Essays on Pension Systems, Mobility and Welfare Policies

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I certify that I have read this dissertation and in my opinion it is fully adequate, in scope and quality, as dissertation for the degree of Doctor of Philosophy.

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Declaration

I, the undersigned, hereby declare that this dissertation entitled "Essays on Pension Systems, Mobility and Welfare Policies "is my own work, it does not contain material accepted for any other degree in any other institution and that it contains no material previously written and/or published by another person except where appropriate acknowledgement is made.

Signature of the author _____

Ágnes Horváth

Acknowledgement

This dissertation is dedicated to my father who died unjustly early

The author wishes to thank several people. First of all I would like to thank my family, in particular my husband and co-author, for his love, patience and support he has shown during the years it has taken me to finalize the dissertation. I also hope my children forgive me one day all the time I did not spend with them to be able to satisfy the requirements of the doctoral program.

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Summary

The dissertation consists of three self-contained papers. Chapter 1 is a theoretical paper dealing with the question whether the pension treatment of temporary migrants from Eastern European countries to other EU countries has an impact on migration decisions in terms of the length of their stay and their choice of the host country.

Chapter 2 is an interdisciplinary paper discussing public preferences on poverty assistance, containing both a theoretical model and an empirical analysis. In the model, the optimal level of compensation for the poor is based on the deservingness principle and observable income is used as a noisy signal for effort. In the empirical part, the two propositions of the model, namely the existence of the poverty-assistance paradox and the poverty-stereotype interaction are tested.

Chapter 3 is focusing on the question why pension expenditures rose so rapidly in all countries during the postwar period and with so little political opposition. We extend the simple model of redistribution of Persson and Tabellini (2002) to investigate the generational conflict between the young and the old. We introduce different pension system types and immigration to the simplified original model. In addition, based on the special Eurobaromoter 56.1, we carry out an empirical test on the hypothesis that people would redistribute more towards pensioners in those countries that are characterized by a Bismarckian pension system than those with flat-rate pension systems if they think that the poor does not deserve social assistance. Note that Chapter 3 is linked to chapters 1 and 2 by combining different pension system types, migration and the deservingness principle.

Should Eastern European temporary migrants care about their pension treatment?

Chapter 1 deals with the question whether the pension treatment of temporary migrants from Eastern European countries to other EU countries has an impact on migration decisions in terms of the length of their stay and their choice of the host country.

The European portability scheme guarantees the eligibility to proportional welfare transfers and benefits of the host country in case a migrant would work abroad for at least 12 months. While the effect of the social security system, in particular the type of the pension system is typically only one of the many determinants in permanent migration decisions, it can be a highly relevant factor when it comes to temporary migration. A simple model is built to investigate the hypothesis that differences in European social insurance, in particular public pension system types have an effect on the optimal length of stay abroad. It is assumed that the lifetime utility of a migrant is determined by the mixture of his home and host countrys labor income and pension benefit. The focus is on temporary migrants, i.e. those who return to their home country and for this reason a strengthening homesick feeling is introduced that reduces the utility that can be gained by working abroad. The model suggests that the optimal period of time a migrant should work abroad during his lifetime depends on the wage and pension benefit differential between the home and the host country, the total cost of the movement, the time spent in retirement, the discount factor and the degree of homesickness.

A thorough analysis of all the factors determining the period of time working abroad gives intuitively plausible results, including the role of the Bismarckian factor, i.e. the degree of redistribution in the pension system, in the optimization. In the case of higher wage workers where the earnings-related part of the pension benefit dominates the basic component, the higher the Bismarckian factor, the longer it will be worth to work abroad. The opposite will be true for low-wage workers who would not profit from the earnings-related part of the benefit formula.

The main conclusion of the paper is that different types of pension systems give different incentives to migrants to work abroad. Moreover, depending on the foreign wage level the threshold value of whether to choose a country with a flat pension system or an earnings-related one can change considerably.

Uncertainty, Poverty Attributions and Welfare Preferences (joint paper with Béla Janky)

Chapter 2 is an interdisciplinary paper discussing public preferences on poverty assistance, containing both a theoretical model and an empirical analysis. In the model, the optimal level of poverty assistance is based on the deservingness principle and observable income is used as a noisy signal for effort. In the empirical part, the two propositions of the model, namely the existence of the poverty-assistance paradox and the poverty-stereotype interaction are tested.

We build a simple model of public preferences on poverty assistance. The model draws on attribution theory and points to deservingness as a key concept in voters minds. Hence, voters are driven not only by self-interest when expressing their policy preferences on the assistance for the poor. Their opinions are also based on a sense of fairness and justice: they are ready to support those in real need. At the same time, principles of fairness and justice do not imply blind egalitarianism. Taxpayers support financial assistance only to the deserving poor whose poverty is a result of bad luck but not lack of efforts.

In the model, a compassionate citizen would like to fully compensate for any effect of a diligent poors misfortune. In case of perfect information, the lower the diligent individuals observed income, the higher compensation is preferred by the citizen. A lazy individual, on the other hand, would get nothing. However, the citizen faces an observational problem. Low income could be a signal of bad luck as well as low effort. The exact relationship between the observed income of the poor and the citizens judgment will depend on the observers prior beliefs on the poor individuals personality, and on the role of efforts and luck in his achievements.

Proposition 1 states that in societies in which hard work, instead of luck, is believed to foster success, a kind of poverty-assistance paradox can emerge. A negatively stereotyped poor person could face a risk of losing transfers as he becomes even poorer, in spite of the fact that compassionate citizens intend to fully compensate the deserving poor people for any loss of income. What is more, in a strongly work-oriented society, even the (a priori) more trusted individuals could experience the effect of the poverty-assistance paradox, should they become poor enough. Proposition 2 states

that in societies where voters are skeptical enough about the role of effort in economic success, welfare recipients with incomes somewhere between the levels of an average citizen and a typical undeserving poor person, are increasingly prone to be judged by prior stereotypes (positive and negative ones alike) as they become poorer. More exactly, the difference between the compensations of two equally poor but differently stereotyped individuals increases as they become poorer.

Based on a questionnaire survey, in the framework of the vignette-method, we investigate the influence of beneficiaries characteristics, in particular ethnicity on the preferences of the compassionate citizen. While the data do not provide significant evidence for the existence of the poverty-assistance paradox, results give support to the theorem on poverty-stereotype interaction.

Immigration: A Remedy or Curse for Native Welfare Recipients?

We extend the simple model of redistribution of Persson and Tabellini (2002) to investigate the generational conflict between the young and the old. We find that age indeed might influence views on budget tradeoffs. We are considering three cases. In the first case, we introduce a lump sum transfer to the working population and as a result ceteris paribus redistribution towards the old will be less.

Second, we find that pension system types might also play a role in the degree of redistribution. In the case of an earnings-related pension system, the before mentioned decrease in the redistribution towards the old will be less compared to a flat-rated system. Based on the special Eurobaromoter 56.1 survey, we found support for our hypothesis that if people think that the poor does not deserve social assistance, they would be ready to redistribute funds towards pensioners. Moreover, these people would redistribute more towards pensioners in those countries that are characterized by a Bismarckian pension system than those with flat-rate pension systems.

Finally, we illustrate the case of immigrants within the same theoretical framework. We find that under certain conditions, a more liberal migration policy launched to lessen the burden of an ageing society can result in an even higher concentration of funds towards the older generation. In addition,

one can combine the results of pension system types and immigration. If low-skilled and welfare immigrants arrive to the host country, under certain conditions both the income inequality and the potential share of young welfare recipients might increase in our model resulting in a relatively higher redistribution towards the old. Moreover, this mechanism is more pronounced if the pension system is earnings-related. Hence, our simplified model suggests that Bismarckian pension systems would be more robust to massive low-skilled immigration than Beveridgeans.

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Chapter 1

Should Eastern European temporary migrants care about their pension treatment?

1.1 Introduction

Today, Europe is the destination for more than one-third of the world-wide population of foreign-born.[1] In most EU countries immigrants constitute significant shares both of the total population and the labor force.

The first decade of the 21st century has seen large waves of migration from both within the EU and from outside it. Despite the relative ease with which EU nationals can live and work in other Member States, intra-EU movement is still relatively small compared to other forms of migration. While 4.1% of EU residents are from outside the European Union, only 2.5% are EU nationals living in another Member State.[2] Nevertheless, the number of EU27 citizens migrating to a Member State other than their own country of citizenship increased on average by 12% per year during the period 2002–08, and peaked in 2007. In 2008, the EU27 Member States received nearly two million migrants of other EU nationalities. Rumanians were the most mobile, followed by Poles and Germans. If returning nationals (see category

[1] See e.g. Kaczmarczyk et al. (2012).
[2] See Benton et al. (2013).

Table 1.1: **Top 10 citizenship of immigrants to EU27** *(thousand persons, 2008)*

EU citizens (including nationals)		EU citizens (excluding nationals)		Non-EU citizens	
Country of citizenship	(1 000)	Country of citizenship	(1 000)	Country of citizenship	(1 000)
Romania	: (!)	Romania	384	Morocco	157
Poland	302	Poland	266	China	97
Germany	196	Bulgaria	91	India	93
United Kingdom	146	Germany	88	Albania	81
France	126	Italy	67	Ukraine	80
Italy	105	France	62	Brazil	62
Bulgaria	92	United Kingdom	61	United States	61
Netherlands	81	Hungary	44	Turkey	51
Spain	61	Netherlands	40	Russian Federation	50
Belgium	48	Portugal	38	Colombia	49

Source: Eurostat (2011)

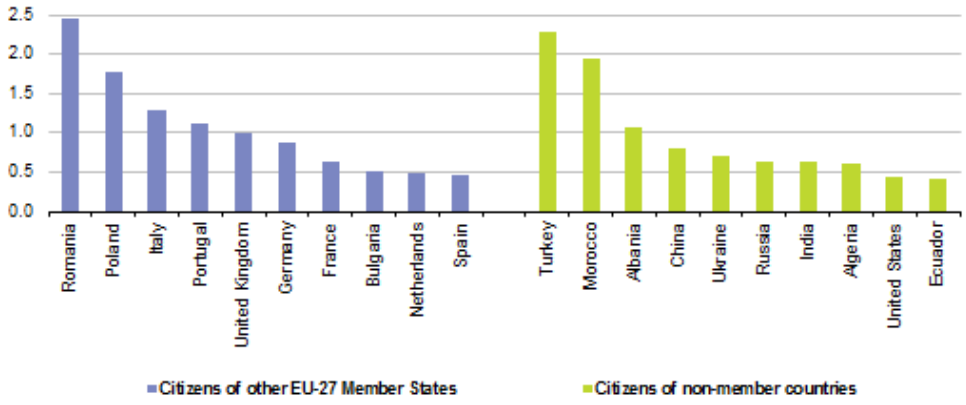
'EU citizens (excluding nationals)'[3] in Table 1.1) are excluded from the analysis, Rumanians still ranked first, followed by Poles and Bulgarians. Figure 1.1 suggests that while the composition of top 10 origin countries did not change significantly as a result of the financial crisis, the number of mobile citizens has increased considerably.

European citizens comprised 38 percent of the total migrant population in EU countries in 2011, and represent a minority among total migrants in most countries of Europe (notable exceptions are Belgium, Ireland, Luxembourg, and Cyprus). Although there are lower shares of EU nationals than third-country nationals at any given point in time, Benton et al. (2013) argue that official statistics might well underestimate the true extent of intra-EU mobility. In fact, 10 percent of EU citizens report having worked in another Member State at some point in their lives in the 2011 Special Eurobarometer 363.

In structural terms, the larger part of immigration can be classified as permanent. Nevertheless, a significant part of cross-border employment-related mobility can be characterized as temporary migrants who return to their home country during their lifetime (see Figure 1.2 for evidence

[3]Nationality and place of birth are the two criteria most commonly used to define the "immigrant" population. The foreign-born population covers all persons who have ever migrated from their country of birth to their current country of residence. The foreign population consists of persons who still have the nationality of their home country. It may include persons born in the host country.

Figure 1.1: **Main countries of origin of non-nationals in EU27** *(million persons, 2011)*



Source: Eurostat Migrant Population Statistics

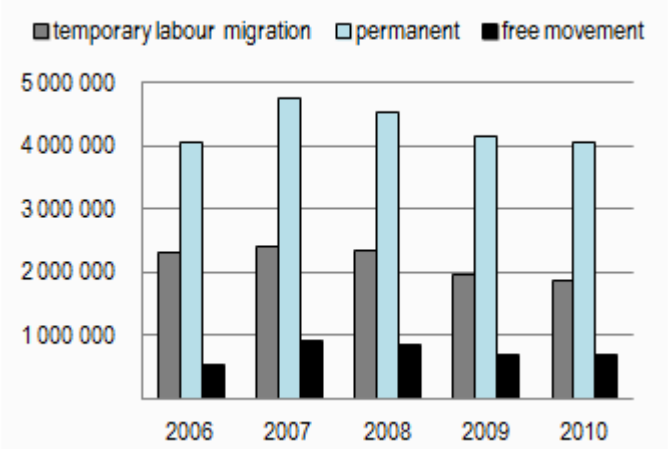
in OECD countries). Moreover, currently existing immigration systems in Europe prioritize migration on a temporary basis, with the vast majority of work and residence permits offered for one to two years.[4]

Aggregate figures on return/temporary migration hide a considerable heterogeneity among EU countries (see Figure 1.3). In 2011, the relative share of returning nationals within the total number of immigrants was highest in Lithuania (89.3% of all immigrants), Portugal (63.6%), Estonia (54.8%) and Greece (54.5%). These were the only EU Member States to report return migration higher than 50%. By contrast, Luxembourg, Austria, Italy, Cyprus and Spain reported relatively low shares, as return migration in 2011 accounted for less than 10% of immigrants.

Within the EU, portable social security claims were introduced in the early 70s. Current European legislation ensures that EU resident migrants are eligible to proportional transfers/benefits of the host country when they work abroad and pay contributions for at least 12 months. While the effect of the social security system, in particular the type of the pension system is typically only one of the many determinants in permanent migration decisions, it can be a highly relevant factor when it comes to temporary migration.

[4]See McLoughlin et. al (2011) and OECD (2008).

