

Unemployment Insurance and Cultural Transmission: Theory & Application to European Unemployment

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Abstract

This paper emphasizes the two-way causality between the provision of unemployment insurance and the cultural transmission of civicness. The returns to being uncivic are increasing in the generosity of unemployment insurance; but this generosity is decreasing in the number of uncivic individuals. In this context, I determine the evolution of preferences across generations and show that cultural heterogeneity is sustained over the long-run.

The dynamics of cultural transmission can generate a long lag between the introduction of unemployment insurance and an increase in people's willingness to live off government-provided benefits. Hence, it offers an explanation to the "European unemployment puzzle" due to the coexistence of generous unemployment insurance and low unemployment in the 1950s and 1960s.

Keywords: civicness, cultural transmission, European unemployment, unemployment insurance

JEL Classification: E24, H31, J65, Z10

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1 Introduction

The adverse effect of public policies on incentives to work is at the heart of economic analysis. However, in the political debate, we sometimes hear a deeper concern that, over the long-run, an overly protective welfare state might also have negative consequences for the transmission of values. Indeed, if working hard is not properly rewarded, not only will people work less, they will also invest less in transmitting a high work ethic to their children. In other words, the concern is that generous welfare policies will gradually make the population lazy and welfare dependent.

Conversely, the values held by individuals in a society have an impact on the policies that could be implemented. If people are naturally prone to claim government-provided benefits to which they are not entitled, then the adverse effects of social insurance policies on labor supply are likely to be large. This would make these policies so expensive to implement that voters, as taxpayers, would be unlikely to support them.

In this paper, I therefore propose a model where values and policies are jointly determined. More specifically, the focus is on the interactions between the provision of unemployment insurance and cultural transmission, where civicism is the cultural trait of interest. More specifically, willingness to stay on the dole is the only dimension of civicism that I focus on. Those having a low degree of civicism are characterized by a willingness to live off unemployment benefits, without searching for a job, for as long as possible. Conversely, agents with a high degree of civicism would feel guilty if unduly relying on welfare benefits. It should be emphasized that, while I refer to "civism" throughout, an individual's propensity to abuse the welfare system could also be seen as a key dimension of his "work ethic".

The policy is determined by majority voting. On the one hand, risk-averse workers would like to have some insurance against the unemployment risk; while, on the other hand, if the average degree of civicism across the population is too low, the severity of the moral-hazard problem makes generous unemployment insurance prohibitively expensive to provide. This trade-off determines the impact of values on the policy to be implemented.

To identify the reverse causation, I rely on the Bisin Verdier (2001) framework¹ which captures the fact that, rather than being something spontaneous, cultural transmission results from an optimizing behavior of parents. When deciding on the level of effort to

¹The Bisin Verdier (2001) model of cultural transmission, which builds on the seminal work of Cavalli-Sforza Feldman (1981) and Boyd Richerson (1985), has been successfully applied to a number of different contexts, including the links between marriage and the transmission of religious beliefs (Bisin Verdier 2000 and Bisin Topa Verdier 2004), the analysis of corruption (Hauk Saez-Marti 2002), of ethnic identity and integration (Bisin Patacchini Verdier Zenou 2010), of discrimination (Saez-Marti Zenou 2009) and the transmission of education (Patacchini Zenou 2007). See Bisin Verdier (2010) for a comprehensive survey.

exert to transmit their values to the next generation, altruistic parents take into account the policy that will be implemented in the future. Clearly, the prospect of having a low degree of civicness is more attractive if children, once they have grown up, will be able to live off generous unemployment benefits for extended periods of time. This is the channel by which policies affect culture.

An important result is that cultural heterogeneity is sustained over the long-run. Indeed, if most people are civic, then a high level of insurance is provided against the risk of becoming unemployed. But this implies that the returns from being uncivic and from living off the generous benefits are substantial. If, on the contrary, most people are uncivic, then the moral-hazard problem is so large that voters favor a replacement ratio that is sufficiently small to induce everyone to work. This prevents any further increase in the number of uncivic individuals. Thus, starting with a culturally heterogeneous population, any long-run equilibrium is characterized by the coexistence of both types of agents, the civic and the uncivic.

This result should be contrasted with that of Bisin and Verdier (2004) who find, in the context of redistribution rather than social insurance, that the system converges towards a homogenization of preferences.² The intuition is that, in the case of redistribution, the policy that is implemented is favorable to the majority, i.e. high redistribution is implemented if and only if a majority of agents are not hard working. By contrast, in the case of unemployment insurance, uncivic agents prefer not to be too numerous such as to be able to "free-ride" on the generous provision of unemployment benefits. Thus, a key insight from my analysis is that, to understand the interaction between culture and the welfare state, the government budget constraint is more important than the political constraint when the main purpose of the welfare state is to provide social insurance.

Finally, I argue that the model could explain an important part of the history of European unemployment since World War II. Indeed, my model predicts that the introduction, or wide expansion, of unemployment insurance programs just after WWII was followed, a generation later, by an increase in the number of uncivic individuals registered as unemployed. In this respect, the key feature of the model is the existence of a long lag between the introduction of a policy and the behavioral response of agents. The strength of this explanation is that it is compatible with the coexistence of generous unemployment insurance and low unemployment in the 1950s and 1960s. As I explain below, this coexistence is known as the "European unemployment puzzle".

The remainder of this paper is organized as follows. The next section offers a review of the related literature on cultural transmission and on the European unemployment

²A similar result was derived by Benabou and Tirole (2006) under a slightly different, more behavioral, model of cultural transmission. See also Piketty (1995), Hassler Rodriguez Mora Storesletten Zilibotti (2003) and Alesina Angeletos (2005) for closely related stories with similar conclusions.

puzzle. To motivate my analysis, I then provide some empirical evidence suggesting that values have evolved over the past century. The third, and most important, part of this paper is dedicated to the presentation and resolution of the theoretical model. In the last section, I argue that my model contributes to explaining the European unemployment puzzle. This paper ends with a conclusion. An online appendix contains all the proofs which are not included in the paper.

2 Related Literature

This paper is related to two strands of the literature, one on the interaction between culture and economic outcomes and the other on the "European unemployment puzzle". I now briefly discuss each in turn.

2.1 Culture

Lindbeck, Nyberg and Weibull (1999) offer a pioneering analysis of the interplay between social norms and economic incentives in the context of the welfare state. They assume that "to live off one's own work" is a social norm. Furthermore, the larger the number of people adhering to this norm, the stronger it is felt by individuals. Agents have to choose whether to work or to live off the public transfers, the size of which is determined by majority voting. Despite some important similarities, their approach substantially differs from mine in a number of ways. First, I assume that there is a genuine need for the provision of unemployment insurance and, as a result, those who are involuntarily unemployed do not have any feelings of guilt when receiving unemployment benefits. Also, I suppose that agents differ in their degree of civicness, rather than in their wages, which permits an explicit model of cultural evolution. Finally, by assuming a feeling of guilt that is a decreasing function of the population share living on transfers, they obtain that agents adapt their individual ethic to the policy that is implemented. On the contrary, in this paper, cultural transmission from one generation to the next is the only source of adaptation of values to the chosen policy. An important consequence of this difference is that their model cannot generate any lag between the introduction of a policy and the evolution of preferences.

In order to generate such a lag, Lindbeck and Nyberg (2006) propose an explicit model of norm transmission from parents to children. As in the previous paper, norms are tied to outcome, e.g. being welfare dependant, rather than to effort, e.g. not trying to look for a job. Also, this norm is felt more intensively as more people adhere to it. However, the assumed cultural transmission process is hardly comparable to the one used in this paper. Indeed, the only motivation of parents for raising children to work hard is to

avoid having them rely on their altruism in the future. Hence, if parents could credibly commit not to donate more than a certain amount to their children in the future, then norm transmission would never occur.

Also closely related is the work of Hauk and Saez-Marti (2002) on the cultural transmission of corruption. While their application is different from mine, they also rely on the Bisin Verdier (2001) framework and assume that agents can either be honest or dishonest. As in this paper, they emphasize the importance of expectations about future policies for the determination of the education effort exerted by parents. Interestingly, they show that, starting from a highly corrupt society, a temporary anti-corruption policy can permanently shift the economy to a low corruption equilibrium. A key difference, however, is that they assume that the policy is set exogenously, whereas, in my model, it is outcome of a political process and it is therefore directly affected by the share of dishonest agents in the population.

A number of recent papers have emphasized the impact of cultural values on labor market institutions and outcomes. Algan and Cahuc (2009) argue that countries characterized by stronger civic virtues are more prone to provide insurance through unemployment insurance, thanks to a lower moral-hazard problem, rather than through job protection. Their approach is closely related to the political economy aspect of my work. Also, Algan and Cahuc (2005, 2006) show that the dispersion in participation rates and in labor market rigidities across European countries could be attributed to differences in the strength of family ties and in religious values. While these analyses take culture as given, Aghion, Algan and Cahuc (2011) argue that a high minimum wage prevents workers from negotiating, which adversely affects cooperation within the firm. Also, according to Blanchard and Philippon (2006), bad labor relations cause high unemployment which corresponds to an, undesirable, low trust equilibrium.

While I focus, at the end of the paper, on the rise in European unemployment, Fernandez (2011) attributes another major structural change in the labor market, constituted by the rise in female labor force participation, to a cultural change driven by a process of intergenerational learning about the payoffs from working in the market rather than at home. A calibration of her model replicates the S-shaped increase in female labor force participation that occurred throughout the twentieth century.

Another major structural change, which occurred during the British Industrial Revolution, was the rise of the middle-class which replaced the landowning aristocracy as the economically dominant group. Again, culture seems to have been a key driving force. According to Doepke and Zilibotti (2008), the triumph of the bourgeoisie was due to their patience and high work ethic which were shaped by the nature of their preindustrial professions.³ Moreover, they emphasize that a social class tends to decline when it gets

³See also Gradstein (2009) for a similar story of reversals of fortune.

some unearned income from capital since this induces parents to encourage their children to appreciate leisure rather than hard work. A similar mechanism operates in this paper to the extent that unemployment benefits is a source of unearned income.

