Social Insurance, Work Norms, and the Allocation of Talent

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Abstract

In countries where social insurance is generous, individuals endorse relatively weak work norms; however, weaker work norms are not associated with worse economic performance, neither at the country level nor at the individual level. I develop a model of endogenous work norms that rationalizes that evidence. Weak work norms do not harm labor productivity because they improve the allocation of individual talents to occupations, while strong work norms arise as a defensive strategy of parents aiming at perpetueting their occupation along family lines. Evidence from microdata corroborates the view that social insurance favors intergenerational occupational mobility and that more mobile individuals endorse weaker work norms.

Keywords: social insurance, work norms, symbolic values, occupational mobility, economic growth.

JEL-Classification: O0, Z1.

1 Introduction

Social insurance entails a trade-off between the benefits from reduced consumption risk and the costs in terms of work disincentives. Those disincentives may reach beyond usual short-run effects upon labor supply. A major source of concern for policy makers and social scientists is the impact of social insurance on the evolution of the work ethic of the population. As argued e.g. by Lindbeck (1995), Lindbeck and Nyberg (2006), Lindbeck et al. (1999, 2003), and Mulligan (1997), generous social insurance can, over time, erode the symbolic value attached to achieving self-reliance through own work. In that view, falling returns to work as compared to living on transfers diminish the incentives for parents to teach their children that lack of self-relience is ashaming for able-bodied adults. When grown up, those children are expected to endorse weaker work norms and to contribute less to GDP. The ensuing incentive costs may be a multiple of the costs of generous social insurance that are inferred from short-run changes in labor supply. Therefore, the intergenerational effects of social insurance on work norms can have far-reaching policy implications, for both mature welfare states and governments in emerging economies that by now can afford to start generous programs.

Empirical investigations of work norms mainly exploit survey data from large representative samples, like the World Values Survey and the European Values Survey (EVS). Cross-country evidence corroborates the view that more generous social insurance comes along with weaker work norms (Lindbeck and Nyberg, 2006; Corneo, 2012). However, Corneo (2012) finds that at the individual level stronger work norms are not positively correlated with income even if many individual characteristics are controlled for. A similar finding obtains at the country level: across OECD countries, economic growth is uncorrelated with the strength of work norms.

The current paper develops a theoretical framework that rationalizes both the negative cross-country correlation between generosity of social insurance and strength of work norms and the missing impact of strong work norms on economic performance. I develop a dynamic model of endogenous work norms instilled by parents, in which individuals make a career choice with imperfect knowledge of their talent, and face the risk of unemployment. An efficient allocation of talent is assumed to be key for economic performance. The generosity of social insurance is endogenously determined through voting.

The analysis shows that weaker work norms need not harm labor productivity because they improve the allocation of individual talents to occupations and this can offset the usual adverse effects from weak work norms. Strong work norms arise as a defensive strategy of parents that aim at perpetueting their occupation along family lines. When individuals follow their parents' footsteps in the labor market, their risk of unemployment is tiny because they can profit from both the network of contacts and the occupation-specific human capital that they inherit from their parents. For those individuals, endorsing strong work norms in praise of self-supportiveness is a relatively safe way to boost one's self-esteem. Conversely, weak work norms arise in economies where young adults do not rely on their parents' help in the labor market and hence face a greater unemployment risk. Social insurance alleviates the material distress of the unemployed and makes independency from parents relatively more attractive viz. following their footsteps relatively less attractive. This can explain the empirical fact that countries that are generous with their unemployed exhibit relatively weak work norms. At the same time, insisting that children enter their parents' occupation leads to an inefficient allocation of talents. This can explain why individuals and countries with stronger work norms do not compare favourably in terms of economic performance. Furthermore, there are circumstances under which the model exhibits multiple equilibria: an equilibrium with strong work norms and meager unemployment benefits coexists with one where work norms are weak and unemployment benefits are generous. Aggregate output is larger in the equilibrium with weak work norms if and only if the productivity gain from an efficient allocation of talent is sufficiently large.

The claim that the generosity of unemployment benefits encourages intergenerational occupational mobility is consistent with cross-country data for Europe, as summarized by Figure 1. The generosity index on the horizontal axis captures the ratio of the after-tax unemployment benefit payable to a typical worker to that worker's after-tax wage, as computed by Scruggs and Allan (2006). The vertical axis has the fraction of male adults that follow the occupational footsteps of their fathers. That variable is obtained from the EVS of 2008 which reports the four-digit ISCO code of the occupation of both the respondent and his father when the respondent was fourteen. All countries for which both sources of information are available have been used. The inheritance of occupations is negatively correlated with the generosity of unemployment benefits and the regression line has a R^2 close to .6. Figure 2 replicates the same exercise using Scrugg and Allan's (2006) general score of generosity of social insurance, which incorporates sickness and pension benefits along with unemployment benefits.

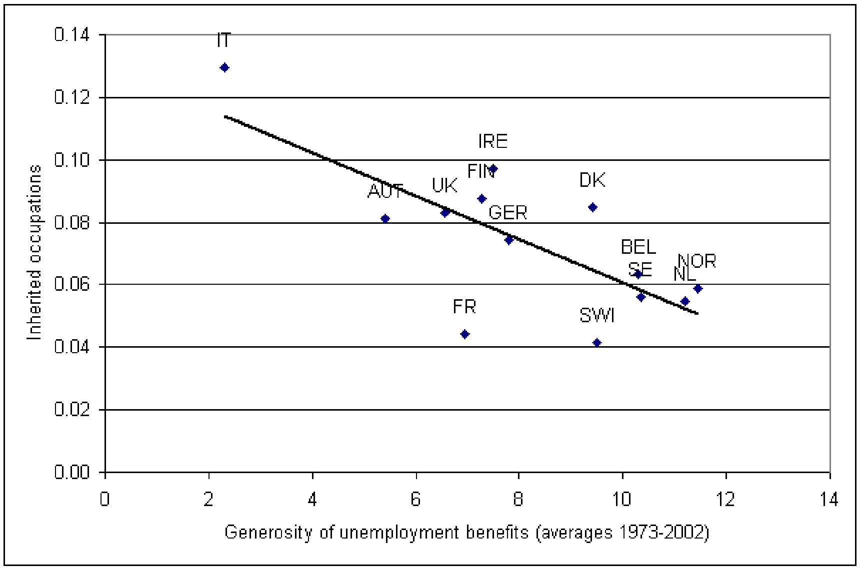

Figure 1: Generosity of unemployment benefits and intergenerational occupational mobility.

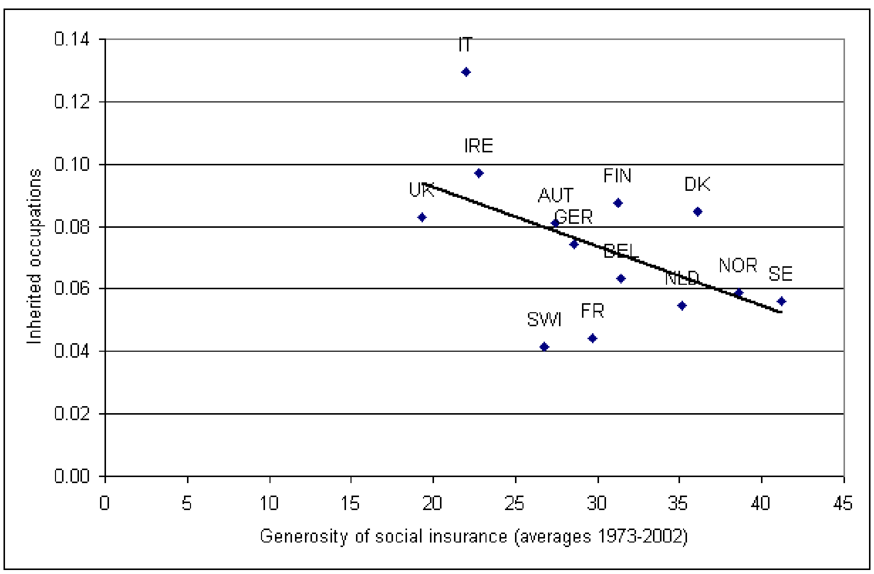

Figure 2: Generosity of social insurance and intergenerational occupational mobility.

The paper is organized as follows. Links to the literature are clarified in the next Section. Section 3 presents the model and Sections 4-6 derive its main properties. In Section 7 the distinctive predictions of the theoretical model are confronted with the data. Section 8 concludes.

2 Links to the literature

Work norms dictate self-supportiveness: persons who are able to work should work so as to support themselves by their own work and they should not rely on support by others.

