressure makes the agent hateful toward

condition for a maximum to the agent's problem is

$$\rho'(a)\ln\left(\frac{w_H}{w_L}\right)+\tilde{\alpha}\theta-c'(a)=0. \tag{1}$$

By applying the implicit function theorem to this condition we can derive

$$\frac{\partial a}{\partial \tilde{\alpha}}=-\frac{\theta}{\rho''(a)\ln(w_H/w_L)-c''(a)},$$

which shows that agents who are more sensitive to social pressure from a third party will choose a higher action when the action benefits the third party ($\theta>0$), and a lower action when it hurts the third party ($\theta<0$). Also,

$$\frac{\partial a}{\partial \theta}=-\frac{\tilde{\alpha}}{\rho''(a)\ln(w_H/w_L)-c''(a)}>0,$$

which reveals that if a person is moved to a job where his action has greater benefits for a third party, he will increase his action to benefit the third party.

There are a number of immediate partial-equilibrium implications for the strength of pecuniary incentives given to the agent, reflected by the log wage spread (general-equilibrium analogues are derived below),

$$\ln\left(\frac{w_H}{w_L}\right)=\frac{c'(a)-\tilde{\alpha}\theta}{\rho'(a)}.$$

First, agents who feel more social pressure from a third party require weaker pecuniary incentives when the action benefits the third party (i.e., $\theta>0$) in that

$$\frac{\partial \ln(w_H/w_L)}{\partial \tilde{\alpha}}=-\frac{\theta}{\rho'(a)}<0.$$

Second, firms in which the agent's action has greater benefits for a third party also require less pecuniary incentives:

$$\frac{\partial \ln(w_H/w_L)}{\partial \theta}=-\frac{\tilde{\alpha}}{\rho'(a)}<0.$$

Thus, social pressure and pecuniary incentives are substitutes, which is consistent with less reliance on incentive pay in countries, such as Japan, where there is greater social pressure in the workplace, and an increased reliance on pecuniary incentives as social incentives have eroded.

Third, the amount of benefits received by a third party complements the agent's

the third party, in which case $\tilde{\alpha}>0>\alpha$.

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sensitivity to social pressure in reducing reliance on pecuniary incentives:

$$\frac{\partial^2 \ln(w_H/w_L)}{\partial \alpha \partial \theta} = \frac{\partial^2 \ln(w_H/w_L)}{\partial \widetilde{\alpha} \partial \theta} = -\frac{1}{\rho'(a)} < 0 .$$

Insofar as wage spread is costly (in the sense of expected wages) to firms, there is a gain from matching sensitive agents to firms where the agent's actions have large benefits for third parties.

Last, the reduction in pecuniary incentives from higher social incentives – from either $\widetilde{\alpha}$ or θ – is less when the outcome provides more information about the action taken by the agent. When $\theta > 0$ we obtain

$$\frac{\partial^2 \ln(w_H/w_L)}{\partial \alpha \partial \rho'(a)} = \frac{\partial^2 \ln(w_H/w_L)}{\partial \widetilde{\alpha} \partial \rho'(a)} = \frac{\theta}{(\rho'(a))^2} > 0$$

and

$$\frac{\partial^2 \ln(w_H/w_L)}{\partial \theta \partial \rho'(a)} = \frac{\widetilde{\alpha}}{(\rho'(a))^2} > 0 .$$

This result explains why it is particularly important to have caring agents in contexts when it is difficult to monitor performance, such as the care for the young or elderly. From the other side, United States Government contracts, which eliminate social pressure for legal reasons, rely more heavily on explicitly provision than private sector contracts (e.g., Marvel and Marvel, 2003).

2.1.2. Firms

Let $R^i(a)$ denote firm i's expected revenue, where $R_a^i \geq 0$ and $R_{aa}^i \leq 0$. Assuming that labor is the only input, expected profits are

$$E[\pi^i] = R^i(a) - E[w|\alpha, a, \theta^i] = R^i(a) - \rho(a)w_H - (1 - \rho(a))w_L .$$

In general we suppress the firm index to simplify the exposition. Given α and $\widetilde{\alpha}$, the firm maximizes expected profits by setting w_H and w_L subject to the agent's incentive compatibility constraint (1) and the participation constraint,

$$\rho(a)\ln(w_H) + (1 - \rho(a))\ln w_L + \alpha\theta a - c(a) \geq U^R(x_A) .$$

Here $U^R(x_A)$ denotes the reservation utility of an agent with characteristics x_A. As indicated, the agent's utility depends on the portion of social pressure from altruism.

The optimal wages are given by,

$$w_L = \exp\left\{U^R + c(a) - \alpha\theta a - \frac{\rho(a)}{\rho'(a)}(c'(a) - \tilde{\alpha}\theta)\right\}$$

and

$$w_H = \exp\left\{U^R + c(a) - \alpha\theta a + \frac{1 - \rho(a)}{\rho'(a)}(c'(a) - \tilde{\alpha}\theta)\right\}.$$

The principal implicitly chooses a, through the choice of wages. The optimal action for principal is where,

$$R_a(a) - \frac{\partial E[w|\alpha,\theta,a]}{\partial a} = 0. \tag{2}$$

2.2. Welfare Implications

2.2.1. Social Pressure that is Internal to the Agent

This section derives implications of the model for agents' expected utility and for firms' expected profits. We start by considering the effect of changes in the agent's characteristics, x_A, on his expected utility, assuming that all firms are identical. We refer to this case as internally generated social pressure.[11]

In this case, firms' expected profits must be constant in x_A, so

$$\frac{dE[\pi]}{dx_A} = -\frac{\partial E[w]}{\partial x_A}\bigg|_a + \left(R_a(a) - \frac{\partial E[w]}{\partial a}\right)\frac{da}{dx_A} = -\frac{\partial E[w]}{\partial x_A}\bigg|_a = 0.$$

The condition implies that the expected wages are constant in x_A (modulo any change from changing the action), where the second equality comes from the first order conditions for the firm's optimal (implicit) choice of a. The effect of $\tilde{\alpha}$ on expected utility, given that wages are constant, is

$$\frac{dE[U]}{d\tilde{\alpha}}\bigg|_\alpha = \frac{\rho(a)(1-\rho(a))}{\rho'(a)}\theta \frac{\exp\left(\frac{\rho(a) - \tilde{\alpha}\theta}{\rho'(a)}\right) - 1}{\rho(a)\exp\left(\frac{\rho(a) - \tilde{\alpha}\theta}{\rho'(a)}\right) + (1 - \rho(a))}.^{12}$$

An increase in $\tilde{\alpha}$ raises the agent's expected utility if his action benefits the third

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[11] The ability to internalize behavior is universal among humans. People follow their internal "norms" when they value behavior for their own best interest in addition to, or despite, the effects this behavior has on others. While widely studied in sociology, and labeled socialization theory there, economists have hardly touched upon this subject with the exception of Simon (1990).

[12] Note that we show the derivative with respect to $\tilde{\alpha}$ to simplify notation, where $d\tilde{\alpha} = \tilde{\alpha}_{x_A}(x_A, x_P)dx_A$.

party ($\theta>0$) and lowers it if his action hurts the third party ($\theta<0$). Intuitively, when the agent's action benefits the third party, social pressure serves as a commitment mechanism to ensure that he takes a high level of action. He obtains higher utility from the reduction in wage spread.

Rotemberg (1994) argues that when altruism can be observed, when there are strategic complementarities, and when others can make reciprocal changes in altruism, it can be optimal to invest in altruism from the point of maximizing selfish utility. We find that being subject to social pressure (or being altruistic) can raise selfish utility without strategic complementarities or reciprocal altruism because we allow firms to compete for and compensate these workers. Insofar as workers themselves gain from being subject to social pressure (and firms can determine their sensitivity to it), workers gain from making themselves sensitive to social pressure. Thus, there may be less need for collective investments for social motivation to be effective (e.g., Kandel and Lazear, 1992, show the limits to collectively generated social pressure).

When the agent's action hurts the third party, increased social pressure hurts the agent, by requiring greater wage spread to maintain incentive compatibility. Hoff and Sen (2003) provide an example of this, arguing that nepotism serves as a barrier to economic progress in developing countries, where successful individuals are pressured into hiring unqualified kin or tribe members.[13]

The effect of changes in the agent's internally driven altruism on his utility holding total social pressure constant is $\left.\frac{dE[U]}{d\alpha}\right|_{\tilde{\alpha}} = \theta a$. Again, this expression has the sign of θ, so that agent's utility is raised if he helps the third party, but is lowered if he hurts the third party. The effect of an increase in altruism that raises total social pressure is the sum of these two effects, which will be larger in absolute value than the individual effects.

2.2.2. Social Pressure from the Principal

Often social pressure will be the result of a charismatic, well-connected, or manipulative principal. We model this by considering the effect of changes in the principal's characteristics, x_P, on his expected profits, assuming that all agents are identical. In contrast

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[13] See also the recent theoretical exercises by Acemoglu (2003) and Caselli and Gennaioli (2003) who examine the persistence of dynasties and dictatorships despite their detrimental effect on economic performance in the long run.

with the set up above, social pressure is now external to the agent.

In this case agents must be indifferent across principals, so expected utility must constant in x_P. It is possible to show that

$$\frac{dE[\pi]}{d\tilde{\alpha}}\bigg|_{\alpha} = \frac{\rho(a)(1-\rho(a))}{\rho'(a)}\theta(w_H - w_L).$$

We assume that principals with higher values of x_P can use their influence to either raise or lower $\tilde{\alpha}$.[14] The principal benefits from social pressure to help the third party if $\theta>0$ and exerts social pressure against helping the third party if $\theta<0$. The effect of raising altruism, given the total amount of social pressure $\tilde{\alpha}$, equals $\frac{dE[\pi]}{d\alpha}\bigg|_{\tilde{\alpha}} = a\theta E[w]$. So long as $\theta \neq 0$, a change in total social pressure generated by a change in altruism is better for the principal than a change in social pressure from non-altruistic sources. If the source is altruism, the agent's expected compensation can be lowered because of the utility the agent receives from helping the third party.[15] Thus, the principal's profits are non-decreasing in his charisma.

2.2.3. Hybrid Case

The cases of purely internal and external social pressure are extreme. Usually social pressure arises from the match between a principal, agent, and third party. In this case, one expects the rents to be split between the principal and the agent (or third party). Presumably, people with similar backgrounds will be particularly well paired from the perspective of social pressure, which is consistent with people working for or with people of similar backgrounds (see e.g., Costa and Kahn, 2003). Thus, increased affluence in a demographic group improves agents' opportunities to work for members of their own group and may increase the demand for difficult to monitor services where social pressure is particularly valuable. An increase in principals in an underrepresented group would benefit principals from that group because there is a gain to matching principals with agents, only part of which is obtained by the principal. Our results suggest that homogenous societies will have greater cooperation, which is consistent with studies on differences in social capital between regions and countries (e.g., Putnam, 1993 and Knack and Keefer, 1997).

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[14] For instance, when $\theta<0$, a charismatic principal will try to focus the agent on how choosing high a will benefit the firm.

[15] Alternatively, a very persuasive principal might convince the agent that he would receive more non-pecuniary benefits from the job, simulating $\alpha > 0$. We assume however that everyone's information is accurate.

2.3. Optimal Action

This section considers the determinants of the action. To simplify the analysis we assume that $\rho(a) = a$ and that $c(a) = \frac{1}{2}a^2$. We assume that all social pressure is internal to the agent and that it is in the form of altruism so that $\tilde{\alpha} = \alpha$. Under these assumptions,

$$a = \alpha\theta + \ln\left(\frac{w_H}{w_L}\right) \text{ or } w_H = w_L \exp(a - \alpha\theta).$$

Thus, the actual action is the sum of the action the agent would take in the absence of any pecuniary incentives and log of the wage spread, reflecting the strength of pecuniary incentives. Wages equal $w_L = \exp\{U^R + \frac{1}{2}a^2\}$ and $w_H = \exp\{U^R + \frac{1}{2}a^2 + a - \alpha\theta\}$.

The principal implicitly chooses a, through the choice of wages. From (2), the optimal action for the principal is where, $R_a(a) - \frac{\partial E[w|\alpha,\theta,a]}{\partial a} = 0$, in this case

$$R_a(a) - \frac{[1 + a(1-a)][\exp(a - \alpha\theta) - 1]\exp\left(U^R - \frac{1}{2}a^2\right)}{a\exp(a - \alpha\theta) + (1 - \alpha)} = 0 \qquad (3)$$

Applying the implicit function theorem to this condition and assuming that the effect of a on the firm's revenue is non-decreasing in θ, the optimal action can be shown to be increasing in θ for a fixed value of α:

$$\left.\frac{da}{d\theta}\right|_\alpha = \frac{\frac{\partial R_a(a)}{\partial\theta} + [1 + a(1-a)]\exp(a - \alpha\theta)\alpha\exp\left(U^R - \frac{1}{2}a^2\right)}{-SOC} > 0 .^{16}$$

Intuitively, the agent works harder when his action has a greater benefit for the third party. The assumption that the effect of a on the firm's revenue is non-decreasing in θ seems reasonable in jobs where the agent must care for the third party. When the principal benefits from tough decisions toward the agent (i.e., $\theta < 0$), $\partial R_a(a)/\partial\theta < 0$ may be realistic. In this case, reductions in θ must be associated with large increases in incentive pay in order to induce the agent to take a high action that hurts the third party.