More generally, this paper contributes to the growing literature on the relationship between culture and economic outcomes (see Guiso Sapienza Zingales 2006 for an overview). Tabellini (2008a) provides evidence that distant political institutions have an impact on culture as measured by trust and respect, democracy being favorable to these values. Conversely, countries where morality is more widespread have better governance indicators and tend to be more developed. The empirical analysis of Algan and Cahuc (2010) confirms that trust has a causal impact on growth.

Importantly, Tabellini (2008b) relies on an extended Bisin-Verdier (2001) framework to investigate the interaction between the transmission of cooperative values and the public choice of legal enforcement in the context of majority voting. He shows that the long-run equilibrium is either characterized by strong institutions and cooperative values or weak institutions and non-cooperative values. Also, Aghion, Algan, Cahuc and Shleifer (2010) emphasize the two-way causality between trust and regulation and show that there is a complementarity between high trust and low regulation or, equivalently, between low trust and high regulation. These findings are reminiscent of the Bisin Verdier (2004) result where, in the context of redistribution, hard work and low redistribution are mutually reinforcing. By contrast, in this paper, a generous provision of social insurance and a high degree of civiness are *not* mutually reinforcing (since generous insurance encourages uncivic behavior while uncivic behavior does not favor a generous provision of insurance). This is precisely why, in the context of this paper, cultural heterogeneity is sustained over the long-run.

2.2 European Unemployment Puzzle

Observation of cross-country rates of unemployment suggests a positive correlation between institutional rigidity (high minimum wage, stringent employment protection legislation, generous unemployment benefits. . .) and unemployment. It is therefore tempting to assert that labor market rigidities are the main cause of the high rates of unemployment that characterized the recent economic history of Europe. However, the "European unemployment puzzle" is due to the fact that most of these institutions pre-existed the soar in European unemployment.⁴ It is therefore necessary to find an explanation for the

⁴See, for instance, Blanchard Wolfers (2000) for the corresponding evidence. In particular, they show the evolution of the replacement ratio of unemployment insurance from the early 1960s until 2000 for the five largest European economies (cf. Figure 7): in France and Germany the level of benefits remained fairly high throughout the period; in the United Kingdom it started from similar levels but declined in the 1980s; in Spain and Italy it started from a lower level but increased in the 1960s for Spain and only more recently for Italy. See Martin (1996) for additional evidence on replacement ratios since 1961.

rise in unemployment that is compatible with the coexistence of stringent institutions and low unemployment in the 1950s and 1960s.

According to Blanchard and Wolfers (2000), the rise in European unemployment could be attributed to the interaction between labor market rigidities and an increased frequency of adverse shocks affecting the economy since the 1970s. However, it remains difficult to identify the precise nature of these shocks.

Ljungqvist and Sargent (1998) defend a similar hypothesis by focusing on the effects of unemployment insurance.⁵ In a turbulent economy, the productivity of a worker drops as he becomes unemployed. In that context, generous unemployment benefits, indexed on the last wage rate, discourage unemployed workers from searching for jobs. It is, again, the combination of turbulence and an adverse government intervention that leads to mass unemployment.⁶

Nickell, Nunziata and Ochel (2005) challenge these views. They note that, over the course of the latter half of the twentieth century, there has in fact been an increase in the stringency of European labor market institutions. They then argue, empirically, that these changes in institutions could explain the rise in unemployment. However, it remains hard to believe that quantitatively small changes in policies could have had such dramatic effects on unemployment. More fundamentally, they assume that these changes were exogenous, which is not clear from a political economy perspective.⁷

In this paper, I am arguing that the European unemployment puzzle could be partly explained by the existence of a generation-long lag between the introduction, or wide expansion, of generous unemployment insurance programs after World War II and an increase in people's willingness to live on the dole.

⁵Ljungqvist Sargent (2008) offers a more advanced treatment which also allows for employment protection legislations.

⁶Marimon Zilibotti (1999) and Mortensen Pissarides (1999) offer complementary stories which focus on the interaction between a generous provision of unemployment insurance and the occurrence of skilled biased technological shocks. Hörner Ngai Olivetti (2007) show that the pervasive state control of some industries in Europe may have magnified the adverse effects of turbulence on unemployment until the early 1990s. Hornsetin, Krusell and Violante (2007) emphasize the adverse impact of an increase in growth by creative destruction since the 1970s on the demand side of the labor market, resulting in higher unemployment. Finally, Pissarides Vallanti (2007) and Pissarides (2007) argue that the extremely low rates of unemployment of the 1950s and 1960s were due to the high rates of growth caused by the technological catch-up of the Old Continent.

⁷For instance, in the framework of Hassler, Rodriguez Mora, Storesletten and Zilibotti (2005), the European medium voter, who is not very mobile, could respond to an increase in the rate of unemployment by voting for higher benefits. Instead, in the US, the possibility to move to regions with higher labor demand is perceived, by the medium voter, as a substitute to the provision of unemployment insurance.

3 Empirical Motivation

The usual way to investigate the evolution of values over time is to use survey data such as the *World Values Surveys* (WVS). The problem is that these data have only been collected since the 1980s. The solution is to work with cohorts. Indeed, it is possible to check whether young generations have different values than older ones.

I focus on the answer to the following question from the WVS: "*Please tell me whether you think it is always justified, never justified or something in between to claim government benefits to which you are not entitled*". Respondents were asked to report an integer number between 1 for "*Never Justified*" and 10 for "*Always Justified*". The WVS consists of three main waves, in 1980, 1990 and 2000, and this question was included in all three.

In order to investigate whether civicness has declined over time, I focus on the impact of an individual's decade of birth on his willingness to claim benefits to which he is not entitled. My sample includes all 18 West-European countries which are members of the OECD, i.e. Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and Great Britain. Thus, the sample size consists of 50893 observations. As, in this sample, about 63% of respondents think that it is never justified to claim government benefits to which they are not entitled, I just run a probit regression where 1 stands for "*Never Justified*" while 0 corresponds to any other answer, i.e. any reported number between 2 and 10.⁸ It is, of course, necessary to control for some key characteristics of the respondents. I therefore control for gender, level of education⁹, political orientation, religion and nationality. Having three waves of the survey, I also control for age¹⁰.

The marginal effect of the decade of birth on the probability of answering "*Never Justified*" is plotted in Figure 1, where the cohort of those born in the 1930s is chosen as the reference. This regression result suggests that civicness has declined over the twentieth century. The fall is not only statistically significant but also quantitatively large; for instance, being born in the 1960s, rather than the 1930s, decreases the probability of answering never justified by 12% for an individual with average characteristics. Thus, the cohort effect is larger than that of most other control variables and comparable in size to the marginal effects of nationality¹¹. Note that, interestingly, there seems to have been an acceleration in the decline after WWII. Also, the age coefficient is positive, suggesting

⁸It could be checked that running an ordered probit gives very similar results.

⁹It could be objected that the level of education of an individual is a consequence of his ethical values. It is nevertheless included in order to capture the structural increase in the length of education that occurred throughout the twentieth century. The cohort effect is almost unchanged when education is omitted.

¹⁰The cohort effect is of comparable magnitude if I do not control for age or if I allow for a quadratic effect of age.

¹¹The country marginal effects, compared to France, range from -4.5% for Greece to 31.8% for Denmark. The average deviation of the 18 country marginal effects from their mean is 7.8%.

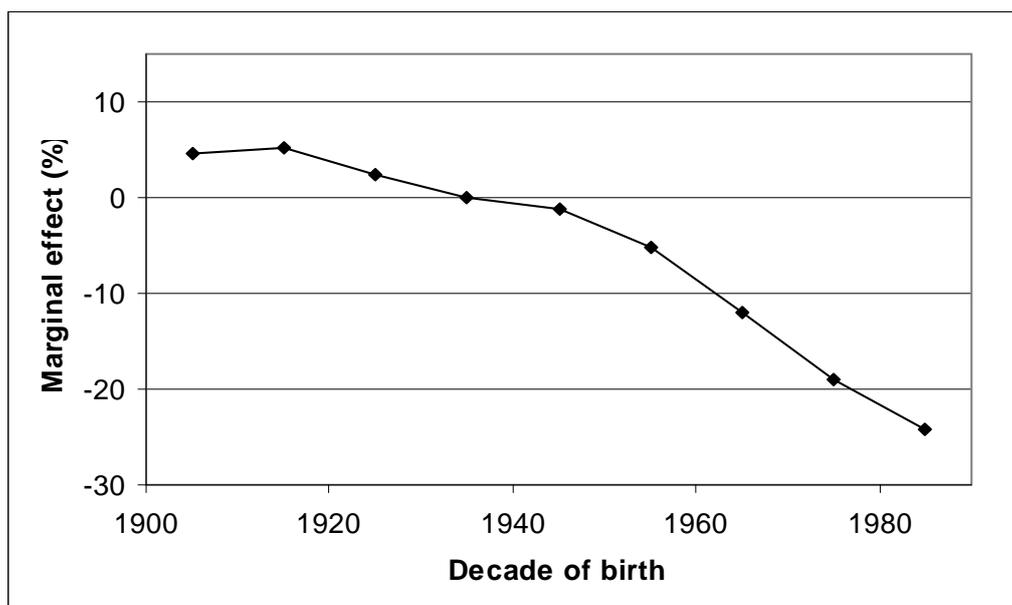


Figure 1: Effect of decade of birth on willingness to be honest (Note: The first point also includes all those born before 1900, who are not very numerous.)

that people do adhere to more conservative values as they get older.¹²

A typical concern with the proposed identification strategy is that the results might be driven by a year effect which cannot be distinguished from the impact of age and year of birth. Note that my finding would only be invalidated by a negative trend, i.e. if people were more likely to answer “*Never Justified*” in the context of 1980 than in that of 2000. However, this problem is unlikely to be severe since all the data were collected between 1980 and 2000 and, in most European countries, the economic environment regarding the labor market and the welfare state has not changed dramatically over that period. Furthermore, given the magnitude of the impact of year of birth that I find, only a very large year effect would be problematic.