In Lindbeck (1997) the disutility from deviating from that norm is assumed to decrease with the share of transfer recipients. Since transfer recipients may be individuals who break the norm, those models exhibit a critical-mass effect: the larger the share of the population that violates the norm, the smaller the utility loss from violating it, and the stronger the incentive to live off handouts from the government. There can be both an equilibrium with large norm compliance and ostracism of the unemployed and one where the norm breaks down. An exogenous increase in the generosity of the welfare state may eliminate the first equilibrium and lead to the collapse of social insurance. Lindbeck *et al.* (1999) show that under endogenous social insurance there exists at most one equilibrium: either a laissez-faire one, supported by a majority of potential taxpayers, or one with a generous welfare state, supported by a majority of transfer recipients. The laissez-faire equilibrium is one where the norm is vastly obeyed and the economy thrives. Also in the current paper, there are equilibria with either weak or strong norms; however, economic performance needs not be better in the equilibrium with strong norms.

Lindbeck and Nyberg (2006) endogenize work norms as the outcome of a purposive socialization process. Parents instill a work norm in their children so as to mitigate children's free-riding on parents' altruism. Social insurance shifts some of the costs of children's free riding from the parents to the government and weakens the incentive for parents to instill a work norm. In a related model, Gradstein (2010) allows families to invest in education and thereby shows that education subsidies can prevent work norms from deteriorating. The current paper shares the view that parents purposively influence their children's work norms. However, it models those norms as resulting from the value system that parents transmit to their children (Corneo and Jeanne, 2009). I allow values and esteem to depend not only on whether somebody is a transfer recipient or a worker but also on his occupation. This is consistent with the empirical finding that occupational pride and prestige are essential ingredients in the choice of carrers and occupations (Arcidiacono, 2004; Dolton *et al.*; 1989, Humlum *et al.*, 2010).

Another relevant literature concerns endogenous work attitudes, as in Doepke and Zilibotti (2008) and Gradstein (2009). While work norms refer to self-reliance, work attitudes refer to the willingness to substitute leisure for consumption at the margin. Those papers show that the intergenerational transmission of work attitudes can help to explain long-term patterns of social mobility whereby children of poor parents overtake children of rich parents. Differently from the current one, those papers do not deal with unemployment and social insurance.

There is much empirical work that relates children's labor market outcomes to their parents' ones. A strand of literature has documented the extent of intergenerational persistence in occupational choice, whereby the father's occupation is found to be an important determinant of the son's occupation. However, the studies in that literature employ a broader definition of occupation than in this paper, one mainly based on its socio-economic status, see e.g. Constant and Zimmermann (2003) and references therein. A related study is Corak and Piraino (2011), about the intergenerational transmission of employers. Using Canadian data, they find that 6 %-9 % of a cohort of young men have the same employer in adulthood for which their father worked. That is driven by fathers providing both informational networks and specific human capital to their children. The role of family networks is confirmed by Kramarz and Skans (2011), who analyze Swedish data. Interestingly, they find that family networks favor the transition between school and work especially for children with low schooling and poor grades. There are also empirical studies that find an important effect from parents' joblessness on children's earnings (Oreopoulos et *al.*, 2008) and unemployment (Corak *et al.*, 2004, Österbacka, 2004, and Page, 2004). My model is consistent with the main findings of this empirical literature: (i) there is intergenerational persistence in occupational choice; (ii) following a parent's occupational footsteps is especially attractive for less talented individuals; (iii) parents' unemployment has a negative impact on the labor market outcomes of their children.

Finally, the model in this paper is related to that part of growth theory that puts forward the allocation of talent as a key growth factor, as in Fershtman *et al.* (1996), Galor and Tsiddon (1997), Hassler and Rodriguez Mora (2000), and Murphy *et al.* (1991). The current paper stresses the benefits in terms of accumulated knowledge that accrue to society if individuals perform an activity for which they are talented. The underlying assumption is that such a coincidence spurs creativity and new ideas, whereas a mismatch of talents and occupations results in technological stagnation. This focus distinguishes the current paper from the previous literature on the allocation of talent, that stresses investments in human capital and the role of entrepreneurs.

3 The model

At any time period $t \in \{0, 1, 2...\}$ there is a continuum of dynasties $i \in [0, 1]$. Individual i_t is the parent of individual i_{t+1} and lives one period. Every individual may either work and embrace one of two occupations, referred to as a and b. Or, the individual may be unemployed and receive social benefits, in which case his activity is denoted by u. In every period t, the following sequence of events occurs for every dynasty.

1. Individual i_t internalizes a value system transmitted by i_{t-1}. A value system is

a mapping that associates non-negative indexes - symbolic values - to activities. Let $v(w, i_t)$ denote the symbolic value associated to work and $v(u, i_t)$ denote the one associated to unemployment, for individual i_t. As values are intrinsically relative, I use the normalization

$$v(w, i_t) + v(u, i_t) = 1, \tag{1}$$

where

$$v(w, i_t) = v(a, i_t) + v(b, i_t),$$

i.e. the symbolic value of working is the sum of the symbolic values attached to the two occupations. The strength of the work norm endorsed by individual i_t, $n(i_t)$, is defined as the difference between the symbolic value that individual i_t attaches to working and the symbolic value that he attaches to living off the welfare state: $n(i_t) = v(w, i_t) - v(u, i_t)$.

2. As a child, individual i_t receives a signal about his unknown talent $\theta(i_t) \in \{a, b\}$. The signal may be either σ_a or σ_b. The unconditional probability of each signal is 1/2; the conditional probabilities are

$$\Pr\{\sigma_{i,t} = \sigma_a | \theta(i_i) = a\} = \Pr\{\sigma_{i,t} = \sigma_b | \theta(i_t) = b\} = p, \tag{2}$$

where $p \in (1/2, 1)$ is the precision of the signal. It can be thought of as mirroring the quality of the education system.

3. Individual i_t chooses an occupational specialization $s(i_t) \in \{a, b\}$. Having a specialization is a necessary requirement for working in the corresponding occupation.

4. The individuals $i_t \in [0, 1]$ vote over balanced social insurance schemes (τ_t, z_t) and one is collectively chosen. $\tau_t \in [0, 1]$ is the wage tax rate and $z_t \geq 0$ is the unemployment benefit.

5. Nature privately reveals to each individual his talent $\theta(i_t)$, upon which the individual's productivity is determined. The productivity of individual i_t depends both on his talent for the chosen occupation and on his parent's activity, $x(i_{t-1}) \in \{a, b, u\}$. If $s(i_t) = \theta(i_t)$, individual i_t's gross hourly wage is $w_t(1 + \delta)$, where $\delta > 0$ is the talent premium. If $s(i_t) \neq \theta(i_t)$, the wage is $w_t > 0$ if $s(i_t) = x(i_{t-1})$ and 0 otherwise. Thus, untalented individuals can earn a positive wage only if they have followed their parents' occupational footsteps.

6. Individuals choose their work hours $h(i_t) \in [0, 1]$, produce, and are paid their market wage according to their productivity.

7. Consumption levels $c(i_t)$ are determined by redistributing the wage sum according to the social-insurance scheme.

Individuals derive utility from consumption, leisure, self-esteem and social esteem. Their preferences are described by a logarithmic utility function,

$$U = \ln c + \ln(1-h) + \beta \ln selfv + \gamma \ln socv,$$

where c is consumption, $1-h$ is leisure, $selfv$ captures self-esteem, and $socv$ is social esteem.

The weigth of the self-esteem concern in an individual's utility function is captured by $\beta \geq 0$. An individual's self-esteem is the value of his activity according to his value system:

$$selfv(x(i_t)) = v(x(i_t), i_t).$$

The strength of the concern for social esteem is captured by $\gamma \geq 0$. The social esteem in which an individual is held is the average of the esteem granted to his activity over the whole society:

$$socv(x(i_t)) = \int_0^1 v(x(i_t), j_t)dj_t. \tag{3}$$

A possible interpretation has individuals being randomly matched into pairs and exchanging courtesy and hostility according to their values. The difference between the social esteem an individual gets when working and the social esteem he receives when unemployed mirrors the strength of work norms in society.

The baseline productivity level in the economy, w_t, is determined by the economy-wide stock of knowledge K_t as of

$$w_t = \alpha K_t, \tag{4}$$

where $\alpha > 0$ is a parameter. The stock of knowledge accumulates as a by-product of the work of talented individuals. It evolves according to

$$K_{t+1} = [1 + g(H_t)]K_t, \tag{5}$$

where H_t is the total number of hours worked by individuals who are talented for their occupation. Function g satisfies $g(0) \geq 0$ and $g' > 0$.

An equilibrium is informally defined as

- a distribution of value systems, occupational specializations, and work hours at each period, $(v(x, i_t))_{i_t \in [0,1]}$, $(s(i_t))_{i_t \in [0,1]}$, $(h(i_t))_{i_t \in [0,1]}$,

- levels of social esteem at each period, $socv(x_t)_{x_t \in \{a,b,u\}}$,

- a social insurance scheme at each period (τ_t, z_t),

- and a productivity level at each period (w_t),

such that:

- for each i_t, the values $v(x, i_{t+1})$, $x \in \{a, b, u\}$ maximize the expected utility of i_{t+1} subject to (1), given $socv(x_t)_{x_t \in \{a,b,u\}}$, τ_t, z_t, and w_t,

- $socv(x_t)_{x_t \in \{a,b,u\}}$ obtains from the individually chosen values as of (3),

- for each i_t, the occupational specialization $s(i_t)$ and work hours $h(i_t)$ maximize his expected utility conditional on $socv(x_t)_{x_t \in \{a,b,u\}}$, τ_t, z_t, w_t, and his private information,

- (τ_t, z_t) maximizes the sum of the expected utilities of the voters among all (τ, z) that satisfy the budget constraint of the government in period t,

- equations (4) and (5) apply.