Figure 1.2: **Permanent migration, temporary labour migration and free movement in OECD countries** *(number of migrants, 2006-10)*

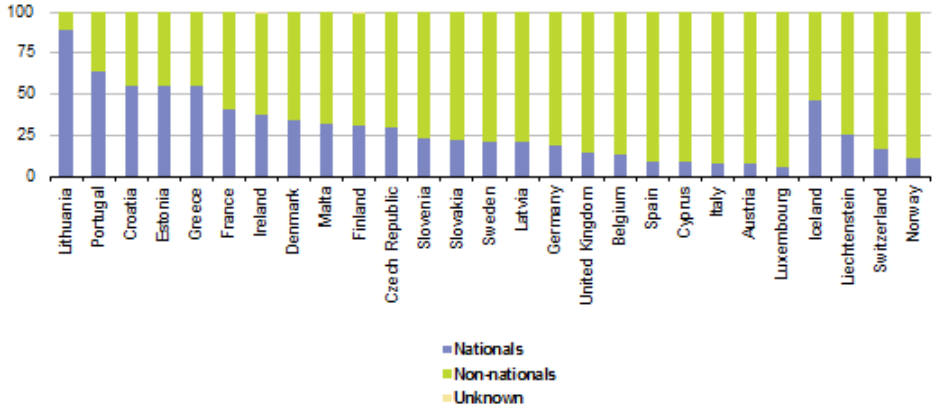


Source: OECD International Migration Outlook (2012)

When analyzing labor mobility issues, standard economic models focus on wage differentials, the skill distribution of workers and differences in tax systems but usually ignore the role actual and future welfare benefits play in expected life-time earnings. Empirical tests, like the survey of the EC (2008) report, usually only examine the role of actual available welfare payments in migration and ignore potential future benefits. On the other hand, Wildasin (1999) showed that differences along European social insurance and public pension systems might create considerable incentives to migrate. He uses data on public pension contributions and benefits to estimate the change in the present value of lifetime wealth for representative workers in seven EU countries, finding that rational migrants can experience changes in public pension wealth up to 25% of their lifetime wealth.

Migration across borders means that individuals have to contribute to pension schemes characterized by varying returns depending upon differences in institutional setting, population development and average wage income growth in the countries. Different rates of return can be translated into different implicit tax rates of the pension systems. Fenge and Weizsäcker (2008) use the CESifo pension model to calculate implicit tax rates for selected European countries. They define the implicit tax rate as the difference between the return of a long-term investment on the capital market and the

Figure 1.3: **Share of return migrants** *(% of total, 2011)*



Source: Eurostat Migrant Population Statistics

return of compulsory contribution payments into the pension scheme. In real-world pension systems implicit tax rates may undertake considerable changes over time and may differ significantly across age cohorts. The dynamics of the implicit tax rate is a result of several factors: most importantly depending on the development of population growth, real wage growth, contribution rates and the degree of actuarial fairness of the pension system over time. Fenge and Weizsäcker find that average implicit tax rates (of age cohorts 1940-2000) are increasing for younger cohorts in almost all countries and also differences between countries increased significantly.[5] Hence, the relevance of differences in implicit tax rates for migration is also growing. They examine the case of temporary migration as well by looking at annual implicit tax rates of pension systems. They find that migration incentives (i.e. implicit tax rates) differ among different age cohorts and over time. For example, a representative individual of age cohort 1970 could minimize his tax burden by starting his working life in the Netherlands (age 20-28), moving for one year to Sweden at the age of 29, then working in France (age 30-38), then in the United Kingdom (age 39-43) and finally spending the rest of his working life again in Sweden.

[5]The maximum difference for age cohort 1940 is about 7 percentage points while it rises up to 14 percentage points for age cohort 2000 .

In this paper, a simple model is built to investigate the hypothesis that differences in European social insurance, in particular differences in public pension system types can have a sizeable effect on the optimal length of staying abroad. Cremer et. al (1998, 2003) and Casamatta et. al (2000a,b) underline the fact that in reality pension systems cannot be categorized into pure earnings-related or flat-rate systems.[6] For this reason, we adopt a more general, so called 'mixed' system in the model, where the so called Bismarckian factor determines the degree of progressiveness of the pension system.

In what follows, section 2 describes the main features of the European portability scheme. Section 3 presents the model and analyzes the relation of the main parameters to the optimal length of staying abroad. Section 4 concludes.

1.2 The European portability scheme

The current European portability scheme is not meant to replace different national social security systems or harmonize them but provides a framework for their coordination. Indeed, each member state is free to decide who can be insured, what kind of benefits can be received and how these benefits are calculated. Nevertheless, national authorities have to respect certain fundamental principles in application that have been outlined already in the beginning of the '70s.[7]

One of the main principles is that EU migrants can only be subjects to the legislation of one member state: a person has to pay contributions to and is covered by the social security system of the country where his occupational activity takes place.[8] Consequently, a worker who starts to work abroad is no longer being insured in his home country but in the host country for the time staying there. Moreover, the principle of equal treatment states that once a foreign worker starts to pay contributions, he is entitled to have the same rights and obligations as the citizens of that country.

[6] See e.g. Kolmar (2007) for historical background and a comparison of the two system types.

[7] See European regulation 1408/71 (EEC) and 574/72 (EEC).

[8] For exceptions and a more detailed summary of the content of the regulations see e.g. Reyes (2004).

The so-called principle of aggregation or totalizing of contribution periods provides the starting point for this paper. When calculating benefits, national authorities have to take into account the total number of insurance periods, irrespective of the fact where residence or employment took place. For example, if a Romanian construction worker is insured for 10 years in Spain and for 30 years at home, then both Spanish and Romanian authorities calculate his pension benefits based on the total of 40 years of occupation. The underlying earnings history is constructed by extrapolation from the actual national earnings history. When the worker reaches the retirement age, he receives his pension benefits along the principle of apportionment. In our special case, he receives the 10/40 part of his Spanish pension and 30/40 part of his Romanian pension, from the respective authority. Although there remain important fields of pension portability that still need to be improved[9], EU countries made considerable progress in the mutual recognition of the so-called first pillar pension claims[10] acquired in other member states.[11]

There is a wide spectrum of pension system types within Europe.[12] In what follows, we take the variegation of European pension systems as given and focus our attention on how these differences in pension systems within Europe might influence a temporary migrant's decision on the choice of the destination country.

1.3 A static model

A simple model is built to investigate the role of differences in European social insurance, in particular public pension system types in determining the optimal length of working abroad in the case of temporary migrants. It is assumed that the lifetime utility of a migrant is determined by the mixture of his home and host country's labor income and pension benefit.

[9]E.g. occupational schemes still impose significant portability losses on mobile workers.

[10]For an overview of pension system categories see e. g. OECD (2005).

[11]Note that there exist pension system characteristics that may unduly discriminate against labor mobility or immobility. E.g. those countries that base their pension benefit calculation on a limited number of "best years of earning" clearly discriminate against cross-border mobility.

[12]For a recent review see e.g. OECD (2011).

The focus is on temporary migrants, i.e. those who return to their home country and for this reason a strengthening 'homesick feeling' is introduced that reduces the utility that can be gained by working abroad.

In this paper, we are interested in the behavior of so-called economic migrants and therefore we will ignore the special case of political asylum seekers/refugees. We define an economic migrant as someone leaving his home country because of the potential for personal economic gain, rather than out of necessity arising from persecution or life-threatening circumstances. This is in line with the economic theory of migration that is based on the usual assumption that migrants try to maximize their lifetime utility. Hence, only those will migrate who can increase their expected future utility by moving to another country. The key factors that will affect their utility are income from labor and pension benefits, not forgetting that there are also economic costs associated with migration.

Three key assumptions distinguish this paper from the current literature. First, it concentrates on the inhabitants of the less developed/poorer country. Second, it investigates temporary migration. We assume that after working in the higher-wage country, workers return for good. Hence, they receive and spend their pension benefits in the poor country. In fact, the goal of this study is to find out whether there are differences in the lengths of time people work abroad when the host countries differ in key parameters of their pension systems. Third, we assume perfect portability of the pension systems in the sense that workers get pension benefits proportional to their length of work in each of the countries they worked and they face no portability losses.

In the model there are two countries; the home country is characterized by low wages, while the host country by relatively higher wages. There is free movement of labor across these countries: workers are free to decide in which country they work and for how long. Nevertheless, only workers of the low wage country will apply for jobs abroad as inhabitants of the rich country typically cannot increase their lifetime utility by working in the poor country. In the model, earnings are an attribute of the country rather than that of the worker. We assume that those who decide to migrate get employed but will not change labor market conditions in the host country significantly. Theory would suggest that the increase in the labor supply via immigration should increase competition for the available jobs and give

rise to lower wages for natives. With different methodologies, several papers support these results.[13] Nevertheless, the evidence from EU countries is in line with that from the US in that it finds very small effects of immigration on wages, if at all.[14]

In the model individuals maximize their lifetime utility. We follow Simonovits (2011) in assuming that people live for $1+\mu$ periods. During their active period they can decide how much time they work at home (T) and abroad ($T^* = 1 - T$) and they spend $0 < \mu < 1$ time in retirement before dying. Consequently, an individual's lifetime utility will consist of four parts. When young $Tu(c)$ is the utility a worker derives from his consumer intensity at home, $T^*u(c^*)$ is the utility derived from the consumer intensity in the host country. When old $\mu\delta Tu(d)$ is the utility derived from the home country's pension benefit and $\mu\delta T^*u(d^*)$ is the utility derived from the host country's pension benefit, where δ is the discount factor. In addition, we introduce $\upsilon(T^*)$, a decreasing concave function.[15] One can think of this last component as a factor that reduces the utility that can be gained by working abroad, like a strengthening homesick feeling over time.

$$U(\cdot) = Tu(c) + T^*u(c^*) + \mu\delta\left[Tu(d) + T^*u(d^*)\right] + \upsilon(T^*) \tag{1.1}$$

s.t.

$$c = (1-\tau)w$$

$$c^* = (1-\tau^*)w^* - \omega^i$$

$$d = \beta w$$

$$d^* = (1-\alpha)\beta_0^* + \alpha\beta^* w^*$$

$$T = 1 - T^*$$

[13] For an overview see e.g. Borjas (2003).

[14] The balance of evidence suggests a small negative impact. Reed et al. (2009) finds that a 1% increase in labor supply in a given labor market segment reduces wages by around 0.2% in the UK. Borjas (2003) finds the largest adverse effect of 0.4% decrease for the US. See also Jean-Jimenez (2007) and Okkerse (2008).

[15] $\upsilon'(0) \leq 0$ and $\upsilon'(1) \to -\infty$.

Consumer intensity (c, c^*) is equal to earnings (w, w^*) less taxes and contributions (τ, τ^*). ω represents the total cost of movement that differs among the individuals. Hence, ω is the key choice variable in the migrant's decision whether to work abroad. The home country has an earnings-related pension system[16], while the pension benefit formula in the host country is the weighted average of a lump sum basic component (β_0^*) and an earnings-related part. α is the so called Bismarckian factor that determines the degree of progressiveness of the pension system. Note that if $\alpha = 0$ we arrive at the pure flat-rate pension system and in case $\alpha = 1$ we get to a pure Bismarckian pension system.[17] β and β^* are percentages of wage income that the pensioner gets for each of the insurance years spent in the home and host country, respectively.

For sake of simplicity we use a Cobb-Douglas type utility function: $u(c) = \ln(c)$ and $v(T^*) = \lambda \ln(1 - T^*)$. Consequently, the utility function becomes:

$$\begin{aligned} U(\cdot) &= T \ln\left[(1-\tau) w\right] + T^* \ln\left[(1-\tau^*) w^* - \omega^i\right] \\ &\quad + \mu\delta \left(T \ln(\beta w) + T^* \ln\left[(1-\alpha)\beta_0 + \alpha\beta^* w^*\right]\right) \\ &\quad + \lambda \ln(1 - T^*) \end{aligned} \tag{1.2}$$

Solving $\frac{\partial U(\cdot)}{\partial T^*}$ for T^* gives us the optimal time period a migrant should spend abroad to maximize his lifetime utility:

$$\begin{aligned} T^* &= 1 - \frac{\lambda}{\ln(\frac{c^*}{c}) + \mu\delta \ln(\frac{d^*}{d})} \\ &= 1 - \frac{\lambda}{\ln\left[\frac{(1-\tau^*)w^* - \omega^i}{(1-\tau)w}\right] + \mu\delta \ln\left[\frac{(1-\alpha)\beta_0^* + \alpha\beta^* w^*}{\beta w}\right]} \end{aligned} \tag{1.3}$$

Equation (1.3) tells us what intuition would say, namely that the optimal time period to work abroad depends positively on the gain from higher foreign wages both during the active and retired period and negatively on

[16] Pension scheme typologies of the European Parliament (2011) as well as of the OECD (2011) categorize all old-age pensions of the new Member States into the earnings-related category. Ignoring the means tested minimum pension part of the sending country in the model can be justified by the fact that these countries do not differ considerably in the public pillar. For a detailed analysis of the differences in EU pension systems, see EP (2011).

[17] See e.g. Krieger et al. (2011) for a recent estimation of the Bismarckian factor and its evolution over time for the EU15 countries.

the size of total cost of movement and the weight given to the homesickness function. What is more, the closed-form solution makes it possible to analyze the effect of changing individual parameters or variables on the optimal length of staying abroad (see Appendix for the expressions of the derivatives of T^*).

The derivative of T^* is positive for the parameters τ, β_0^*, β^* and w^*. Hence, ceteris paribus migrants will spend more time working abroad the higher the tax rate (lower the income) in the home country, the higher the expected pension benefit in the host country and the higher the wage level one can get abroad. The derivative of T^* is negative for the parameters τ^*, β, λ and for the variables ω and w. Consequently, migrants will spend less time working abroad the higher the tax rate (lower the income) in the receiving country, the higher the wage level in the sending country, the higher the expected pension benefit at home, the higher the costs of migration and the more weight one gives to the homesickness function.

In case of the parameters (μ, δ and α) one has to set the conditions under which the sign of the derivative of T^* can be determined. Both μ and δ influence the weight of income in the retirement period relative to the active period. Equations (1.13) and (1.14) in the appendix state that workers will spend more time abroad if the expected pension benefit of the host country exceeds that of the home country ($\frac{(1-\alpha)\beta_0^*+\alpha\beta^* w^*}{\beta w} > 1$). If one can get relatively higher pensions abroad, migrants will spend more time working abroad the longer people live (the more time they spend in retirement, i.e. the higher μ is) and the more weight people give to future income in the utility function (the higher δ is).

From our point of view the most important derivative of T^* is with respect to parameter α, the Bismarckian factor in the pension benefit formula. Equation (1.15) in the appendix states that the derivative will be positive if $\beta^* w^* > \beta_0^*$. Typically, this condition holds if the migrant receives high wages in the host country. The higher the income that is the basis for the pension benefit calculation, the more a migrant profits form an earnings-related pension system. The opposite is true if the migrant can only find a job with low wage level. The more likely that the migrant cannot profit from the earnings-related part of the pension benefit, the earlier the migrant should return to his home country.

1.4 Conclusion

This is a theoretical paper dealing with the question whether the pension treatment of temporary migrants from Eastern European countries to other EU countries has an impact on migration decisions in terms of the length of their stay and their choice of the host country.

A simple model is built to investigate the hypothesis that differences in European social insurance, in particular public pension system types have an effect on the optimal length of stay abroad. The model suggests that the optimal period of time a migrant should work abroad during his lifetime depends on the wage and pension benefit differential between the home and the host country, the total cost of the movement, the time spent in retirement, the discount factor and the degree of homesickness.