It is nevertheless possible to try to identify a possible year effect by using the phase of the business cycle in which countries were when the surveys were performed. I measure these phases by the deviation of a country’s annual real GDP growth rate from its average value¹³ from 1974 to 2006. These deviations are substantial, about 1.7% on average, and we might therefore expect answers to differ whether the country was in a boom or in a recession when the survey was performed.

The business cycle coefficient is negative and significant. This implies that people are more tolerant towards cheating on benefits in booms than in recessions. The marginal

¹²With a quadratic age effect, civiness peaks at age 57.3.

¹³For almost all countries in the sample, I cannot reject at the 95% confidence level the absence of a trend in growth rate.

effect of an additional percentage point of GDP growth on the probability to think that it is never justified to cheat is nevertheless small, equal to -0.6%. Most importantly, the other coefficients of the regression are only marginally affected by the new control variable. Hence, this suggests that the increase in willingness to cheat on benefits documented above is not driven by a missing year effect.

Additionally, it can be checked that the decline in civicism, as measured by the answer to the same question, was faster in Scandinavia and in countries which, in the early 1960s, had generous unemployment insurance than in countries with low replacement ratios. This suggests that the generosity of social insurance did play a role.

In order to be able to explain such a large change in values over a fairly long period of time, it seems natural to rely on a model of cultural transmission. Moreover, the closely related work of Algan and Cahuc (2009), which uses the answer to the same question from the WVS, documents that on average a US citizen tends to provide the same answer as someone living in his country of origin. This shows the relevance of cultural transmission from one generation to the next and suggests a major role played by parents in this process.¹⁴ Also, Mulligan (1997) provides some evidence that children of parents who live on welfare have a tendency to behave similarly as adults. He argues that this results from an intergenerational transmission of ethical values.

In the following section, I therefore propose a model of the interaction between cultural transmission and the generosity of the welfare state that can explain the observed decline in civicism.

4 Theoretical Model

In this theoretical section, I first provide a description of the functioning of the economy at a point in time, I then turn to the cultural transmission process and, finally, to the characterization of the equilibrium dynamics.

4.1 The Economy

Let us consider an overlapping generation economy such that each generation is populated by a continuum of agents of mass 1. Each individual lives for two periods corresponding to childhood and adulthood. The young acquire preferences while the old work and try to transmit values to their children.

As workers face the risk of being unemployed with probability p , the government provides some unemployment benefits b_t , at time t , that are financed by a tax x_t on wages.

¹⁴Of related interest, Dohmen, Falk, Huffman and Sunde (2011) provide some evidence, from a German survey, that trust also gets transmitted from parents to children.

Adults have the choice between working full time, which might entail some unemployment spells, and not working at all. Those who decide not to work also benefit from the unemployment insurance system. The population is divided between agents who have a high degree of civicness, type H , and those with low civicness, type L . These two cultural types are characterized by a difference in their preferences: type H individuals, unlike type L , feel guilty when receiving unemployment benefits without actively searching for a job. The cultural composition of the population at time t is summarized by the parameter q_t which denotes the share of type H agents at t .

Let $U_t(W)$ be the utility of an agent who chooses to work, which is independent of his type. We thus have:

$$U_t(W) = (1 - p)v(w - x_t) + pv(b_t),$$

where $w > 0$ stands for the before-tax wage and $v(\cdot)$ for the strictly increasing and strictly concave utility of consumption. This specification of utility implies that a worker spends a fraction p of his working life unemployed. For simplicity, to avoid corner solutions with zero consumption, I assume that $\lim_{c \rightarrow 0^+} v(c) = -\infty$.

Similarly, $U_t^i(NW)$ stands for the utility of a non-working agent of type $i \in \{H, L\}$, i.e. the utility of someone who is not even searching for a job. It is given by:

$$U_t^i(NW) = v(b_t) + \gamma_i,$$

where, for an individual of type i , γ_i denotes his value of leisure net of his feeling of guilt from living off benefits to which he is not entitled¹⁵. Following Algan Cahuc (2009), I assume that the feeling of guilt from staying on the dole reduces the welfare of a civic individual of type H more than that of an uncivic individual of type L .¹⁶ Thus, $\gamma_L > \gamma_H$. Furthermore, for simplicity, I impose that, when full insurance is provided, i.e. when $b_t = w - x_t$, type H agents choose to work while type L agents strictly prefer not to work, i.e. $\gamma_H \leq 0$ and $\gamma_L > 0$.

Note that, in the spirit of Doepke Zilibotti (2008), an alternative interpretation of $\gamma_L > \gamma_H$ is that agents of type L have a higher ability to appreciate leisure. The two interpretations are in fact observationally equivalent. What is important is that, when the provision of unemployment benefits is close to being perfect, type H agents choose to be either working or searching for a job, while type L agents are willing to live off government-provided benefits for as long as possible.

¹⁵In most countries, an unemployed worker is not entitled to unemployment insurance if he is not actively looking for a job. However, in practice, this rule is difficult to enforce.

¹⁶Similarly, in the context of corruption, Hauk and Saez-Marti (2002) assume that choosing to be corrupt reduces the welfare of a honest agent of type H more than that of a dishonest agent of type L .

The policy implemented by the government consists of a level of taxes x_t and of unemployment benefits b_t . This policy is determined by majority voting. Before going in more details into the characterization of the equilibrium policy, note that the assumed preferences imply that if type L agents choose to work, then so do the H s. Conversely, if the H s choose not to work, then so do the L s. Thus, a policy where the H s do not work results in zero consumption for everyone. It follows that, for any political economy equilibrium, the H s are always induced to work.

Whoever holds the majority, two policies can be implemented. The provision of unemployment insurance can either be so generous that only type H agents choose to work or, alternatively, it can be sufficiently stingy to induce everyone to work. Whichever policy is chosen, those who are in majority maximize their own welfare subject to an incentive compatibility constraint and to a government budget constraint. The incentive compatibility constraint ensures that those who are supposed to work under that policy actually choose to do so.

Let us first characterize the equilibrium policy when type H agents hold the majority, i.e. when $q_t > 1/2$. Note that, empirically, this is the most plausible case since, in our population sample from European countries, the overwhelming majority of agents think that it is never justified for an individual to claim benefits to which he is not entitled.

The optimization problem corresponding to the "generous policy", where only the H s work, is:

$$\begin{aligned} & \max_{\{x_t, b_t\}} U_t(W) & (1) \\ \text{subject to} & \quad U_t(W) \geq U_t^H(NW), \\ & \quad q_t [(1-p)x_t - pb_t] - (1-q_t)b_t \geq 0. \end{aligned}$$

When only the H s work, the government budget constraint results from a proportion q_t of agents who pay taxes with probability $1-p$ and who receive unemployment benefits with probability p and a remaining proportion $1-q_t$ of agents who get the benefits for sure. It appears clearly from this constraint that the existence of the L s, who abuse the welfare system, increases the cost of providing unemployment insurance. This prevents the provision of full insurance that would be ideal for the H s.

The incentive compatibility constraint, $U_t(W) \geq U_t^H(NW)$, simplifies to:

$$(1-p)[v(w-x_t) - v(b_t)] \geq \gamma_H,$$

which, since $\gamma_H \leq 0$, is trivially satisfied whenever less than full insurance is provided. Abstracting from this constraint, the solution to the generous policy problem (1) is char-

acterized by following two conditions:

$$\begin{cases} [1 - (1 - p)q_t] v'(w - x(q_t)) = pq_t v'(b(q_t)) \\ (1 - p)q_t x(q_t) = [1 - (1 - p)q_t] b(q_t) \end{cases} \quad (2)$$

where the generous policy is defined as a function of q_t , i.e. $x_t = x(q_t)$ and $b_t = b(q_t)$. Clearly, the first of these two equations implies that $w - x(q_t) > b(q_t)$ whenever $q_t < 1$. Thus, the incentive compatibility constraint is indeed never binding.

The following lemma, proved in the appendix, establishes that the functions $x(\cdot)$ and $b(\cdot)$ implicitly determined by (2) are defined and well behaved on $(0, 1]$.

Lemma 1 *For any $q \in (0, 1]$, the two conditions in (2) determine a unique corresponding value of x and of b . Moreover, the functions $x(q)$ and $b(q)$ are continuous and differentiable in q on $(0, 1]$.*

The optimization problem for the "stingy policy", where all adults work, is:

$$\begin{aligned} \max_{\{x_t, b_t\}} U_t(W) & \quad (3) \\ \text{subject to} \quad U_t(W) & \geq U_t^L(NW), \\ (1 - p)x_t - pb_t & \geq 0, \end{aligned}$$

where I have dropped the incentive compatibility constraint for the H s since, if the L s choose to work, then so do the H s. When everyone chooses to work, the government budget constraint greatly simplifies since each agent pays taxes with probability $1 - p$ and receives benefits with probability p . Note that, here, abstracting from the incentive compatibility constraint, it would be trivially optimal to provide full insurance.

The incentive compatibility constraint for the L s, $U_t(W) \geq U_t^L(NW)$, simplifies to:

$$(1 - p) [v(w - x_t) - v(b_t)] \geq \gamma_L. \quad (4)$$

Under the stingy policy, it is the incentive compatibility constraint for the L s which imposes an upper bound on the provision of insurance. Thus, the two binding constraints of (3) fully characterize the stingy policy. It follows that x_t and b_t are independent of q_t .

Of the two policies, voters of type H choose the one that yields the highest maximand.¹⁷ Comparing the outcome of the generous and stingy policies yields the following

¹⁷It should be emphasized that, whenever the H s weakly prefer the generous to the stingy policy, the L s strictly prefer not to work. Indeed, if the L s did not prefer not to work, then the chosen generous policy would satisfy both constraints of the stingy policy with the government budget constraint being slack. Thus, higher welfare would be attained under an optimal stingy policy; a contradiction.

lemma, which is proved in the appendix.