The initial conditions are a distribution of activities for the initial parents' generation, $(x(i_0))_{i_0 \in [0,1]}$ and an initial stock of knowledge, $K_0 > 0$. I posit that less than half of the initial parents' generation was unemployed and that employment was equally splitted across the two occupations.

4 Individual choices

For each individual, first his values, then his specialization, and finally his work hours are determined under the relevant constraints so as to maximize his expected utility under rational expectations. Those variables are now determined by backward induction.

4.1 Labor supply

When individuals choose how much labor to supply, they know their own net wage, the unemployment benefit, and the social esteem levels respectively enjoyed by workers and transfer recipients. Individual productivity is private information and individuals who can earn a positive wage can mimick those who are unproductive and get the welfare benefit. The mimicking decision is affected by one's values. Individuals who endorse a strong work norm may refrain from cheating because they want to preserve their self-esteem and avoid guilt feelings. If society mainly consists of people with strong work norms, the social esteem of transfer recipients is low, and this is an additional reason for refrainig from cheating the welfare state.[1]

Consider an individual who can earn a net hourly wage $\omega > 0$. Dropping the time index, his optimal number of hours, conditional on working, obtains from

$$\max\{\ln c + \ln(1 - h)\}$$

[1] While the values endorsed by people determine their incentive compatibility contraints, they do not matter for the choice of working hours since the assumed utility function is separable.

subject to

$$c = \omega h.$$

The solution has

$$h = \frac{1}{2}.$$

The participation decision is made after comparing the indirect utility when working with the utility when living on the transfer. The utility level when working in occupation $x \in \{a, b\}$ is given by

$$\ln \frac{\omega}{4} + \beta \ln v_x + \gamma \ln \overline{v}_x,$$

where v_x and $\overline{v}_x$ respectively refer to the self-esteem and the social esteem obtained from occupation x. If instead the individual mimicks an unproductive one, he gets utility

$$\ln z + \beta \ln v_u + \gamma \ln \overline{v}_u.$$

Therefore, productive individuals only participate in the labor market if

$$\ln \frac{\omega}{4z} \geq \beta \ln \frac{v_u}{v_x} + \gamma \ln \frac{\overline{v}_u}{\overline{v}_x}. \tag{6}$$

The incentive constraint (6) plays a key role in this model. It describes how values and social insurance shape the willingness to work of the population. A more generous social insurance reduces ω and raises z; thereby it decreases the l.h.s. of (6), i.e. the material gain from working. This is the direct disincentive effect from social insurance. Without value concerns ($\beta = \gamma = 0$), individuals only work if $\omega \geq 4z$. The effect of work norms is captured by the r.h.s. of (6) which represents the intangible gain from not working. If individuals suffer a sufficiently large loss of self-esteem and/or social esteem when living off the welfare state, generous social insurance can go along with intact willingness to work. However, over time, a more generous social insurance could erode work norms, i.e. increase the r.h.s. of (6), and eventually diminish the willingness to work. This is the indirect disincentive effects from social insurance.

4.2 Occupational specialization

At the interim stage, the individual has received a signal about his talent and chooses his occupational specialization $s(i) \in \{a, b\}$ so as to maximize his expected utility, correctly anticipating his effective labor supply in each state of the world. The occupational choice is distinctively affected by the activity of an individual's parent: entering the same occupation as the one performed by the parent secures the individual a positive wage even if he turns out to be untalented for that occupation. To illustrate, consider the child of somebody who worked in occupation a and suppose that he received the signal σ_a. His expected utility from choosing specialization a is:

$$
\begin{aligned}
EU(a|a,\sigma_a) &= p\max\left\{\ln\frac{w(1+\delta)(1-\tau)}{4}+\beta\ln v_a+\gamma\ln\overline{v}_a, \ln z+\beta\ln v_u+\gamma\ln\overline{v}_u\right\}+ \\
&\quad +(1-p)\max\left\{\ln\frac{w(1-\tau)}{4}+\beta\ln v_a+\gamma\ln\overline{v}_a, \ln z+\beta\ln v_u+\gamma\ln\overline{v}_u\right\}.
\end{aligned}
$$

The expected utility from specialization b is:

$$
\begin{aligned}
EU(b|a,\sigma_a) &= (1-p)\max\left\{\ln\frac{w(1+\delta)(1-\tau)}{4}+\beta\ln v_b+\gamma\ln\overline{v}_b, \ln z+\beta\ln v_u+\gamma\ln\overline{v}_u\right\}+ \\
&\quad +p\left[\ln z+\beta\ln v_u+\gamma\ln\overline{v}_u\right].
\end{aligned}
$$

The individual chooses the occupational specialization $s(i)=a$ if and only if $EU(a|a,\sigma_a)\geq EU(b|a,\sigma_a)$. Since occupations a and b are perfectly symmetric, optimal career choices are fully characterized by three rules. The first one, derived above, concerns the children who have received the signal that they are talented for their parents' occupation. The second one is used by children who have received the signal that they are talented for an occupation different from their parents' one. The third one is the choice rule for the children of the individuals who were unemployed in the previous period.

4.3 Value systems

In the first stage, before talent signals are received, parents select the value system of their children correctly anticipating their children's decision rules concerning specialization and working time. Optimal transmission of values can be different for parents with a job and for the unemployed because their children's opportunity sets are different. Therefore, I examine their choices separately. I posit $\overline{v}_a=\overline{v}_b\equiv\overline{v}>\overline{v}_u$, something which turns out to be the case in equilibrium, as shown later. Proofs of all results are relegated to the Appendix.

4.3.1 Children of the unemployed

Values affect the utility levels associated with working in each occupation and with living on transfers. A parent can either set values that make her child choose a given career independently of the signal he will receive about his talent; or the parent can transmit values such that her child's career choice will condition on the received signal. The former is an instance of *paternalism*, where instilled values fully determine the child's future behavior. I refer to the other way of raising children as to *liberalism* since parents effectively permit freedom of choice. There is a third option, namely to transmit values such that the child will always shun work. In that case, the child is said to get endowed with a *welfare culture*. Parents choose the value system of their children by comparing the maximal expected utilities associated with those three socialization strategies.

In the case of *paternalism*, unemployed parents are a priori indifferent between bestowing value on a or b, so say that in the case at hand specialization into occupation a is selected. Provided the incentive constraint (6) holds,[2] the child's expected utility amounts to

$$\frac{1}{2}\left[\ln\frac{w(1+\delta)(1-\tau)}{4}+\ln z+\beta(\ln v_a+\ln v_u)+\gamma(\ln\overline{v}+\ln\overline{v}_u)\right].$$

The optimal value system under paternalism is a triple (v_a, v_b, v_u) in the 2-simplex that maximizes the above expression. Solving that maximization problem shows that the optimal socialization strategy is to set $v_a = v_u = 1/2$, and $v_b = 0$.[3] With logarithmic utility, the value invested in each activity always equals the probability of that activity. In case of paternalism, the resulting expected utility is

$$\frac{1}{2}\left[\ln\frac{w(1+\delta)(1-\tau)}{4}+\ln z\right]+\beta\ln\frac{1}{2}+\frac{\gamma}{2}(\ln\overline{v}\overline{v}_u). \tag{7}$$

Consider now the case of *liberalism*, i.e. the option to transmit values such that the child will choose his specialization according to the received signal. It yields expected utility

$$p\ln\frac{w(1+\delta)(1-\tau)}{4}+(1-p)\ln z+\beta\left[\frac{p}{2}(\ln v_a+\ln v_b)+(1-p)\ln v_u\right]+\gamma\left[p\ln\overline{v}+(1-p)\ln\overline{v}_u\right].$$

The optimal value system under liberalism has $v_a = v_b = p/2$, and $v_u = 1-p$. Substituting back, the resulting expected utility is

$$p\ln\frac{w(1+\delta)(1-\tau)}{4}+(1-p)\ln z+\beta\ln\frac{p^p(1-p)^{1-p}}{2^p}+\gamma\ln\overline{v}^p\overline{v}_u^{1-p}. \tag{8}$$

Finally, parents may opt to instill a *welfare culture* such that their children will always shun work. In that case, their expected utility is $\ln z+\beta\ln v_u+\gamma\ln\overline{v}_u$. Optimal welfare culture has $v_u = 1$ and $v_a = v_b = 0$. Then, the individual obtains utility $\ln z+\gamma\ln\overline{v}_u$ with certainty. Comparing this expression with (7) and (8) yields the optimal socialization strategy.

Define $y \equiv \ln[w(1+\delta)(1-\tau)/4z]$, which is an index of lack of social insurance. Optimal values can be characterized by reference to y.

[2] The fulfillment of all relevant incentive constraints is shown in Appendixes C and D.