A thorough analysis of all the factors determining the period of time working abroad gives intuitively plausible results, including the role of the Bismarckian factor, i.e. the degree of redistribution of the pension system, in the optimization. In the case of higher wage workers where the earnings-related part of the pension benefit dominates the basic component, the higher the Bismarckian factor, the longer it will be worth to work abroad. The opposite will be true for low-wage workers who would not profit from the earnings-related part of the benefit formula.

The main conclusion of the paper is that different types of pension systems give different incentives to migrants to work abroad. Moreover, depending on the foreign wage level the threshold value of whether to choose a country with a flat pension system or an earnings-related one can change considerably.

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1.6 Appendix

The derivatives of T^* are reasonably rearranged to evaluate the signs of the expressions.

$$\frac{\partial T^*}{\partial \tau}=\frac{\lambda}{(1-\tau)\left[\ln\left(\frac{c}{c^*}\right)+\mu\delta\ln(\frac{d}{d^*})\right]^2}>0 \tag{1.4}$$

$$\frac{\partial T^*}{\partial w^*}=\frac{(1-\tau^*)((1-\alpha)\beta_0^*+\alpha\beta^* w^*(1+\mu\delta)-\mu\delta\alpha\beta^*\omega^i}{d^*c^*\left[\ln\left(\frac{c}{c^*}\right)+\mu\delta\ln(\frac{d}{d^*})\right]^2}>0 \tag{1.5}$$

$$\frac{\partial T^*}{\partial \beta_0^*}=\frac{(1-\alpha)\mu\delta\lambda}{d^*\left[\ln\left(\frac{c}{c^*}\right)+\mu\delta\ln(\frac{d}{d^*})\right]^2}>0 \tag{1.6}$$

$$\frac{\partial T^*}{\partial \beta^*}=\frac{\alpha\mu\delta\lambda w^*}{d^*\left[\ln\left(\frac{c}{c^*}\right)+\mu\delta\ln(\frac{d}{d^*})\right]^2}>0 \tag{1.7}$$

$$\frac{\partial T^*}{\partial w}=-\frac{l}{w}\frac{\mu\delta+1}{\left[\ln\left(\frac{c}{c^*}\right)+\mu\delta\ln(\frac{d}{d^*})\right]^2}<0 \tag{1.8}$$

$$\frac{\partial T^*}{\partial \tau^*}=-\frac{\lambda w^*}{c^*\left[\ln\left(\frac{c}{c^*}\right)+\mu\delta\ln(\frac{d}{d^*})\right]^2}<0 \tag{1.9}$$

$$\frac{\partial T^*}{\partial \varpi}=-\frac{\lambda}{c^*\left[\ln\left(\frac{c}{c^*}\right)+\mu\delta\ln(\frac{d}{d^*})\right]^2}<0 \tag{1.10}$$

$$\frac{\partial T^*}{\partial \beta}=-\frac{\frac{\delta}{\beta}\mu\lambda}{\left[\ln\left(\frac{c}{c^*}\right)+\mu\delta\ln(\frac{d}{d^*})\right]^2}<0 \tag{1.11}$$

$$\frac{\partial T^*}{\partial \lambda} = -\frac{1}{\ln\left(\frac{c^*}{c}\right) + \mu\delta \ln(\frac{d^*}{d})} < 0 \tag{1.12}$$

$$\frac{\partial T^*}{\partial \mu} = \frac{\delta\lambda \ln(\frac{c^*}{c})}{\left[\ln\left(\frac{c}{c^*}\right) + \mu\delta \ln(\frac{d}{d^*})\right]^2} \lessgtr 0 \tag{1.13}$$

$$\frac{\partial T^*}{\partial \delta} = \frac{\mu\lambda \ln(\frac{c^*}{c})}{\left[\ln\left(\frac{c}{c^*}\right) + \mu\delta \ln(\frac{d}{d^*})\right]^2} \lessgtr 0 \tag{1.14}$$

$$\frac{\partial T^*}{\partial \alpha} = \frac{(\beta^* w^* - \beta_0^*)\mu\delta\lambda}{d^* \left[\ln\left(\frac{c}{c^*}\right) + \mu\delta \ln(\frac{d}{d^*})\right]^2} \lessgtr 0 \tag{1.15}$$

Chapter 2

Uncertainty, Poverty Attributions and Welfare Preferences

2.1 Introduction

Fighting poverty is an enduring task even in affluent postindustrial societies. What is more, the image of the poor is typically ethnicized what makes the design of public poverty assistance programs not only to an economic policy question but a politically sensitive challenge as well. As a rule, stigma on poverty is stronger where very low status is identified with some native or immigrant minority groups. This, in turn, might result in low public support for poverty alleviation measures. Freeman (1986) and Weede (1986) warned already early in the eighties that the popularity of the welfare system may deteriorate in societies where poverty is ethnicized.

Alesina and Glaeser's (2004) provocative hypothesis about the coming era of welfare state retrenchment following mass immigration in Europe was subject to strong critique[1], and opened up a new line of research in Europe. However, those cross-country investigations of attitudes and welfare spending provide only scant evidence for a detrimental effect of heterogeneity on solidarity.[2] Actually, an already long history of immigration and a

[1] One of the most notables was Taylor-Gooby (2005).

[2] See e.g. Soroka et al. (2006), Finseraas (2008), Mau and Burkhardt (2010) or Stichnoth and Straeten (2009) for a review.

significant overlapping of minority groups with the poorest strata have not shaken the solid popularity of generous welfare states of Western Europe yet. Nonetheless, recent findings on moderate influence of heterogeneity on attitudes may indicate upcoming changes of the political climate in some European countries.[3]

In the meantime, although US trends of intensifying anti-welfare sentiments have been reversed in the post-welfare reform era, the racialization of welfare attitudes has not faded.[4] Those findings in America pose puzzles themselves in the light of long lasting trends of weakening racial prejudices in attitudes towards other policy areas, as well as patterns of some important real-life decisions about, for instance, marriage[5] or political candidates. To add further noise to empirical results, an isolate third pattern of attitude structure seem to have emerged in Central-Eastern European surveys. In these countries, strong egalitarianism is often coupled with the solid tendency to stigmatize the poor.[6]

Two lines of arguments try to take account of the evidence on ethnicization of welfare attitudes: the one based on pure racism or ethnic preferences and the one based on stereotypes and attributions. In the first case, a widespread hypothesis claims that any kind of ethnic discrimination could be traced back to old fashioned racism or so called ethnic preferences. Ethnic preferences imply a desire to discriminate among ethnic groups. In other words, individuals with ethnic preferences give larger weights to the wealth of their own group members than needy people belonging to other groups. Such ethnic preference assumptions are often used in political economy models of welfare preferences.[7]

In contrast, Habyarimana et al. (2006) test directly the mechanisms that may undermine public good provision in ethnically heterogeneous communities. They reject the ethnic preference hypothesis and lay ground for network based explanations instead. Taking also a different approach, Sears and Kinder (1971) suggest that instead of old-fashioned racism so called symbolic racism fuels racialization of attitudes (see also Tarman and Sears (2005)). As symbolic racism is not a direct preference to discriminate, but

[3]See e.g. Van der Waal et al. (2010)
[4]see e.g. Dyck and Hussey (2008) .
[5]E.g. Qian and Lichter (2007)
[6]See e.g. Mason and Kluegel (2000).
[7]See e.g. Luttmer (2001). For a recent application see Freman (2009).

rather a system of beliefs, it can be viewed as a concept that is close to the borderline between the ethnic preferences and the attribution based approach.

The predominant view of the attribution based approach traces ethnicization of attitudes back to stereotypical beliefs about the personality traits of the poor. Empirical surveys and case studies show that when individuals form opinions about social welfare, a primary concern is whether welfare recipients deserve the benefits they receive.[8] In particular, they find that people's perceptions of recipients' effort to find work drive welfare opinions.[9] The concept of deservingness has attracted special attention since it could encompass a wide range of empirical findings.[10] Economic research on social preferences has also used the concept for analyzing policy preferences.[11] In this framework, citizens are ready to support those whose poverty is a result of bad luck but not lack of efforts.

Our formal model is based upon a simple theory of poverty-related policy attitudes. This theory captures compassionate citizens' judgments about various groups of the poor and the preferred levels of assistance resulting from those judgments. Some of our major propositions are similar to those adopted by Gilens (1999) and Van Oorschot (2000), among others. Nonetheless, two factors, namely, the degree of uncertainty and the variance of the level of poverty, which are at the forefront of our theory, were not addressed explicitly in earlier research. We assume that citizens are driven not only by self-interest when expressing their policy preferences on the assistance for the poor. Their opinions are also based on a sense of fairness and justice: they are ready to support those in real need. At the same time, principles of fairness and justice do not imply blind egalitarianism. Taxpayers support financial assistance only for the deserving poor whose poverty is a result of bad luck but not lack of efforts.

[8] See Iyengar (1991), Cook and Barrett (1992), Gilens (1999), Van Oorschot (2000), Larsen (2006) or Petersen et al. (2011).

[9] For example Gilens (1999) argues that although middle-class Americans would be ready to support the deserving poor, the impression generated by the media that the majority of the poor is undeserving – by classifying needy people as a predominantly black community who are perceived to be lazy – makes them opposing public poverty assistance programs.

[10] See Gilens (1999) and Van Oorschot (2000) for details.

[11] See e.g. Fong (2001).

This implies an underlying attribution model for evaluating fellow citizens' economic performance building upon the hypothesis that an individual's financial situation is a function of both environmental factors and personal characteristics.[12] For this reason, we will assume that a middle class citizen's economic performance is a function of effort and fortune. Here, fortune will incorporate almost all the factors linked to so called structuralist attributions. Hence, taxpayers are ready to reward effort and compensate for bad luck but are reluctant to pay the bills of bad characters. Note that this decision process is purely "color-blind", and therefore it is strikingly different from those based on the ethnic preference hypothesis or any other theory of racism.

In addition, we show that the level of poverty has an impact on the influence of prior stereotypes on the degree of compensation. We demonstrate that the impact of negative stereotypes on welfare preferences diminishes as the income of the target population converges to middle class standards. Based on a video-vignette experiment we investigate the influence of beneficiaries' characteristics on the preferences of the compassionate citizen. Our results show that the ethnic context plays a minor role in shaping attitudes when hints on moderate poverty are presented. In contrast, when facing reports about a very distressed community, subjects react strongly to ethnic cues.

The structure of the paper is as follows. Section 2 presents our simple poverty-assistance model. In section 3, we present the results of our empirical survey. Section 4 concludes.

2.2 A simple poverty-assistance model

In this section, we develop a simple model of compassionate citizens' preferences on the optimal level of compensation for a poor individual. In the model, poverty assistance is based on the deservingness principle and we use observable income as a noisy signal for effort.

[12] Those assumptions are also called structuralist and individualist attributions, respectively. In the terminology of attribution theory, one can also distinguish between controlled and uncontrolled factors, individuals bearing responsibility only for the former ones (Van Oorschot 2000).

The model predicts that, due to imperfect observation of the poor's actual opportunities and behavioral traits, larger misfortune may lead to smaller compensation. We also show that the level of poverty has an impact on the influence of prior stereotypes on the degree of compensation.

Let us denote by N the set of adult individuals of a society in which members are bonded together by solidaristic norms. Citizens of this society adopt a naïve model for understanding their fellow citizens' varying economic performances. They assume that the income of an adult individual $i \in N$ at time t is a function of personality traits and situational factors of the given time period. Thus, $w_{it} = g(e_{it}, f_{it})$, where w_{it} is the individual i's net disposable income at time period t, e_{it} is the level of effort he has made to earn money, and f_{it} is the overall monetary effect of fate or fortune. The model does not discuss the separate roles of needs and skills in observers' judgments. We focus on net disposable income and assume that its level can also be below zero.

Any $j \in N$ $(j \neq i)$ may support an individual specific monetary transfer c_{ij} compensating i for bad fortune such that the level of compensation is positively related to i's effort. Let us denote j's (her) preferred level of compensation for i (him) by c^*_{ij} which is a function of his presumed effort and fortune, that is $c^*_{ij} = c_j(e_i, f_i)$. We assume that facing a poor, unlucky and diligent enough individual, she would support him by a positive transfer that increases as the negative effect of fortune grows larger.[13]

In our model, compassionate citizens face an observational problem. While any individual's income can be observed by fellow citizens, efforts and fortune are private information. Any citizen's decision about the optimal compensation is supported by a) her observation of his income, b) her stable beliefs on his chances for good and bad fortune, c) her prior assumption about his personality, and thus, his efforts made and finally d) her stable beliefs on a specific model of income generation (based on the above parameters). After observing w_i, j estimates f_i by updating her prior beliefs on e_i, which, in turn, determines her final judgment on optimal compensation.

[13]The source and way of distribution of transfer c_{ij} is not a subject of investigation in our model. Nor is the method for aggregation of citizens' preferences. The outcome of the model is to be interpreted as a representative citizen's will on the ideal levels of compensation transferred to various individuals taking aside the effects of the budget constraint, self-interest, moral bias or any other altruistic spending objective.

In this paper, we take a closer look at this simple but plausible form of citizens' naïve model and their judgments implied by it. Consider a simple model which assumes that income is a sum of the effects of efforts and fortune, that is $w_i = e_i + f_i$.[14] Two types of individuals are supposed to exist: lazy and diligent, characterized by low and high levels of efforts, respectively. Lazy people exert zero effort, so $e_i = 0$ or h, where $h > 0$.

Fate is the net effect of a large number of situational factors, and in theory, there is no limit to the size of it, $f_i \in \mathbb{R}$. Citizens have stable beliefs on the chances for various levels of good and bad fate. It is supposed that the theoretical density function of f_i has a normal distribution with zero mean, and the level of its variance might depend on effort: $f_i \backsim N(0, \sigma(e_i))$. The potential dependence of variance on effort is to acknowledge the interaction between the impacts of effort and fortune. Even a fairly simplistic folk-psychology should recognize that returns on efforts are risky. This implies that larger effort also increases the role of fortune in income production. As far as the positive side of the fate-curve concerned, great opportunities are more likely to appear in those people's life who actively search for them. From another point of view, one may argue that bad luck lowers the returns on efforts. The model, rendering unit variance of fortune to zero effort, assumes that $\sigma_h = r\sigma_0 = r$ where $r > 1$. We refer to r as the risk-effort parameter below. One should note that due to the omission of σ_0 from the model, h and r are to be interpreted in relative terms.

Citizens have prior beliefs on other individuals' types, but after observing w_i, they may update their previous opinion on i's efforts, and base their judgment about the deserved level of compensation on the updated beliefs. To keep our discussion as simple as possible, citizens are assumed to be risk neutral, and they prefer to compensate any deserving i for the expected value of the effect of his bad luck. Hence, she calculates the optimal level of compensation for an individual i, whose current income $w_i = x$ was observed, as follows:

$$c_i^* = (h - x) \Pr(e_i = h \mid w_i = x) \tag{2.1}$$

for $x < h$ and $c_i^* = 0$ otherwise. Hence, lazy individuals deserve nothing, while diligent types could expect a full compensation for the effects of bad

[14] We consider the model and decision of an arbitrary citizen $j \neq i$ so we leave out any reference to j below.

luck.