Lemma 2 *Assuming that type H agents choose the policy to be implemented, there exists a threshold $\tilde{q} \in (0, 1)$ such that if $q_t > \tilde{q}$ then the generous policy is adopted, (1) preferred to (3), and if $q_t < \tilde{q}$ then the stingy policy is adopted, (3) preferred to (1).*

Note that, if $\tilde{q} < 1/2$, then the generous policy is always adopted whenever the H s actually are in power.

The intuition for this result is simple. If the number of type L agents is large, then the H s find it very costly to provide generous unemployment benefits as this would induce all the L s to live on welfare. Conversely, if the number of type L agents is sufficiently small, then the H s choose to implement the generous policy since the beneficial effect of a higher provision of insurance dominates the adverse effect of the policy on the labor supply of the L s.

Let us now turn to the case where the L s hold the majority, $q_t < 1/2$. Again, they must choose between implementing a generous policy, where only the H s work, and a stingy policy, where everybody works. The generous policy is the solution to:

$$\begin{aligned} & \max_{\{x_t, b_t\}} U_t^L(NW) & (5) \\ \text{subject to} & \quad U_t(W) \geq U_t^H(NW), \\ & \quad q_t [(1-p)x_t - pb_t] - (1-q_t)b_t = 0. \end{aligned}$$

Here, type L agents just want to maximize the level of unemployment benefits. Thus, the policy is fully characterized by the two binding constraints. Since the generous policy is not the same depending on which type holds the majority, whenever there is a possible confusion I shall refer to the " H s' generous policy" for (1) and to the " L s' generous policy" for (5). On the contrary, the stingy policy is the same whoever holds the majority. Hence, if the L s choose to implement that policy, it is still characterized by the binding constraints of (3).

We have the following lemma, which is proved in the appendix.

Lemma 3 *Assuming that type L agents choose the policy to be implemented, there exists a threshold $\hat{q} \in (0, 1)$ such that if $q_t > \hat{q}$ then the generous policy is adopted, (5) preferred to (3), and if $q_t < \hat{q}$ then the stingy policy is adopted, (3) preferred to (5).*

Note that, if $\hat{q} > 1/2$, then the stingy policy is always adopted whenever the L s actually are in power.

Finally, the relative value of the two thresholds is given by the next lemma.

Lemma 4 $\tilde{q} > \hat{q}$.

Unsurprisingly, type L agents prefer generous policies for a wider range of values of q_t than type H agents.

To fully characterize the equilibrium policy, three cases must be distinguished: $1/2 < \hat{q} < \tilde{q}$, $\hat{q} < 1/2 < \tilde{q}$ and $\hat{q} < \tilde{q} < 1/2$. For simplicity, in the rest of this paper, I focus on the first case which seems to be the most plausible. Indeed, it is unlikely that more than half the working age population could live on welfare. It should nevertheless be noted that the two other possibilities could also be analyzed and would indeed yield very similar insights.

Note that q_t is a sufficient statistic to determine the policy implemented at t . In the rest of the paper, I therefore use the fact that $x_t = x(q_t)$ and $b_t = b(q_t)$. Assuming $1/2 < \hat{q} < \tilde{q}$, the functions $x(q_t)$ and $b(q_t)$ are implicitly determined by (2) when $q_t \geq \tilde{q}$ and by the two binding constraints of (3) when $q_t < \tilde{q}$. Using these two functions, I can write $U_t(W) = U(W; q_t)$ and $U_t^i(NW) = U^i(NW; q_t)$.

I shall assume throughout that the Hs ' generous policy is chosen whenever $q_t = \tilde{q}$. A natural justification is that, while at \tilde{q} the Hs are indifferent between the two policies, it can be checked that the Ls strictly prefer the Hs to implement their generous policy.¹⁸ Interestingly, this fact shows that the political economy equilibrium is not necessarily efficient.

Note that, whenever the generous policy is implemented, the welfare of all agents is strictly increasing in q_t and it is higher than under the stingy policy. It is therefore tempting to conclude that the government should promote civicness. However, in the absence of interpersonal comparability of utility, it is not possible to make such normative claims since we cannot know whether, for a given individual, being of type H is better than being of type L .

Now that I have described the functioning of the economy at a single point in time, I turn to the dynamics of cultural transmission.

4.2 Cultural Transmission

As should be clear from the previous section, by “culture” or “values” I denote a preference profile, i.e. type H or type L . Following the seminal work of Cavalli-Sforza and Feldman (1981), it is common to distinguish three modes of cultural transmission between individuals: vertical, oblique and horizontal. The former denotes the transmission

¹⁸Whenever the Hs ' generous policy is implemented, we have $U_t^L(NW) > U_t(W)$, where this inequality follows from the previous footnote. But, at $q_t = \tilde{q}$, the welfare derived by the Hs from the generous policy (the right hand side of the inequality when $q_t = \tilde{q}$) is equal to the welfare derived by all agents from the stingy policy. Thus, at $q_t = \tilde{q}$, the Ls strictly prefer not to work under the Hs ' generous policy than to work under the stingy policy.

of values from parents to children. Oblique cultural transmission occurs when a child is influenced by individuals of the parental generation other than his own parents. Finally, horizontal transmission results from the interaction between different individuals of the same generation. Being specifically interested in the *dynamics* of cultural transmission, I abstract from this third channel.¹⁹

I rely on the Bisin Verdier (2001) model of cultural transmission. For simplicity, I assume that each adult only has one child and that each child only has a single parent. Vertical cultural transmission, whereby a parent transmits his type to his child, has a probability τ_t^i of success in period t for a parent of type i . In case this process is unsuccessful, i.e. with probability $1 - \tau_t^i$, then oblique cultural transmission operates and the child adopts the preference profile of a randomly selected adult who thus becomes his role model. Hence, a rebellious child, who failed to be influenced by his parent, chooses a role model of type H with probability q_t and of type L with probability $1 - q_t$.

Let P_t^{ij} denote the probability at time t that the child of a parent of type i adopts preference type j . The assumed cultural transmission process implies the following transition probabilities:

$$\begin{cases} P_t^{HH} = \tau_t^H + (1 - \tau_t^H)q_t \\ P_t^{HL} = (1 - \tau_t^H)(1 - q_t) \\ P_t^{LL} = \tau_t^L + (1 - \tau_t^L)(1 - q_t) \\ P_t^{LH} = (1 - \tau_t^L)q_t \end{cases} \quad (6)$$

For instance, the probability that a parent of type H has a child of the same type, P_t^{HH} , is equal to the probability of successful vertical preference transmission, τ_t^H , plus the probability of having a rebellious child that randomly selects a mentor of type H , $(1 - \tau_t^H)q_t$.

The number of type H agents at time $t + 1$ is equal to the the number of agents of type H at t who had a child of the same type plus the number of type L agents who had a child of type H . Thus, applying the law of large numbers to our continuum of agents of mass 1, the dynamics of preferences is given by:

$$\begin{aligned} q_{t+1} &= q_t P_t^{HH} + (1 - q_t) P_t^{LH}, \\ &= q_t + q_t(1 - q_t) [\tau_t^H - \tau_t^L], \end{aligned} \quad (7)$$

where the second line was obtained by substituting the transition probabilities from (6). It follows that $q_{t+1} > q_t$ if and only if $\tau_t^H > \tau_t^L$. To complete the resolution of the model, we need to determine the probabilities of successful vertical cultural transmission, τ_t^H and

¹⁹Social norms are an example of horizontal cultural transmission. Thus, the contribution of Lindbeck, Nyberg and Weibull (1999), which analyses the interaction between norms and the welfare state, should be seen as complementary to the approach of this paper.

τ_t^L , which is the outcome of an optimization decision of parents.

For simplicity, and without loss of generality, it is assumed that a parent of type i directly chooses the probability τ_t^i . This costs him $C_i(\tau_t^i)$, where the cost function is strictly increasing, strictly convex and satisfies $C_i(0) = C_i'(0) = 0$ as well as $C_i''(y) \geq \underline{C} > 0$ for all $y \in [0, 1]$, where \underline{C} is a fixed parameter. Furthermore, $C_i'(1)$ should be sufficiently high to guarantee that we always have $\tau_t^i < 1$.²⁰

In general, transmitting a high or a low degree of civicness might entail different cultural transmission costs. This is why the cost function is indexed by the type of the parent, which is also the type being transmitted to the next generation. For simplicity, I shall consider that the two cost functions are proportional to each other. This implies that for any value of y , we must have:

$$C_L(y) = \alpha C_H(y), \quad (8)$$

for some scalar $\alpha \in (0, +\infty)$. For instance, if raising a child to take advantage of the welfare system is less costly than raising him to be civic, then $\alpha < 1$.

Let us now turn to the benefit side of the cultural transmission problem. First, note that the future action of a child, i.e. to work or not to work, will depend on his cultural type. Following Bisin Verdier (2001), I assume "imperfect empathy": a parent evaluates the welfare generated by his child's action using his own preferences.²¹

The future action of a child born at t will be affected by the policy that will be implemented at $t + 1$ which is fully determined by q_{t+1} . $V^{ij}(q_{t+1}^e)$ therefore denotes the utility that a parent of type i gets from the action chosen by a son of type j if parents expect that the share of type H individuals at $t + 1$ will be equal to q_{t+1}^e .²² Hence, a parent of type i faces the following cultural transmission effort problem:

$$\max_{\tau_t^i} -C_i(\tau_t^i) + \beta [P_t^{ii} V^{ii}(q_{t+1}^e) + P_t^{ij} V^{ij}(q_{t+1}^e)], \quad (9)$$

where $\beta > 0$ is a parameter capturing the intensity of parents' imperfect empathy. Here, as in Bisin Verdier (2004) and Hauk Saez-Marti (2002), parents are assumed to form rational expectations on the evolution of values from their generation to the next.