[3] Or $v_b = v_u = 1/2$ and $v_a = 0$ if occupation b is targeted.

Lemma 1 *There exists scalars* y_1*,* y_2*,* y_3*, and* $\overline{p} \in (1/2, 1)$ *such that the following holds true. Suppose* $p > \overline{p}$*; then, their optimal strategy is welfare culture if* $y < y_3$ *and it is liberalism if* $y > y_3$*. Suppose* $p < \overline{p}$*; then, the optimal socialization strategy for parents who were unemployed is welfare culture if* $y < y_2$*, paternalism if* $y_2 < y < y_1$*, liberalism if* $y_1 < y$*.*

The intuition behind this result is straightforward. The generosity of social insurance, as captured by the inverse of y, determines the relative material reward of working. If social insurance is very generous, unemployed parents transmit a welfare culture to their children, so that they enjoy a high level of self-esteem although they are transfer recipients. If social insurance is less generous, optimal values prepare children to enter the labor market. Since unemployed parents cannot help their children in the labor market, they might be expected to encourage their children to follow the signal they receive about their talent. However, if the signal about talent is very imprecise, paternalism in occupational choice can be optimal at intermediate levels of generosity.

Notice that the thresholds y_1, y_2 and y_3, that determine which socialization strategy is optimal, depend on the preference parameters β and γ, see the Appendix. If preferences differ across families, they may opt for different socialization strategies.

4.3.2 Children of working parents

As compared to the children of the unemployed, the children of employed parents face a larger opportunity set since they can earn a wage in their parent's occupation even if they are not talented for that occupation. Correspondingly, the set of potentially optimal socialization strategies is larger. First, it additionally includes the option to set values that make the child work in his parent's occupation independently of the signal about his talent. I term that socialization strategy *family specialization*. Second, they can instill diversified values so that the child chooses his occupational specialization by following the signal about his ability. I call that strategy *talent orientation*. The difference from the strategies of paternalism and liberalism described above is that under family specialization or talent orientation the individual is expected to work even if he turns out to lack the talent for the chosen specialization, provided that it is the same as his parent's one.

In order to determine which socialization strategy is optimal, consider first the option of *family specialization* and suppose without any loss of generality $x(i_{t-1}) = a$. In this case, the optimal value system obviously has $v_a = 1$ and $v_b = v_u = 0$. The individual's expected utililty associated with family specialization is therefore

$$\ln \frac{w(1-\tau)}{4} + \frac{1}{2} \ln(1+\delta) + \gamma \ln \overline{v}. \tag{9}$$

Consider now the option of *talent orientation.* It yields expected utility

$$p \ln \frac{w(1+\delta)(1-\tau)}{2} + \frac{1-p}{2}\left[\ln \frac{w(1-\tau)}{2} + \ln z\right] + \frac{1+p}{2} \ln \frac{1}{2} +$$
$$+\beta\left(\frac{1}{2}\ln v_a + \frac{p}{2}\ln v_b + \frac{1-p}{2}\ln v_u\right) + \gamma\left[\left(\frac{1+p}{2}\right)\ln \overline{v} + \left(\frac{1-p}{2}\right)\ln \overline{v}_u\right].$$

The optimal value system under talent orientation maximizes the above expression under the constraint (1). It has $v_a = 1/2$, $v_b = p/2$, and $v_u = (1-p)/2$. The resulting expected utility is

$$\frac{1+p}{2}\ln\frac{w(1-\tau)}{4} + p\ln(1+\delta) + \frac{1-p}{2}\ln z + \frac{\beta}{2}\ln\frac{p^p(1-p)^{1-p}}{4} + \frac{\gamma}{2}\ln \overline{v}^{1+p}\overline{v}_u^{1-p}. \quad (10)$$

If the allocation of talent is important, i.e. δ is large enough,[4] the following fact can be established:

Lemma 2 *There exist scalars y_4, y_5, and y_6 such that the following holds true. Suppose $p > \overline{p}$; then, their optimal strategy is welfare culture if $y < y_3$, liberalism if $y_3 < y < y_5$, talent orientation if $y_5 < y < y_4$, and it is family specialization if $y_4 < y$. Suppose $p < \overline{p}$; then, the optimal strategy for parents who had an occupation is welfare culture if $y < y_2$, paternalism if $y_2 < y < y_1$, liberalism if $y_1 < y < y_5$, talent orientation if $y_5 < y < y_4$, and it is family specialization if $y_4 < y$.*

The interesting case is the one where the childern of the employed are socialized either according to talent orientation or family specialization, which requires $y > y_5$. I focus on this case in the rest of this Section. Those socialization strategies can be part of the same equilibrium if the individual-specific thresholds y_4 are distributed within a sufficiently narrow interval that includes y. Then, families that care relatively more about esteem socialize their children according to family specialization, while families that care relatively more about consumption and leisure opt for talent orientation. The strength of the work norm endorsed by the individuals depends on their values, $n(i_t) = v(w, i_t) - v(u, i_t)$. Self-reliance is certain for the individuals raised to follow their parents' occupational footsteps, so that $n(i_t) = 1$ for these individuals. Families that bet on their child's talent face instead a risk of failure in the labor market and transmit more tolerant values, implying $n(i_t) = p < 1$. Hence, one has:

Corollary 1 *Suppose that in equilibrium some individuals are socialized according to talent orientation and others according to family specialization. Then, those who work in*

[4]Formally, δ is assumed to be bounded from below so as to meet a condition presented in Appendix B.

the same occupation as their parents endorse stronger work norms than those who do not work in their parents' occupation.

Lemmata 1 and 2 imply that the children of the employed may have values that differ from those of the children of the unemployed even if their utility functions are identical. In that case, all thresholds y_j, $j \in \{1, ..5\}$, are the same for everyone and since $y > y_5$, the children of the unemployed are predicted to endorse weaker work norms. Since $y_5 > y_3$, the children of the unemployed are raised according to *liberalism* which is associated with $n(i_t) = 2p - 1 < p$. The children of employed parents are instead raised according to either *talent orientation*, whence $n(i_t) = p$, or *family specialization*, whence $n(i_t) = 1$.

Corollary 2 *Under common preferences, the children of the unemployed exhibit weaker work norms than the other individuals.*

Corollaries 1 and 2 offer distinctive testable predictions of the proposed model. They will be confronted with the data in the final part of the paper.

5 Short-run general equilibrium

For the sake of clarity, I posit for the sequel that families have identical preferences and I focus on monomorphyc configurations, where differences in ex-ante equilibrium behavior can only occur between the children of the employed and children of the unemployed. In the general equilibrium, the levels of social esteem $\overline{v}_a$, $\overline{v}_b$, and $\overline{v}_u$, as well as the social insurance scheme (τ, z) are endogenously determined. The social esteem levels associated with working and with living on transfers are determined by aggregation of the value choices made by all parents as of (3). The tax rate and the transfer are determined by voting, which occurs after that the individuals have received their signal about talent and have selected their career, but before their actual talent - and thus their productivity - is realized. So, the veil of ignorance has not completely been lifted at the moment of voting on the social insurance scheme. I posit probabilistic voting, where the platform that arises in equilibrium is one that is feasible and maximizes the sum of the expected utilities of the voters.[5]

The electorate selects a social insurance scheme that satisfies the budget constraint of the government. The per-capita tax revenue amounts to

$$\frac{\tau w}{2} \left\{ \begin{array}{c} \mu \left[m_s \left(1 + \frac{\delta}{2}\right) + m_t \left(p(1+\delta) + \frac{1-p}{2}\right) + m_d p \left(1+\delta\right) + m_p \left(\frac{1+\delta}{2}\right) \right] + \\ +(1-\mu) \left[n_d p(1+\delta) + n_p (1+\delta)/2 \right] \end{array} \right\}. \tag{11}$$

[5]Similar results obtain in the case of majority voting, where the platform that arises in equilibrium is one that is feasible and that beats all other feasible ones in pairwise comparisons.

In the above expression, μ denotes the fraction of individuals whose parents had an occupation. I denote by m_s the fraction of employed parents who instilled values of family specialization in their children; by m_t the fraction that adopted values of talent orientation; by m_d the fraction that opted for liberalism; by m_p the fraction that chose paternalism. With respect to the $(1-\mu)$ children of transfer recipients, I denote by n_d the fraction that diversified the values of their children according to liberalism, and by n_p the fraction of unemployed parents who specialized the values of their children to an occupation. The per-capita outlay of social insurance is given by

$$z\left\{\mu\left[1-m_s-\left(\frac{1+p}{2}\right)m_t-pm_d-\frac{m_p}{2}\right]+(1-\mu)\left[1-pn_d-\frac{n_p}{2}\right]\right\}. \qquad (12)$$

The budget constraint of the government is satisfied if per-capita outlay equals per-capita tax revenue.