One may argue that (2.1) represents improbably paternalistic preferences by intending to eliminate completely the estimated impact of bad luck. We call it a *simple poverty-compensation model* and adopt it for two reasons. First, while it saves on mathematical formulas, our qualitative results still hold for those preference representations which are based on more common assumptions on utility. Second, from an impartial spectator point of view of justice (cf. Croson and Konow (2009)), even such a linear and risk-neutral approach which excludes any effect of the observers' own income seems fairly realistic.

From this point onward, we narrow our focus to j's judgments in case $x < h$. Denote p_i the prior likelihood that an individual i exerts high level of effort, $p_i = \Pr(e_i = h)$.[15] Then, by using Bayes' rule and taking into account that w_i is a continuous variable, equation (2.1) can be rewritten as follows:

$$c_i^* = (h - x)\frac{p\Phi_r(x - h)}{p\Phi_r(x - h) + (1 - p)\Phi_1(x)} \tag{2.2}$$

where $\Phi_r(x - h) = \frac{1}{\sqrt{2\pi r^2}} e^{-\frac{(x-h)^2}{2r^2}}$ and $\Phi_1(x) = \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}}$ (see appendix for details).

The observer's intention is to fully compensate for any effect of a diligent type's misfortune. In case of perfect information, the lower the observed diligent individual's income, the higher compensation is preferred by her. A lazy individual's income situation, on the other hand, is irrelevant, since he would get nothing. One should note, however, that uncertainties about efforts and luck complicate the issue. Low income could be a signal of bad luck as well as low effort. The exact relationship between i's income and j's judgment depends on the observer's prior beliefs on i's personality, and her opinion on the role of efforts and luck in individuals' achievements. One can express the marginal change of c_i^* implied by changing x as follows:

[15] The relationship between subjective priors and actual income distribution is not discussed in the present analysis.

$$\frac{\partial c_i^*}{\partial x} = \frac{-pe^a}{r^2\left[pe^a + (1-p)e^b\right]^2}\left[r^2 pe^a + (1-p)e^b(r^2 - (x-h)^2 + xr^2)\right] \quad (2.3)$$

where $a = -\frac{(h-x)^2}{2r^2}$ and $b = -\frac{x^2}{2}$, respectively (see appendix for the detailed step-by-step derivation).

At first sight, equation (2.3) shows a complicated relationship though, it is easy to see the impacts of various parameters. In a full information environment ($p = 1$ or $p = 0$), c_i^* increases as x decreases for a diligent individual, and the level of compensation does not shift (from zero) for a lazy person. In our case of uncertainty, however, decreasing income may imply a decreasing transfer as well as an increasing one. Our Proposition 1 delineates conditions under which a kind of "poverty-assistance paradox" may arise.

Proposition 1 (*Poverty-assistance paradox*): *In the simple poverty-compen-sation model, there always exists a small enough x relative to h and a low enough value $\underline{p}$ of j's prior belief in i's high effort and effort-risk parameter $\underline{r}$ such that $\frac{\partial c_i^*}{\partial x} > 0$ holds for all $0 < p_i < \underline{p} < 1$ and $1 \leq r < \underline{r}$. See appendix for the proof.*

In other words, a negatively stereotyped (low p) poor person (low x) faces a risk of losing transfers as he becomes even poorer, in spite of the fact that compassionate citizens intend to fully compensate the deserving poor people for any loss of income. This is the case, at least, in societies in which hard work, instead of luck, is believed to foster success (low r). What is more, in a strongly work-oriented society, even the (*a priori*) more trusted individuals could experience the effect of poverty-assistance paradox should they become poor enough. Corollary 1 explicates this statement.

Corollary 1: *In the simple poverty-compensation model, one can always find low enough values $\underline{w}$ of i's income, and effort-risk parameter $\underline{r}$ close to 1, such that $\frac{\partial c_i^*}{\partial x} > 0$ holds for all $x < \underline{w}$, $1 \leq r < \underline{r}$ and $0 < p_i < 1$. See appendix for the proof.*

The poverty-assistance paradox stems from the strength of the signal low income sends about (the lack of) efforts in a society in which citizens see only a minor role for luck in economic success. However, the proposition and its corollary on the poverty-assistance paradox do not tell anything about the effect of stereotypes on the preferred amount of welfare-transfers at different income levels in various societies. It is easy to see from equation (2.2) that the amount of preferred compensation c_i^* increases in p_i at any level of income $x < h$ (see appendix for proof). That is, the more she trusts him, the larger transfer she is ready to allocate for him. The question remains, however, that how does the effect of her prior stereotypes depend on his income? Earlier research, both theoretical and empirical, suggests that ambiguous information fosters the role of stereotypes in human decision making. Our poverty-assistance paradox rests upon the fact that low income is a noisy signal of laziness, while high income might be a sign of diligence. Let us provide a closer look at the strengths of those noisy signals at different levels of income.

A basic tenet of our theory is that an income close to the level required for middle class living standards is a strong signal of deservingness in her eyes. A wide range of lower income levels, on the other hand, do not send such strong positive signals and are not strong predictors of laziness either. This type of ambiguity lays the ground for stereotype-based judgments. Our Proposition 2 states the conditions under which increasing poverty increases the role of prior stereotypes in her decision about his compensation.

Proposition 2 (*Positive poverty-stereotype interaction*): *In the simple poverty-compensation model, there always exists an x close enough to h and a high enough value $\underline{p}$ of j's prior belief in i's high effort and effort-risk parameter $\underline{r}$ such that $\frac{\partial c_i^*}{\partial x \partial p_i} < 0$ holds for all $0 < \underline{p} < p_i < 1$ and $1 \leq \underline{r} < r$. See appendix for the proof.*

Proposition 2 states that welfare recipients with incomes somewhere between the levels of an average industrious citizen's and a typical undeserving poor person's one, are increasingly prone to be judged by prior stereotypes (positive and negative ones alike) as they become poorer. More exactly, the difference between the compensations of two equally poor but differently stereotyped individuals increases as they become poorer. Note

that this proposition is only true in societies where compassionate citizens are skeptical enough about the role of effort in economic success (high level of r). Moreover, compassionate citizens do not differentiate further between two recipients as they become poorer in the case both of them are stereotyped fairly negatively.

One should recognize the diverging conditions for the emergence of the poverty-assistance paradox and the poverty-stereotype interaction. The poverty-assistance paradox is likely to arise if the potential beneficiary is very poor and/or very negatively stereotyped in a society in which citizens strongly believe that effort rather than luck influences economic success. The poverty-stereotype interaction, on the other hand, is likely to be observed if the potential beneficiary is not very poor and/or not very negatively stereotyped in a society in which citizens are fairly skeptical about the impact of effort on economic success. The difference is not surprising since the poverty-assistance paradox is about the strong negative signal a low enough level of income sends about a poor person, while the poverty-stereotype interaction is about the lack of a strong positive signal in case one's income is not high enough.

2.3 Empirical evidence

Based on a video-vignette experiment we investigate the influence of beneficiaries' characteristics on the preferences of the compassionate citizen. Our results show that the ethnic context plays a minor role in shaping attitudes when hints on moderate poverty are presented. In contrast, when facing reports about a very distressed community, subjects react strongly to ethnic cues.

We studied the attitudes toward welfare state policies at the level of individuals. When designing the special questionnaire survey to get closer to the toy world of our model, we ran into several difficulties. First, standard policy-attitude items do not provide quantitative data on preferred compensation levels.

Second, as a result of the equal treatment principle explicit ethnicity-based differentiation of transfers does not exist in modern welfare states and therefore it is not self evident how to single out the effects of ethnic stereotypes. Moreover, considerable effort is needed to elicit valid responses

of participants about issues which aren't considered by most respondents in their everyday life.

We decided to apply the so called vignette-method to present the circumstances of a potential transfer-beneficiary to our respondents. Vignettes are short scenarios or stories in written or pictorial form which participants can comment upon. They provide a useful tool to tap into complex processes by isolating certain aspects of a given social issue or problem by exploring participants' subjective belief systems.[16] The main reason for choosing the vignette-method was to exclude the possibility of social desirable answers among respondents as much as possible.

The video-vignette experiment was conducted among selected Hungarian college- and high school students. Four versions of a short video-report were presented to groups of students (one version for each) in classroom settings. Each group watched the same interview with a 38 years old, male, unskilled construction industry worker, father of two children describing his everyday material needs and his longer term objectives but with four different kinds of narrated intros.[17] The aim of the intros was to give a short introduction of the local community. The first version – besides pointing to the difficulties – emphasized the (albeit limited) job opportunities low skilled people have in Central Hungary. In addition, the intro showed a working poor neighborhood rather than underclass families outside the labor market. The second version, on the other hand, strongly emphasized the increasing distress following the labor market decline in the Post-communist period. The narration as well as the pictures were focusing on the poorest, most hopeless groups of the local people indicating that underclass families are typical of this area. To complete the 2x2 between-subject vignette design identical ethnic cues were added both visually and verbally. Our results suggest that we used appropriate tools for indicating status and ethnicity.[18]

A pilot wave was carried out in the spring semester of 2011 at the Budapest University of Technology and Economics. Students of an elective course were randomly divided into separate classes. In the end, 380 subjects took part in the four sessions sequentially during a 3-month long period. In

[16]For a detailed description of the vignette-methods see e. g. Finch (1987).

[17]For the full text of the narrations and the interview see the appendix.

[18]Special thanks to Boglárka Bakó (Eötvös Loránd University) and Péter Szilágyi (University of Miskolc) who made the field interviews and edited the final video report and intros.

the meantime, unexpectedly, Roma-related issues came into the spotlight of the Hungarian mass media several times, communicating fairly different narratives about the Roma at different points of time during this period. Results of this first wave lent some support to our theory and a plausible adjustment, namely controlling for the real-world media-effects made the evidence even more reinforcing. Nonetheless, we decided to carry out a second wave of experimental sessions.

In December 2011, a new series of sessions were conducted in two universities and two high schools. One of the colleges was located in Budapest, the capital of Hungary. While the other three institutions were selected in the South-west Hungarian town of Pécs (with approx. 150,000 inhabitants).[19] Pécs is the center of a region where the share of the Roma population is higher than the national average. However, inter-ethnic relations are not as critical as in some other regions with high shares of Roma people among the local population. Sessions for the four treatments were deliberately organized simultaneously. Altogether 629 respondents filled the self-administering questionnaires – including those participating in the pilot sessions.[20]

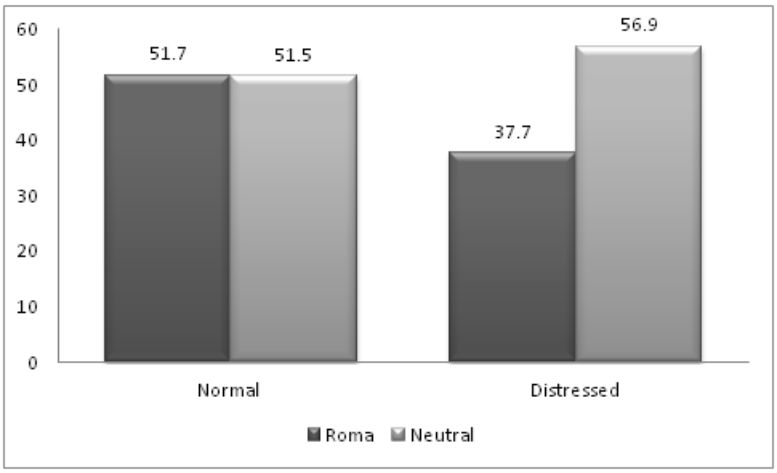
The questionnaire we used starts with a question on welfare transfers, which directly refers to the person featured in the report. It asks whether transfers to similar persons should be increased, decreased or maintained. The item provides information on the current sum of and rules on welfare transfers as well. Respondents could use a six-grade response scale to express their opinions. Some controlling items followed the dependent variable. We tested how respondents perceived the status and ethnicity of the person featured. We also checked for stereotypes on the Roma of Hungary and welfare recipients in general. Finally some proxies indicated the respondent's personal experiences with the poor and the Roma people.

Let us first look at the distributions of the responses under the 'normal' conditions, in which the visual and verbal messages avoided references to deep poverty in the intro before the interview. 51.6% of the 126 respondents supported the increase of welfare transfers. Note that there is no difference in the distributions between the ethnic and non-ethnic treatments. The

[19] We owe Adrienn Bognár (University of Pécs) who carried out the field work at Pécs.

[20] Four of the 249 respondents of the second wave identified her/himself as Roma. We excluded them from the analysis.

Figure 2.1: **The level of support (%) for the increase of welfare transfers**



χ^2-statistics: 'Normal' treatment $0.0, p < 0.99$;
'Distressed' treatment $4.395, p < 0.04$

corresponding rates of support are 51.7% and 51.5%, respectively. At first sight, changing the frame of the interview to a distressed environment does not change policy attitudes significantly either. 47% of the subjects in the 'distress' condition were in favor of the increase of welfare transfers. The difference between the two conditions is small, and statistically insignificant. However, the aggregate ratio hides a large gap between the two versions of the 'distress' condition. Only 37.7% of those exposed to ethnic cues are supportive of a possible increase in welfare transfers. In the other group of the 'distress' condition, this share is as much as 56.9%. The difference is significant at the 5% level (See figure 2.1).

Our sample of students comprises a sub-sample of 72 respondents studying sociology at the University of Pécs. Most of them have already conducted field research in the local Roma settlements, and learnt about the greater context of poverty and ethnic discrimination as well. As one might expect, they reacted to the video-report in a different way than the rest of the sample. Among the sociology majors and graduate students, there was no sign of any impact of the ethnic cues in both of the 'normal' and 'distressed' treatments (support rates are slightly higher among those exposed to the ethnic cues). Nonetheless, the small size of this sub-sample impedes a more

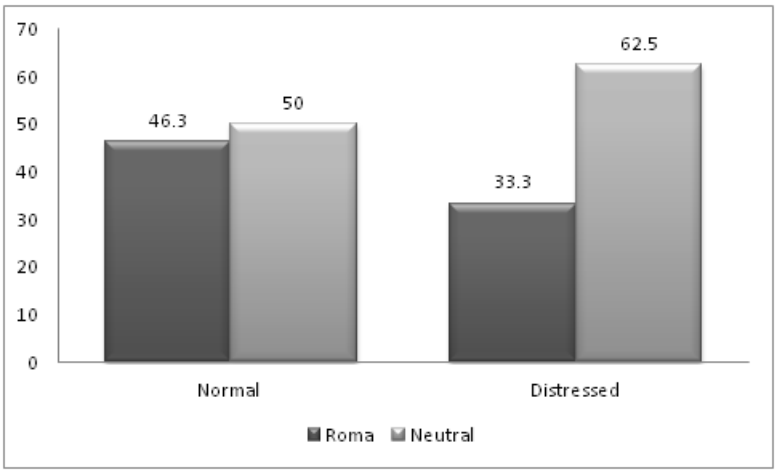
detailed inquiry into the competing hypotheses potentially explaining this kind of exceptionalism.