For completeness, note that the total welfare of an adult is composed of the direct gratification he gets from his labor market activity and of the utility derived from cultural transmission. However, these two components of welfare do not directly interact with each

²⁰A sufficient condition for this is $\lim_{y \rightarrow 1^-} C_i'(y) = +\infty$.

²¹Following Saez-Marti Sjogren (2008), an alternative would be to assume pure altruism together with a bias in oblique cultural transmission. The main insights from the current analysis could also be obtained in this alternative framework.

²²Note that, given the dynamics of preferences in (7), parents never expect at time t a whole distribution of values for q_{t+1} .

other. They can therefore be treated separately.

Let $\Delta V^H(q_{t+1}^e) = V^{HH}(q_{t+1}^e) - V^{HL}(q_{t+1}^e)$ denote the extent to which a parent of type H prefers his child to be of type H rather than L . The first-order condition to the cultural transmission problem (9) of a type H agent is:

$$C'_H(\tau_t^H) = \beta(1 - q_t)\Delta V^H(q_{t+1}^e). \quad (10)$$

This first-order condition states that the optimal level of effort is such that the corresponding marginal cost is equal to the marginal benefit, where the latter is increasing in the intensity of parental empathy, β , in the probability that a rebellious child adopts a low degree of civicness, which is to be avoided, $1 - q_t$, and in the extent to which type H is preferable to type L , $\Delta V^H(q_{t+1}^e)$. Thus, when q_t is close to 1, a parent might choose a low value of τ_t^H even if he strongly prefers his child to be of type H since he knows that even a rebellious child is very likely to end up adopting type H .

Similarly, the first-order condition for a type L agent is:

$$C'_L(\tau_t^L) = \beta q_t \Delta V^L(q_{t+1}^e), \quad (11)$$

where $\Delta V^L(q_{t+1}^e) = V^{LL}(q_{t+1}^e) - V^{LH}(q_{t+1}^e)$.

When benefits are generous, agents of type L choose to live on the dole. As shown below, by imperfect empathy, this implies that they also think that their children would be better off living on the dole, i.e. $\Delta V^L(q_{t+1}^e) > 0$ when $q_{t+1}^e \geq \tilde{q}$. As a result, if future benefits are expected to be generous, parents of type L choose to exert costly effort in order to inculcate uncivic behavior in their children. This is a limitation of the model to the extent that parental effort might seem unnecessary for a child to become uncivic. This feature of the model is fundamentally due to the structure of the Bisin Verdier (2001) model of cultural transmission. This framework nevertheless has the major advantage of being simple and transparent; relying on it greatly simplifies my theoretical exposition.²³

Moreover, it could reasonably be argued that, in the context of the welfare state, uncivic parents do in fact need to exert a substantial amount of effort to transmit their cultural type. Indeed, in order to be able to take full advantage of the generosity of the welfare system, a worker needs to have acquired a good knowledge of the administrative constraints, of the possible loopholes and a culture of fighting for his legal rights. All these components of an uncivic culture reduce the cost of living on welfare, which is captured

²³An alternative would be to replace the assumption of imperfect empathy by that of pure altruism and to modify individual preferences such as to raise the welfare of working individuals of type H . This would induce all parents to want to have civic children. However, to obtain a non-trivial equilibrium, this would have to be compensated by an offsetting bias in oblique cultural transmission (as in Saez-Marti Sjogren 2008). In the context of this paper, allowing for a bias would greatly complicate the analysis without changing its main insights.

by a high value of γ_L . Thus, to have children who are able take full advantage of the welfare system, parents need to actively transmit a culture of entitlement, as opposed to a culture of merit.²⁴ Moreover, the fact that raising a child to be uncivic might not be very costly could be captured within the model by a very low value of α , which would induce parents to choose a probability τ_t^L close to 1.

Let us now relate the measure of parents' imperfect empathy to the agents' underlying preferences. A child of type H will always choose to work. Thus, since the welfare from choosing to work is type-independent, we have:

$$V^{HH}(q_{t+1}^e) = V^{LH}(q_{t+1}^e) = U(W; q_{t+1}^e) = (1-p)v(w - x(q_{t+1}^e)) + pv(b(q_{t+1}^e)).$$

A parent expects that a child of type L will choose to work if and only if $q_{t+1}^e < \tilde{q}$. This implies:

$$V^{HL}(q_{t+1}^e) = \begin{cases} U^H(NW; q_{t+1}^e) = v(b(q_{t+1}^e)) + \gamma_H & \text{if } q_{t+1}^e \geq \tilde{q} \\ U(W; q_{t+1}^e) = (1-p)v(w - x(q_{t+1}^e)) + pv(b(q_{t+1}^e)) & \text{if } q_{t+1}^e < \tilde{q} \end{cases}$$

This preference specification shows that, when $q_{t+1}^e \geq \tilde{q}$, a civic parent of type H feels bad if his child adopts type L and chooses to live on the dole (recall that $\gamma_H \leq 0$). Hence, imperfect empathy provides a natural explanation why some parents, i.e. those of type H , choose to raise their children to be civic even though the welfare state is expected to be generous in the future. Finally, we have:

$$V^{LL}(q_{t+1}^e) = \begin{cases} U^L(NW; q_{t+1}^e) = v(b(q_{t+1}^e)) + \gamma_L & \text{if } q_{t+1}^e \geq \tilde{q} \\ U(W; q_{t+1}^e) = (1-p)v(w - x(q_{t+1}^e)) + pv(b(q_{t+1}^e)) & \text{if } q_{t+1}^e < \tilde{q} \end{cases}$$

It immediately follows from these expressions that:

$$\Delta V^H(q_{t+1}^e) = \begin{cases} (1-p) [v(w - x(q_{t+1}^e)) - v(b(q_{t+1}^e))] - \gamma_H & \text{if } q_{t+1}^e \geq \tilde{q} \\ 0 & \text{if } q_{t+1}^e < \tilde{q} \end{cases} \quad (12)$$

and:

$$\Delta V^L(q_{t+1}^e) = \begin{cases} \gamma_L - (1-p) [v(w - x(q_{t+1}^e)) - v(b(q_{t+1}^e))] & \text{if } q_{t+1}^e \geq \tilde{q} \\ 0 & \text{if } q_{t+1}^e < \tilde{q} \end{cases} \quad (13)$$

The following lemma establishes some important properties of $\Delta V^H(\cdot)$ and $\Delta V^L(\cdot)$.

²⁴A complementary interpretation of the substantial cost of raising a child to be of type L is that uncivic parents expecting a generous welfare state choose to instill a strong taste for leisure into their children. In the future, such preferences will induce the children to choose to live off unearned income. Note that this interpretation is reminiscent of the behavior of wealthy individuals in Doepke Zilibotti (2008).

Lemma 5 *Whenever $q \in [\tilde{q}, 1)$, $\Delta V^H(q) > 0$ and $\Delta V^L(q) > 0$. Also, $\Delta V^H(1) = -\gamma_H$ and $\Delta V^L(1) = \gamma_L$.*

Proof. The second part of the statement trivially follows from the fact that full insurance is provided when $q = 1$. For the first part, recall from (2) that, whenever $q \in [\tilde{q}, 1)$, less than full insurance is provided, which implies that $\Delta V^H(q) > -\gamma_H \geq 0$. Similarly, whenever the H s' generous policy is implemented, type L agents strictly prefer not to work, i.e. $U^L(NW; q) > U(W; q)$ (cf. footnote 17). This immediately implies that $\Delta V^L(q) > 0$ whenever $q \geq \tilde{q}$. ■

Importantly, this lemma implies that the first-order conditions (10) and (11) are well defined.

If parents expect the generous policy to be implemented next period, they all want their offspring to be of the same type. Conversely, if parents expect the stingy policy to be chosen, then they do not care about the values held by their children. Indeed, under that scenario, all children will choose the same action, i.e. to work, independently of their type.

It is now possible to characterize the dynamics of cultural transmission that prevails in equilibrium.

4.3 Equilibrium

Given that q_t evolves deterministically over time, in a rational expectation equilibrium²⁵, agents correctly anticipate the evolution values, which implies that $q_{t+1}^e = q_{t+1}$.²⁶ Hence, in very general terms, the dynamic equilibrium of the model could be defined as follows:

Definition *Given an initial state q_0 of the economy, an equilibrium is defined as sequences of policy variables $\{x_t, b_t\}_{t=0}^{\infty}$, of cultural transmission efforts $\{\tau_t^H, \tau_t^L\}_{t=0}^{\infty}$ and of the cultural composition of the population $\{q_t\}_{t=0}^{\infty}$ such that:*

- *Given the composition of the population $\{q_t\}_{t=0}^{\infty}$, the policy variables $\{x_t, b_t\}_{t=0}^{\infty}$ are the outcome of majority voting at each single point in time;*

²⁵Expectations are assumed to be rational in order to enhance the internal consistency of the model, however most insights from this analysis could also be derived under backward looking expectations, i.e. $q_{t+1}^e = q_t$.

²⁶As we shall see, for some values of q_t , it is possible to have two equilibrium values of q_{t+1} . Agents nevertheless correctly anticipate the value of q_{t+1} that will prevail. Also, relaxing the assumption that the generous policy is implemented whenever $q_{t+1} = \tilde{q}$, for values of q_t such that two equilibria exist, there is also a mixed strategy equilibrium where parents correctly anticipate $q_{t+1} = \tilde{q}$ and expect the generous policy to be implemented with some probability. For simplicity, I abstract from this possibility which does not provide any important insight about the dynamics of cultural transmission.