In a short-run politico-economic equilibrium, social insurance is a pair (τ, z) that satisfies the budget constraint of the government and maximizes the sum of the expected utilities of all voters after that they have received their ability signal but before their wage is realized. That voting outcome is correctly foreseen when people make their individual decisions. Without significant loss of generality, I focus on [robust equilibrium configurations where parents strictly prefer the value systems that they choose?] the case $p > \overline{p}$, which guarantees that in equilibrium the social esteem of the employed is larger than the social esteem of the unemployed.

I focus on the two relevant configurations mentioned above. The first one has all children of employed parents being raised according to *family specialization*. Among all potentially optimal socialization strategies, this is the one that attaches the lowest symbolic value to lack of self-reliance and the highest value to work. Therefore, I refer to this outcome as to the strong work-norms equilibrium, SNE for short.

Proposition 1 *If the concerns for self-esteem and social esteem are strong enough (β and γ sufficiently large), a SNE exists. In that equilibrium, the average strength of work norms is given by*

$$N^S = \mu + (1-\mu)(2p-1). \qquad (13)$$

In a SNE, all individuals whose parents worked specialize in their parents' occupation. Hence, those individuals face no risk of becoming unemployed and derive no benefit from social insurance. Since they constitute the majority of the population, the voting outcome is a limited social insurance program. This configuration only builds an equilibrium if the concern for the symbolic rewards of working is large enough. That concern prompts people to work even if their productivity turns out to be low. Conversely, if people did not care much about esteem, they would rather live on transfers in case of low productivity. But in that case, it would be better for them to maximize the probability of having a high productivity, which is achieved by following one's talent signal even if it is not the occupation of one's parent. Family specialization only arises in equilibrium if the concerns for self-esteem and social esteem are strong enough.

A second candidate equilibrium outcome is the situation where all parents who have a job socialize their children according to *talent orientation*. To contrast it with the SNE, I refer to this situation as to the weak work-norms equilibrium, WNE for short.

Proposition 2 *There exists a compact set $X \subset \Re^2_+$ such that if $(\beta, \gamma) \in X$, a WNE exists. The average strength of work norms in such an equilibrium equals*

$$N^W = \mu p + (1 - \mu)(2p - 1). \tag{14}$$

The WNE can readily be compared with the equilibrium of an economy where values do not matter, i.e. $\beta = \gamma = 0$. In such an economy, individuals choose their specialization by following their talent signal. This implies that both the preferences of voters over (τ, z)-pairs as well as the budget constraint of the government in case all productive individuals work are precisely the same as in the WNE of the corresponding economy where symbolic values matter. However, the incentive constraint (6) is different in the two model economies, which means that not all productive individuals may work in the economy without symbolic values under the social insurance scheme that is selected under the WNE. As can be easily verified, that social insurance scheme, denoted by (τ^W, z^W), indeed violates the incentive constraint of the individuals with low productivity in an economy without values, i.e.

$$\ln \frac{w(1 - \tau^W)}{4z^W} < 0. \tag{15}$$

As a consequence, the following fact can be established:

Proposition 3 *In a WNE, material social welfare is larger than in the equilibrium of an othwerwise identical economy where symbolic values do not matter.*

Material social welfare is the sum of all expected utilities derived from consumption and leisure. Thus, material payoffs are higher if individuals do not care only about material payoffs. A concern about esteem works as a committment device that allows the polity to implement more generous levels of social insurance without violating incentive compatibility. This committment effect of values is conducive to a higher level of material welfare.[6]

[6] In the economy without values, the incentive constraint for working is binding and equilibrium social insurance is determined by that constraint and the budget constraint of the government. In the economy with values, the incentive constraint for working is not binding in equilibrium.

When values matter, i.e. $\beta > 0$ and $\gamma > 0$, individuals optimally develop work norms that have the effect to relax the relevant incentive constraints faced by social insurance. Interestingly, the strength of those work norms needs not be uniquely determined in equilibrium. For some set of parameters, both the SNE and the WNE can be sustained, i.e. the model exhibits multiple short-run equilibria.

Proposition 4 *For any given μ, there exists a compact set such that if (β, γ) belongs to it, both the SNE and the WNE exist. The tax rate is lower in the SNE than in the WNE. The output level is larger in the SNE than in the WNE if and only if*

$$\delta < \frac{1-p}{2p-1}.$$

The intuition is as follows. In one equilibrium, parents anticipate that their children will live in a society where the unemployed fare almost as well as those with a job. In case of bad luck, individuals will receive enough assistance even if parents cannot help them and they will not be stigmatized. Thus, parents want their children to develop their talent and not to rely on parents' help. Parents raise children in that way by bestowing occupations and joblessness with rather similar values. In the sequel, children choose specializations that may differ from their parents' ones and may face the threat of unemployment. Thus, as voters they highly value social insurance. A relatively generous scheme is then selected, which confirms parents' initial forecast about the good treatment of the unemployed and vindicates their socialization choices.

Given the same economic fundamentals, parents may alternatively anticipate that in case their children will be unemployed, the benefit they will receive will be meager and other people will ostracize them. Therefore, parents opt for the safe strategy of preparing their children to enter the same occupation or sector as they are in, so that the parent can help if the child lacks talent. Those parents transmit a strong occupational pride and, as a consequence, society as a whole heavily stigmatizes the unemployed. When those children have become adults who vote, they have specialized as their parents and therefore face no risk of unemployment. Since they constitute the majority of voters, the voting outcome has a meager social insurance which, together with the low social esteem conferred upon the unemployed, confirms the forecast on which parents based their socialization choices.

6 Steady state

The dynamics is driven by the evolution of employment along two dimensions. First, the employment rate in period t determines the fraction of children who can be helped in the labor market by their parents in period $t+1$. Second, the total number of hours worked by individuals who are talented for their job in period t determines the increment in the stock of knowledge between that period and period $t + 1$. The asymptotic behavior of the economy is described by the steady state equilibrium. A steady state equilibrium is a short-run equilibrium such that the employment rate, the average strength of work norms, and the tax rate do not change over time while the stock of knowledge, output, wages, and the unemployment benefit grow at a constant rate. The steady state equilibria of this model parallel the two stylized facts mentioned in the Introduction: the negative cross-country relationship between generosity of social insurance and average strength of work norms, and the absence of a positive impact of strong work norms on economic performance.

Proposition 5 *Both the SNE and the WNE admit a steady-state equilibrium. There exists a compact set such that if* (β, γ) *belongs to it, both the SNE and the WNE exist as steady states. In the steady state, the SNE features a laissez-faire economy whereas the WNE has a social insurance program; while the employment level is higher in the SNE, growth is faster in the WNE.*

The above Proposition delivers two paradoxical insights. The first one concerns the relationship between economic institutions and parenting styles. In the long run, a laisse-faire economy has "interventionist parents", while an economy with governmental intervention has "laissez-faire parents". The second paradox is about work norms and macroeconomic performance. In the long run, a population that attaches less value to being productive brings about a higher production level.

7 Evidence from individual data

At the individual level, the model makes predictions about the relationship between parents' experience in the labor market and the work norms endorsed by children - see Corollaries 1 and 2. The aim of this Section is to examine the empirical validity of those predictions.

According to Corollary 1, individuals who follow the occupational footsteps of their parents are predicted to endorse stronger work norms. The endorsement of norms that dictate self-supportiveness can be recovered from a survey question that was asked in the EVS of 2008. There, respondents were asked whether they agree with the following statement: "It is humiliating to receive money without having to work for it". This question captures precisely the extent to which esteem depends on self-reliance. Respondents could choose "Strongly agree", "Agree", "Neither agree nor disagree", "Disagree", or "Strongly disagree". Thus, I use those answers as a measure of respondents' endorsements of self-reliance as a value.

As mentioned in the Introduction, the EVS of 2008 also reports the four-digit ISCO code of the occupations of the respondent and his father when the respondent was fourteen. This allows one to identify those individuals who have followed their fathers' footsteps as those for whom the ISCO code coincides with their fathers' one. In order to avoid issues related to gender roles and retirement age, I focus on the male population aged twenty-five to fifty-five.

Results from ordered-logit estimations of the probability to endorse strong work norms are reported in Table 1. All specifications include unreported country fixed effects and a constant. Standard errors are clustered at the country level. The first specification only controls for age of the respondent. The second one also includes family status and job status. Education is added in the third specification and income in the fourth one. The estimation results strongly confirm the prediction of the model that inheriting the parent's occupation is associated with a stronger work norm, while mobile individuals do not emphasize self-reliance.

Table 1: Ordered logit regressions for strength of work norms; males, aged 25-55.