If we exclude sociologists, and restrict our sample to those students with less academic knowledge and personal experience on poverty (N=173), we can replicate the important findings above (Figure 2.2). In the normal treatment, there is only a slight (and insignificant) difference between the support rate between participants of the 'neutral' and the 'Roma' sessions (50% vs. 47%). This gap, however, grows fairly large when the distress-framing is adopted. In this latter case, presenting the 'neutral' version results in a support rate of 62.5%. Among those exposed to the ethnic cues, only 33.3% of the respondents are in favor of increasing the welfare transfers. This difference is significant even at the 1% level. Nonetheless, the increase of support due to the distress framing in the 'neutral' treatment (from 50% to 62%) is not significant. Nor is the decrease in the 'Roma' treatment (47% to 33%).

Based on the above findings, we can highlight a major point of our study: one might reach different conclusions on the impact of ethnic cues depending on the degree of emphasis put on distress when the portrayal of poverty is formed. One should note, however, that the comparisons presented above are not direct tests of the interaction effect explicated in our hypotheses. Moreover, our relatively small sample is particularly prone to produce imperfect randomization process. Hence, we carried out multivariate analyzes as well.

We adopted a binomial logit-model to estimate the interaction effect of status- and ethnic cues, and control for some other key variables. Our model includes dummies of the 'distress' and 'Roma' conditions, moreover an interaction variable indicating the treatment when 'distress' framing is matched with ethnic cues. Moreover we incorporated dummies on racist attitudes, gender and the family's cultural capital. Our model has a relatively weak explanatory power (see Table 2.1). Nevertheless, it lends some support to our hypothesis on the interplay between ethnic- and status cues in shaping policy attitudes. None of the ethnic or the status cues have any independent impact on the level of support for welfare transfers. The estimation indicates, on the other hand, that the interaction of the two conditions has an influence on the attitudes. Watching the ethnicized version of the distress frame makes it less likely to support the increase of welfare

Figure 2.2: **The level of support (%) for the increase of welfare transfers – sociology students excluded**



χ^2-statistics: 'Normal' treatment $0.121, p < 0.73$; 'Distressed' treatment $6.988, p < 0.01$.

transfers. If again one excludes sociology students from the analysis, the regression model leads to similar conclusions. However, the explanatory power of the regression model is stronger in this case. Moreover, the level of significance of the interaction variable is higher, in spite of the smaller sample size.

2.4 Conclusion

In this paper, we develop a simple model of compassionate citizens' preferences on the optimal level of compensation for a poor individual. In the model, poverty assistance is based on the deservingness principle and we use observable income as a noisy signal for effort. The model predicts that, due to imperfect observation of the poor's actual opportunities and behavioral traits, larger misfortune may lead to smaller compensation. Actually, we show that negative stereotypes and individualistic poverty attributions may give rise to a kind of "poverty-assistance paradox", i.e. the poorer the welfare recipient, the less the transfer compassionate citizens would entitle to him. We also show that the level of poverty has an impact on the influence of prior stereotypes on the degree of compensation. We demonstrate that

Table 2.1: **Binomial LOGIT-regression on welfare attitudes**

	Full sample	Sociologists excluded
Treatment: distress	0.284 (0.379)	0.620 (0.458)
Treatment: Roma	0.047 (0.375)	– 0.033 (0.451)
Roma x Distress	– 0.909 (0.451)*	– 1.303 (0.669)**
Attitude: Racist	– 0.531 (0.272)*	– 0.473 (0.326)
Female	0.461 (0.329)	0.669 (0.399)
Father has a degree	0.345 (0.275)	0.307 (0.337)
Constant	– 0.722 (0.728)	– 1.147 (0.891)
–2 LL	322.883	222.287
Nagelkerke pseudo-R^2	7%	11%

the impact of negative stereotypes on welfare preferences diminishes as the income of the target population converges to middle class standards. Based on a video-vignette experiment we investigate the influence of beneficiaries' characteristics on the preferences of the compassionate citizen. Our results support the proposition on poverty-stereotype interaction. We show that the ethnic context plays a minor role in shaping attitudes when hints on moderate poverty are presented. In contrast, when facing reports on a very distressed community, subjects react strongly to ethnic cues.

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2.6 Appendix

2.6.1 Proofs

Optimal compensation level c^*

We assume that

$$w = e + f$$

where e is a discrete variable $e = 0$ or h $(h > 0)$ and its distribution is: $\Pr(e = 0) = 1 - p$ and $\Pr(e = h) = p$, and f is a continuous variable and its conditional distribution is: $f \mid e = 0 \backsim N(0, 1)$, $f \mid e = h \backsim N(0, r)$ where $1 < r$.

$$c^* = (h - x) \Pr(e = h \mid w = x)$$

$$= (h - x) \frac{\Pr(e = h) \Pr(w = x \mid e = h)}{\Pr(w = x)}$$

$$= (h - x) \frac{\Pr(e = h) \Pr(e + f = x \mid e = h)}{\Pr(e + f = x)}$$

$$= (h - x) \frac{\Pr(e = h) \Pr(e + f = x \mid e = h)}{\Pr(e = h) \Pr(e + f = x \mid e = h) + \Pr(e = 0) \Pr(e + f = x \mid e = 0)}$$

$$= (h - x) \frac{\Pr(e = h) \Pr(h + f_r = x \mid e = h)}{\Pr(e = h) \Pr(h + f_r = x \mid e = h) + \Pr(e = 0) \Pr(f_1 = x \mid e = 0)}$$

Because of continuity of f and h being a constant we get:

$$c^* = (h - x) \frac{\Pr(e = h) \Pr(h + f_r = x)}{\Pr(e = h) \Pr(h + f_r = x) + \Pr(e = 0) \Pr(f_1 = x)}$$

$$= \lim_{\varepsilon \to 0} (h - x) \frac{\Pr(e = h) \Pr(f_r \in [x - h, x - h + \varepsilon])}{\Pr(e = h) \Pr(f_r \in [x - h, x - h + \varepsilon]) + \Pr(e = 0) \Pr(f_1 \in [x, x + \varepsilon])}$$

$$= \lim_{\varepsilon \to 0}(h-x)\frac{p\left[F_r(x-h+\varepsilon)-F_r(x-h)\right]}{p\left[F_r(x-h+\varepsilon)-F_r(x-h)\right]+(1-p)\left[F_1(x+\varepsilon)-F_1(x)\right]}$$

We divide both the numerator and the denominator by ε and get:

$$c^* = (h-x)\frac{p\Phi_r(x-h)}{p\Phi_r(x-h)+(1-p)\Phi_1(x)}$$

Note that

$$\Phi_r(x-h) = \frac{1}{\sqrt{2\pi r^2}}e^{-\frac{(x-h)^2}{2r^2}}$$

and

$$\Phi_1(x) = \frac{1}{\sqrt{2\pi}}e^{-\frac{x^2}{2}}$$

where e stands for the base of natural logarithm.

Marginal change of c^* implied by changing x

$$\frac{\partial c^*}{\partial x} = \frac{\partial\left((h-x)\frac{p\Phi_r(x-h)}{p\Phi_r(x-h)+(1-p)\Phi_1(x)}\right)}{\partial x}$$

$$\begin{aligned}\frac{\partial c^*}{\partial x} &= -\frac{p\Phi_r(x-h)}{p\Phi_r(x-h)+(1-p)\Phi_1(x)} \\ &+(h-x)\frac{p\Phi_r'(x-h)\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\right]}{\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\right]^2} \\ &-(h-x)\frac{p\Phi_r(x-h)\left[p\Phi_r'(x-h)+(1-p)\Phi_1'(x)\right]}{\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\right]^2}\end{aligned}$$

We know that

$$\Phi_r'(x-h) = \frac{1}{\sqrt{2\pi r^2}}e^{-\frac{(x-h)^2}{2r^2}}(-\frac{x-h}{r^2}) = \Phi_r(x-h)(-\frac{x-h}{r^2})$$

and

$$\Phi_1^{'}(x) = \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}}(-x) = \Phi_1(x)(-x)$$

Hence,

$$\begin{aligned}
\frac{\partial c^*}{\partial x} &= \frac{-p\Phi_r(x-h)}{p\Phi_r(x-h)+(1-p)\Phi_1(x)} \\
&\quad +(h-x)\frac{p\Phi_r(x-h)(-\frac{x-h}{r^2})\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\right]}{\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\right]^2} \\
&\quad -(h-x)\frac{p\Phi_r(x-h)\left[p\Phi_r(x-h)(-\frac{x-h}{r^2})+(1-p)\Phi_1(x)(-x)\right]}{\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\right]^2}
\end{aligned}$$

$$\begin{aligned}
&= \frac{-p\Phi_r(x-h)\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\right]}{\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\right]^2} \\
&\quad +\frac{(h-x)p\Phi_r(x-h)(-\frac{x-h}{r^2})\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\right]}{\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\right]^2} \\
&\quad -\frac{(h-x)p\Phi_r(x-h)(-\frac{x-h}{r^2})\left[p\Phi_r(x-h)(-\frac{x-h}{r^2})+(1-p)\Phi_1(x)(-x)\right]}{\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\right]^2}
\end{aligned}$$

$$\begin{aligned}
&= -\frac{p\Phi_r(x-h)\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\right]}{\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\right]^2} \\
&\quad -\frac{p\Phi_r(x-h)\left((x-h)(-\frac{x-h}{r^2})\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\right]\right)}{\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\right]^2} \\
&\quad -\frac{(x-h)(-\frac{x-h}{r^2})\left[p\Phi_r(x-h)(-\frac{x-h}{r^2})+(1-p)\Phi_1(x)(-x)\right]}{\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\right]^2}
\end{aligned}$$

$$\begin{aligned}
&= -\frac{p\Phi_r(x-h)\left(p\Phi_r(x-h)\left[1+(x-h)(-\frac{x-h}{r^2}+\frac{x-h}{r^2})\right]\right)}{\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\right]^2} \\
&\quad -\frac{p\Phi_r(x-h)(1-p)\Phi_1(x)\left[1+(x-h)(-\frac{x-h}{r^2})+x\right]}{\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\right]^2}
\end{aligned}$$

$$= -\frac{p\Phi_r(x-h)\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\frac{r^2-(x-h)^2+xr^2}{r^2}\right]}{\left[p\Phi_r(x-h)+(1-p)\Phi_1(x)\right]^2}$$

$$= -\frac{p\Phi_r(x-h)\left[r^2 p\Phi_r(x-h) + (1-p)\Phi_1(x)(r^2 - (x-h)^2 + xr^2)\right]}{r^2\left[p\Phi_r(x-h) + (1-p)\Phi_1(x)\right]^2}$$

Finally, using the substitutions $a = -\frac{(h-x)^2}{2r^2}$ and $b = -\frac{x^2}{2}$ we get:

$$\frac{\partial c^*}{\partial x} = \frac{-pe^a}{r^2\left[pe^a + (1-p)e^b\right]^2}\left[r^2 pe^a + (1-p)e^b(r^2 - (x-h)^2 + xr^2)\right]$$

where e stands for the base of natural logarithm.

Proof of Proposition 1

Based on (2.3) one can express the conditions for the poverty assistance paradox as follows: $\frac{\partial c_i^*}{\partial x} > 0$ iff

$$uv > 0$$

where

$$u = -\frac{pe^a}{r^2\left[pe^a + (1-p)e^b\right]^2}$$

$$v = r^2 pe^a + (1-p)e^b(r^2 - (x-h)^2 + xr^2)$$

One should see immediately that $u < 0$ for any $0 < p < 1$ and $1 < r$, and for any values of x and h. Hence, iff $v < 0$, then the poverty-assistance paradox exists. That is, iff

$$r^2 pe^a + (1-p)e^b(r^2 - (x-h)^2 + xr^2) < 0 \tag{2.4}$$

then Proposition 1 holds. Rearranging (2.4), we get

$$r^2 pe^a + (1-p)e^b r^2(1+x) < (1-p)e^b(x-h)^2$$

$$\frac{p}{1-p}e^{a-b} + (1+x) < \frac{(x-h)^2}{r^2} \tag{2.5}$$

Recall, that $a = -\frac{(h-x)^2}{2r^2}$ and $b = -\frac{x^2}{2}$. Hence, one can always find a low enough value of $r > 1$ for which $a < b$ holds, that is $e^{a-b} < 1$. In addition, if p is close enough to 0, the first term in (2.5) becomes an arbitrarily small number. In this case, we only need

$$1 + x < \frac{(x-h)^2}{r^2} \tag{2.6}$$

which will always be true if $x < -1$. But there exists a low enough value of $r > 1$ and $-1 < x < 1$ for which (2.6) also holds if

$$0 < h < x - r\sqrt{1+x}$$

$$r\sqrt{1+x} < x$$

That is, one can always find a small enough x relative to h and low enough values of $p > 0$ and $r > 1$, for which (2.5) holds and thus, the poverty assistance paradox emerges. q.e.d.

Proof of Corollary 1

To see this, let us rearrange (2.5) in the following way:

$$\frac{p}{1-p} < \frac{(x-h)^2}{r^2} - 1 - x \tag{2.7}$$

By continuity, it is self-evident, that for any $0 < p < 1$, one can find a large negative number $\underline{w}$, and a value $\underline{r}$ close enough to 1, for which (2.7) and thus, (2.5) are satisfied, so Corollary 1 holds. q.e.d.

Marginal change of c^* implied by changing x and p

First, let us present $\frac{\partial c_i^*}{\partial p_i}$ as follows:

$$\frac{\partial c_i^*}{\partial p} = re^{a+b}\frac{h-x}{(pe^a + (1-p)re^b)^2} \tag{2.8}$$

Where again $a = -\frac{(h-x)^2}{2r^2}$ and $b = -\frac{x^2}{2}$. One can easily see that compensation is increasing in p if the level of income is below h ($x < h$).