An increase in θ is associated with lower expected wages for a given value of α

$$\left.\frac{\partial E[w]}{\partial\theta}\right|_\alpha = -a\exp(a - \alpha\theta)\alpha\exp\left(U^R - \frac{1}{2}a^2\right) < 0 .$$

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Intuitively, as θ increases, agents are willing to work for lower wages because they receive more utility from helping the third party.

By totally differentiating (3) and using the participation constraint to obtain, $\partial U^R / \partial \alpha$, we can show that

$$\frac{\partial a}{\partial \alpha} = \frac{[1 + a(1-a)]\exp\left(U^R - \frac{a^2}{2}\right)\theta\exp(a - \alpha\theta)}{-SOC[a\exp(a - \alpha\theta) + (1-\alpha)]}.$$

Consider first the case where the action benefits the third party, $\theta > 0$. Workers who are more sensitive to social pressure exert higher effort. Conditional on θ, expected log wages (the dependent variable in our empirical wage analysis) are increasing in α:

$$\left.\frac{dE[\ln w]}{d\alpha}\right|_\theta = (a - \alpha\theta)\frac{\partial a}{\partial \alpha} + a(1-a)\theta\frac{\exp(a - \alpha\theta) - 1}{a\exp(a - \alpha\theta) + (1-\alpha)}.$$

As α increases the agent works harder, which increases expected wages; the agent also requires less wage spread, which increases his expected log wage conditional on his expected wage. Increasing α also increases expected utility, since

$$\left.\frac{\partial U^R}{\partial \alpha}\right|_\theta = \frac{a\exp(a - \alpha\theta)}{a\exp(a - \alpha\theta) + (1-a)}\theta.$$

When the action is detrimental to the third party, $\theta < 0$, these results are reversed. This case might be appropriate for managerial jobs where proper performance of the job requires the disciplining of subordinates. In this case, agents who are more sensitive to social pressure exert lower actions, receive lower expected wages and have lower utility.

2.4. Assignment

The results described are for changes in either θ or α taking the other as fixed. In a general equilibrium, agents will be assigned to jobs. This section considers the relationship between α and wages accounting for the equilibrium assignment of agents to firms. We assume that there is a fixed, exogenous density of α among agents, $f_\alpha(\cdot)$, and of θ among firms, $f_\theta(\cdot)$. It is possible to show that high θ firms match with high α agents, so $\frac{d\theta}{d\alpha} = \frac{f_\alpha(\alpha)}{f_\theta(\theta)}$.

Using this result, the effect of α on expected log wages is given by

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[16] The second order conditions can be shown to be negative globally.

$$\frac{dE[\ln w]}{d\alpha} = \alpha(1-\alpha)\theta\frac{\exp(a-\alpha\theta)-1}{a\exp(a-\alpha\theta)+(1-a)} + (a-\alpha\theta)\left(\frac{\partial a}{\partial \alpha} + \frac{\partial a}{\partial \theta}\frac{d\theta}{d\alpha}\right) - \alpha a\frac{d\theta}{d\alpha}.$$

As above, if all jobs are identical and $\theta > 0$, expected log wages would be increasing in α. If we leave aside the distribution of supply and demand for altruism, the most altruistic workers will receive the highest pay off.[17] This premium for altruism seems to correspond to the benefits of social capital as analyzed by Glaeser et al. (2002). Workers receive an individual wage premium for an individual characteristic, namely being a caring or cooperative person towards others.

However, when there is heterogeneity in jobs, increases in α are associated with increases in θ, which offsets this positive slope. More altruistic people will get more desirable high-θ jobs and earn lower wages than in the case of homogeneous jobs. When there is a large group of altruistic people with a very low density of jobs requiring altruism, $\frac{d\theta}{d\alpha} = \frac{f_\alpha(\alpha)}{f_\theta(\theta)}$ is large. In that case, small increases in α will be associated with large increases in θ so expected log wages will be lower for people who are more caring as they purchase more desirable jobs. Furthermore, if the labor market also contains jobs for which $\theta < 0$, an oversupply of altruistic people further deteriorates the position of altruistic workers who are assigned to these jobs. Thus the relationship between caring and wages is ambiguous in our model.

2.5. Additional Implications

The model indicates that being subject to social pressure is valuable in jobs where it is important to take actions to benefit others. In these caring-oriented jobs, which might include teaching and nursing, social pressure serves as a commitment device that ensures that the person takes costly actions on behalf of another. On the other hand, being influenced by social pressure is a disadvantage in jobs where it is important to be willing to take actions that may hurt others. These jobs would include supervisory jobs in which it may be important to discipline or dismiss a worker whose performance is not satisfactory.

Taking this view provides an explanation for the glass ceiling among women and for the especially poor labor market outcomes of black men.[18] If women are more caring then men, they will be at a disadvantage in managerial jobs. Our model provides a novel link

[17] On the other side of the spectrum, when $\theta < 0$, workers with a negative altruism parameter would also receive a wage premium.

[18] Neal (2004) finds a smaller gender-wage gap among blacks than whites.

between fertility and women's movement into upper-level positions: if altruism is a barrier to reaching the highest levels of an organization, women who are so inclined, may make efforts to reduce their altruism. In the case of blacks, care-oriented jobs are generally well suited to less-skilled workers, but are ill suited to black men.

Social pressure is likely to be important in teams. Existing work points to difficulties providing pecuniary incentives for teams (Holmstrom, 1982) and the repeated contact and similar positions of team members will likely foster social pressure. In a team each member's compensation for helping others will be the help they provide. There is an incentive to make teams homogenous to foster reciprocal altruism. We expect the increase in teamwork to be associated with an increased emphasis on people skills.

Technological change will affect the returns to people skills. New technologies automate many aspects of jobs, but place more emphasis on the aspects of jobs, such as interpersonal interaction, that cannot be automated effectively. An implication is that (all other things equal) technological change should be favorable to women, but detrimental to blacks, immigrants, and Hispanics.

Economists have focused on superstar effects arising from differences in productive ability (e.g., Rosen, 1981). The ability to motivate large numbers of people, or to exert social pressure to let people do what you want them to do, is a novel form of the superstar effect arising from our model.

3. Data and Descriptive Statistics

For the empirical application of our model we make use of several data sources, which will be briefly introduced below.

3.1. British Skills Survey

The British Skills Survey (BSS) is a survey conducted in the first half of 1997. The survey includes a representative sample of 2,465 employed workers, aged 20-60, in Britain. Participants were asked several dozens of questions on their labor-market situation during face-to-face interviews to obtain information on various aspects of their jobs including qualifications, responsibilities, the importance and effectiveness of the tasks they carry out at work, and training. The unique feature of this database is information about the importance of a large number of job activities. The question asked was: "In your job, how important is …?". The possible answers were essential (5), very important (4), fairly important (3), not very

important (2), and not at all important (1). Appendix A lists the mean importance of the 36 job activities for which information is available by gender, level of education and age categories. For the empirical analysis in this paper we have selected the job activities into nine categories: people skills, problem solving skills, noticing mistakes, calculating skills, reading skills, writing skills, physical skills, planning skills, and organizational knowledge. In addition, we have split people skills into caring and charisma. Appendix A provides more details about the formation of these categories in Table A1.

Table A1 also displays the mean importance of the nine skill categories by gender, level of education and two age categories and separate numbers for caring and charisma. The figures in Table A1 suggest that reading, planning, problem solving and people skills are among the most important job activities, whereas physical skills and calculating are among the least important. The distinction between caring and charisma suggests that in general caring is more important than charisma. The second and third column of Table A1 presents the mean importance for female and male workers. For six job activities males regard the performance as more important than women do: Women particularly regard people skills, reading and writing as more important. In addition, women view caring as more important, whereas male workers think charisma to be more important in their jobs. The importance of job activities is also different between different levels of education. We have defined workers with a high level of education as those who have obtained a professional or university degree (comparable to the U.S. college degree) and workers with a low level of education as the remaining ones. The figures in column (4) and (5) suggest that the importance of physical skills is the only category that is higher for low-educated workers. Finally, we have split the sample into two age categories. Here it is interesting to note that there are hardly any differences in the importance of job activities (a more detailed cut of the sample in four age groups reveals a similar pattern).

Beside information about the importance of job tasks, the BSS also includes information about the effectiveness of the performance of the job activities. To assess the effectiveness the following question has been asked: "When your job involves … are you able to do this effectively?". We will explore this information further in the next section (Table 1).

3.2. British National Cohort Study

The British National Cohort Study (NCS) is the second data source we explore. This database contains information about individuals born in April 1970 in Britain. We have used

information about these individuals when they were aged 16 in 1986 and aged 30 in 2000.

The data from the 1986 file is used to obtain information about personal characteristics of young individuals. The main purpose of collecting the 1986-data has been to evaluate and review the health, care, education, family and social environment of young adolescent people throughout Great Britain, which makes the data suitable for our purposes. In the 1986 file we have selected variables related to people skills, such as whether an individual is popular at school or whether an individual is a loving person. We use this information to examine whether persons with certain personal characteristics will be assigned to particular jobs in their labor-market career.

The data from the 2000 file have been matched with the 1986 file to review the labor-market situation of these individuals. We have selected information about wages, occupations, job tenure and so on to assess the labor-market situation of each individual.

3.3. National Longitudinal Survey of Youth of 1979

We use data from the National Longitudinal Survey of Youth of 1979 (NLSY79) to estimate the effect of people skills on marriage, fertility, and labor market outcomes. The 1984 wave of the NLSY79 contains data on the number of social clubs respondents participated in during high school. The 1985 survey contains data on sociability at age 6 and as an adult, when the respondents were 20-28 years old. As with the NCS, subsequent outcomes are regressed on these earlier reports. The NLSY79 is attractive because it contains a wealth of information about individuals, including mother's education, the respondents' score on the Armed Forces Qualifying Test, and characteristics of the household in which the respondent was raised.

3.4. Current Population Survey
3.4.1. October 1993 and 1997

Individual computer use has been calculated from the October 1993 and 1997 School Enrollment Supplements to the Current Population Survey (CPS) as the fraction of currently employed full-time, year-round workers who answered "yes" to the question, "Do you use a computer directly at work?". The survey defines a computer as a desktop terminal or PC with keyboard and monitor and does not include an electronic cash register or a hand-held data device. 59,710, and 52,753 observations were used to calculate these frequencies in 1993 and 1997, respectively. The data are used for the analysis in Section 4.4.2 and its particular use is

discussed there in more detail.

3.4.2. September 2002

Data from the 2002 September Supplements to the CPS contain labor force activity for the week prior to the survey for U.S. individuals. Comprehensive data are available on the employment status, occupation, and industry of persons 15 years old and over. Also shown are personal characteristics such as age, sex, race, marital status, veteran status, household relationship, educational background, and Hispanic origin. For the purpose of our analysis we are interested in the Volunteer Supplement questions that were asked of all persons age 15 years or older. Data are provided on participation in volunteer activities during a one-year period from September 1, 2001 to the date of the interview, the frequency of that activity, types of organizations volunteered for, and the types of activities chosen for volunteer service. We will use this information to examine whether certain types of people are more or less involved in volunteering.

3.5. U.S. Census

We estimate the occupation distribution of workers by race, ethnicity, English ability, and immigrant status in the United States using data from the 1990 U.S. Census. The sample was restricted to people who held a job at the time of the survey between 18 and 65, who were not enrolled in school. All observations with imputed values for any variable used in the analysis were deleted. Individuals were weighted using the person weight.

3.6. Merging Data Files

The U.K. and U.S. occupational classifications in the data we use are different. In the U.K. samples of the Standard Occupational Classification 1990 (SOC90) are available. The SOC90 was published to replace both the Classification of Occupations 1980 (CO80) and the Classification of Occupations and Dictionary of Occupational Titles (CODOT). The SOC90 includes nine major groups divided into 22 sub major groups of occupations. These 22 groups can be divided into 371 unit groups, which we define as occupations. These unit groups are the aggregate results of over 26,000 job titles. The BSS contains consistent information for 293 occupations, the NCS about all 371 occupations. For the analysis including the information for persons at the age of 16 we have aggregated individual data to the occupational level and merged the NCS into the BSS to obtain occupational information

about the average worker's personal characteristics at age 16 at the occupational level.

We developed a crosswalk to merge estimates of skill requirements from the BSS into the Census and Current Population Surveys. The crosswalk was developed for the 1990 three-digit Census Occupation Classification. The resulting classification contains 196 occupations and is available upon request from the authors.