	(1)	(2)	(3)	(4)
Follower	0.168**	0.164**	0.147*	0.184**
	(2.87)	(2.81)	(2.40)	(2.81)
Age	0.002	-0.028	-0.031+	-0.040*
	(0.10)	(-1.61)	(-1.81)	(-2.01)
Age squared	0.000	0.000+	0.000*	0.001*
	(0.42)	(1.87)	(2.05)	(2.26)
Legal status				
-married		0.259***	0.252***	0.234***
		(5.00)	(4.84)	(4.66)
-divorced		0.099	0.090	0.101
		(1.26)	(1.13)	(1.16)
-widowed		0.526*	0.502*	0.455*
		(2.60)	(2.44)	(2.18)
Primary income source				
-Part time work		-0.148+	-0.151+	-0.158+
		(-1.69)	(-1.68)	(-1.78)
-Self-employment		0.050	0.035	0.052
		(0.80)	(0.54)	(0.73)
-Pension		0.070	0.051	0.023
		(0.71)	(0.51)	(0.20)
-Wife's income		-0.784***	-0.800***	-0.859***
		(-4.43)	(-4.36)	(-4.35)
-Student		-0.234	-0.226	-0.336
		(-0.96)	(-0.91)	(-1.22)

-Unemployed		-0.183**	-0.216**	-0.276***
		(-2.72)	(-3.27)	(-4.21)
-Other		-0.442***	-0.472***	-0.442**
		(-3.38)	(-3.43)	(-3.41)
Education				
-Primary education			-0.117	-0.106
			(-0.73)	(-0.64)
-Some secondary education			-0.203	-0.228
			(-1.11)	(-1.03)
-Secondary education			-0.277	-0.269
			(-1.35)	(-1.29)
-Tertiary education			-0.381+	-0.370+
			(-1.78)	(-1.68)
Income	No	No	No	Yes
Country Dummies	Yes	Yes	Yes	Yes
Observations	12,319	12,222	12,176	10,424

t-Statistics in parentheses: + p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Table 2 presents estimation results when also the prediction from Corollary 2 is taken into account. Accordingly, the children of the unemployed endorse weaker work norms than the rest. Therefore, I modify the regression equations of Table 1 by adding a dummy variable that takes value 1 if the respondent's father was unemployed when the respondent was fourteen and 0 otherwise. Consistently with that prediction, sons of unemployed fathers exhibit significantly weaker work norms.

Table 2: Ordered logit regressions for strength of work norms, controlling for unemployed fathers; males, aged 25-55.

	(1)	(2)	(3)	(4)
Follower	0.157**	0.153**	0.134*	0.174**
	(2.69)	(2.65)	(2.19)	(2.69)
Father unemployed	-0.145**	-0.145**	-0.168**	-0.125*
	(-2.72)	(-2.64)	(-3.03)	(-2.04)
Age	0.002	-0.028	-0.031+	-0.041*
	(0.09)	(-1.62)	(-1.83)	(-2.00)
Age squared	0.000	0.000+	0.000*	0.001*
	(0.43)	(1.89)	(2.06)	(2.26)
Legal status				
-married		0.261***	0.254***	0.235***
		(5.02)	(4.85)	(4.66)
-divorced		0.097	0.088	0.099
		(1.24)	(1.10)	(1.13)
-widowed		0.521*	0.495*	0.449*
		(2.57)	(2.40)	(2.15)
Primary income source				
-Part time work		-0.142	-0.144	-0.154+
		(-1.61)	(-1.60)	(-1.72)
-Self-employment		0.051	0.036	0.052

		(0.81)	(0.55)	(0.74)
-Pension		0.07	0.051	0.021
		(0.72)	(0.51)	(0.18)
-Wife's income		-0.774***	-0.789***	-0.891***
		(-4.51)	(-4.45)	(-4.42)
-Student		-0.232	-0.223	-0.335
		(-0.95)	(-0.90)	(-1.22)
-Unemployed		-0.176**	-0.209**	-0.274***
		(-2.60)	(-3.13)	(-4.20)
-Other		-0.439**	-0.471***	-0.444***
		(-3.26)	(-3.42)	(-3.43)
Education				
-Primary education			-0.129	-0.110
			(-0.85)	(-0.70)
-Some secondary education			-0.253	-0.241
			(-1.30)	(-1.14)
-Secondary education			-0.304	-0.285
			(-1.57)	(-1.43)
-Tertiary education			-0.409*	-0.386+
			(-2.03)	(-1.83)
Income	No	No	No	Yes
Country Dummies	Yes	Yes	Yes	Yes
Observations	12,319	12,222	12,176	10,424

t-Statistics in parentheses: + p<0.1, * p<0.05, ** p<0.01, *** p<0.001

8 Conclusion

Moving to a more generous social insurance may weaken the work norms endorsed by the population. However, weaker work norms do not only increase the temptation to cheat the welfare state. Weak work norms and a generous social insurance also encourage individuals not to rely on their families' help in getting a job and to go their way in the labor market, choosing a career that is tailored to their individual talent. The resulting improvement in the allocation of talents may more than offset the negative effect of weaker work norms on the incentive to take up jobs. The empirical evidence suggests that this is indeed the case: there is no statistical association between weak work norms and low economic performance, neither at the country level nor at the individual level.

A limitation of the analysis of the current paper is that it neglects the role of subcultures, i.e. norms developed within groups that live relatively segregated from the rest of the population. This is an important issue in some countries, e.g. in Israel with regards to ultra-orthodox Jews. In the model of this paper, segregation could be defined with respect to the set of agents that are relevant in determining an individual's social esteem. Investigating the richer dynamics of work norms and social insurance in such an extended setup is left for future research.

APPENDIX

Appendix A: Proof of Lemma 1.

By comparing (8) with (7), one can determine the circumstances under which liberalism is preferred to paternalism, namely when the following condition is satisfied:

$$\ln \frac{w(1+\delta)(1-\tau)}{4z} \equiv y > -\frac{2\beta}{2p-1} \ln p^p (1-p)^{1-p} 2^{1-p} - \gamma \ln \frac{\overline{v}}{\overline{v}_u} \equiv y_1. \tag{16}$$

The condition for preferring welfare culture over occupational paternalism is

$$y < 2\beta \ln 2 - \gamma \ln \frac{\overline{v}}{\overline{v}_u} \equiv y_2. \tag{17}$$

The condition for preferring welfare culture over liberalism is

$$y < -\frac{\beta}{p} \ln \frac{p^p (1-p)^{1-p}}{2^p} - \gamma \ln \frac{\overline{v}}{\overline{v}_u} \equiv y_3. \tag{18}$$

Define $\overline{p} \in (1/2, 1)$ as the unique root of[7]

$$p \ln \frac{1}{2} = \ln \left[p^p (1-p)^{1-p} \right].$$

If $p < \overline{p}$, then $p \ln \frac{1}{2} > \ln p^p (1-p)^{1-p}$, which can be rewritten as

$$\ln p^p (1-p)^{1-p} + p \ln 2 < 0$$

or

$$2p \ln 2 < -\ln p^p (1-p)^{1-p} + p \ln 2.$$

Using the definitions in (17) and (18), this is equivalent to $y_3 > y_2$. By the same token, $p < \overline{p}$ implies

$$2p \left[\ln p^p (1-p)^{1-p} + (1-p) \ln 2 \right] < (2p-1) \left[\ln p^p (1-p)^{1-p} - p \ln 2 \right].$$

Using (16) and (18), this is equivalent to $y_1 > y_3$. As a consequence, $p < \overline{p}$ implies $y_2 < y_3 < y_1$. Then, by (17) and (18), welfare culture is optimal if $y < y_2$. By (17) and (16), paternalism is optimal if $y_2 < y < y_1$. By (16), liberalism is optimal if $y > y_1$.

The above reasoning also shows that $p > \overline{p}$ implies $y_1 < y_3 < y_2$. In that case, if $y < y_3$, then $y < y_2$ and by (17) and (18) welfare culture is optimal. If $y > y_3$, then $y > y_1$ and by (16) and (18) liberalism is optimal. QED

Appendix B: Proof of Lemma 2.

[7] It may be noted that $\overline{p} \approx 0.77$.

By comparing (10) with (9), one can determine when talent orientation is preferred over family specialization, namely when the following condition is satisfied:

$$y < \frac{p}{1-p}\ln(1+\delta) + \frac{\beta}{1-p}\ln\frac{p^p(1-p)^{1-p}}{4} - \gamma\ln\frac{\overline{v}}{\overline{v}_u} \equiv y_4. \tag{19}$$

Now, determine the circumstances under which talent orientation is preferred to the strategies of liberalism and of welfare culture. By comparing (10) with (8), one can determine when talent orientation is preferred over liberalism, namely when the following condition is satisfied:

$$y > \ln(1+\delta) + \frac{\beta}{1-p}\ln p^p(1-p)^{1-p}4^{1-p} - \gamma\ln\frac{\overline{v}}{\overline{v}_u} \equiv y_5. \tag{20}$$

By comparing (10) with $\ln z + \gamma\ln\overline{v}_u$, the condition for talent orientation to be better than welfare culture amounts to:

$$y > \frac{1-p}{1+p}\ln(1+\delta) - \frac{\beta}{1+p}\ln\frac{p^p(1-p)^{1-p}}{4} - \gamma\ln\frac{\overline{v}}{\overline{v}_u} \equiv y_6. \tag{21}$$

If δ is large, the following holds true: $y_4 > y_5 > y_6 > \max\{y_1, y_2, y_3\}$. If $y > y_4$, by (19) family specialization is superior to talent orientation, which by (20) and (21) is superior to the remaining strategies. If $y_5 < y < y_4$, by (19) and (20) talent orientation is superior to family specialization and to liberalism, which is superior to everything else. The rest follows from Proposition 1. QED

Appendix C: Incentive compatibility of working.