- Given the composition of the population $\{q_t\}_{t=0}^{\infty}$ and the policy variables $\{x_t, b_t\}_{t=0}^{\infty}$, the cultural transmission efforts $\{\tau_t^H, \tau_t^L\}_{t=0}^{\infty}$ solve parents' cultural transmission effort problem (under rational expectations);
- Given the cultural transmission efforts $\{\tau_t^H, \tau_t^L\}_{t=0}^{\infty}$, the dynamics of the composition of the population $\{q_t\}_{t=0}^{\infty}$ satisfies the transition equation:

$$q_{t+1} = q_t + q_t(1 - q_t) [\tau_t^H - \tau_t^L]. \quad (14)$$

It turns out that, given the structure of the model, this general definition of equilibrium could be reduced to a single equation that implicitly characterizes the equilibrium of the economy. First, recall that, by Lemma 1 and 2, the policy variables x_t and b_t chosen by majority voting at any time t can be expressed as a function of q_t . Thus, the extent to which parents of type i at time t prefer their children to be of the same type, ΔV^i , which is affected by the policy $\{x_{t+1}, b_{t+1}\}$ that will be implemented at $t + 1$, uniquely depends on q_{t+1} . Hence, as can be seen from the first-order conditions to the cultural transmission problems, (10) and (11), τ_t^H and τ_t^L can both be expressed as functions of q_t and q_{t+1} :

$$\tau_t^H = C_H'^{-1}(\beta(1 - q_t)\Delta V^H(q_{t+1})) \quad \text{and} \quad \tau_t^L = C_L'^{-1}(\beta q_t \Delta V^L(q_{t+1})), \quad (15)$$

where $C_i'^{-1}(\cdot)$ with $i \in \{H, L\}$ denotes the inverse of the marginal cost function $C_i'(\cdot)$. Substituting (15) into (14) yields an expression relating q_t and q_{t+1} which satisfies the three conditions that define an equilibrium. Thus, a sequence $\{q_t\}_{t=0}^{\infty}$ characterizes an equilibrium of the economy if and only if it satisfies :

$$q_{t+1} = q_t + q_t(1 - q_t) [C_H'^{-1}(\beta(1 - q_t)\Delta V^H(q_{t+1})) - C_L'^{-1}(\beta q_t \Delta V^L(q_{t+1}))], \quad (16)$$

where $\Delta V^H(q_{t+1})$ and $\Delta V^L(q_{t+1})$ are given by (12) and (13), respectively, where in these equations (12) and (13) the policy parameters $x(q_{t+1})$ and $b(q_{t+1})$ are jointly determined by (2) if $q_{t+1} \geq \tilde{q}$ and by the binding constraints of (3) otherwise.

Equation (14) implies that, whenever $q_t \in (0, 1)$, we have $q_{t+1} < q_t$ if and only if $\tau_t^H < \tau_t^L$. But, by definition of the cost function, (8), we know that $\tau_t^L = C_L'^{-1}(\beta q_t \Delta V^L(q_{t+1})) = C_H'^{-1}(\beta q_t \Delta V^L(q_{t+1})/\alpha)$. Thus, $q_{t+1} < q_t$ if and only if $(1 - q_t)\Delta V^H(q_{t+1}) < q_t \Delta V^L(q_{t+1})/\alpha$. Also, in any interior steady state equilibrium with $q_{t+1} = q_t$, we must have $(1 - q_t)\Delta V^H(q_t) = q_t \Delta V^L(q_t)/\alpha$.

I now make an assumption on the magnitude of the preference parameter γ_H which ensures that a steady state equilibrium always exists in $(\tilde{q}, 1)$.

Assumption 1 *The preference parameter γ_H satisfies $\gamma_H < \bar{\gamma}_H$, where $\bar{\gamma}_H$ is defined*

such that, when $\gamma_H = \bar{\gamma}_H$, we have:

$$(1 - \tilde{q})\Delta V^H(\tilde{q}) = \frac{\tilde{q}\Delta V^L(\tilde{q})}{\alpha}$$

or, equivalently:

$$\bar{\gamma}_H = \frac{(\tilde{q} + \alpha(1 - \tilde{q})) (1 - p) [v(w - x(\tilde{q})) - v(b(\tilde{q}))] - \tilde{q}\gamma_L}{\alpha(1 - \tilde{q})}. \quad (17)$$

Note that $\bar{\gamma}_H$ is always well defined since \tilde{q} , $x(\cdot)$ and $b(\cdot)$ are determined by the political economy equilibrium of the model independently of γ_H . Also, if $\bar{\gamma}_H > 0$, then the constraint $\gamma_H < \bar{\gamma}_H$ is not restrictive since γ_H cannot be positive anyway.

Assumption 1 ensures that, for any value of α , the model has a well defined steady state equilibrium in $(\tilde{q}, 1)$. In particular, the cost of transmitting type L could be assumed to be arbitrarily small, i.e. α could be set arbitrarily close to 0. This would induce parents of type L to choose a probability τ_t^L of successful cultural transmission close to 1. To have a steady state equilibrium in $(\tilde{q}, 1)$, Assumption 1 then imposes that γ_H should be sufficiently small²⁷ to induce parents of type H to also choose a very high probability τ_t^H of successful cultural transmission.

It turns out that a sufficient condition to have a unique steady state equilibrium in $(\tilde{q}, 1)$ is that $\Delta V^H(q)$ is a strictly decreasing function of q on $[\tilde{q}, 1]$. While this condition seems very mild, there is in fact a theoretical possibility that, as q increases, the amount of taxes $x(q)$ falls more rapidly than the level of benefits $b(q)$ increases in such a way that $v(w - x(q)) - v(b(q))$ actually increases. The following lemma, proved in the appendix, nevertheless gives some sufficient conditions for $\Delta V^H(\cdot)$ to be a strictly decreasing function on $[\tilde{q}, 1]$.

Lemma 6 *A sufficient, but not necessary, condition for $\Delta V^H(q)$ to be strictly decreasing in q when $q \geq \tilde{q}$ is that $v''(y)/(v'(y))^2$ is a non-increasing function of y . Also, $\Delta V^H(q)$ is always strictly decreasing in q whenever $v(\cdot)$ is either a CARA or a CRRA utility function.²⁸*

Note that, for $q \geq \tilde{q}$, $\Delta V^L(q)$ is strictly increasing in q if and only if $\Delta V^H(q)$ is strictly decreasing in q . In the rest of the paper, I maintain the assumption that $\Delta V^H(\cdot)$ is strictly decreasing on $[\tilde{q}, 1]$.

²⁷By Lemma 5, we know that $\gamma_L - (1 - p) [v(w - x(\tilde{q})) - v(b(\tilde{q}))] > 0$. Hence, by (17), $\bar{\gamma}_H$ is increasing in α .

²⁸The condition that $v''(y)/(v'(y))^2$ is a non-increasing function of y is always satisfied by CARA preferences and is only satisfied by CRRA preferences when the CRRA coefficient is greater or equal to 1. Also, recall that I have previously assumed that $\lim_{c \rightarrow 0^+} v(c) = -\infty$. If this condition is not satisfied, then it is possible to have corner solutions with zero consumption which slightly complicates the model.

It is now possible to establish the following lemma.

Lemma 7 *Whenever $\Delta V^H(\cdot)$ is strictly decreasing on $[\tilde{q}, 1]$, there exists a unique $q^* \in (\tilde{q}, 1)$ such that:*

$$(1 - q^*)\Delta V^H(q^*) = \frac{q^*\Delta V^L(q^*)}{\alpha}.$$

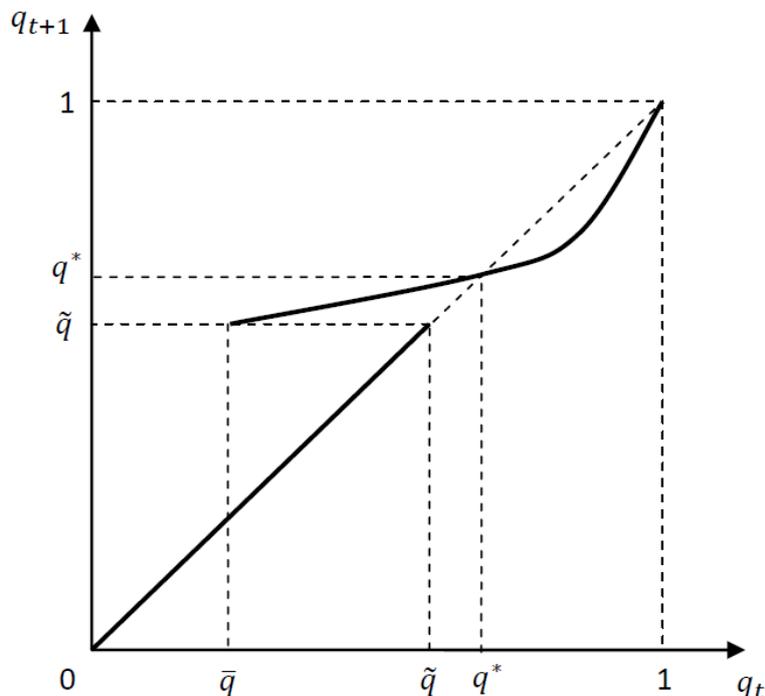
Proof. This lemma trivially follows from $(1 - q)\Delta V^H(q)$ being continuous and strictly decreasing, $q\Delta V^L(q)/\alpha$ continuous and strictly increasing, $(1 - 1)\Delta V^H(1) = 0 < 1\Delta V^L(1)/\alpha = \gamma_L/\alpha$ and the assumption $\gamma_H < \bar{\gamma}_H$ which ensures that $(1 - \tilde{q})\Delta V^H(\tilde{q}) > \tilde{q}\Delta V^L(\tilde{q})/\alpha$. ■

The following proposition, proved in the appendix, gives the dynamics of cultural transmission for any given initial condition q_0 .

Proposition 1 *Assuming that $1/2 < \hat{q} < \tilde{q}$ and that the parameter β is sufficiently small²⁹, there exists a $\bar{q} \in (0, \tilde{q})$ such that:*

- *If $q_t \in [\tilde{q}, 1)$, then $\{q_s\}_{s=t}^\infty$ monotonically converges to $q^* \in (\tilde{q}, 1)$;*
- *If $q_t \in [\bar{q}, \tilde{q})$, then two equilibrium outcomes are possible at $t + 1$, one such that $q_{t+1} = q_t$, the other such that $q_{t+1} \in [\tilde{q}, q^*)$ followed by monotone convergence of $\{q_s\}_{s=t+1}^\infty$ to q^* ;*
- *If $q_t \in [0, \bar{q})$ (or $q_t = 1$), then $q_s = q_t$ for all $s \geq t$.*

The bold solid line of Figure 2 summarizes the corresponding dynamics of preferences.