To develop a crosswalk between data files, we have aggregated individual level data to the occupational level and merged the files together. In doing so, we have assigned British scores to each of the U.S. occupations. This sometimes requires assigning the same British value to a number of U.S. occupations, and in other cases the assigned of the average value of a number of British occupations to one U.S. occupation.

4. Empirical Results

4.1. People People and Occupations

The performance of interpersonal tasks will vary by variables such as gender, race, ethnicity, immigrant status, and English ability. This section shows that the importance of people skills in an occupation determines the share of these groups in that occupation. Data on the importance of skills are drawn from the BSS. Data on gender differences in the occupation distribution are also drawn from the BSS. To study differences by race, ethnicity, immigrant status, and English ability, the BSS data are merged into the 1990 United States Census. We also explore data from the NCS on caring and charisma at age 16 and link this information to occupational differences in people skills in the working career of these individuals.

4.1.1. Gender Differences

Women are underrepresented in many occupations (see e.g., Blau and Kahn, 2000, for an overview). This under-representation is often attributed to a lack of human capital and physical strength leading to self-selection in particular occupations (Polachek, 1981) or the absence of role models and unattractive or discriminatory atmospheres. However, Dynan and Rouse (1997) examine a group of Harvard economics undergrads (economics is also a field in which women are underrepresented) and do not find any evidence for the explanations listed above.[19]

Table 1 shows that women report being more effective in inter-personal tasks than

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[19] They do find that women do less well in economics relative to other courses than men do, and controlling for this difference in relative performance significantly diminishes the estimated gender gap.

men. When people skills are separated into charisma and caring, women report being particularly effective in caring tasks, while men report being more effective in charismatic interpersonal tasks. This finding is consistent with Gilligan's (2001) well-known work on gender differences. Experimental studies find that women are more likely to cooperate than men when playing prisoner's dilemmas (see Frank et al., 1993 and Ortmann and Tichy, 1999).[20] These differences will affect the assignment of workers to jobs. Generally, we expect women to be more likely to enter jobs where interpersonal interactions are important. More particularly, if women are more empathic towards others they will be assigned to jobs in which caring is more important and they will be absent in jobs requiring a high degree of charisma.

To test these hypotheses, we regressed the share of women in an occupation on the importance of the job tasks. The estimates reported in the first column of Table 2 reveal that the importance of people skills is strongly and positively correlated with the share of women present in a particular occupation. It is by far the highest coefficient in predicting the share of women in an occupation. This result suggests that women are particularly present in occupations in which people skills are demanded. People skills are separated into charisma and caring in a regression analysis presented in column (2). These estimates confirm that jobs where caring is important favor women and that jobs where charisma is important favor men.

Given that women report that people skills – and especially caring – are important on their jobs, exogenous variations in women's employment across occupations will bias our estimates up. To make sure that we are not picking up a gender effect, we calculate the skill scores among male and female workers. The next two columns report estimates for including the reports among women and men separately into the regression equation. In the third column the results for the female skill scores reveal a similar pattern as in the second column of Table 2 with regard to caring and charisma, suggesting that female workers employed in occupations in which a relatively large fraction of women are present are more likely to posses caring skills. The same applies to the skills scores of male workers in the fourth column. In the last two columns we have applied a 2SLS strategy instead of OLS to estimate the relation between the share of women in an occupation and the importance of job tasks. The results remain comparable.

[20] Gneezy et al. (2003) provide experimental evidence that women perform worse in competitive environments. Babcock and Laschever (2003) and Bertrand and Hallock (2001) find that women are less likely to negotiate than men. Casari et al. (2004) find that women bid more in common value auctions benefiting the auctioneer at

Our results might suggest that for some (exogenous) reason women have invested more in caring and men more in charisma and that the allocation of both genders to jobs is the result of these different investment decisions. To deal with this criticism we have matched information from the NCS on British people aged 16 in 1986 to the BSS at the occupational level. The NCS contains information about several personal characteristics at age 16. We measure caring by the extent to which a person reports to be "a loving person" at age 16, and charisma by the extent to which the respondent was "a popular person" at age 16. We have replaced caring and charisma by these personal characteristics at age 16. The results in Table 3 confirm the findings presented in Table 2 that there is a negative correlation between being a popular person at age 16 and the share of women in an occupation and a positive one with caring. Separate regressions for men and women (columns (3) and (4)) and using male scores to instrument female scores and vice versa (columns (5) and (6)) do not change this pattern. The results presented in Table 2 and 3 suggest that jobs in which there is a higher share of women require more loving persons who are strong in caring for others, and less popular persons who are of the more charismatic type.

Finally, the BSS contains information about the extent to which jobs are typically held by men.[21] The correlation between the masculinity of a job and the share of women in an occupation is strongly negative and highly significant: $-.856$ (.000). Replacing the share of women by the inverse of masculinity yields estimates (standard errors in brackets) for caring of .119 (.017), charisma $-.055$ (.015), being a loving person at age 16 .171 (.035), and being a popular person at age 16 $-.093$ (.041), which are statistically significant and consistent with the estimates reported in Table 2 and 3 for the share of women in an occupation.

4.1.2. Racial and Ethnic Differences

Racial and ethnic minorities may be less effective in interpersonal interactions with members of a majority culture.[22] We test this hypothesis by estimating how the employment shares of racial and ethnic minorities in an occupation are affected by the importance of people skills in that occupation. We use data from the United States because racial and ethnic differences are

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their own expense.

[21] The survey asks, "Generally speaking is your job performed by all men, mainly men, a mixture of men and women, mainly women or all women?".

[22] Duncan et al. (2003) find that racial attitudes and friendship networks change when individuals of different ethnic groups interact more frequently. Using data on the random matching of roommates at a large U.S. university they find that mixing students from different ethnic groups reduces negative attitudes towards other ethnic groups compared to a group of students assigned to people from their own group.

more salient in the United States and the U.S. Census is considerably larger than the BSS, which is important when estimating effects for groups that are a relatively small portion of the workforce.

The first column of Table 4 reports estimates for the employment share of blacks. The importance of people skills is an important determinant of the percentage of an occupation that is black. A one standard deviation increase in the importance of people skills lowers the percentage black workers by 1.5 percentage points, compared to a mean percentage black workers of 8.9 percent. Wilson (1997) argues that employers and customers have particularly negative reactions to black men. Column (2) reports estimates for the employment share of black men in an occupation. The estimates confirm that the negative effect of people skills on blacks comes mainly from black men. A one standard deviation increase in the importance of people skills reduces the share of black men in an occupation by 1.3 percentage points, virtually all of the total black effect and 30 percent of the employment share of black men in the sample, 4.3 percent. To control for the effect of people skills on total male employment, column (3) takes the percentage male workers among blacks as the dependent variable and includes the percentage male workers among whites as a control. Occupations that emphasize people skills have lower black male employment shares even after controlling for the white men's employment share.

Columns (4-6) report analogous estimates for the other race category (American Indians, Asians, Pacific Islander's, etc.). Columns (7-9) report analogous estimates for Hispanics. Occupations that place more weight on people skills have lower employment shares for members of other racial groups and Hispanics. People skills are particularly associated with lower employment shares of men among members of other races. Among Hispanics, people skills are neutral between men and women.

In Table 5, the importance of caring and charisma are estimated separately. The importance of charisma is negatively correlated with the employment of blacks, people of other race, and Hispanics. Men from these groups are particularly hurt as charisma becomes more important, whereas male blacks seem to be hurt when caring becomes more important, which is in accordance with the results presented by Wilson (1997).

4.1.3. Linguistic Differences and Immigrants
People with poor language skills will be at a comparative disadvantage in occupations that emphasize interpersonal interactions, and poor language skills will likely be associated with

less familiarity with a majority culture.[23] The U.S. Census asks whether respondents "sometimes or always speak a language other than English at home" (Bureau of the Census (1993), p. B-24). The estimates presented in column (1) of Table 6 show that people who report speaking a language other than English at home are less likely to be employed in a job where people skills are important (and where reading and noticing mistakes is important). A one standard deviation increase in the importance of people skills leads to a 1.9 percentage point decrease in the employment of people who speak a language other than English at home, a large effect relative to the 11 percent of the workforce in this category. People who report speaking a language other than English at home were asked about their ability to speak English. The effect is particularly strong for the importance of charisma and less so for the importance of caring in jobs (column (2)). Column (3) reports the results of an analysis that takes as a dependent variable the fraction of people who report speaking a language other than English at home who report that their English speaking ability is not very good (the highest category). The estimates show that a one standard deviation increase in the importance of people skills reduces the employment of people whose English is less than very good by 5.9 percentage points.[24] Again, the effect seems to be most clear when charisma is important (column (4)).

Column (5) reports estimates from an analysis that takes the share of an occupation that is foreign born (born outside of the United States or its territories) as the dependent variable. A one standard deviation increase in the importance of people skills lowers the percent immigrant by 1.8 percent compared to a mean of 9 percent. The importance of reading skills and noticing mistakes is also associated with lower employment shares of immigrants, which suggests a lack of understanding of situations at work In column (6), the effects of caring and charisma are estimated separately. The importance of caring is uncorrelated with the employment of immigrants, but as charisma becomes more important, their employment shares decline.

4.2. People People and Wages

Our model implies an ambiguous relationship between the importance of caring and expected

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[23] At the more general level, Smith (2003) shows that language increases the likelihood of solving coordination games and appears to lower the cost of monitoring and enforcement in other competitive environments. It is also likely to enhance signaling and reputation effects.

[24] This result is related to the results from the Census in Lazear (1999). He has shown that the likelihood that an immigrant speaks English is inversely related to the proportion of the local population that speaks their native

log wages. On the one hand, jobs that emphasize caring are more desirable and will therefore have lower wages. And, when caring people are in excess supply, some must be assigned to jobs where caring is a disadvantage. In those jobs, the inability of caring people to work effectively also has a negative effect on their wages. On the other hand, in jobs where caring is valued, wages will be increasing in the importance of caring insofar as the action is increasing. Jobs that emphasize caring to a larger extent are also more likely to be filled by more caring people, who require less wage spread and have higher reservation utilities. The most charismatic people will be assigned to jobs that place the greatest emphasis on charisma (i.e., those with high absolute values of θ), so there will be a positive relationship between the importance of charisma and compensation.

Figure 1 shows the relationship between the importance of charisma relative to caring and wages at the occupation level: Log hourly wage in occupation j = 1.122 (.121) + 1.048 (.059) relative importance of charisma in occupation j with an adjusted R^2 of .133.[25] We have highlighted a number of occupations to show the consistency of our argument. Nurses and housekeepers are relatively caring occupations that do not pay as much as the more charismatic occupations such as advocates and plant managers. It is also interesting to observe the difference in the relative importance of charisma between schoolteachers and university professors. All other things equal, the latter have to deal with students and need to be clear on the expected level of performance in class, which involves less caring than schoolteachers who have to be relatively caring towards younger children.

The first column of Table 7 displays the estimates of a simple OLS regression of log hourly wages on the usual covariates and the importance of the skill categories. The estimates indicate that jobs where caring is more important pay lower wages and those where charisma is more important pay higher wages.[26] At the occupational level the results remain similar (column (2)) although it is likely that the possible measurement error in right-hand-side variables has fallen by aggregating the data to the occupational level. Since we deal with generally difficult to measure variables, such as the importance of job tasks, aggregation can be beneficial. The findings reported in columns (1) and (2) are consistent with our model, in which there is an ambiguous relationship between the importance of caring and wages, but

language. In addition, he argues that these people suffer welfare losses.

[25] The regression results at the individual level provide a similar picture but we cannot highlight occupations: Log hourly wages = 1.365 (.037) + .642 (.049) relative importance of charisma. The adjusted R^2 equals .072.

[26] Examining this relationship on people skills without making a distinction between caring a charisma yields a coefficient on people skills of $-.033$ (.016) and an adjusted R^2 of .395.

jobs that emphasize charisma have higher compensation. The negative coefficient on caring is much larger than the positive effect of charisma.[27] Splitting the sample between male and female workers suggests that the results are stronger for men than for women. The coefficients in column (4) for males reveal a pattern consistent with a penalty on being a caring person and a reward for being a charismatic person. The results in column (3) for women go into the same direction, but are insignificant. Stronger estimates among men are consistent with men being concentrated in jobs where charisma is more important and caring is less important, which is what we found in the analysis in the previous section for the share of women in occupations. Lastly, using popularity and lovingness at age 16, instead of the importance of charisma and caring at work, reinforces our results particularly for male workers (column (7)).

Keeping job requirements constant, we expect a positive relationship between caring ability and wages in jobs that involve helping others. The negative overall effect of caring on wages reported in Table 7 can be explained from the desirability of jobs where caring is important and an excess supply of caring people, some of whom must take jobs were caring is a disadvantage. When supply and demand vary continuously – as assumed in our theoretical specification – it is difficult to disentangle the effect of people skills on wages in two parts reflecting the within and between job effects, without estimating a structural model of the assignment process. In practice, people with slightly different characteristics share the same job, because in the labor market there is not a separate job for every person and because assignment will not always reflect the perfect matching of workers to jobs.