However, the question remains how the size of the impact of p on c_i^* depends on x.

$$\frac{\partial c^*}{\partial x \partial p} = \frac{\partial \left(\frac{-pe^a}{r^2\left[pe^a+(1-p)e^b\right]^2} \left[r^2 pe^a + (1-p)e^b(r^2-(x-h)^2+xr^2) \right] \right)}{\partial p}$$

The first derivatives of the two parts of the expression are as follows:

$$\begin{aligned} \frac{\partial \left(\frac{-pe^a}{r^2\left[pe^a+(1-p)e^b\right]^2} \right)}{\partial p} &= \frac{-e^a r^2 \left[pe^a+(1-p)e^b\right]^2 + pe^a 2r^2 \left[pe^a+(1-p)e^b\right]\left(e^a-e^b\right)}{r^4\left[pe^a+(1-p)e^b\right]^4} \\ &= -\frac{e^a}{r^2\left(pe^a+(1-p)e^b\right)^3}\left(-pe^a+(1+p)e^b\right) \end{aligned}$$

$$\frac{\partial \left(\left[r^2 pe^a + (1-p)e^b(r^2-(x-h)^2+xr^2) \right] \right)}{\partial p} = e^a r^2 - e^b \left(r^2(1+x) - (h-x)^2 \right)$$

$$\begin{aligned} \frac{\partial c^*}{\partial x \partial p} &= -\frac{e^a}{r^2\left(pe^a+(1-p)e^b\right)^3}\left(-pe^a+(1+p)e^b\right)\left[r^2 pe^a + (1-p)e^b(r^2-(x-h)^2+xr^2) \right] \\ &\quad + \left(e^a r^2 - e^b \left[r^2(1+x) - (h-x)^2 \right] \right) \frac{-pe^a}{r^2\left[pe^a+(1-p)e^b\right]^2} \end{aligned}$$

Proof of Proposition 2

As e^a, e^b, p are all positive for $\frac{\partial c^*}{\partial x \partial p} < 0$ we need

$$\left(-pe^a+(1+p)e^b\right)\left[r^2 pe^a + (1-p)e^b(r^2-(x-h)^2+xr^2) \right] > 0 \qquad (2.9)$$

and

$$e^a r^2 - e^b \left[r^2(1+x) - (h-x)^2 \right] > 0 \qquad (2.10)$$

For (2.9) to be positive we need:

$$r^2pe^a + (1-p)e^b(r^2 - (x-h)^2 + xr^2) > 0$$

$$r^2pe^a + (1-p)e^b r^2(1+x) > (1-p)e^b(x-h)^2$$

$$\frac{p}{1-p}e^{a-b} + (1+x) > \frac{(x-h)^2}{r^2} \tag{2.11}$$

Note that (2.11) is the reverse of (2.5). Hence, one can always find a high enough value of $r > 1$ for which $a > b$ holds, that is $e^{a-b} > 1$. In addition, if p is close enough to 1, the first term in (2.11) can become an increasinly large number. Besides (2.11), we also need the first term of (2.9) to be positive:

$$-pe^a + (1+p)e^b > 0$$

$$(1+p)e^b > pe^a$$

$$\frac{p}{1+p} < e^{b-a} \tag{2.12}$$

Similarly to (2.11), for (2.12) to hold we need again p values close enough to 1 and high enough values of $r > 1$.

For (2.10) to be positive we need:

$$e^a r^2 > e^b \left[r^2(1+x) - (h-x)^2\right]$$

$$0 > e^b \left[r^2(1+x) - (h-x)^2\right]$$

$$1 + x > \frac{(x-h)^2}{r^2} \tag{2.13}$$

Note that (2.13) is the reverse of (2.6).

That is, one can always find an x close enough to h and high enough values of $p > 0$ and $r > 1$, for which (2.9) and (2.10) holds and thus, the positive stereotype interaction emerges. q.e.d.

2.6.2 Vignette transcripts

Questionnaire item on welfare transfers (dependent variable)

The families of Győző/János and the long-term unemployed in similar situation are entitled to a regular welfare transfer worth of HUF 60000 (in addition to HUF 26,000 of child allowance in case of a two parents-two children family) in case they cooperate with the unemployment agency and the local government.

What do you think about such transfers? What should the government do? Please, mark the answer closest to your opinion!

1) Increase the sum of those transfers significantly in any case!

2) Keep them unchanged in the current economic situation; however, increase them significantly after the improvement of the economic situation!

3) Keep them unchanged and in the future adjust it only to the inflation rate!

4) Decrease them in the current economic situation; however, reestablish the original level after the improvement of the economic situation!

5) Decrease the sum of those transfers in any case!

6) Abolish those types of welfare transfers!

Transcripts of the narrations for the intros of the video reports

Neutral – moderate poverty frame We are in a beautifully located, in many respects typical village in Hungary. Before the political transition in 1989, the majority of inhabitants used to have a stable job. However, during the past 2 decades more and more people lost their jobs for shorter or longer periods, especially those with low educational level. A lot of them are trying to finance their living by applying for temporary occupation. Some get an occupation by the local municipality, but there are others who do not receive any ongoing income. People in need try to use the job opportunities that occur from time to time in the neighboring bigger localities, however these occupations are usually illegal and only temporary. We visited János, living in the poverty-stricken area of the village, in order to talk about his family's living conditions and opportunities.

Roma – moderate poverty frame We are in a beautifully located, in many respects typical Hungarian village with inhabitants of different ethnic groups. Before the political transition in 1989, the majority of inhabitants used to have a stable job. However, during the past 2 decades more and more people lost their jobs for shorter or longer periods, especially those with low educational level. *Most of them are of Roma origin.* Today, *most of the Romas* are trying to finance their living by applying for temporary occupation. Some get an occupation by the local municipality, but there are families who do not receive any ongoing income. People in need try to use the job opportunities that occur from time to time in the neighboring bigger localities, however these occupations are usually illegal and only temporary. We visited *Győző, living in the Roma area of the village*, in order to talk about his family's living conditions and opportunities.

Neutral – distress frame A beautifully located small village among the hills, somewhere in Hungary. It lies far away from bigger cities. The winding road driving to the village is covered only with traces of blacktop. Poverty-stricken houses along the way give an impression of despair to passers-by. There is only a limited bus service in the village. Getting to the city is complicated, and the monthly pass is anyway not affordable for the people living here. The verge of the village seems to be uncultivated. One can hardly see any cows or horses in the village. The streets are silent. The grandiose houses in the village center are characterized the past ambition of inhabitants. The tumbledown belfry of the church overtops its surrounding, suggesting the long-ago prosperity. Almost all people of working age used to work in this village. But who would remember this nowadays? People in need try to use the job opportunities that occur from time to time in the neighboring bigger localities, however these occupations are usually illegal and only temporary. Illegal work is insecure and dangerous. Those who take it, risk their everyday living and on top they may also precipitate their families' impoverishment. Poverty as a result of unemployment caused by lack of close-by occupation and increasing hopelessness determine today the lives of uneducated indigent village population. How can one live under these circumstances? How could one survive depression? We visited János, living in the poverty-stricken area of the village, to talk about his living conditions and opportunities.

Roma – distress frame A beautifully located small village among the hills, somewhere in Hungary. It lies far away from bigger cities. The winding road driving to the village is covered only with traces of blacktop. *Roma people's* poverty-stricken houses along the way give an impression of despair to passers-by. There is only a limited bus service in the village. Getting to the city is complicated, and the monthly pass is anyway not affordable for the people living here. The verge of the village seems to be uncultivated. One can hardly see any cows or horses in the village. *People hang out on the streets.* The grandiose houses in the village center are characterized by the past ambition of inhabitants. The tumbledown belfry of the church overtops its surrounding, suggesting the long-ago prosperity. Almost all people of working age, *both Hungarians and Romas* used to work in this village. But who would remember this nowadays? *Roma people* try to use the job opportunities that occur from time to time in the neighboring bigger localities, however these occupations are usually illegal and only temporary. Illegal work is insecure and dangerous. Those who take it, risk their everyday living and on top they may also precipitate their families' impoverishment. Poverty as a result of unemployment caused by lack of close-by occupation and increasing hopelessness determine today the lives of uneducated *Roma population.* How can one live under these circumstances? How could one survive depression? We visited *Győző, living in a muddy street in the Roma area of the village*, to talk about his living conditions and opportunities.

Transcript of the Interview

Well, I'm married, father of 2 kids. Normally, the father bears the brunt of family living, he has to take care of having a job. Those who are blessed with 2 arms, 2 legs and some strength and energy, will always find some job. And nowadays, working is no shame any more - it's a privilege. Whatever job you get, you have to take it. My brother, for instance, has just become a dustman. It's no shame - it's a job. In our family, I go out charring, which is allowed up to 20-25 days a month. In Hungary, in the middle of Europe, people are forced to work in the black economy, because one can only earn 5000 to 6000 forints a day with hard, physical work and there is no way to pay taxes after that. We can't start our own business either, as we should pay so much to the state that it would not be worth the

work any more. So we have no other choice than to work black. We go to constructions, work hard, 10 hours a day, and at the end of the week, we are paid - if we are paid. And we disburse it for our overhead expenses and for food. Construction works, however, appear only in the Summer, even than with intermissions, but in the Winter the industry pauses completely. Then we can't help tighten the purse-strings. Whatever opportunities we get, we use it. When the forestry allows logging, we go cutting trees under the supervision of a forester. We cut only signed trees, pay the fees to the authorities after each cubic meter, and then we carry it home for our own use, or we sell it for others who need it. So we have some bits of income in winter as well, but it is negligible.

Q: Can you afford your overhead expenses in winter? Or do you have to borrow money?

A: Well, we barely make it - at the beginning of Winter we somehow pay them from our savings, however as of January, towards the end of Winter, to be honest, we have to borrow.

Q: Who lends you the money?

A: Usually my mother-in-law helps us, as she is retired and had more time than us to spare money during all the years she used to work.

Q: And when can you pay it back to her?

A: Unfortunately, only in the Summer. Until then, we are in favor with her.

Q: Do you have kids?

A: We have a daughter, she is 18, and a 12-year-old son.

Q: Do they attend school?

A: Of course, they are obliged to attend school up to the age of 14. Our son is in the 5th class, and our daughter in the 9th or 10th? I'm not sure... 10th. 10th. I find education important, because I have completed only elementary school of 8 years, and I didn't have the opportunity to carry on. Our class teacher visited my parents to convince them about going further, as I was a brave pupil, I can tell, I could have become someone, but I didn't get the chance, I had to work. I earned 3600 forints a month at the age of 14, and I had to give it to my parents. This become clear to me only recently and I promised to myself to do it otherwise with my kids. They can study as long as they wish to. I will somehow secure the background. I will work for them to be able to give proper education to them. I don't

want them to go nuts at the age if 40 or 50. If you don't get forward with the new era, you will drop out. I don't want my family to drop out. I prefer closing up.

Q: Is there anything you desire but cannot afford?

A: To be honest, if you don't desire, you are not human. We can't afford buying special stuff like branded cloths. We live a modest life here, in Hungary. We are situated in the middle of Europe, in a truly wonderful country, but people here are apathetic. Hungarians gave up their dreams, unfortunately. It is not supposed to be this way. And I gave it up as well, I'm tired to stand up, though in my youth, I also dreamed about sport cars and having everything I need, a big house and stuff, but then I realized, that you can hardly make up your living with hard work, just like hundreds of thousands of other people.

Chapter 3

Immigration: A Remedy or Curse for Native Welfare Recipients?

3.1 Introduction

Declining fertility, increased longevity and the fact that baby-boom cohorts reach older ages lead to an ever-increasing share of older cohorts in the total population. At the global level, the share of those over 60 has risen from only 8% of world population (200 million people) in 1950 to around 11% (760 million) in 2011, with the dramatic increase still ahead as those over 60 are expected to reach 22% (2 billion) by 2050.[1] As a result, aging populations impose an increasingly heavy burden on contributors.

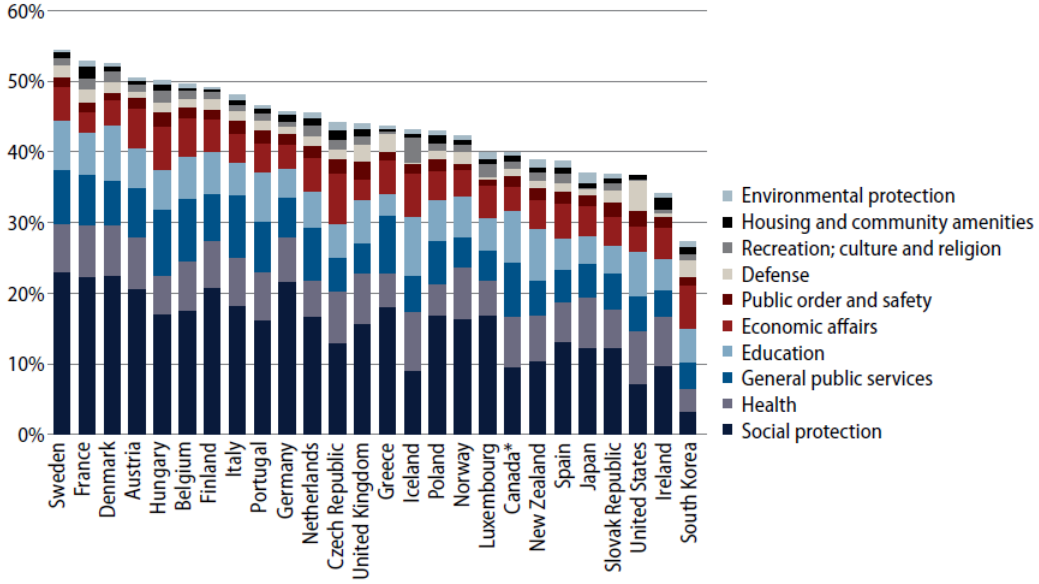
Although experiences differ across countries, public expenditure as a percent of GDP has increased from 15.6% in 1980 to an estimated 22% in 2012 on average across the OECD. The two key drivers of increases in social spending have been transfers to the growing retired population and health expenditure. On average across OECD countries, public spending on old age increased from 5.1% of GDP in 1980 to 6.4% in 2007.[2] Moreover, population projections suggest further future spending increases in this area.[3]

[1] See e.g. Beard et al. (2012).

[2] Similarly, public expenditure on health increased from 4.5% of GDP in 1980 to 5.8% in 2007. Data on public social spending from Adema et al. (2011).

[3] See e.g. Adema and Ladaique (2009).

Figure 3.1: **Government spending as a % of GDP** *(average 2004-2007)*



Source: Dewan et al. (2009)

There is an extensive and still growing literature that tries to answer the question why old-age expenditures rose so rapidly in all countries in the postwar period and with so little political opposition. The puzzle stems from the fact that the increase in government spending on the elderly cannot be explained by demographics alone.[4] The part of the literature, this paper contributes to, predicts that higher income inequality among voters leads to increased government redistribution across generations.[5] The simple model of redistribution of Persson and Tabellini (2002) extended with age and income heterogeneity combines the features of the approaches of Browning (1975), Broadway and Wildasin (1989a,b), Cukierman and Meltzer (1989) and Tabellini (2000). We extend their original model with different pension system types and also model the arrival of immigrants within this framework.

[4]See e.g. Mulligan and Sala-i-Martin (1999).

[5]A seemingly notable exception that comes to one's mind immediately is the US. Persson and Tabellini (2011) argue that lower spending in the US could be attributed to lower voter participation among poorer voters and to more extreme poverty, which raises the relative position of the median voter.