In the analysis so far, it has been assumed that the incentive compatibility condition (6) is fulfilled in equilibrium, i.e. given optimally chosen value systems and specialization. I now show that this is indeed the case. First, consider the case where *paternalism* is optimal. The incentive constraint reads

$$y \geq -\gamma\ln\frac{\overline{v}}{\overline{v}_u}. \tag{22}$$

According to (17), paternalism arises in equilibrium only if

$$y \geq 2\beta\ln 2 - \gamma\ln\frac{\overline{v}}{\overline{v}_u}.$$

Thus, the incentive constraint (22) is satisfied in equilibrium if $2\beta\ln 2 \geq 0$, which is obviously true.

Consider the case where parents opt for *liberalism*. The incentive constraint reads

$$y \geq \beta\ln\frac{2(1-p)}{p} - \gamma\ln\frac{\overline{v}}{\overline{v}_u}. \tag{23}$$

If $p < \overline{p}$, a necessary condition for liberalism to occur in equilibrium is, by (16),

$$y \geq -\frac{2\beta}{2p-1} \ln p^p (1-p)^{1-p} 2^{1-p} - \gamma \ln \frac{\overline{v}}{\overline{v}_u} \equiv y_1.$$

Thus, the incentive constraint (23) is satisfied if

$$y_1 \geq \beta \ln \frac{2(1-p)}{p} - \gamma \ln \frac{\overline{v}}{\overline{v}_u}.$$

By straightforward manipulations, the above inequality can be reduced to $2p(1-p) \leq 1$, which is true since $p \in (1/2, 1)$.

If $p > \overline{p}$, a necessary condition for liberalism to occur in equilibrium is, by (18),

$$y \geq -\frac{\beta}{p} \ln \frac{p^p (1-p)^{1-p}}{2^p} - \gamma \ln \frac{\overline{v}}{\overline{v}_u} \equiv y_3.$$

Thus, the incentive constraint (23) is satisfied if

$$y_3 \geq \beta \ln \frac{2(1-p)}{p} - \gamma \ln \frac{\overline{v}}{\overline{v}_u}.$$

By straightforward manipulations, the above inequality can be written

$$-\ln p^p (1-p)^{1-p} \geq \ln \frac{1-p}{p},$$

which is true since the l.h.s. is positive and the r.h.s. is negative.

Finally, consider *talent orientation*. By (20), its value system only arises in equilibrium if

$$y \geq \ln(1+\delta) + \frac{\beta}{1-p} \ln p^p (1-p)^{1-p} 4^{1-p} - \gamma \ln \frac{\overline{v}}{\overline{v}_u} \equiv y_5. \tag{24}$$

The case of talent orientation is associated with two incentive constraints: one for the untalented, and one for the talented. The incentive constraint for the untalented - who have specialized in their parent's occupation - reads

$$\ln \frac{w(1-\tau)}{4z} \geq \beta \ln(1-p) - \gamma \ln \frac{\overline{v}}{\overline{v}_u}.$$

By (24), this incentive constraint is satisfied if

$$y_5 \geq \ln(1+\delta) + \beta \ln(1-p) - \gamma \ln \frac{\overline{v}}{\overline{v}_u}.$$

By straightforward manipulations, the above inequality can be written as

$$p \ln p \geq 2(1-p) \ln \frac{1}{2}.$$

It is easy to show that the above condition always is met if $p \in (1/2, 1)$. If the individual has not specialized in his parent's occupation, the incentive constraint reads

$$y \geq \beta \ln \frac{1-p}{p} - \gamma \ln \frac{\overline{v}}{\overline{v}_u}.$$

By (24), this is satisfied if

$$y_5 \geq \beta \ln \frac{1-p}{p} - \gamma \ln \frac{\overline{v}}{\overline{v}_u},$$

or

$$\ln(1+\delta) \geq -\beta \left[\frac{\ln p^p (1-p)^{1-p}}{1-p} + \ln 4 + \ln \frac{p}{1-p} \right].$$

One can always choose δ large enough, so that the above inequality holds. In particular, it is implied by the assumption $y_5 > y_6$, as one can readily verify. QED

Appendix D: Incentive compatibility of shirking.

Productive individuals mimick unproductive ones in the case of paternalism and liberalism if they turn out to be untalented for the chosen occupation. I now show that in equilibrium they do have an incentive to shirk. First, suppose that the socialization strategy optimally selected by parents was the one of *paternalism.* By (6), an untalented individual shirks if

$$\ln \frac{w(1-\tau)}{4z} < -\gamma \ln \frac{\overline{v}}{\overline{v}_u}, \tag{25}$$

or equivalently

$$y < \ln(1+\delta) - \gamma \ln \frac{\overline{v}}{\overline{v}_u}.$$

According to Proposition 1, a necessary condition for paternalilsm to be optimal is $y < y_1$. Hence, the incentive condition (25) is fulfilled if

$$\ln(1+\delta) - \gamma \ln \frac{\overline{v}}{\overline{v}_u} \geq y_1.$$

Substituting out y_1 yields

$$\ln(1+\delta) \geq -\frac{2\beta}{2p-1} \ln p^p (1-p)^{1-p} 2^{1-p}.$$

One can always choose δ large enough, so that the above inequality holds. In particular, it is implied by the assumption $y_4 > y_5$, as one can readily verify.

Suppose now that *liberalism* is optimal. By (6), an untalented individual shirks if

$$\ln \frac{w(1-\tau)}{4z} < \beta \ln \frac{2(1-p)}{p} - \gamma \ln \frac{\overline{v}}{\overline{v}_u}.$$

Using (20), this condition necessarily is satisfied if

$$y_5 \leq \ln(1+\delta) + \beta \ln \frac{2(1-p)}{p} - \gamma \ln \frac{\overline{v}}{\overline{v}_u}.$$

After some manipulations, the above condition can be written as

$$\ln p - (1-p) \ln \frac{1}{2} \leq 0.$$

It is easy to show that the above condition always is met if $p \in (1/2, 1)$.

Appendix E: Proof of Proposition 1.

In a SWE, all parents who have a job invest all symbolic value in their own occupation. As implied by Prop. 2, in order for this to be individually optimal, one must have $y > y_4$. Since $y_4 > y_3$, by transitivity $y > y_3$ and by Prop. 1 the parents who live on the transfer choose their children's values according to liberalism, i.e. $v_a = v_b = p/2$, and $v_u = 1 - p$. By (3), the social esteem received by people who work amounts to

$$\overline{v}^S = \frac{\mu + (1-\mu)p}{2}, \tag{26}$$

while the social esteem of transfer receipients is

$$\overline{v}_u^S = (1-\mu)(1-p). \tag{27}$$

From (26) and (27), (13) directly follows.

In a SWE, at the voting stage one half of all individuals who were raised by employed parents have expected utility

$$EU(\tau, z) = p \ln \frac{w(1+\delta)(1-\tau)}{4} + (1-p) \ln \frac{w(1-\tau)}{4} + const.$$

These are the individuals who received the signal that they are likely to be talented for the chosen occupation. The remaining half is likely to be untalented for their occupation and their expected utility is given by

$$EU(\tau, z) = p \ln \frac{w(1-\tau)}{4} + (1-p) \ln \frac{w(1+\delta)(1-\tau)}{4} + const.$$

The expected utility of the individuals whose parents were transfer recipients is

$$EU(\tau, z) = p \ln \frac{w(1+\delta)(1-\tau)}{4} + (1-p) \ln z + const.$$

The sum of voters' expected utilities yields the following social welfare function:

$$SW(\tau, z) = [\mu + p(1-\mu)] \ln(1-\tau) + (1-\mu)(1-p) \ln z + const. \tag{28}$$

By probabilistic voting, the outcome of the vote is a pair (τ^S, z^S) that maximizes that welfare function under the budget constraint implied by the incentive constraints characterizing all individuals. In a SWE, the selected policy is consistent with a budget constraint derived under the premise that all productive individuals work, i.e. by (11)-(12),

$$\frac{\tau w}{2}\left[\mu\left(1+\frac{\delta}{2}\right)+(1-\mu)p(1+\delta)\right]=z(1-\mu)(1-p). \tag{29}$$

Maximization of (28) subject to (29) yields

$$\tau^S=(1-\mu)(1-p), \tag{30}$$

$$z^S=\frac{w}{2}\left[\mu\left(1+\frac{\delta}{2}\right)+(1-\mu)p(1+\delta)\right]. \tag{31}$$

A SWE exists if and only if (τ^S, z^S) vindicates the associated individual choices with respect to values, specialization and labor supply, and if there is no different (τ, z) such that a higher level of social welfare can be reached at the voting stage, given the distribution of values and specializations. Thus, in order for (τ^S, z^S) to be part of a SWE,

$$y^S \equiv \ln\frac{w(1+\delta)(1-\tau^S)}{4z^S} \tag{32}$$

must be larger than y_4 as given by (19) and where social esteem levels are determined by (26) and (27), i.e.

$$y^S \geq \frac{p}{1-p}\ln(1+\delta)+\frac{\beta}{1-p}\ln\frac{p^p(1-p)^{1-p}}{4}-\gamma\ln\frac{\mu+(1-\mu)p}{2(1-\mu)(1-p)}\equiv y_4^S. \tag{33}$$

This condition ensures that the posited socialization strategies are optimal and nobody has an incentive to shirk. Substituting (30) and (31) into (32) reveals that condition (33) is equivalent to

$$\gamma \geq a^S - b^S\beta, \tag{34}$$

where $a^S > 0$ and $b^S > 0$ are functions of μ, δ and p. Condition (34) is satisfied if and only if β and γ are large enough.