We exploit these imperfections to disentangle the productivity and the assignment effect of people skills. Within each job the wage for agent i is determined by

$$\ln(w_i) = \alpha_j p_i + X_i \beta_j + \varepsilon_i,$$

where p is the individual's skill at caring relative to charisma and the vector X_i consists of a constant and control variables such as age, age squared, level of education, gender, and marital status. Skill is measured by the effectiveness of carrying out tasks within a job (e.g., Table 1). We expect the relative return to caring to be larger in jobs where caring for others is relatively more important. To investigate this hypothesis, we regress the estimated returns (α_j) on the relative importance of caring (P_j) in the job, i.e.,

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[27] For the results in column (2), inclusion of people skills instead of caring and charisma yields an insignificant coefficient of −.028 (.030). The adjusted R^2 of this regression is equal to .818.

$$\alpha_j = c + \gamma P_j + \eta_j.$$

This set up of the assignment problem takes α_j to be an occupation-specific parameter that is increasing in the relative importance of caring in the job (i.e., $\gamma > 0$). When estimating this second-stage regression equation, each occupation is weighted by the number of observations. Figure 2 plots the results from this exercise. The figure shows that when caring becomes relatively more important, the returns to caring increase. These results indicate a positive relationship between caring and wages within occupations in which caring is more important, but a negative relationship in jobs where caring is not important. The slope (standard errors in brackets) of the estimated relationship in Figure 2 is .556 (.212) with a constant of $-.681$ (.227)), suggesting that although caring is associated with lower wages, because of general labor-market conditions of supply and demand, the within job returns to caring are increasing in the importance of caring.

We have conjectured that caring may be relatively more important in low-end jobs and that charisma may be more important in high-end jobs. If so, we might expect wages to be higher as the importance of charisma relative to caring increases. Table 8 reports the deciles of the log wage distribution by the ratio of the importance of charisma to caring. From the table it is clear that as the relative importance of charisma increases, wages at a given percentile of the distribution increase. It also stands out that the relative importance of charisma in terms of wages is more important for male workers than it is for female workers since among men the wage difference between jobs where charisma is important relative to those where it is not is larger. In addition, the difference between the top earners and the median relative to the bottom earners and the median becomes larger as the relative importance of charisma increases. This observation is again stronger for men than for women. More generally, these figures suggest a wage premium to being a relatively more charismatic person or alternatively a penalty on being a relatively more caring person.

4.3. Leadership and Team Membership

Economic analyses of superstars argue that relatively small differences in ability are magnified by changes in the scale of operation. This section argues that variations in people skills are an important source of variation in the ability that determines the scale of operation. We use data from the NLSY1979, which contains data on occupations and the extent to which a person is in a supervisory role at work. Although the data cannot shed light on the extremes of superstardom, these variables do provide direct measures of the scale of operation.

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Measures of people skills come from self-reports of sociability as a child and as an adult. The child question refers to sociability at age 6. The question about sociability as an adult was asked on the 1985 survey when the respondents were between 20 and 28 years old. Sociability is coded as follows: Extremely shy, somewhat shy, somewhat outgoing, and extremely outgoing. We have restricted the sample to outcomes in or after 1986. Data are also available on the number of social clubs the respondent belonged to in high school, which provides a behavioral measure of sociability.

While the sociability data are from a particular point in time, labor-market data are available for multiple years. To exploit all waves, we estimate panel models that include random effects. The inclusion of random effects accounts for the correlation for each individual across years. We include a wide range of worker characteristics to minimize the possibility that sociability picks up the effects of unobserved worker heterogeneity.[28]

The estimates in Table 9 indicate that sociability is positively related to the probability of being a manager or executive, two occupational categories associated with a large degree of control over people and resources. Sociable people are also more likely to be entertainers, including performing and non-performing artists and athletes.

The second panel of Table 9 investigates the supervisory content of the respondents' jobs. Sociable people are more likely to supervise others at work; they have greater responsibility for the pay, promotions, and task assignments of the people they supervise; and they are less likely to have a supervisor themselves. On all three dimensions, the more outgoing people have greater control of resources at work, which is consistent with more charismatic persons occupying jobs in which they have to make people do what they want them to do.

The last panel of Table 9 shows that sociability is generally positively related to wages, except for the number of club memberships in high school. Unfortunately, the NLSY79 does not allow us to distinguish between caring and charisma, so these estimates must be interpreted as a weighted average of the effect of caring and charisma. We find that people skills are positively related to a range of indicators of resource control in the workforce.[29]

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[28] Our controls are gender, experience and its square, highest grade completed, whether the respondent has a GEC, black, Hispanic background, mother's education, a 3-year average of log family income and family size when the respondent was a child, and the score on the Armed Forces Qualifying Test.
[29] These results are consistent with the findings of Kuhn and Weinberger (2002) who find that men who occupied leadership positions in high school earn more as adults in managerial occupations, even when

4.4. Technology and Workplace Organization

One of the most important technological changes in the workplace has been the rapid diffusion and adoption of computer technology. There is abundant quantitative and case-study evidence that documents a correlation between computer technology adoption and the increased demand for higher educated workers at all levels of aggregation. In addition to being skill biased, the computer revolution has changed the content of many jobs (e.g., Borghans and Ter Weel, 2002, Autor et al, 2003 and Spitz, 2003). Also, there is evidence that firms have adjusted their organizational structures to make more efficient use of computer technology and reap the fruits of the technology investments (e.g., Bresnahan et al., 2002). It has been argued that firms have adjusted their organizational structures towards working in teams and "quality circles" because companies have become more service oriented (Lindbeck and Snower, 2000), recent technological change has made these types of working modes more attractive, productive and efficient (Black and Lynch, 2001), and the increasing level of employment of higher educated workers (Caroli and Van Reenen, 2001). These tendencies require workers to be able to communicate effectively, listing to colleagues, and deal with other team members efficiently. This body of evidence seems to suggest that people skills are important for team members and for workers in firms with quality initiatives. In addition, computer technology seems to substitute for routine cognitive tasks and is complementary to non-routine job activities increasing the importance of people skills, which are hard to computerize.

4.4.1. Team Work and Quality Circles

Table 10 reports the means for the importance of skills by the importance of team work. The last column reports the difference in the importance of each skill category between people for whom team work is essential compared to those for whom it is not at all important. With the exception of physical skills, all of the skill categories are more important for people who work on teams, corroborating that team work complements skill. Moreover, the importance of people skills increases the most moving from jobs where team work is not at all important to those where it is essential. The increase for caring is particularly large.[30] Other categories

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cognitive skills are held constant. The wage effect varies from 4-24 percent and appears to have increased over time.

[30] For this analysis, we have removed team working from the caring classification.

with large increases are the importance of problem solving and organizational knowledge. These results suggest that when team work becomes more important caring skills in general do too. Splitting the sample between male and female workers reveals a similar pattern although the mean importance of people skills is much higher than in the pooled sample including both men and women. Particularly, there seems to be a strong positive correlation between caring and team work for women, whereas for men the low correlation between the mean score on charisma and team work stands out.

Quality circles are often recognized as innovative human resource management practices and connected to high productivity workplaces (e.g., Ichniowski and Shaw, 2003, for an overview study). Investigating data on innovative organizational work practices, such as quality circles, suggests similar patterns as the one presented in Table 10.[31]

Explaining the importance of team work by the importance of the skills and several covariates in a simple regression analysis reveals a similar pattern. The results of this regression analysis are displayed in Table 11. Without implying causality, the results in column (2) suggest that the more important people skills are the more important team work is. Investigation of charisma and caring yields a positive correlation between caring and team work and a negative correlation between the importance of charisma and team work (column (2)). The results for the separate analysis of men and women yield similar results, although it should be noted that, consistent with the results above, the negative correlation between the importance of charisma and the importance of team work is stronger for men, while the positive correlation between caring and team work is stronger for women. Finally, the inclusion of being popular at age 16 and being loving at age 16 confirm the general pattern of results (columns (5) and (6)).[32]

4.4.2. Technological and Organizational Change

Since computer technology is more likely to substitute for routine cognitive tasks and less likely to substitute for non-routine tasks and people skills such as caring and charisma are generally not easy to computerize, we expect the demand for and the returns to people skills to be increasing in the adoption rate of computer technology. To empirically investigate this

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[31] These numbers are available upon request. The mean (standard deviation in brackets) of being in a quality circle by the importance of team work is the following. Team work not at all important .060 (.237), not very important .161 (.369), fairly important .220 (.415), very important .261 (.439), and essential .382 (.486).
[32] Estimating probit models for belonging to a quality circle or not yields similar results. Results are available upon request.

hypothesis we have explored the mean importance of people skills across occupations in three-digit industries to see whether industries that are increasing their use of computer technology are shifting towards occupations in which people skills are more important. In accordance with recent contributions to the literature we simultaneously take into account the effect of innovative organizational changes on the importance of people skills.

To carry out the analysis we make use of both the BSS and data from the 1993 and 1997 October Supplements to the CPS, which contain information about the use of computer technology at work. The first step of the analysis is to establish a crosswalk between the U.K. and U.S. occupations. The occupational classification in the BSS contains 293 job titles and the CPS 508 job titles. We have assigned the occupational scores for caring, charisma, the importance of team work and belonging to a quality circle or not from the BSS job titles to each of the U.S. occupations in the CPS. This means that some occupations in the United States have the same scores because the U.S. classification is more detailed in certain areas. On the other hand, if the BSS contains more detailed information, the average score over several occupations in a field in Britain have been assigned to a U.S. occupation.[33] Second, we aggregate the U.S. data to generate industry-occupation pairs for both 1993 and 1997 and merge these files with the U.K. data, which include the occupational scores for caring, charisma, team work and quality circles. The crucial assumption we make here is that the occupational scores from the BSS are constant over the period 1993-1997. Third, we weight the data file by the number of observations in 1993 and aggregate them at the three-digit industry level. We carry out the same procedure for 1997. Fourth, these two files, containing the aggregate scores for both years at the industry level, are merged to create a file with industry-level information for 1993 and 1997. Finally, we create growth rates of the relevant variables between 1993 and 1997.

We have estimated the following equations

$$\frac{Ch97_j - Ch93_j}{Ch93_j} = C + \alpha_j \frac{CU97_j - CU93_j}{CU93_j} + \beta_j \frac{QC97_j - QC93_j}{QC93_j} + \varepsilon_j$$

and

$$\frac{Ca97_j - Ca93_j}{Ca93_j} = C + \alpha_j \frac{CU97_j - CU93_j}{CU93_j} + \beta_j \frac{QC97_j - QC93_j}{QC93_j} + \varepsilon_j$$

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[33] The 1984 and 1989 October Supplements to the CPS also contain computer technology use, but use a different occupational classification than the 1993 and 1997 files. This makes a comparison difficult and hence we have not included these data in the empirical analysis.

where *Ch* is average charisma, *Ca* is average caring, *CU* is mean computer technology use at work, and *QC* is the average use of quality circles in industry *j*. *C* is the constant term, and ε_j is an error term with the usual assumptions.[34] The results of the regression analysis are presented in Table 12. The results for both charisma and caring suggest an independent and large positive effect of the change in the adoption of innovative work practices on the change in the average importance of people skills. This effect may contribute to the beneficial effect of technological on the demand for women workers (Weinberg 2000). There is also an independent positive effect of the change in the average use of computer technology on people skills but this effect is less strong. Another observation is that the effect of organizational changes is much larger than the effect of computer adoption and that the coefficients for charisma are of a higher magnitude than the coefficients for caring. This suggests that, although both caring and charisma have become more important as a result of technological and organizational changes, the importance of charisma has more strongly risen over the 1990s than the importance of caring. Similar results are obtained when we include the importance of team work instead of quality circles and if we use percentage changes.

4.5. Non-Labor Market Effects

The final part of the empirical analysis contains estimates for non-labor market effects of people people by investigating the participation in volunteer work and the marriage and fertility behavior of both caring and charismatic persons.

4.5.1 Volunteer Work

Many people perform volunteer work without monetary rewards. Freeman (1997) has shown that it is likely that people feel obliged to volunteer when asked, and that volunteers often hold regular jobs. His results suggest that the traditional labor supply substitution – people supply less when the opportunity costs are high (and perhaps donate money instead) – explains only a minor part of the differences in volunteer activity among people with similar characteristics. This suggests that workers with relatively high levels of empathy or altruism towards other human being are more likely to volunteer. To test for this, we matched data on volunteering from the September 2002 Supplements to the CPS to the BSS data and analyzed the data for employed people at the occupational level.