In section 2, we present the simple model of redistribution of Persson and Tabellini (2002) and extend it by introducing transfers to the working generation, pension system types and immigration. In section 3, based on the special Eurobarometer 56.1 survey, we test the hypothesis whether people who think that the poor does not deserve social assistance, would be ready to redistribute funds towards pensioners. Moreover, whether these people would redistribute more towards pensioners in those countries that are characterized by a Bismarckian pension system or a flat-rated one. Section 4 concludes.

3.2 Competition for welfare transfers

We introduce a simple model for redistribution following Persson and Tabellini (2002). We take their simplified version of the median voter model originally proposed by Romer (1975) and Roberts (1977) as a starting point. Then, we extend the dimensions of the model by adding age heterogeneity, different pension system types and immigration. In all cases, we investigate in detail how the preferred tax rate of the median vote changes.

3.2.1 A simple model of redistribution

Consider a static economy producing a single commodity. Individuals work and consume, and differ only in one dimension, their taxable income. As voters they evaluate a simple redistributive program that pays a lump sum to each individual, financed by a proportional income tax.

The preferences of the i^{th} individual are:

$$w^i = c^i + V(x^i) \tag{3.1}$$

where c and x denote consumption and leisure respectively, and $V(\cdot)$ is a well-behaved concave utility function. The private budget constraint is:

$$c^i \leq (1-\tau)l^i + f \tag{3.2}$$

where τ is the income tax rate, l^i individual labor supply and a f lump sum transfer. The real wage is unity. Quasi-linear preferences imply that all income effects are absorbed by consumption.

To model income differences, we assume that individual productivity differs and is equal to having more 'effective time' available. Thus, individuals are subject to a 'time constraint' as well:

$$1 + e^i \geq x^i + l^i \tag{3.3}$$

where e^i stands for individual productivity. We assume that e^i is distributed in the population according to a known distribution with mean e, median $e^m < e$, and a cumulative distribution function $F(\cdot)$. Empirical studies suggest that the distribution of personal income is typically positively skewed. In this simple model, individual labor supply becomes:

$$l^i = L(\tau) + (e^i - e) \tag{3.4}$$

where $L(\tau) \equiv 1 + e - V_x^{-1}(1 - \tau)$ is decreasing in τ by concavity of $V(\cdot)$. Thus, a higher tax rate distorts the labor-leisure choice and induces consumer to work less.

Throughout the paper, average variables will be written without superscript. E.g. l denotes average labor supply. The government budget constraint can therefore be written as:

$$f \leq \tau l \equiv \tau L(\tau) \tag{3.5}$$

Two political candidates compete for office and they maximize the probability of winning. Whoever wins the election enacts his pre-announced policy.

Define the indirect utility function of individual i, over τ, by using equations (3.2), (3.3) and (3.5) as:

$$W^i(\tau) \equiv \widehat{c}^i + V(\widehat{x}^i) \equiv (1 - \tau)\widehat{l}^i + \tau L(\tau) + V(1 + e^i - \widehat{l}^i) \tag{3.6}$$

where hat variables refer to the private equilibrium choices.

τ^i is the tax rate preferred by individual i and is implicitly defined by the first-order condition. By differentiating the right-hand side of equation (3.6), we obtain:

$$W^i_\tau(\tau) = -\widehat{l}^i + L(\tau) + \tau L_\tau(\tau) = (e^i - e) + \tau L_\tau(\tau) \tag{3.7}$$

The first term of equation (3.7) is the marginal benefit of a higher tax rate that is positive for an individual below the average income and negative for those above the average. The second term is the marginal cost of higher distorting taxes, this term is always negative.

Putting $W^i_\tau(\tau) = 0$, we get the preferred tax rate:

$$\tau^i = \frac{e^i - e}{L_\tau(\tau^i)} \tag{3.8}$$

Hence, a poor voter ($e^i < e$) will prefer a positive tax rate, while a rich voter ($e^i > e$) an income subsidy. Moreover, there will be only one equilibrium, i.e. the policy preferred by the median voter:

$$\tau^m = \frac{e^m - e}{L_\tau(\tau^i)} \tag{3.9}$$

3.2.2 Introducing age heterogeneity

Consider an overlapping generations economy, where each generation lives for two periods[6] and population growth is constant. Individuals work in the first period of life and retire in the second. Labour income is heterogeneous reflecting permanent productivity differences. A payroll tax is levied on the working generation to finance pensions. Pension benefit is the same lump sum payment for every old individual. In this way, the pension system redistributes both across and within generations.

When young, individual i maximizes the following utility function:

$$w^i = U(c^{iY}) + \frac{U(c^{iO})}{1+\delta} + v(x^i) \tag{3.10}$$

where δ denotes the the subjective discount rate, upper-case superscripts denote the period of life. Consumption when young is given by $c = U_c^{-1}(1)$. Linearity of consumption when old implies that all income effects are absorbed by c^{iO}. The intertemporal budget constraint of the young becomes:

$$c^{iY} + \frac{c^{iO}}{1+\rho} = l^i(1-\tau) + \frac{f}{1+\rho} \tag{3.11}$$

where ρ denotes the world real interest rate and f the old-age pension.

[6]Here, we simplified Persson and Tabellini's three period overlapping generation model for pensions.

We assume that $\delta = \rho$. Individuals face the same time constraint as before (see equation (3.3)).

The government budget constraint is:

$$f = \tau l(1+n) = \tau L(\tau)(1+n) \tag{3.12}$$

where n is the exogenous rate of population growth. Equation (3.12) states that contributions paid by the working generation finance the pensions of the currently old.

Individuals are assumed to vote over τ (or equivalently, over f). The old want the revenue maximizing tax rate, while the young base their policy preference both on income and age. A marginal change in τ affects a young individual's welfare:

$$W_\tau^{iY}(\tau) = -\widehat{l}^{iY} + \frac{1}{1+\rho}\frac{\partial f}{\partial \tau} = -(L(\tau) + (e^i - e)) + \frac{(1+n)}{1+\rho}(L(\tau) + \tau L_\tau(\tau)) \tag{3.13}$$

Hence, increasing τ results in benefits when old while it means a cost when young. The benefit is the same for all young voters but the cost of a higher tax is higher for the richer among the young. For the political equilibrium we look for the median voter result. Putting equation (3.13) to zero and substituting $e^i = e^{*m}$ gives:

$$e^{*m1} = e + \frac{(1+n)}{1+\rho}(L(\tau^{*m1}) + \tau^{*m1}L_\tau(\tau^{*m1})) - L(\tau^{*m1}) \tag{3.14}$$

As e^i is distributed in the population according to a known distribution, we can determine the equilibrium tax rate:

$$1 + (1+n)F(e^{*m1}) = \frac{1 + (1+n)}{2} \tag{3.15}$$

$$(1+n)F\left(e + \frac{(1+n)}{1+\rho}(L(\tau^{*m1}) + \tau^{*m1}L_\tau(\tau^{*m1})) - L(\tau^{*m1})\right) = \frac{n}{2} \tag{3.16}$$

Hence, the tax rate τ^{*m} is a decreasing function of ρ, while the effect of n depends on the functional form. The shape of the income distribution also matters. In general, more income inequality pushes voters' preferences towards more intragenerational redistribution and higher tax rates.

3.2.3 Introducing transfer to the working generation

Besides the old receiving a flat pension benefit, the young might receive lump sum transfer as well, mimicking real life public expenditure for families, education, housing as well as poverty assistance. Although pension and health expenditures constitute the bulk of public expenditures towards households, summing up transfers to the working population gives a significant share of total expenditures as well (see also Figure 3.1). By the introduction of a transfer to the working population, we also introduce an intergenerational conflict.[7]

Assuming transfer to a γ fraction of the young modifies the intertemporal budget constraint of equation (3.11):

$$c^{iY} + \frac{c^{iO}}{1+\rho} = l^i(1-\tau) + \gamma f^Y + \frac{f^o}{1+\rho} \tag{3.17}$$

In addition, the government budget constraint will change:

$$f^o + \gamma(1+n)f^Y = \tau l(1+n) = \tau L(\tau)(1+n) \tag{3.18}$$

As a result the young would also profit from a marginal increase of τ modifying the income of the median voter:

$$e^{*m2} = e + \left(\frac{1}{\gamma} + \frac{1+n}{1+\rho}\right)\left(L(\tau^{*m2}) + \tau^{*m2}L_\tau(\tau^{*m2})\right) - L(\tau^{*m2}) \tag{3.19}$$

$$(1+n)F\left(e + \left(\frac{1}{\gamma} + \frac{1+n}{1+\rho}\right)\left(L(\tau^{*m2}) + \tau^{*m2}L_\tau(\tau^{*m2})\right) - L(\tau^{*m2})\right) = \frac{n}{2} \tag{3.20}$$

Relative to the baseline case of equation (3.16) we will have $e^{*m1} < e^{*m2}$ and consequently a lower τ^{*m2} and less redistribution towards the old.

[7] See for example Krieger and Ruhose (2011) for empirical evidence. They find that intergenerational conflict might be an age-dependent phenomenon.

3.2.4 Introducing pension system types

So far we assumed that each old individual receives the same flat pension benefit. In this section, we introduce earnings-related pension benefits.[8]

The government budget constraint will change in the following way:

$$\beta l + \gamma(1+n)f^Y = \tau l(1+n) = \tau L(\tau)(1+n) \tag{3.21}$$

As a result the marginal increase of τ will have a different impact on the preferences of the median voter:

$$e^{*m3} = e + \left(\frac{1}{\gamma} + \frac{1+n}{1+\rho}\right)\left(L(\tau^{*m3}) + \tau^{*m3}L_\tau(\tau^{*m3})\right) - \left(1 + \frac{\beta}{1+\rho}\right)L(\tau^{*m3}) \tag{3.22}$$

$$(1+n)F\left(e + \left(\frac{1}{\gamma} + \frac{1+n}{1+\rho}\right)\left(L(\tau^{*m3}) + \tau^{*m3}L_\tau(\tau^{*m3})\right) - \left(1 + \frac{\beta}{1+\rho}\right)L(\tau^{*m3})\right) = \frac{n}{2} \tag{3.23}$$

Relative to the baseline case of equation (3.16) we have now two opposing effects. First, as we saw in the last section, the transfer of the young reduces the redistribution towards the old. On the other hand, earnings-related pension benefits 'maintain' the income distribution of the young through higher tax rates. The overall effect depends on the parameter values and the functional form.

However, relative to the previous case of equation (3.20) we will have $e^{*m3} < e^{*m2}$ and consequently a higher τ^{*m3} and more redistribution towards the old.

3.2.5 Introducing immigrants

In this framework, the arrival of immigrants would affect the preferred tax rate through three channels. First, both the distribution of income ($G(\cdot)$ instead of $F(\cdot)$) and the average productivity (e) of the individuals will change. In addition, the share among the young who receive public transfers (γ) might change. For simplicity, we assume that immigrants have the same constant population growth as natives.

[8] For a detailed description of the two main pension system types, see e.g. Kolmar (2007).

The government budget constraint would remain the same as equation (3.18):

$$f^o + \gamma(1+n)f^Y = \tau l(1+n) = \tau L(\tau)(1+n) \tag{3.24}$$

As a result the marginal increase of τ will have a different impact on the preferences of the median voter:

$$e^{*m4} = e^M + \left(\frac{1}{\gamma} + \frac{1+n}{1+\rho}\right)\left(L(\tau^{*m4}) + \tau^{*m4}L_\tau(\tau^{*m4})\right) - L(\tau^{*m4}) \tag{3.25}$$

$$(1+n)G\left(e^M + \left(\frac{1}{\gamma} + \frac{1+n}{1+\rho}\right)\left(L(\tau^{*m4}) + \tau^{*m4}L_\tau(\tau^{*m4})\right) - L(\tau^{*m4})\right) = \frac{n}{2} \tag{3.26}$$

Assuming low-skilled immigration would mean that both the average and the median of the income distribution decreases compared to our baseline scenario. Choosing a realistic definition of $G(\cdot)$ would result in a median decreasing more than the average, thereby increasing inequality within the population. Moreover, the increase of γ would allow to increase the median less relative to the baseline scenario. To sum up, we will have a $e^{*m4} < e^{*m2}$ and consequently a higher τ^{*m4}, i.e. more redistribution towards the old.

3.3 Empirical evidence

In what follows, we investigate the result that people would redistribute more towards the old in an earnings-related pension system compared to a flat-rated one when they have to take into account transfers to the working population as well. The starting point of our hypothesis about the underlying mechanism is that earnings-related welfare systems are typically features of societies where citizens strongly believe that effort rather than luck influences economic success. Consequently, people in these countries generally think that the poor does not 'deserve' social assistance. [9]

[9]The concept of deservingness has attracted special attention since it could encompass a wide range of empirical findings. See e.g. Van Oorschot (2000), for a literature overview see e.g. Horvth et al. (2012).

We test the hypothesis whether people who think that the poor does not deserve social assistance, would be ready to redistribute funds towards pensioners. Moreover, whether these people would redistribute more towards pensioners in those countries that are characterized by a Bismarckian pension system than those with flat-rate pension systems.

The special Eurobarometer 56.1 survey series is a programme of cross-national and cross-temporal comparative social research conducted on behalf of the European Commission and is designed to monitor social and political attitudes. Since 1990 separate supplementary surveys on special issues have also been conducted regularly. The special Eurobarometer 56.1 covered two issues at the same time: EU citizens' opinions and attitudes about pension issues and trends in social precarity, i.e. factors that are associated with higher risks of social exclusion.[10] This questionnaire makes it possible to connect European citizens' poverty attributes on the one hand and opinions on the principles of pension systems (and the underlying value orientations) on the other.

We created a dependent variable that summarizes respondents' answers whether they would assist the poor or the elderly among the needy.[11] Our rank-ordered answer categories range from low to high. The smallest value represents those who strongly agree with giving financial assistance to the poor even if this means a higher financial burden for them but at the same time they strongly reject any allocation of funds towards pensioners. On the other end, we have those who would strongly support measures that target pensioners even by tax or contribution rate increases but strongly reject financing the poor. A large number of people are in-between: those who are in favor of paternalism in any domain but also those who are against increased state intervention.

A large body of literature recognizes that linear regression is inappropriate when the dependent variable is categorical, especially if it is qualitative. The appropriate theoretical model in such a situation is the ordered probit model.[12] Besides our key explanatory variables capturing the deservingness principle and the type of the pension system we have a number of control variables (gender, age, education, income) as well. We run our ordered

[10] Fieldwork was carried out in autumn 2001 and nationally representative samples were interviewed in all European Union (European Community) member countries.

[11] For a detailed description of the dependent and explanatory variables see the appendix.