²⁹The first-order conditions for τ_t^H and τ_t^L , given by (10) and (11), imply that β cannot be distinguished from a scale parameter of the cost function. Hence, a low value of β could reflect a high cost of cultural transmission.

Figure 2: Equilibrium Dynamics of Preferences

Whenever $q_t \in [0, \tilde{q})$, $q_{t+1} = q_t$ is always an equilibrium. Indeed, in that case, parents expect the stingy policy to be implemented next period which results in no-one making any cultural transmission effort. This indeed leads to $q_{t+1} = q_t$ and in the stingy policy being implemented.

Whenever $q_t \in [\tilde{q}, 1)$, parents expect the H s' generous policy next period. More precisely, if $q_t > q^*$, they expect $q_{t+1} \in (q^*, q_t)$. This induces parents of type L to make a stronger cultural transmission effort than parents of type H ³⁰ which, indeed, implies that $q_{t+1} < q_t$. It is necessary to either have a sufficiently low intensity of imperfect empathy or a sufficiently high cost of cultural transmission (cf. footnote 29) in order to induce q to increase by a sufficiently small amount from period 0 to 1 such as to have $q_{t+1} > q^*$.³¹ Thus, q monotonically converges towards q^* . A symmetric argument applies if $q_t \in [\tilde{q}, q^*)$.

Finally, even if $q_t < \tilde{q}$, it is possible that parents expect $q_{t+1} \geq \tilde{q}$ which could be a self-fulfilling prophecy if q_t is not too distant from \tilde{q} . Also, note that when $q_t = 1$, the mass of parents of type L is insufficient to get the process of cultural transmission started, which necessarily results in $q_{t+1} = 1$.

The characterization of the equilibrium in Proposition 1 contrasts sharply with that obtained by Bisin and Verdier (2004) in the case of redistributive politics where the economy converges towards a homogenization of preferences. Their result is driven by the voting process. Indeed, if a majority of agents are hard working, then low redistribution is implemented which encourages the transmission type H . Conversely, when most agents are lazy, redistribution is high and hence being of type L is more attractive. Here, on the contrary, agents have an incentive to be part of the minority. Indeed, when most people are of type H , unemployment benefits are generous, which encourages the transmission of a low degree of civiness. This is fundamentally explained by the fact that, in the context of this paper, the government budget constraint (i.e. the number of people living on welfare) is more important than the political constraint (i.e. the type holding the majority). For an individual of type L , having a sufficiently high number of type H agents, who contribute to the funding of the unemployment benefit system, and a sufficiently low number of type L agents, who free-ride on its generosity, is more important than holding the majority. Thus, the interaction between cultural transmission and the welfare state is fundamentally different depending on whether the main purpose of government is redistribution or social insurance.

³⁰If $q_t > q_{t+1} > q^*$, then $(1 - q_t)\Delta V^H(q_{t+1}) < (1 - q_{t+1})\Delta V^H(q_{t+1}) < q_{t+1}\Delta V^L(q_{t+1})/\alpha < q_t\Delta V^L(q_{t+1})/\alpha$.

³¹If, on the contrary, the cultural transmission effort of parents is allowed to be very strong, then it is possible to have non-monotone convergence to q^* or even cyclical dynamics around q^* which never converge to q^* .

I now turn to the application of my model to the analysis of the postwar history of European unemployment.

5 Application to European Unemployment

In this section, I argue that the above model of cultural transmission can provide some key insights on the evolution of European unemployment since World War II. In most European countries, the scope of the welfare state increased markedly at the end of WWII. In particular, unemployment insurance programs were either introduced or widely expanded, in both coverage and generosity, in the late 1940s. Assuming that European workers were initially characterized by a high degree of civicness, i.e. $q_{1945} > q^*$, the dynamics of cultural transmission summarized in Proposition 1 implies that the provision of generous unemployment benefits triggered, a generation later, a decline in civicness. This resulted in an increase in the number of non-working people living on the dole.³² These agents were registered as unemployed and contributed to the rise in European unemployment.³³

Thus, the model can explain why most of the behavioral response to the policy change occurred with a long lag equal to, at least, one generation. Moreover, the decline in civicness gave a lot of persistence to the rise in unemployment which ends up at a permanently higher level.

This story, like the one involving shocks (cf. Ljungqvist Sargent 1998 and Blanchard Wolfers 2000), is consistent with the coexistence of institutional rigidities and low unemployment in the 1950s and 1960s. It can therefore help to solve the European unemployment puzzle.³⁴

Importantly, for the above model to be able to account for the rise in European unemployment, it is critical that people initially shared a very degree of civicness or, more specifically, that $q_{1945} > q^*$. Note that the model implies that, before the creation of unemployment insurance, all agents chose to work regardless of their type and, hence, parents did not make any cultural transmission effort. It follows that any value of q_{1945} was a steady state equilibrium prior to 1945. Hence, to justify a value of q_{1945} close to 1, it is either necessary to appeal to external arguments or to extend the model of the previous section.

³²In the model, type L agents live off unemployment benefits forever. However, this could be seen as a reduced form which captures the idea is that agents work as little as possible, but just sufficiently to qualify for the benefits. Note that Ljungqvist Sargent (1998) and Algan Cahuc (2009) also assume a permanent stream of unemployment benefits.

³³This is broadly consistent with the empirical findings of Laroque and Salanié (2000) who estimate that nearly 50% of French unemployment is voluntary; unemployment being defined as voluntary whenever the productivity of an agent is below his reservation wage.

³⁴The online appendix contains an illustrative numerical simulation.

A first external justification for a high value of q_{1945} is historical. Indeed, it is unlikely that those who survived World War II, many of whom would have been willing to risk their life for the nation, would have been inclined to abuse the welfare system. Another, more empirical, justification for $q_{1945} > q^*$ is the continuous increase in willingness to cheat on benefits reported in Figure 1.

It is also possible to extend the model in a very simple way in order to make a high value of q_{1945} the unique steady state equilibrium prior to the introduction of unemployment insurance. Just assume that, even if the future action of a child is independent of his type, a parent of type i has a very small intrinsic preference $\delta_i > 0$ for sharing his type with his offspring. Thus, if a parent expects his child to work in the future regardless of his type, we have $\Delta V^i(q) = \delta_i$ (instead of $\Delta V^i(q) = 0$). Moreover, it is reasonable to consider that a parent of type H cares much more about having an honest child, than a parent of type L cares about having a sly child when there is nothing to be gained from such behavior, i.e. $\delta_H \gg \delta_L$. Recall, from (7), that a steady state is characterized by $\tau^H = \tau^L$ which, in the absence of unemployment insurance, simplifies to $(1 - q)\delta_H = q\delta_L/\alpha$. It follows that, until 1945, the unique steady state equilibrium of the model was given by:

$$q_{1945} = \frac{\delta_H}{\delta_H + \delta_L/\alpha},$$

which is close to 1 if δ_H is much larger than δ_L/α .³⁵ Furthermore, with δ_H and δ_L arbitrarily small, q^* , defined in Lemma 7, is the unique steady state equilibrium of the model once unemployment insurance is introduced.

The literature offers some support, beyond the motivating evidence of Figure 1, for the proposed story of the evolution of European unemployment. Using the language border between the German and Latin, i.e. French and Italian, speaking parts of Switzerland, which does not coincide with any political jurisdiction, Brügger, Lalive and Zweimüller (2008) argue empirically that individuals' taste for leisure has a causal impact on the length of their unemployment spells. Stutzer and Lalive (2004) also argue that the social norm to live off one's own work has a negative impact on the duration of unemployment.

There is also some evidence that generations differ in their propensity to rely on the welfare state. Using Swedish data, Ljunge (2006) documents that, after controlling for a bunch of observable characteristics, the sick leave participation rate of a young generation is 25% higher than that of a cohort born 20 years earlier. Also, Lemieux and MacLeod (2000) report that a large increase in the generosity of unemployment insurance in Canada in 1971 was followed by a steady increase in the level of unemployment over the 20 consecutive years, which they attribute to a time-consuming learning process.

³⁵Note that, while plausible, assuming $\delta_L = 0$ would imply $q_{1945} = 1$, which would prevent the cultural transmission process from getting started.

Although the timing is a bit quicker than my model would suggest, an evolution of preferences might have played a significant role.

6 Conclusion

In this paper, I have presented a model where unemployment insurance and cultural values are jointly determined. On the one hand, the generosity of welfare benefits is affected by the extent of the moral-hazard problem which depends on the average degree of civicness across the population. On the other hand, when deciding on their cultural transmission efforts, parents form expectations about the policy that will be implemented in the future.

I have shown that, in the context of unemployment insurance, the interaction between the welfare state and civicness sustains cultural heterogeneity over the long-run. On the contrary, Bisin and Verdier (2004) proved that, if the welfare state is exclusively involved in redistribution, cultural homogeneity eventually prevails. The obvious question to ask in future research is which effect dominates when the government is involved in both social insurance and redistribution. Although a formal analysis would be required, long-run cultural heterogeneity would presumably prevail if the number of civic individuals is sufficiently high to sustain a generous provision of insurance. Indeed, as emphasized in Bisin Verdier (2004), the redistribution policy only has a vanishing impact on cultural transmission as the population becomes homogenous. Thus, the opposite effect of social insurance would dominate before complete homogenization is realized.

The model can generate a substantial lag between the introduction of a policy and the behavioral response of agents. It can therefore explain why the consequences of similar policies could be different at different points in time. Hence, it provides a natural candidate solution to the “European unemployment puzzle” due to the coexistence of institutional rigidities and low unemployment in the 1950s and 1960s. Indeed, I have argued that the introduction of unemployment insurance programs in the late 1940s could have triggered, a generation later, a decline in civicness, leading to a persistent increase in the number of non-working people registered as unemployed.