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[34] Inclusion of an interaction term for organizational change and the use of computer technology does not

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Consistent with Freeman (1997) the results in the first column of Table 13 show that workers with higher wages are more likely to volunteer. In addition, the results suggest that the likelihood of volunteering increases with a worker's educational level. Finally, the estimates suggest that women are more likely to volunteer than men. Adding the occupational importance of charisma and caring suggests that particularly persons who are more caring are involved in volunteer work, whereas charismatic workers are less likely to participate in volunteering. The other coefficients in column (2) remain comparable. This result is consistent with our model, since it suggests that people who are more sensitive to social pressure are more likely to be persuaded to take part in activities that do not give a monetary gain in return but rather gain in terms of helping others or taking care for other persons.[35] The distinction between men and women reveals similar results but also suggests that the negative charisma effect is stronger for women and the positive correlation between caring and volunteering is stronger for men. The final two columns of Table 13 report the results from estimating the regression equation with popularity and being a loving person at age 16 instead of charisma and caring. The results are less strong than the ones than the results in column (2), but the signs of the coefficients are consistent with the previous results.

4.5.2. Marriage and Fertility
People people will gain more from their interpersonal interactions and may be more altruistic. Consequently, we expect them to be more inclined to build long-term relationships with others. Insofar as altruism determines fertility, they should also have more children. We test these hypotheses by looking at the effect of the sociability and membership in clubs in high school on the age of first marriage, age of first birth, and the number of children born among respondents to the NLSY79. The sociability variables are the same as the ones used in Section 4.3 above (e.g., Table 9).

The estimates in Table 14 show that more social people get married and have children at younger ages and have more children. The estimates are from Tobit models, which account for the right censoring in age at first marriage and age of first birth (at the time of the last interview) and the left censoring in the number of children born (at zero). While all three interpersonal interaction variables have the expected signs in all three equations, the estimates

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change the results.
[35] When we include the amount of time a person is participating in volunteering the results remain similar. Adding the other skill categories yields less strong estimates for charisma and caring but insignificant

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for sociability in adulthood and club membership in high school are more precise than those for sociability at age 6.

5. Conclusions

Despite informal arguments that interpersonal interactions are important for understanding individual outcomes and are becoming more important, economists have done little to analyze their economic consequences. This paper provides a first step in this direction, developing a unified model to understand the labor-market consequences of people skills and demonstrating the relationship between people skills and outcomes in the labor market and beyond.

We model interpersonal interactions as solving agency problems, identifying two types of people skills – caring and charisma. Caring serves as a commitment mechanism to take costly actions that benefit others and charisma is the ability to influence others to take costly actions. Caring is beneficial in jobs that involve helping others, but detrimental when a job involves taking actions that will adversely affect others. We show that even in jobs where helping others is important, when the assignment of heterogeneous workers to heterogeneous jobs is considered, the relationship between caring and wages is ambiguous because more caring people will take more desirable jobs where they can better help others. Productivity is non-decreasing in charisma.

We test the model's implications for occupational assignment. We find that as people skills become more important, the female share of an occupation increases, but the employment shares of blacks (especially black men), Hispanics, immigrants, and people with poor English decrease.

We argue that the weak relationship between people skills and wages, found in the few empirical studies that exist, is due to a failure to distinguish between the different effects of caring and charisma on wages. Our empirical analysis finds that wages in an occupation are decreasing in the importance of caring in that occupation but increasing in the importance of charisma. Within occupations, we find a positive association between caring and wages.

We show that new technologies, including computer technology, team production and the applications innovative work practices such as quality circles, complement people skills, thereby raising the importance of both caring and charisma. Although both the importance of

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coefficients for all other skill categories.

caring and charisma has increased, the rise in the demand for charisma has been the most important. We find that people who were more sociable when they were young are more likely to be in jobs where they influence large numbers of people, such as managerial jobs and entertainment, and hold jobs with greater supervisory authority.

We also provide some evidence that people skills affect non-labor market outcomes. In keeping with a relationship between caring and people skills, we find that people people volunteer more, marry at younger ages, have children at younger ages, and have more children.

6. Appendix
6.1. British Skills Survey
The means of the importance of the 36 job activities for which information is available are listed in Table A1. We have selected these job activities into the nine categories. These categories are people skills, problem solving skills, noticing mistakes, calculating skills, reading skills, writing skills, physical skills, planning skills, and organizational knowledge. In addition, we have split people skills into caring and charisma.

The categories are established as follows.
1. *People skills*: dealing with people; working with a team of people; instructing, training or teaching people; making speeches or presentations; persuading or influencing others; selling a product; counseling, advising or caring for customers or clients; and listening carefully to colleagues.
    1a. *Caring*: dealing with people; working with a team of people; counseling, advising or caring for customers or clients; and listening carefully to colleagues.
    1b. *Charisma*: instructing, training or teaching people; making speeches or presentations; persuading or influencing others; selling a product;
2. *Problem solving*: working out the cause of problems or faults; thinking of solutions to problems; and analyzing complex problems in depth.
3. *Noticing mistakes*: paying close attention to detail; spotting problems or faults; checking things to ensure that there are no errors; and noticing when there is a mistake.
4. *Calculating skills*: adding subtracting, multiplying or dividing numbers; calculations using decimals, percentages or fractions; and calculations using more advanced mathematical or statistical procedures.
5. *Reading skills*: reading written information such as forms, notices or signs; reading short documents such as short reports, letters or memos; and reading long documents such as long reports, manuals, articles or books.
6. *Writing skills*: writing materials such as forms notices or signs; writing short documents (for example, short reports, letters or memos); and writing long documents with correct spelling and grammar (for example, long reports, manuals, articles or books).
7. *Physical skills*: physical strength (for example, to carry, push or pull heavy objects; physical stamina (to work for long periods on physical activities); and skill or accuracy in using your hands or fingers (for example, to mend, repair, assemble, construct or adjust things).
8. *Planning skills*: planning your own activities; planning the activities of others; organizing your own time; and thinking ahead.
9. *Organizational knowledge*: knowledge of how to use or operate tools/equipment;

knowledge of particular products or services; specialist knowledge or understanding; knowledge of how your organization works; and using a computer, pc, or other types of computerized equipment.

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Table 1

Descriptive Statistics of the Effectiveness in Carrying Out Job Tasks

Job Activities	Mean (Standard Deviation) of the Effectiveness of Job Activities						
	Overall	Gender		Level of Education		Age	
		Female	Male	High	Low	20-39	40-60
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
People skills	3.774 (.065)	3.835 (.066)	3.720 (.085)	3.839 (.085)	3.756 (.060)	3.750 (.099)	3.803 (.087)
– Charisma	3.451 (.103)	3.349 (.129)	3.554 (.085)	3.597 (.116)	3.410 (.025)	3.406 (.080)	3.505 (.128)
– Caring	4.157 (.037)	4.249 (.054)	4.076 (.046)	4.166 (.095)	4.155 (.086)	4.155 (.107)	4.160 (.090)
Problem solving	3.885 (.107)	3.812 (.085)	3.951 (.132)	4.015 (.121)	3.848 (.059)	3.884 (.101)	3.887 (.155)
Noticing mistakes	4.294 (.048)	4.296 (.057)	4.292 (.058)	4.226 (.011)	4.314 (.031)	4.283 (.045)	4.308 (.048)
Calculating skills	3.835 (.183)	3.729 (.146)	3.929 (.226)	4.064 (.192)	3.769 (.078)	3.856 (.198)	3.809 (.221)
Reading skills	4.180 (.141)	4.144 (.157)	4.212 (.134)	4.387 (.054)	4.120 (.035)	4.180 (.130)	4.179 (.164)
Writing skills	3.856 (.287)	3.885 (.278)	3.830 (.305)	4.268 (.128)	3.737 (.044)	3.821 (.271)	3.897 (.311)
Physical skills	3.787 (.135)	3.569 (.119)	3.981 (.179)	3.573 (.130)	3.848 (.237)	3.812 (.268)	3.757 (.226)
Planning skills	4.099 (.066)	4.124 (.091)	4.077 (.076)	4.138 (.097)	4.087 (.025)	4.066 (.063)	4.138 (.076)
Organizational knowledge	3.973 (.065)	3.936 (.084)	4.006 (.060)	4.017 (.072)	3.960 (.038)	3.987 (.051)	3.956 (.095)
n	2,465	1,163	1,302	551	1,914	1,417	1,048

Note: All data are from the British Skills Survey. The means reported in columns (1)-(3) are regression adjusted for educational level (six educational dummies), age and age squared to capture experience differences. The level of education in columns (4) and (5) is determined as follows. The high level of education includes those workers with a professional or university degree. Workers with a low level of education are the remaining ones. The means reported in columns (4) and (5) are regression adjusted for gender, age and age squared and the means reported in columns (6) and (7) for gender and the educational level of the respondents. The range of answers to the question "when your job involves … are you able to do this effectively?" is (1) hardly ever; (2) sometimes; (3) often; (4) nearly always; and (5) always. Table A1 displays the job tasks included in each category.

Table 2
Share of Women in an Occupation and the Importance Skills
(Dependent Variable: Share of Women in Occupation)

	Total			Gender Differences					
				OLS				2SLS	
	(1)		(2)	Females (3)		Males (4)		Females (5)	Males (6)
People skills	.205 (.043) ***								
– Charisma			−.094 (.042) **	−.151 (.048) ***		−.025 (.048)		−.105 (.045) ***	−.044 (.041)
– Caring			.343 (.045) ***	.220 (.052) ***		.269 (.050) ***		.164 (.050) ***	.113 (.039) **
Problem solving	−.186 (.055) ***		−.126 (.053) **	−.013 (.069)		−.109 (.052) **		−.079 (.070)	−.068 (.047)
Noticing mistakes	.113 (.071)		.057 (.067)	−.144 (.079) *		−.012 (.067)		−.077 (.084)	.064 (.055)
Calculating skills	−.117 (.029) ***		−.066 (.029) **	−.027 (.034)		−.024 (.031)		−.078 (.030) ***	−.020 (.024)
Reading skills	−.047 (.059)		−.111 (.057) *	−.088 (.060)		−.023 (.055)		.092 (.063)	−.064 (.042)
Writing skills	.137 (.053) **		.112 (.051) **	.014 (.058)		.157 (.050) ***		−.095 (.062)	.066 (.039) *
Physical skills	−.160 (.024) ***		−.159 (.022) ***	−.059 (.034) *		−.083 (.024) ***		−.061 (.029) **	−.090 (.020) ***
Planning skills	−.124 (.052) **		−.117 (.049) **	−.121 (.062) *		−.121 (.053) **		−.049 (.054)	−.120 (.042) ***
Org. knowledge	−.089 (.059)		−.094 (.042) **	.021 (.061)		−.028 (.062)		.043 (.055)	−.025 (.048)
n	282		282	150		246		150	246
R² adjusted	.384		.451	.250		.297		.194	.194

Note: All regressions are weighted by cell size. Standard errors are reported in brackets. *** is significant at the 1 percent level; ** is significant at the 5 percent level; and * is significant at the 10 percent level. The regression equation includes an unreported constant, educational dummies and information about age and gender (columns (1) and (2)).

Table 3
Share of Women in an Occupation and Personal Characteristics at Age 16
(Dependent Variable: Share of Women in Occupation)

	Total		Gender Differences			
			OLS		2SLS	
	(1)	(2)	Females (3)	Males (4)	Females (5)	Males (6)
People skills						
– Popular at age 16	−.419 (.113) ***	−.329 (.108) ***	−.086 (.129)	−.123 (.060) **	−.082 (.135)	−.399 (.105) **
– Loving at age 16	.923 (.093) ***	.630 (.091) ***	.600 (.151) ***	.096 (.103)	.519 (.181) **	.378 (.084) ***
Problem solving		−.146 (.058) **	−.082 (.080)	−.082 (.063)	−.021 (.089)	−.085 (.054)
Noticing mistakes		.058 (.077)	.092 (.097)	.011 (.084)	.069 (.099)	.083 (.071)
Calculating skills		−.111 (.031) ***	−.160 (.068) **	−.107 (.037) ***	−.093 (.033) **	−.037 (.030)
Reading skills		−.047 (.061)	−.053 (.039)	.001 (.069)	−.056 (.074)	−.006 (.048)
Writing skills		.112 (.058) *	.013 (.066)	.178 (.062) ***	.155 (.078) **	.148 (.046) ***
Physical skills		−.124 (.025) ***	−.048 (.040)	−.137 (.028) ***	−.035 (.036)	−.083 (.023) ***
Planning skills		−.011 (.048)	−.118 (.068) *	.009 (.055)	−.099 (.061)	.001 (.042)
Org. knowledge		−.026 (.062)	.034 (.072)	.057 (.074)	.078 (.062)	.057 (.061)
n	253	244	133	195	133	195
R^2 adjusted	.278	.449	.127	.239	.158	.208

Note: All regressions are weighted by cell size. Standard errors are reported in brackets. *** is significant at the 1 percent level; ** is significant at the 5 percent level; and * is significant at the 10 percent level. The regression equation includes an unreported constant, educational dummies and information about age and gender (columns (1) and (2)).