It remains to be shown that the social insurance scheme preferred by the electorate lies on the piece of the government's budget contraint derived under the premise that all productive individuals work, i.e. on (29). The argument can be made using Figure 1, where (τ^S, z^S) corresponds to the SNE-point where the social indifference curve is tangent to the budget constraint (29). The complete budget constraint faced by voters is the bold curve which includes the piece for relatively large (τ, z), where the individuals raised by transfer recipients prefer not to work. Notice that (τ, z)-combinations on that piece of the budget constraint are dominated in terms of social welfare by (τ, z)-combinations on the virtual budget constraint where all productive individuals work. In turn, those virtual (τ, z)-combinations are dominated by (τ^S, z^S) by construction. Hence, the latter is indeed the electorate's preferred social insurance scheme among all those that are feasible. QED

[HERE: Figure 1]

Appendix F: Proof of Proposition 2.

In a WNE, all parents who have a job impart values that make their children specialize in the occupation for which they are more likely to be talented. Individual optimality of those values requires $y > y_5$. Since $y_5 > y_3$, it follows that $y > y_3$ and the parents who live on transfers bestow their children with values according to liberalism. The resulting social esteem of workers is then given by

$$\overline{v}^W = \mu\left(\frac{1+p}{4}\right) + (1-\mu)\frac{p}{2}, \tag{35}$$

while the social esteem of welfare receipients is

$$\overline{v}_u^W = \mu\left(\frac{1-p}{2}\right) + (1-\mu)(1-p). \tag{36}$$

From (35) and (36), (14) directly follows.

At the voting stage, the children of employed parents who specialized in the same occupation as their parents have expected utility given by

$$EU(\tau, z) = p\ln\frac{w(1+\delta)(1-\tau)}{4} + (1-p)\ln\frac{w(1-\tau)}{4} + const.$$

The expected utility of the remaining individuals amounts to

$$EU(\tau, z) = p\ln\frac{w(1+\delta)(1-\tau)}{4} + (1-p)\ln z + const.$$

The resulting social welfare function reads

$$SW(\tau, z) = \left[\frac{(1-p)\mu}{2} + p\right]\ln(1-\tau) + (1-p)\left(1-\frac{\mu}{2}\right)\ln z + const. \tag{37}$$

The voting outcome maximizes this welfare function under the budget constraint implied by the individual incentive constraints. In a WWE, the selected policy is consistent with a budget constraint derived under the premise that all productive individuals work, i.e. by (11)-(12),

$$\frac{\tau w}{2}\left[p(1+\delta) + \mu\left(\frac{1-p}{2}\right)\right] = z\left[\mu\left(\frac{1-p}{2}\right) + (1-\mu)(1-p)\right]. \tag{38}$$

Maximization of (37) subject to (38) yields

$$\tau^W = \frac{(2-\mu)(1-p)}{2}, \tag{39}$$

$$z^W = \frac{w}{4}\left[2p(1+\delta)+\mu(1-p)\right]. \tag{40}$$

In order for (τ^W, z^W) to be part of an equilibrium, it must make employed parents instill values of talent orientation. By Prop. 2, one must have $y_5 \leq y^W \leq y_4$, where

$$y^W \equiv \ln\frac{w(1+\delta)(1-\tau^W)}{4z^W}. \tag{41}$$

By (20), (35) and (36), the first inequality can be written as

$$y^W \geq \ln(1+\delta)+\frac{\beta}{1-p}\ln p^p(1-p)^{1-p}4^{1-p}-\gamma\ln\frac{2p+\mu(1-p)}{2(2-\mu)(1-p)} \equiv y_5^W.$$

Substituting (39) and (40) into (41) reveals that the above condition is equivalent to

$$\gamma \geq f - m\beta, \tag{42}$$

where $f>0$ and $m>0$ are functions of μ, δ and p.

The second inequality is $y^W \leq y_4$ or

$$y^W \leq \frac{p}{1-p}\ln(1+\delta)+\frac{\beta}{1-p}\ln\frac{p^p(1-p)^{1-p}}{4}-\gamma\ln\frac{2p+\mu(1-p)}{2(2-\mu)(1-p)} \equiv y_4^W.$$

By substituting as before, the above condition is equivalent to

$$\gamma \leq a^W - b^W\beta, \tag{43}$$

where $a^W > 0$ and $b^W > 0$ are functions of μ, δ and p. It can easily be shown that $a^W > f$, so that there exists a compact set $X \subset \Re_+^2$ such that if $(\beta,\gamma) \in X$, both inequalities $y_5^W \leq y^W \leq y_4^W$ are satisfied. By the same method applied to prove Prop. 3 it can be shown that there is no different (τ, z) such that a higher level of social welfare can be reached at the voting stage, given the distribution of values and specializations. QED

Appendix G: Proof of Proposition 3.

In order to show (15), substitute (39) and (40) into it and rearrange terms so as to get

$$4p(1+\delta)-2+(1-p)(\mu+2)>0,$$

which is true. The Proposition then directly follows from the main text. QED

Appendix H: Proof of Proposition 4.

In order to show that the SNE and WNE can coexist it is sufficient to exhibit a subset in the (β, γ)-space such that each of its elements can sustain both the SNE ane the WNE. By the proofs of existence of those equilibria, such a subset exists if $a^W > a^S$. Tedious but straightforward manipulations confirms that this condition is always met.

The tax rate of social insurance in the SNE is given by (30) and the tax rate in the WNE is given by (39). It is easily seen that $\tau^W > \tau^S$.

The result about output stems from comparing output in the SNE,

$$Q^S = w\left[\frac{\mu}{2}(1+\delta) + \frac{\mu}{2} + p(1-\mu)(1+\delta)\right]$$

with output in the WNE,

$$Q^W = w\left[p\mu(1+\delta) + \frac{(1-p)\mu}{2} + p(1-\mu)(1+\delta)\right].$$

QED

Appendix I: Proof of Proposition 5.

In the SNE, the dynamics of the employment rate is given by

$$\mu^S_{t+1} = \mu^S_t + p(1-\mu^S_t). \tag{44}$$

The steady state has $\mu^{S*} = 1$. Substituting into (30) yields $\tau^{S*} = 0$. Substituting into (13) yields $N^{S*} = 1$. In order to determine the growth rate, notice that half of the employed are talented for their job and that each of them devotes half of his time to working. Therefore, the growth rate in the steady state is $g^{S*} = g\,(1/4)$.

In the WNE, the dynamics of the employment rate is given by

$$\mu^W_{t+1} = \left(\frac{1+p}{2}\right)\mu^W_t + p(1-\mu^W_t). \tag{45}$$

The steady state has $\mu^{W*} = 2p/(1+p) < 1$. Substituting that steady-state variable into (39) yields $\tau^{W*} = (1-p)/(1+p) > 0$. Substituting into (14) yields $N^{W*} = (3p-1)/(1+p) < 1$. In order to determine the growth rate, notice that a share p of all individuals turn out to be talented for their job and that each of them devotes half of his time to working. Therefore, the growth rate in the steady state is $g^{W*} = g\,(p/2) > g\,(1/4)$.

In the WNE, the dynamics of the employment rate is given by (45), which has a stable root. The WNE must also satisfy conditions (42) and (43) which depend on μ_t. As long as neither of them is binding, which is generically the case, the steady state is locally stable.

In the SNE, the dynamics of the employment rate is given by (44), which has a stable root. The SNE must also satisfy condition (34) which depends on μ_t. As long as that condition is not binding, which is generically the case, the steady state is locally stable. One can even prove a stronger stability property: once in a short-run SNE, the economy always remain in a SNE and evolves according to (44). Suppose namely that the economy is in a short-run SNE with $\mu_t^S < 1$. As implied by (44), $\mu_{t+1}^S > \mu_t^S$. Straightforward manipulations show that increasing μ makes condition (34) less stringent, so that if it was satisfied in period t it remains so in period $t+1$.

The latter property can be used to prove the existence of multiple steady states. By Prop. 4, for any given μ, there exists a compact set such that if (β, γ) belongs to it, both the SNE and the WNE exist. So set $\mu = \mu^{W*}$, which correponds to the steady state in the WNE, and assume that (β, γ) is such that both short-run equilibria exist. By construction, the WNE is a steady state. By the stability property established above, the SNE converges to a steady state. QED

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