Finally, this paper has shown that the very long-run labor supply elasticities could differ markedly from short-run elasticities. This is potentially important as, following Prescott (2004), a substantial amount of work has been done to try to attribute differences in the quantity of hours worked on both sides of the North Atlantic to differences in tax rates. The problem with this explanation is that it necessitates a higher elasticity of labor supply than microeconomic estimates typically suggest. Furthermore, hours of work continued to fall in Europe even after the level of taxes ceased to increase. Cultural transmission could potentially be an important part of the solution to this puzzle.

References

- [1] Aghion, P., Algan, Y., Cahuc, P. and Shleifer, A. (2010), “Regulation and Distrust”, *Quarterly Journal of Economics*, 125(3), 1015-1049.
- [2] Aghion, P., Algan, Y. and Cahuc, P. (2011), “Civil Society and the State: The Interplay between Cooperation and Minimum Wage Regulation”, *Journal of the European Economic Association*, 9(1), 3-42.
- [3] Alesina, A. and Angeletos, G.M. (2005), “Fairness and Redistribution”, *American Economic Review*, 95(4), 960-980.
- [4] Algan, Y. and Cahuc, P. (2005), “The Roots of Low European Employment: Family Culture”, in *NBER International Seminar on Macroeconomics 2005*, edited by Christopher Pissarides and Jeffrey Frankel, Cambridge, MIT Press.
- [5] Algan, Y. and Cahuc, P. (2006), “Job Protection: the Macho Hypothesis”, *Oxford Review of Economic Policy*, 22(2), 290-410.
- [6] Algan, Y. and Cahuc, P. (2010), “Inherited Trust and Growth”, *American Economic Review*, 100(5), 2060-2092.
- [7] Algan, Y. and Cahuc, P. (2009), “Civic Virtue and Labor Market Institutions”, *American Economic Journal: Macroeconomics*, 1(1), 111-145.
- [8] Benabou, R. and Tirole, J. (2006), “Belief in a Just World and Redistributive Politics”, *Quarterly Journal of Economics*, 121(2), 699-746.
- [9] Bisin, A. and Verdier, T. (2000), “‘Beyond the Melting Pot’: Cultural Transmission, Marriage and the Evolution of Ethnic and Religious Traits”, *Quarterly Journal of Economics*, 115(3), 955-988.
- [10] Bisin, A. and Verdier, T. (2001), “The Economics of Cultural Transmission and the Dynamics of Preferences”, *Journal of Economic Theory*, 97, 298-319.
- [11] Bisin, A. and Verdier, T. (2004), “Work Ethic and Redistribution: A Cultural Transmission Model of the Welfare State”, Working Paper, NYU and Paris School of Economics.
- [12] Bisin, A. and Verdier, T. (2010), “The Economics of Cultural Transmission and Socialization”, in *Handbook of Social Economics*, Volume 1A, edited by Jess Benhabib, Alberto Bisin and Matthew O. Jackson, Amsterdam: North-Holland.

- [13] Bisin, A., Topa, G. and Verdier, T. (2004), “Religious Inter-marriage and Socialization in the United States”, *Journal of Political Economy*, 112(3), 615-664.
- [14] Bisin, A., Patacchini, E., Verdier, T. and Zenou, Y. (2010), “Bend It Like Beckham’: Identity, Socialization, and Assimilation”, Working Paper, NYU and CEPR.
- [15] Blanchard, O. and Philippon, T. (2006), “The Quality of Labor Relations and Unemployment”, Working Paper, MIT and NYU.
- [16] Blanchard, O. and Wolfers, J. (2000), “The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence”, *Economic Journal*, 110(462), C1-C33.
- [17] Boyd, R. and Richerson, P. (1985), *Culture and the Evolutionary Process*, Chicago, University of Chicago Press.
- [18] Brügger, B., Lalive, R. and Zweimüller, J. (2008), “Does Culture Affect Unemployment? Evidence from the Röstigraben”, Working Paper, University of Lausanne and University of Zurich.
- [19] Cavalli-Sforza, L.L. and Feldman, M. (1981), *Cultural Transmission and Evolution: A Quantitative Approach*, Princeton, Princeton University Press.
- [20] Doepke, M. and Zilibotti, F. (2008), “Occupational Choice and the Spirit of Capitalism”, *Quarterly Journal of Economics*, 123(2), 747-793.
- [21] Dohmen, T., Falk, A., Huffman, D. and Sunde, U. (2011), “The Intergenerational Transmission of Risk and Trust Attitudes”, *Review of Economic Studies*, Forthcoming.
- [22] Fernandez, R. (2011), “Cultural Change as Learning: The Evolution of Female Labor Force Participation over a Century”, *American Economic Review*, Forthcoming.
- [23] Gradstein, M. (2009), “Work Attitudes and Intergenerational Mobility”, *Journal of Human Capital*, 3(3), 268-288.
- [24] Guiso, L., Sapienza, S. and Zingales, L. (2006), “Does Culture Affect Economic Outcomes”, *Journal of Economic Perspectives*, 20(2), 23-48.
- [25] Hassler, J., Rodriguez Mora, J.V., Storesletten, K. and Zilibotti, F. (2003), “The Survival of the Welfare State”, *American Economic Review*, 93(1), 87-112.
- [26] Hassler, J., Rodriguez Mora, J.V., Storesletten, K. and Zilibotti, F. (2005), “A Positive Theory of Geographical Mobility and Social Insurance”, *International Economic Review*, 46(1), 263-303.

- [27] Hauk, E. and Saez-Marti, M. (2002), "On the Cultural Transmission of Corruption", *Journal of Economic Theory*, 107, 311-335.
- [28] Hörner, J., Ngai, L.R. and Olivetti, C. (2007), "Public Enterprises and Labor Market Performance", *International Economic Review*, 48(2), 363-384.
- [29] Hornstein, A., Krusell, P. and Violante, G.L. (2007), "Technology-Policy Interactions in Frictional Labour-Markets", *Review of Economic Studies*, 74(4), 1089-1124.
- [30] Laroque, G. and Salanié, B. (2000), "Une décomposition du non-emploi en France", *Economie et Statistique*, 331, 47-66.
- [31] Lemieux, T. and MacLeod, W.B. (2000), "Supply side hysteresis: the case of the Canadian unemployment insurance system", *Journal of Public Economics*, 74, 139-170.
- [32] Lindbeck, A. and Nyberg, S. (2006), "Raising Children to Work Hard: Altruism, Work Norms and Social Insurance", *Quarterly Journal of Economics*, 121(4), 1473-1503.
- [33] Lindbeck, A., Nyberg, S. and Weibull, J.W. (1999), "Social Norms and Economic Incentives in the Welfare State", *Quarterly Journal of Economics*, 114(1), 1-35.
- [34] Ljunge, M. (2006), "Half the Job Is Showing Up: Returns to Work, Taxes, and Sick Leave Choices", Working Paper, University of Chicago.
- [35] Ljungqvist, L. and Sargent, T. (1998), "The European Unemployment Dilemma", *Journal of Political Economy*, 106(3), 514-550.
- [36] Ljungqvist, L. and Sargent, T. (2008), "Two Questions about European Unemployment", *Econometrica*, 76(1), 1-29.
- [37] Marimon, R. and Zilibotti, F. (1999), "Unemployment vs. Mismatch of Talents: Reconsidering Unemployment Benefits", *Economic Journal*, 109, 266-291.
- [38] Martin, J.P. (1996), "Measures of Replacement Rates for the Purpose of International Comparisons: A Note", *OECD Economic Studies*, 26, 99-115.
- [39] Mortensen, D.T. and Pissarides, C.A. (1999), "Unemployment Responses to 'Skill-Biased' Technology Shocks: The Role of Labour Market Policy", *Economic Journal*, 109, 242-265.
- [40] Mulligan, C. (1997), "Work Ethic and Family Background", A Report Prepared for the Employment Policies Institute.

- [41] Nickell, S., Nunziata, L. and Ochel, W. (2005), “Unemployment in the OECD since the 1960s. What do we Know?”, *Economic Journal*, 115, 1-27.
- [42] Patacchini, E. and Zenou, Y. (2007), “Intergenerational Education Transmission: Neighborhood Quality and/or Parents’ Involvement?”, Working Paper, University of Rome “La Sapienza” and Stockholm University.
- [43] Piketty, T. (1995), “Social Politics and Redistributive Politics”, *Quarterly Journal of Economics*, 110(3), 551-584.
- [44] Pissarides, C.A. (2007), “Unemployment and Hours of Work: The North-Atlantic Divide Revisited”, *International Economic Review*, 48(1), 1-36.
- [45] Pissarides, C.A. and Vallanti, G. (2007), “The Impact of TFP Growth on Steady-State Unemployment”, *International Economic Review*, 48(2), 607-640.
- [46] Prescott, E.C. (2004), “Why Do Americans Work So Much More Than Europeans?”, *Federal Reserve Bank of Minneapolis Quarterly Review*, 28(1), 2-13.
- [47] Saez-Marti, M. and Sjogren, A. (2008), "Peers and Culture", *Scandinavian Journal of Economics*, 110(1), 73-92.
- [48] Saez-Marti, M. and Zenou, Y. (2009), “Cultural Transmission and Discrimination”, Working Paper, University of Zurich and Stockholm University.
- [49] Stutzer, A. and Lalive, R. (2004), “The Role of Social Work Norms in Job Searching and Subjective Well-Being”, *Journal of the European Economic Association*, 2(4), 696-719.
- [50] Tabellini, G. (2008a), “Institutions and Culture”, *Journal of the European Economic Association*, 6(2-3), 255-294.
- [51] Tabellini, G. (2008b), “The Scope of Cooperation: Values and Incentives”, *Quarterly Journal of Economics*, 123(3), 905-950.