Table 4

The Effect of People Skills on Employment Shares by Race and Ethnicity

Importance of Job Tasks	Race and Ethnicity								
	Blacks			Other Race			Hispanics		
	All Blacks	Black Men	Men Given Black	All Other Race	Other Race Men	Men Given Other Race	All Hispanics	Hispanic Men	Men Given Hispanic
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
People skills	−.028	−.023	−.046	−.023	−.016	−.013	−.014	−.003	.008
	(.010)**	(.007)***	(.015)***	(.006)***	(.005)	(.015)	(.004)***	(.002)	(.019)
Problem solving	−.002	.023	−.055	.004	−.002	−.049	.010	−.001	−.025
	(.012)	(.008)***	(.015)***	(.007)	(.006)	(.018)***	(.004)**	(.002)	(.023)
Noticing mistakes	.018	.035	.026	−.011	.003	.020	−.025	.000	.005
	(.006)**	(.004)**	(.010)***	(.010)	(.008)	(.024)	(.002)***	(.001)	(.012)
Calculating skills	−.041	.004	−.004	−.004	.005	.015	−.005	.001	.018
	(.006)***	(.007)	(.010)	(.004)	(.003)	(.010)	(.002)***	(.001)	(.012)*
Reading skills	.020	−.007	.027	−.011	.004	.024	−.008	.001	.025
	(.013)*	(.004)*	(.020)	(.008)	(.007)	(.020)	(.005)*	(.002)	(.026)
Writing skills	.019	−.014	−.026	.010	−.008	−.014	.005	−.004	−.045
	(.013)	(.008)*	(.019)	(.008)	(.007)	(.019)	(.005)	(.002)**	(.025)*
Physical skills	−.013	.010	.028	.002	.013	.020	−.003	.003	.020
	(.005)**	(.003)***	(.008)***	(.003)	(.003)	(.008)***	(.002)	(.001)***	(.010)**
Planning skills	.013	.027	.055	−.009	.005	.042	.000	.003	.022
	(.011)	(.007)***	(.017)***	(.007)	(.006)	(.017)***	(.004)	(.002)	(.022)
Organizational knowledge	−.046	−.004	−.021	.002	.007	−.010	.004	.001	−.009
	(.013)***	(.008)	(.020)	(.008)	(.007)	(.020)	(.005)	(.002)	(.025)
Employment share			.883			.904			.890
of white men			(.019)			(.019)			(.024)
R^2 adjusted	.545	.327	.952	.430	.300	.935	.511	.276	.926

Note: *** is significant at the 1 percent level; ** is significant at the 5 percent level; and * is significant at the 10 percent level. n=196. Estimates are weighted by occupation employment. Estimates control for the education composition of the occupation.

Table 5
The Effect of People Skills on Employment Shares by Race and Ethnicity

Importance of Job Tasks	Race and Ethnicity								
	Blacks			Other Race			Hispanics		
	All Blacks	Black Men	Men Given Black	All Other Race	Other Race Men	Men Given Other Race	All Hispanics	Hispanic Men	Men Given Hispanic
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Caring	.021*	−.019**	−.022	.004	−.010*	.010	−.001	−.001	.044*
	(.011)	(.007)	(.018)	(.007)	(.006)	(.018)	(.004)	(.002)	(.023)
Charisma	−.032***	−.006	−.024*	−.028***	−.012**	−.031**	−.014***	−.004***	−.036**
	(.009)	(.006)	(.014)	(.005)	(.005)	(.014)	(.003)	(.002)	(.018)
Problem solving	.009	−.024***	−.051***	.012	−.001	−.041**	.014***	.000	−.012
	(.012)	(.008)	(.019)	(.007)	(.007)	(.019)	(.005)	(.002)	(.023)
Noticing mistakes	.016	.038***	.029	−.013	.003	.016	−.025***	.000	−.005
	(.016)	(.010)	(.024)	(.009)	(.008)	(.024)	(.006)	(.003)	(.030)
Calculating skills	−.037***	−.009**	−.005	−.002	.005	.017*	−.005*	.001	.023*
	(.006)	(.004)	(.010)	(.004)	(.003)	(.010)	(.002)	(.001)	(.012)
Reading skills	.009	.020**	.026	−.017**	.004	.018	−.010**	.001	.013
	(.013)	(.009)	(.021)	(.008)	(.007)	(.021)	(.005)	(.002)	(.026)
Writing skills	.015	−.014*	−.026	.009	−.007	−.014	.005	−.004*	−.045*
	(.013)	(.008)	(.019)	(.008)	(.007)	(.019)	(.005)	(.002)	(.024)
Physical skills	−.016**	.010***	.027***	.000	.013***	.016*	−.004**	.003***	.014
	(.005)	(.003)	(.009)	(.003)	(.003)	(.008)	(.002)	(.001)	(.011)
Planning skills	.015	.028***	.059***	−.001	.009	.055***	.004	.005**	.036
	(.012)	(.008)	(.018)	(.007)	(.006)	(.018)	(.004)	(.002)	(.023)
Organizational knowledge	−.054***	−.008	−.029	−.003	.004	−.013	.001	.000	−.013
	(.013)	(.008)	(.020)	(.008)	(.007)	(.020)	(.005)	(.002)	(.025)
Employment share			.881			.910			.904
			(.020)			(.020)			(.025)
R^2 adjusted	.556	.327	.952	.470	.320	.954	.530	.298	.929

Note: *** is significant at the 1 percent level; ** is significant at the 5 percent level; and * is significant at the 10 percent level. n=196. Estimates are weighted by occupation employment. Estimates control for the education composition of the occupation.

Table 6
The Effect of People Skills on Employment Shares by English Ability

Importance of Job Tasks	English Ability				Immigrant	
	Speaks a Language Other than English at Home		Does Not Speak English Very Well			
	(1)	(2)	(3)	(4)	(5)	(6)
People skills	−.034 (.010)***		−.108 (.022)***		−.032 (.011)**	
– Caring		.005 (.011)		−.020 (.024)		.005 (.012)
– Charisma		−.042 (.009)***		−.095 (.020)***		−.040 (.010)***
Problem solving	.015 (.012)	.027 (.012)**	.037 (.026)*	.060 (.026)**	.022 (.013)	.033 (.013)**
Noticing mistakes	−.039 (.006)***	−.042 (.016)***	−.004 (.013)	−.006 (.033)	−.054 (.007)***	−.058 (.017)***
Calculating skills	−.007 (.006)	−.004 (.006)	−.004 (.013)	−.001 (.014)	−.003 (.007)	−.001 (.007)
Reading skills	−.026 (.014)*	−.033 (.014)**	−.034 (.029)	−.047 (.029)	−.036 (.015)**	−.042 (.015)***
Writing skills	.013 (.013)	.011 (.013)	−.012 (.027)	−.015 (.027)	.019 (.014)	.018 (.014)
Physical skills	.002 (.005)	−.001 (.005)	.046 (.011)***	.039 (.011)***	−.000 (.006)	−.003 (.006)
Planning skills	−.012 (.012)	.000 (.012)	.001 (.025)	.026 (.026)	−.019 (.013)*	−.007 (.013)
Organizational knowledge	.006 (.014)	−.001 (.013)	−.048 (.028)*	−.069 (.027)	.015 (.015)	.008 (.014)
R^2 adjusted	.500	.530	.717	.730	.450	.479

Note: *** is significant at the 1 percent level; ** is significant at the 5 percent level; and * is significant at the 10 percent level. Does not speak English very well conditional on not speaking English at home. Sample includes 196 occupations. Estimates weighted by occupation employment. Estimates control for the education composition of the occupation.

Table 7

Wages and the Returns to People Skills

(Dependent Variable: Logarithm of Hourly Wage (1) Logarithm of Occupational Wages (2-7))

	Individual Level	Occupational Level					
		Total			Inclusion of Personal Characteristics at Age 16 Instead of People Skills		
	Total (1)	Total (2)	Females (3)	Males (4)	Total (5)	Females (6)	Males (7)
People skills							
– Charisma	.047 (.014) ***	.083 (.029) ***	.019 (.035)	.056 (.031) *			
– Caring	−.072 (.017) ***	−.107 (.033) ***	−.050 (.041)	−.082 (.034) **			
Problem solving	.063 (.016) ***	.053 (.040)	.002 (.052)	.062 (.036) *	.054 (.043)	−.006 (.049)	.043 (.038)
Noticing mistakes	−.003 (.021)	.028 (.047)	.055 (.056)	.008 (.044)	.027 (.052)	.077 (.052)	.009 (.086)
Calculating skills	−.013 (.010)	.015 (.020)	−.007 (.025)	.016 (.019)	.037 (.020) *	.007 (.024)	.037 (.020) *
Reading skills	−.041 (.016) **	.014 (.039)	−.027 (.044)	−.039 (.035)	−.029 (.041)	−.045 (.041)	−.055 (.036)
Writing skills	.060 (.015) ***	.024 (.036)	.068 (.044)	.013 (.033)	.040 (.040)	.086 (.042) **	.017 (.035)
Physical skills	−.100 (.009) ***	−.059 (.019) ***	−.042 (.027)	−.083 (.018) ***	−.074 (.020) ***	−.039 (.025)	−.094 (.018) ***
Planning skills	.019 (.016)	−.033 (.036)	−.023 (.047)	−.003 (.035)	−.029 (.033)	−.014 (.042)	−.002 (.032)
Org. knowledge	.082 (.019) ***	.132 (.038) ***	.096 (.045) **	.092 (.040) **	.145 (.041) ***	.076 (.042) *	.117 (.042) ***
Popular at age 16					.049 (.071)	.145 (.117)	.100 (.076)
Loving at age 16					−.159 (.062) **	−.040 (.099)	−.130 (.069) *
n	1,893	282	145	246	244	142	211
R^2 adjusted	.334	.825	.806	.825	.838	.828	.842

Note: All regressions are OLS and from column (2) onwards weighted by cell size. Standard errors are reported in brackets. *** is significant at the 1 percent level; ** is significant at the 5 percent level; and * is significant at the 10 percent level. The regression equation includes an unreported constant, educational dummies and information about age and gender (columns (1), (2) and (5)). The coefficients for charisma and caring for the individual level estimates performed for men and women separately are .036 (.018)** and −.032 (.022) for women and .072 (.022)*** and −.106 (.026)*** for men, respectively.

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Table 8
Logarithm of Hourly Wages and the Relative Importance of Charisma

		Percentiles of the Wage Distribution									Inequality Measures		
		10th	20th	30th	40th	50th	60th	70th	80th	90th	90th–10th	90th–50th	50th–10th
All workers	Unimportant	1.159	1.253	1.378	1.464	1.576	1.664	1.806	1.910	2.080	.921	.504	.417
	Slightly important	1.194	1.342	1.458	1.602	1.724	1.836	1.953	2.104	2.295	1.101	.571	.530
	Important	1.293	1.481	1.620	1.777	1.871	2.040	2.182	2.369	2.565	1.272	.694	.578
	Very important	1.347	1.519	1.744	1.911	1.930	2.179	2.328	2.478	2.711	1.364	.761	.603
Female workers	Unimportant	1.131	1.236	1.322	1.386	1.552	1.609	1.744	1.864	2.069	.938	.517	.421
	Slightly important	1.099	1.258	1.375	1.452	1.579	1.697	1.831	1.953	2.136	1.037	.557	.480
	Important	1.206	1.340	1.476	1.578	1.755	1.928	2.109	2.235	2.460	1.254	.705	.549
	Very important	1.209	1.346	1.487	1.600	1.808	2.050	2.250	2.366	2.565	1.356	.757	.599
Male workers	Unimportant	1.137	1.345	1.464	1.585	1.688	1.778	1.866	1.979	2.224	1.087	.536	.551
	Slightly important	1.176	1.481	1.609	1.753	1.822	1.976	2.089	2.224	2.482	1.306	.660	.636
	Important	1.335	1.611	1.741	1.870	1.901	2.137	2.288	2.446	2.667	1.332	.766	.566
	Very important	1.407	1.722	1.870	1.981	1.992	2.263	2.398	2.551	2.862	1.455	.870	.585

Note: *n*=2,213. The relative importance of charisma is determined by dividing the individual score on the importance of charisma by the importance of caring. If the ratio is between 0 and .5 it is defined as unimportant; between .5 and .7 as slightly important; between .7 and .9 as important and if the ratio is larger than .9 it is defined as very important. There are 1,066 female and 1,147 male observations in the data.

Table 9
Sociability and Labor Market Outcomes

Dependent variable	Sociability in Adulthood (1)		Sociability at Age 6 (2)		Clubs in High School (3)	
Occupation						
Manager	.126 (.023)	***	.032 (.017)	**	.038 (.017)	**
Executive	.136 (.022)	***	.046 (.016)	***	.035 (.015)	**
Entertainer	.159 (.048)	***	.083 (.036)	***	.134 (.030)	***
Job tasks						
Supervises others at work	.020 (.004)	***	.024 (.005)	***	.009 (.004)	**
Responsible for pay of supervises	.068 (.019)	***	.053 (.014)	***	.039 (.014)	**
Responsible for promotion of supervises	.060 (.019)	***	.044 (.014)	***	.027 (.014)	*
Responsible for task assignment of supervises	.027 (.016)	*	.012 (.011)		.026 (.011)	**
Has a supervisor at work	−.012 (.006)	**	−.009 (.005)	*	−.014 (.005)	**
Log wage	.031 (.007)	***	.012 (.005)	**	−.005 (.004)	

Note: *** is significant at the 1 percent level; ** is significant at the 5 percent level; and * is significant at the 10 percent level. Estimates for each sociability variable are from separate regressions that include that variable, gender, experience and its square, highest grade completed, whether the respondent has a GEC, black, Hispanic background, mother's education, a 3-year average of family size and log family income as a child, and the score on the Armed Forces Qualifying Test. All models pool all respondent-years with valid responses and are estimated with random effects. Models with dichotomous dependent variables were estimated by random effect probit. Sociability as an adult measured at ages 20-28. Sociability is coded as extremely shy (1); somewhat shy (2); somewhat outgoing (3); and extremely outgoing (4).

Table 10
Importance of Team Work and the Importance of Skill Categories
(Means and Standard Deviation)

	Importance of Team Work					
	Not at All Important	Not Very Important	Fairly Important	Very Important	Essential	Essential – Not at All Important
People skills	2.487 (0.996)	2.965 (0.824)	3.108 (0.907)	3.420 (0.840)	3.853 (0.795)	1.366 (.0140)
– Charisma	1.942 (0.973)	2.294 (0.949)	2.486 (1.017)	2.797 (0.984)	3.143 (1.033)	1.201 (0.120)
– Caring	2.833 (1.087)	3.414 0(.881)	3.523 (0.913)	3.819 (0.849)	4.327 (0.769)	1.494 (0.156)
Problem solving	2.663 (1.318)	3.217 (1.239)	3.315 (1.179)	3.544 (1.063)	3.892 (0.985)	1.229 (0.154)
Noticing mistakes	3.536 (1.195)	4.021 (0.858)	3.989 (0.914)	4.159 (0.760)	4.464 (0.626)	0.928 (0.163)
Calculating skills	2.050 (1.194)	2.608 (1.186)	2.710 (1.307)	2.815 (1.274)	2.862 (1.287)	0.812 (0.124)
Reading skills	3.078 (1.105)	3.295 (0.985)	3.387 (1.027)	3.559 (0.971)	4.004 (0.938)	0.926 (0.148)
Writing skills	2.715 (1.085)	2.924 (1.024)	2.995 (1.032)	3.195 (1.015)	3.573 (1.034)	0.858 (0.136)
Physical skills	2.873 (1.289)	2.561 (1.210)	2.751 (1.895)	2.765 (1.163)	2.874 (1.239)	0.001 (0.130)
Planning skills	3.101 (1.081)	3.192 (0.987)	3.206 (0.979)	3.533 (0.971)	3.885 (0.923)	0.784 (0.144)
Organizational knowledge	2.731 (1.045)	3.213 (0.859)	3.271 (0.868)	3.494 (0.809)	3.763 (0.765)	1.032 (0.139)
n	186	120	346	764	1,049	

Note: The numbers in the table are the average importance scores for each skill except last column, which gives the difference between people for whom team work is essential compared to those for whom it is not at all important and the standard error of the difference.

Table 11
Share of Occupation Working in Teams and the Importance Skills
(Dependent Variable: Share of Occupation Working in Teams)

	Basic Regression		Gender Differences		Inclusion of Personal Characteristics at Age 16 instead of People Skills	
	(1)	(2)	Females	Males	(5)	(6)
People skills	.204 (.097) **					
– Charisma		−.212 (.089) **	−.076 (.072)	−.190 (.080) **		
– Caring		.419 (.085) ***	.428 (.081) ***	.284 (.076) ***		
Problem solving	.092 (.117)	.020 (.116)	.071 (.100)	.140 (.085) *		.083 (.102)
Noticing mistakes	.282 (.137) **	.276 (.133) **	.167 (.120)	.224 (.109) **		.255 (.109) **
Calculating skills	−.012 (.058)	−.008 (.056)	−.050 (.052)	−.124 (.049) **		−.089 (.058)
Reading skills	.166 (.101)	.097 (.099)	.005 (.094)	.035 (.089)		.280 (.093) ***
Writing skills	−.136 (.100) **	−.145 (.097)	.111 (.089)	−.030 (.082)		−.125 (.096)
Physical skills	.122 (.064) *	.111 (.062) *	.164 (.051) ***	−.015 (.039)		.147 (.060) **
Planning skills	.278 (.098) ***	.241 (.095) **	−.029 (.100)	.200 (.088) **		.189 (.080) **
Org. knowledge	.041 (.109)	.040 (.105)	.137 (.093)	.073 (.101)		.083 (.104)
Popular at age 16					−.342 (.173) **	−.215 (.117) *
Loving at age 16					.453 (.189) ***	.311 (.156) **
n	282	282	150	246	253	244
R^2 adjusted	.275	.326	.447	.359	.094	.313

Note: All regressions are OLS weighted by cell size. Standard errors are reported in brackets. *** is significant at the 1 percent level; ** is significant at the 5 percent level; and * is significant at the 10 percent level. The regression equation includes an unreported constant, educational dummies and information about age and gender.

Table 12
Technological and Organizational Change and People Skills
(Dependent Variable: Change in the Average Importance of People Skills in Industry j)

	Change in the Average Importance of Charisma in Industry j		Change in the Average Importance of Caring in Industry j	
Constant	.007 (.003)	**	.004 (.002)	**
Change in average computer technology use in industry j	.014 (.005)	**	.009 (.004)	**
Change in the average number of workers belonging to quality circles in industry j	.200 (.017)	***	.041 (.010)	***
n	230		230	
R^2 adjusted	.136		.068	

Note: All regressions are OLS weighted by cell size. Standard errors are reported in brackets. *** is significant at the 1 percent level; ** is significant at the 5 percent level; and * is significant at the 10 percent level. See the text for details about the construction of the data file.

Table 13
The Relation of Volunteering to the Importance of Skills at Work
(Dependent Variable: Occupational Share of Volunteering)

	Basic Regression		Gender Differences		Inclusion of Personal Characteristics at Age 16 instead of People Skills	
	(1)	(2)	Females (3)	Males (4)	(5)	(6)
ln (hourly wage)	.053 (.028) *	.048 (.029) *	.002 (.024)	.008 (.025)		.046 (.031)
Education						
NVQ1	−.081 (.092)	−.047 (.093)	−.030 (.125)	−.039 (.095)		−.066 (.100)
NVQ2	.101 (.048) **	.103 (.050) **	.296 (.079) ***	.093 (.054) *		.126 (.056) **
NVQ3	.100 (.057) *	.109 (.057) *	.224 (.080) ***	.155 (.061) **		.116 (.065) *
Professional	.226 (.057) ***	.244 (.058) ***	.399 (.078) ***	.292 (.054) ***		.242 (.062) ***
University degree	.341 (.076) ***	.388 (.080) ***	.470 (.109) ***	.450 (.081) ***		.347 (.085) ***
Age	.011 (.015)	.010 (.015)	.079 (.026) ***	.012 (.016)		.019 (.017)
Age^2	−.012 (.019)	−.011 (.018)	−.099 (.033) ***	−.013 (.020)		−.022 (.021)
Gender	.092 (.023) ***	.063 (.027) **				.095 (.028) ***
People skills						
– Charisma		−.026 (.012) **	−.033 (.018) *	−.012 (.014)		
– Caring		.044 (.019) **	.030 (.018) *	.044 (.016) ***		
– Popular at age 16					−.061 (.032) *	−.023 (.030)
– Loving at age 16					.131 (.039) ***	.057 (.030) *
n	176	176	118	162	185	163
R^2 adjusted	.483	.494	.501	.485	.054	.481

Note: All regressions are OLS weighted by cell size. Standard errors are reported in brackets. *** is significant at the 1 percent level; ** is significant at the 5 percent level; and * is significant at the 10 percent level. The regression equation includes an unreported constant. The levels of education are relative to persons with no diploma. The levels of education are standard U.K. classifications and are listed ascending.

Table 14
Sociability, Marriage, and Fertility

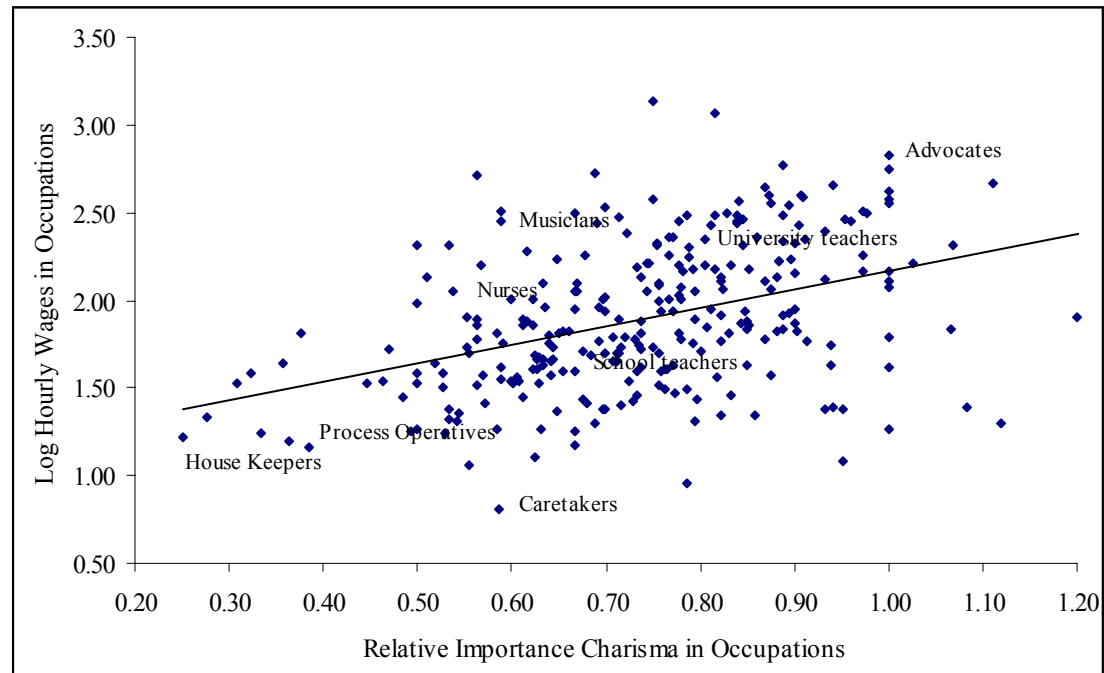| Dependent variable	Sociability in Adulthood (1)	Sociability at Age 6 (2)	Clubs in High School (3)
Age at First Birth	−.329 (.157)**	−.149 (.119)	−.258 (.132)**
Age at First Marriage	−.311 (.154)**	−.140 (.116)	−.141 (.122)
Number of Children	.013 (.030)	.009 (.023)	.048 (.026)*

Note: Estimates from Tobit models. ** is significant at the 5 percent level; and * is significant at the 10 percent level. Age at first birth and age at first marriage are right censored at the respondent's age at the time of the last interview. Number of children is left censored at zero. Estimates for each sociability variable are from separate regressions that include that variable, gender, highest grade completed, black, Hispanic background, mother's education, a 3-year average of family size and log family income as a child, and the score on the Armed Forces Qualifying Test. Estimates for number of children also control for age and its square. Sociability as an adult measured at ages 20-28. Sociability is coded as extremely shy (1); somewhat shy (2); somewhat outgoing (3); and extremely outgoing (4).

Job Activities	Mean (Standard Deviation) of the Importance of Job Activities						
	Overall	Gender		Level of Education		Age	
		Female	Male	High	Low	20-39	40-60
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
People skills	3.47 (0.933)	3.51 (0.929)	3.43 (0.937)	3.84 (0.726)	3.36 (0.959)	3.47 (0.914)	3.47 (0.959)
Dealing with people	4.34 (1.007)	4.47 (0.956)	4.23 (1.038)	4.63 (0.636)	4.26 (1.077)	4.34 (1.007)	4.35 (1.008)
Working in a team	3.96 (1.200)	4.02 (1.217)	3.91 (1.182)	4.19 (0.961)	3.89 (1.252)	4.04 (1.143)	3.86 (1.266)
Instructing, training or teaching people	3.25 (1.458)	3.20 (1.511)	3.29 (1.407)	3.82 (1.214)	3.08 (1.480)	3.26 (1.420)	3.23 (1.507)
Making speeches/presentations	2.14 (1.310)	2.03 (1.276)	2.23 (1.333)	3.01 (1.364)	1.88 (1.179)	2.14 (1.272)	2.13 (1.359)
Persuading or influencing others	3.10 (1.352)	2.98 (1.388)	3.21 (1.310)	3.81 (1.114)	2.90 (1.345)	3.08 (1.312)	3.13 (1.404)
Selling a product	2.76 (1.673)	2.71 (1.683)	2.81 (1.663)	2.77 (1.581)	2.76 (1.698)	2.78 (1.676)	2.73 (1.668)
Counseling, advising or caring for customers	3.39 (1.586)	3.68 (1.537)	3.14 (1.587)	3.79 (1.402)	3.28 (1.618)	3.38 (1.588)	3.42 (1.584)
Listening carefully to colleagues	3.96 (1.088)	4.02 (1.120)	3.91 (1.056)	4.20 (0.947)	3.89 (1.116)	3.98 (1.046)	3.94 (1.142)
Caring	3.92 (0.895)	4.05 (0.921)	3.80 (0.854)	4.20 (0.708)	3.83 (0.925)	3.93 (0.869)	3.89 (0.929)
Dealing with people	4.34 (1.007)	4.47 (0.956)	4.23 (1.038)	4.63 (0.636)	4.26 (1.077)	4.34 (1.007)	4.35 (1.008)
Working in a team	3.96 (1.200)	4.02 (1.217)	3.91 (1.182)	4.19 (0.961)	3.89 (1.252)	4.04 (1.143)	3.86 (1.266)
Counseling, advising or caring for customers	3.39 (1.586)	3.68 (1.537)	3.14 (1.587)	3.79 (1.402)	3.28 (1.618)	3.38 (1.588)	3.42 (1.584)
Listening carefully to colleagues	3.96 (1.088)	4.02 (1.120)	3.91 (1.056)	4.20 (0.947)	3.89 (1.116)	3.98 (1.046)	3.94 (1.142)
Charisma	2.81 (1.070)	2.73 (1.066)	2.88 (1.069)	3.35 (0.916)	2.66 (1.060)	2.82 (1.049)	2.80 (1.098)
Instructing, training or teaching people	3.25 (1.458)	3.20 (1.511)	3.29 (1.407)	3.82 (1.214)	3.08 (1.480)	3.26 (1.420)	3.23 (1.507)
Making speeches/presentations	2.14 (1.310)	2.03 (1.276)	2.23 (1.333)	3.01 (1.364)	1.88 (1.179)	2.14 (1.272)	2.13 (1.359)
Persuading or influencing others	3.10 (1.352)	2.98 (1.388)	3.21 (1.310)	3.81 (1.114)	2.90 (1.345)	3.08 (1.312)	3.13 (1.404)
Selling a product	2.76 (1.673)	2.71 (1.683)	2.81 (1.663)	2.77 (1.581)	2.76 (1.698)	2.78 (1.676)	2.73 (1.668)
Problem solving	3.58 (1.133)	3.41 (1.178)	3.73 (1.069)	4.12 (0.868)	3.42 (1.152)	3.59 (1.099)	3.56 (1.178)
Working out the cause of problems or faults	3.85 (1.213)	3.71 (1.268)	3.98 (1.147)	4.17 (0.998)	3.76 (1.253)	3.88 (1.173)	3.82 (1.264)
Thinking of solutions to problems	3.81 (1.222)	3.63 (1.289)	3.98 (1.134)	4.31 (0.893)	3.67 (1.265)	3.83 (1.176)	3.79 (1.282)
Analyzing complex problems	3.07 (1.442)	2.89 (1.455)	3.22 (1.413)	3.88 (1.184)	2.83 (1.424)	3.07 (1.410)	3.06 (1.485)
Noticing Mistakes	4.21 (0.822)	4.15 (0.878)	4.26 (0.765)	4.36 (0.674)	4.17 (0.855)	4.22 (0.795)	4.20 (0.857)
Paying close attention to detail	4.52 (0.773)	4.52 (0.781)	4.53 (0.766)	4.62 (0.647)	4.50 (0.803)	4.51 (0.786)	4.54 (0.754)
Spotting problems or faults	4.13 (1.054)	4.02 (1.128)	4.23 (0.973)	4.27 (0.913)	4.09 (1.088)	4.15 (1.022)	4.11 (1.097)
Checking things to ensure there are no errors	4.05 (1.149)	3.99 (1.225)	4.10 (1.074)	4.23 (0.961)	3.99 (1.192)	4.07 (1.106)	4.02 (1.204)
Noticing when there is a mistake	4.15 (1.038)	4.09 (1.122)	4.20 (0.954)	4.33 (0.875)	4.09 (1.075)	4.17 (1.003)	4.12 (1.084)
Calculating skills	2.75 (1.291)	2.57 (1.309)	2.92 (1.252)	3.22 (1.260)	2.62 (1.269)	2.79 (1.291)	2.70 (1.288)

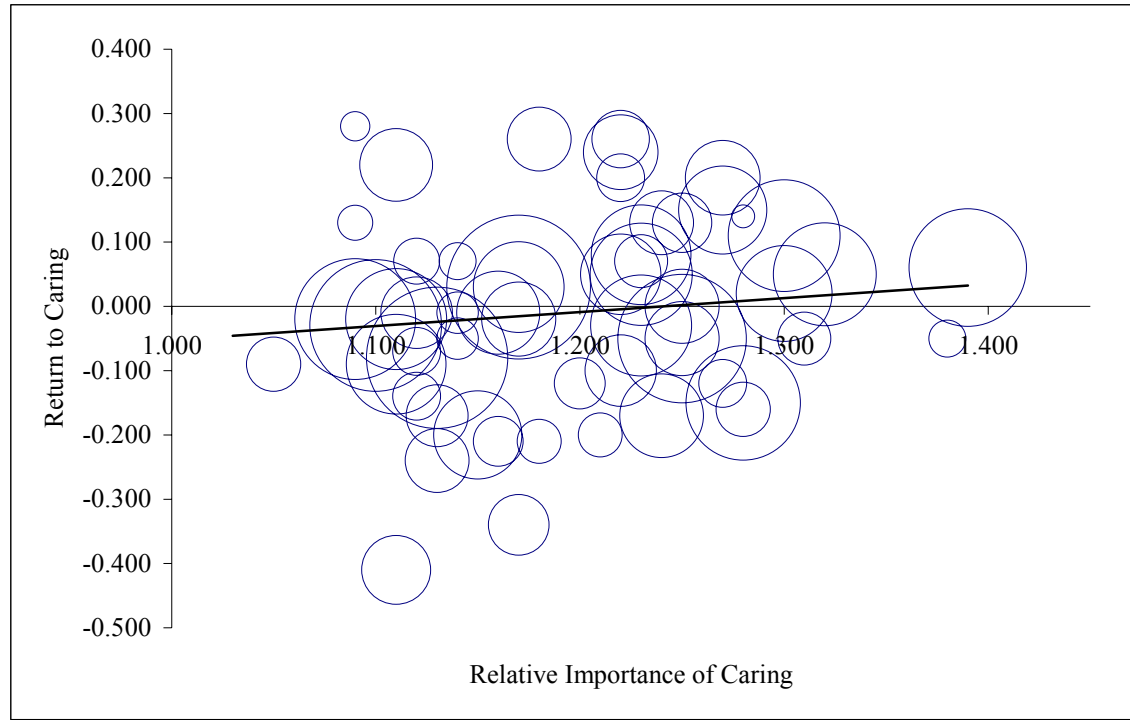|							
Adding, subtracting, etc. numbers	3.36 (1.499)	3.19 (1.580)	3.50 (1.407)	3.72 (1.341)	3.25 (1.525)	3.40 (1.476)	3.30 (1.528)
Calculations using decimals etc.	2.83 (1.575)	2.62 (1.599)	3.03 (1.529)	3.40 (1.463)	2.67 (1.568)	2.85 (1.566)	2.82 (1.588)
Calculations using more advanced math	2.07 (1.346)	1.89 (1.295)	2.22 (1.372)	2.52 (1.468)	1.93 (1.279)	2.13 (1.373)	1.97 (1.302)
Reading skills	3.69 (1.020)	3.71 (1.038)	3.67 (1.003)	4.07 (0.853)	3.57 (1.038)	3.65 (1.025)	3.74 (1.011)
Reading written information such as forms	3.91 (1.205)	3.85 (1.283)	3.96 (1.128)	4.15 (1.039)	3.84 (1.240)	3.89 (1.184)	3.94 (1.231)
Reading short documents such as letters	3.66 (1.324)	3.67 (1.364)	3.64 (1.288)	4.19 (0.942)	3.50 (1.377)	3.61 (1.312)	3.72 (1.339)
Reading long documents such as articles	3.20 (1.391)	3.19 (1.419)	3.20 (1.366)	3.80 (1.132)	3.01 (1.410)	3.19 (1.364)	3.21 (1.426)
Writing skills	3.30 (1.064)	3.40 (1.077)	3.23 (1.048)	3.78 (0.950)	3.14 (1.052)	3.27 (1.048)	3.35 (1.084)
Writing material such as forms	3.27 (1.414)	3.24 (1.498)	3.30 (1.334)	3.71 (1.225)	3.14 (1.439)	3.26 (1.395)	3.28 (1.440)
Writing short documents such as letters	3.16 (1.475)	3.15 (1.538)	3.17 (1.416)	3.97 (1.103)	2.93 (1.485)	3.14 (1.457)	3.19 (1.498)
Writing long documents such as articles	2.76 (1.441)	2.86 (1.497)	2.68 (1.388)	3.50 (1.341)	2.51 (1.386)	2.73 (1.410)	2.81 (1.480)
Physical skills	2.81 (1.213)	2.56 (1.140)	3.03 (1.233)	2.31 (1.076)	2.95 (1.212)	2.79 (1.204)	2.83 (1.225)
Physical strength	2.62 (1.437)	2.36 (1.361)	2.86 (1.462)	1.96 (1.156)	2.81 (1.454)	2.63 (1.435)	2.61 (1.440)
Physical stamina	2.87 (1.403)	2.66 (1.409)	3.06 (1.370)	2.50 (1.332)	2.98 (1.405)	2.82 (1.385)	2.94 (1.426)
Skill or accuracy in using hands or fingers	2.93 (1.566)	2.66 (1.533)	3.17 (1.557)	2.46 (1.434)	3.06 (1.577)	2.93 (1.557)	2.93 (1.579)
Planning skills	3.59 (1.004)	3.51 (1.076)	3.66 (0.929)	4.11 (0.739)	3.44 (1.019)	3.56 (0.985)	3.63 (1.028)
Planning your own activities	3.77 (1.216)	3.67 (1.297)	3.85 (1.133)	4.34 (0.845)	3.60 (1.257)	3.71 (1.205)	3.83 (1.228)
Planning the activities of others	2.74 (1.428)	2.64 (1.448)	2.82 (1.405)	3.38 (1.339)	2.55 (1.399)	2.70 (1.404)	2.78 (1.460)
Organizing your own time	3.86 (1.209)	3.81 (1.296)	3.90 (1.124)	4.37 (0.827)	3.71 (1.261)	3.82 (1.207)	3.91 (1.210)
Thinking ahead	3.99 (1.073)	3.90 (1.147)	4.07 (0.996)	4.36 (0.801)	3.88 (1.117)	3.98 (1.038)	4.00 (1.119)
Organizational knowledge	3.51 (0.872)	3.40 (0.953)	3.60 (0.782)	3.77 (0.688)	3.43 (0.904)	3.53 (0.858)	3.48 (0.889)
Knowledge of how to use of equipment	3.36 (1.556)	3.04 (1.570)	3.64 (1.487)	2.99 (1.509)	3.46 (1.554)	3.38 (1.544)	3.32 (1.572)
Knowledge of products or services	3.68 (1.334)	3.46 (1.455)	3.88 (1.180)	3.82 (1.262)	3.64 (1.351)	3.74 (1.293)	3.61 (1.384)
Specialist knowledge or understanding	3.90 (1.225)	3.76 (1.320)	4.02 (1.119)	4.45 (0.847)	3.74 (1.270)	3.87 (1.215)	3.93 (1.237)
Knowledge of how your organization works	3.57 (1.193)	3.64 (1.212)	3.51 (1.173)	3.80 (1.040)	3.50 (1.226)	3.57 (1.126)	3.58 (1.279)
Using computerized equipment	3.02 (1.646)	3.12 (1.679)	2.94 (1.611)	3.78 (1.314)	2.81 (1.667)	3.08 (1.654)	2.94 (1.632)
n	2,465	1,163	1,302	551	1,914	1,417	1,048

Figure 1
Relationship between Occupational Wages and the Relative Importance of Charisma

Note: *n*=277. The relative importance of charisma is determined by dividing the individual score on the importance of charisma by the importance of caring aggregated to the occupational level. The log hourly wages are the logs of the average occupational wages.

Figure 2
Assignment: The Within-Job Returns to Caring and the Relative Importance of Caring

Note: *n*=277. The relative importance of caring is determined by dividing the individual score on the importance of caring by the importance of charisma aggregated to the occupational level. The size of the dots is determined by the number of workers in each occupation.