[12] See for example, Greene (2000).

probit model on two different samples. The first includes the full sample of the Eurobarometer survey, while the second only covers a selected number of countries. In the latter case, we include only the North Western countries of Europe. While cultural differences may justify the exemption of the latin part of Europe, the main reason for leaving out Germany and Austria is the fact that not just the pension system is earnings-related in these two countries but also public assistance programs in general.

Table 3.1 and 3.2 show our results.[13] We find that the more one thinks that the poor themselves are responsible for their underprivileged situation, the more they would support financial assistance programs to the elderly even if this means higher taxes for them and the more they reject giving any transfers to the poor. This is in line with our theoretical model which says higher redistribution towards pensioners if the poor is presumed to be less deserving.

Our empirical results also seem to support our second main conclusion of the previous section, namely that those who excuse the poor for their own situation and face flat-rate pension systems would reallocate less towards the elderly compared with those characterized by Bismarckian systems.

Not all of our control variables are significant but their effect on the reallocation decision seems to have the right sign. Males who typically have lower life expectancy would reallocate less towards pensioners. Similarly, those who are further away from their intended retirement age are less forward looking and support intragenerational rather than intergenerational redistribution. We get a very significant intuitive result for those whose position on the political spectrum is to the left. The role of education and income is less clear in our exercise.

We also run a robustness check to find out whether our results still hold when we use a continuous measure of the Bismarckian factor, i.e. the degree of intragenerational redistribution instead of the binary '*beveridge*' variable. Table 18 in the appendix shows the results of the regression when country specific Bismarckian factors and their interactions with the deservingness variable are used as explanatory variables. The results are less straightforward compared to the binary case, but support our hypothesis in general. Nevertheless, there are insignificant values and also one counterintuitive sign regarding the interaction between redistribution and

[13]See appendix for the results for thresholds/cutoffs.

Table 3.1: **Redistribution from poor towards pensioners**

*(ordered probit with 8 categories, *P<0.05, **P<0.01, ***P<0.001*

	OLS	Ordered Probit	
	NW countries	Full sample	
beveridge	– 0.111 (.137)	0.034 (.024)	– 0.117 (.082)
lazypoor	0.393 (.059)***	0.120 (.021)***	0.133 (.022)***
lazypoor*beveridge	– 0.312 (.078)***	– 0.087 (.039)*	– 0.087 (.040)*
male	– 0.035 (.037)		– 0.006 (.017)
noretire	– 0.051 (.057)		– 0.045 (.025)
time 16	– 0.003 (.002)*		– 0.039 (.024)
time 31			– 0.025 (.025)
primary	– 0.065 (.052)		0.001 (.023)
degree	– 0.001 (.045)		– 0.006 (.023)
poor	– 0.048 (.049)		– 0.023 (.023)
rich	0.114 (.046)*		0.034 (.022)
spoor	0.113 (.047)*		0.072 (.022)***
srich	– 0.001 (.052)		– 0.032 (.028)
left	– 0.250 (.043)***		– 0.129 (.020)***
constant	5.291 (.074)***		
Country effects	yes	no	yes
Pseudo-R^2 Nagelkerke		0.002	0.037
# Observations	7875	14699	14699

deservingness. The outlier is Sweden, that is categorized by Krieger and Traub (2011) as a country being closer to a flat-rated system (see Table 17 in the appendix) while in our original regression, we have put Sweden into the group of earnings-related pension systems. It seems that empirics justifies our approach.

3.4 Conclusion

We extend the simple model of redistribution of Persson and Tabellini (2002) to investigate the generational conflict between the young and the old. We find that age indeed might influence views on budget tradeoffs. We are considering three cases. In the first case, we introduce a lump sum transfer to the working population and as a result ceteris paribus redistribution towards the old will be less. Second, we find that pension system types might also play a role in the degree of redistribution. In the

Table 3.2: **Redistribution from poor towards pensioners cont'd**

*(ordered probit with 8 categories, *P<0.05, **P<0.01, ***P<0.001*

	Ordered Probit (NW countries)	
beveridge	0.044 (.029)	– 0.076 (.089)
lazypoor	0.254 (.038)***	0.255 (.038)***
lazypoor*beveridge	– 0.221 (.050)***	– 0.207 (.051)***
male		– 0.023 (.024)
noretire		– 0.050 (.034)
time 16		– 0.019 (.032)
time 31		– 0.049 (.035)
primary		– 0.041 (.034)
degree		0.001 (.029)
poor		– 0.031 (.031)
rich		0.073 (.030)*
spoor		0.069 (.031)*
srich		0.001 (.034)
left		– 0.160 (.028)***
Country effects	no	yes
Pseudo-R^2 Nagelkerke	0.006	0.030
# Observations	7875	7875

case of an earnings-related pension system, the beforementioned decrease in the redistribution towards the old will be less compared to a flat-rated system. Based on the special Eurobaromoter 56.1, we found support for our hypothesis that if people think that the poor does not deserve social assistance, they would be ready to redistribute funds towards pensioners. Moreover, these people would redistribute more towards pensioners in those countries that are characterized by a Bismarckian pension system than those with flat-rate pension systems. Finally, we illustrate the case of immigrants within the same theoretical framework. We find that under certain conditions, a more liberal migration policy launched to lessen the burden of an ageing society can result in an even higher concentration of funds towards the older generation.

In addition, one can combine the results of pension system types and immigration. If low-skilled and welfare immigrants arrive to the host country, under certain conditions both the income inequality and the potential share of young welfare recipients might increase in our model resulting in

a relatively higher redistribution towards the old. Moreover, the before mentioned mechanism is more pronounced if the pension system is earnings-related. Hence, our simplified model suggests that Bismarckian pension systems would be more robust to massive low-skilled immigration than Beveridgeans.

3.5 References

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3.6 Appendix

3.6.1 Creation of the dependent variable

In our empirical model the dependent variable captures people's preferences on public assistance towards the poor and the pensioners. Although there are a number of questions about poverty assistance and pension benefits, most of them is set in a context that tempts respondents to give politically correct answers. The only cases where true preferences might be revealed are those where the tax implication of the respective public assistance program is also mentioned. For this reason, we have chosen question 44.7. and question 67.1 to test whether people would assist the poor or the elderly among the needy.

Q44.7 ("*How much do you agree or disagree with the following statement: I would be ready to pay more tax if it were definitely used to improve the situation of the poor*") has 5 answer categories, namely strongly agree (1), slightly agree (2), neither agree nor disagree (3), slightly disagree (4) and strongly disagree (5). Q67.2 ("*Given the fact that the share of elderly people in the population is growing ... [do you] agree ... or ... disagree that: contribution rates should not be raised even if this means lower pension levels?*") has 4 answer categories: strongly agree (1), slightly agree (2), slightly disagree (3) and strongly disagree (4). We added up the answers to get an 8-category ordered response (*pvp*). The smallest value ($1 + 1 = 2$) represents those who strongly agree with giving financial assistance to the poor even if this means a higher financial burden for them but at the same time they strongly reject any allocation of funds towards pensioners. On the other end ($5 + 4 = 9$), we have those who would strongly support measures that target pensioners even by tax or contribution rate increases but strongly reject financing the poor. A large number of people are in-between: those who are in favour of paternalism but also those who are against the state.

Table 3.3: **Significance of ordered probit thresholds**

	Full sample		NW countries	
	No controls	Full model	No controls	Full model
pvp=2	– 1.677 (.061)***	– 3.763 (.588)***	– 1.806 (.035)***	– 3.407 (.374)***
pvp=3	– 1.137 (.059)***	– 3.215 (.587)***	– 1.291 (.030)***	– 2.885(.373)***
pvp=4	– 0.529 (.059)***	– 2.598 (.587)***	– 0.692 (.028)***	– 2.278(.373)***
pvp=5	0.187 (.059)***	– 1.868 (.587)***	0.048 (.027)	– 1.527(.372)***
pvp=6	0.828 (.059)***	– 1.217 (.587)*	0.680 (.028)***	– 0.888 (.372)*
pvp=7	1.380 (.060)***	– 0.658 (.587)	1.201 (.030)***	– 0.362 (.372)
pvp=8	1.900 (.061)***	– 0.134 (.587)	1.733 (.034)***	0.176 (.373)

3.6.2 Description of explanatory variables

Variable *lazypoor*

To represent the principle of deservingness we create a variable that groups those who think that the poor themselves are primarily responsible for their situation. We use the following two questions and select those who chose answers 13.2, 14.11, 14.13, 14.14 and 14.15 to get *lazypoor*.

Q13. Why in your opinion are there people who live in need? Here are four opinions: which is closest to yours? (ONE ANSWER ONLY)

1. Because they have been unlucky
2. **Because of laziness and lack of willpower**
3. Because there is much injustice in our society
4. It's an inevitable part of modern progress
5. None of these
6. Do not know

Q14. Here are some reasons, which might explain why people are socially excluded. Which three do you think are the most common? (MAXIMUM 3 ANSWERS)

1. Social welfare cuts
2. Lack of concern amongst neighbors
3. Sickness
4. Family break-ups
5. Their parents were poor
6. Losing community spirit in our society
7. Alcoholism

8. Long-term unemployment
9. They live in a poor area
10. Drug abuse
11. They don't plan for the future
12. Lack of education
13. They are lazy
14. They have too many children
15. They are immigrants
16. They have chosen to be like this
17. Do not know

Table 3.4: **Descriptive statistics of variable** *lazypoor*

	# Observation	Percent
$lazypoor = 0$	10822	63.7
$lazypoor = 1$	6158	36.3
Total	16980	100.0

Variable *beveridge*

Using the typology of OECD (2005) we define 5 countries (Denmark, Ireland, Luxembourg, Netherlands, United Kingdom) as having flat-rate pension systems ($beveridge = 1$).

Table 3.5: **Descriptive statistics of variable** *beveridge*

	# Observation	Percent
$beveridge = 0$	12074	71.1
$beveridge = 1$	4906	28.9
Total	16980	100.0

Our key variable in the empirical model is the interaction term (**lazypoor*beveridge**), hence we present the descriptive statistics of the interaction term:

Table 3.6: **Descriptive statistics of the interaction term**

beveridge	lazypoor	Mean	N	Std. Deviation
0	0	5.3886	2486	1.57325
	1	5.7852	1038	1.64645
	Total	5.5054	3524	1.60514
1	0	5.4534	2470	1.55188
	1	5.5120	1588	1.66562
	Total	5.4763	4058	1.59740
Total	0	5.4209	4956	1.56281
	1	5.6200	2626	1.66313
	Total	5.4898	7582	1.66313

Variable *male*

Variable *male* denotes the gender of the respondent.

Table 3.7: **Descriptive statistics of variable** *male*

	# Observation	Percent	Valid percent
$male = 0$	8845	52.1	52.1
$male = 1$	8134	47.9	47.9
Missing	1	0.0	
Total	16980	100.0	100.0

Variable *noretire*

Economic theory predicts that pensioners are more likely to support social security than people in their active age. Variable *noretire* describes whether the respondent was retired ($noretire = 0$) or active ($noretire = 1$) at the time of questioning.

Table 3.8: **Descriptive statistics of variable** *noretire*

	# Observation	Percent	Valid percent
$noretire = 0$	4053	23.9	23.9
$noretire = 1$	12925	76.1	76.1
Missing	2	0.0	
Total	16980	100.0	100.0

Variables *time*16 **and** *time*31

The *expected remaining active lifetime* of cohorts in active age also might influence the decision to support social security. Those closer to retirement are less likely to oppose the maintenance or enlargement of an unfunded pension system. For this reason we combine the information content of two separate questions. We use the answers to Q48 ("*At what age do you intend to retire?*") as the intentions of the respondent is what matters for personal planning not the official retirement age. Pensioners were recoded to have 0 time remaining. We then deduct respondents' exact age. If the resulting expected remaining active lifetime is above 15/30 years we code them into *time*16/*time*31 dummy variables.

Table 3.9: **Descriptive statistics of variable** *time*16

	# Observation	Percent
$time16 = 0$	8419	49.6
$time16 = 1$	8561	50.4
Total	16980	100.0

Table 3.10: **Descriptive statistics of variable** *time*31

	# Observation	Percent
$time31 = 0$	12968	72.9
$time31 = 1$	8561	23.6
Total	16980	100.0

Variables *degree* and *primary*

Various educational levels and professions imply different age-earnings profiles and consequently different income perspectives. Highly educated professionals, in particular, may expect steeper future age-earnings profile at any time in their carrier than blue-collar workers with less education. Those, for whom the risk of old-age poverty is higher for any reason, may favour a more redistributive system.

The Eurobarometer questionnaire has no direct question regarding the obtained educational level, therefore we use Q48 ("*How old were you when you stopped full-time education?*") and assume the following. If the respondent was at least 22 years old at finishing school or he is 21 years old and still studying, he has a college/university degree ($degree = 1$). Another dummy variable is created for those who were maximum 15 years old when they finished full-time education ($primary = 1$).

Table 3.11: **Descriptive statistics of variable** *degree*

	# Observation	Percent	Valid percent
$degree = 0$	13493	72.9	72.9
$degree = 1$	3484	27.0	27.1
Missing	3	0.0	
Total	16980	100.0	100.0

Table 3.12: **Descriptive statistics of variable** *primary*

	# Observation	Percent	Valid percent
$primary = 0$	12384	72.9	72.9
$primary = 1$	4593	27.0	27.1
Missing	3	0.0	
Total	16980	100.0	100.0

Variables *poor* and *rich*

Economic theory suggests that high earners – facing a heavy tax-burden – would be less supportive for a larger social security system. However, life expectancy is increasing with status and consequently, richer people spend

more time in retirement. They also work longer thus the net effect of status dependent life expectancy on preferences is not straightforward. It is also not obvious that less affluent voters are as supportive for any increase in the size of social security as middle class voters. The poor may oppose the crowding-out effect of old-age benefits on other types of benefits so they may well be against a larger public pension system but prefer intra-generational redistribution.

We use the answers to D29 that puts the after tax amount of the income (in local currency) of the respondent's household into 14 income groups defined in advance. As income distributions differ country by country, first we define the dummy variables at the country level. In each country, respondents belonging to the upper tercentile of the income distribution became *rich*, and those who belong to the lower tercentile were defined as *poor*. Missing answers were recoded to average income. Finally, these new categories were pooled.

Table 3.13: **Descriptive statistics of variable** *poor*

	# Observation	Percent
$poor = 0$	13103	77.2
$poor = 1$	3877	22.8
Total	16980	100.0

Table 3.14: **Descriptive statistics of variable** *rich*

	# Observation	Percent
$rich = 0$	13061	76.9
$rich = 1$	3919	23.1
Total	16980	100.0

Variables *spoor* **and** *srich*

A measure of subjective poverty (based on whether people's total net income is lower than the amount they judge absolutely necessary) may give additional information about respondents' income. We defined respondents as spoor if they chose Q5.1 and as srich if they chose Q5.4.

Q5. How well do you get by with your household's income? (ONE ANSWER ONLY)

1. With great difficulty

2. With difficulty

3. Easily

4. Very easily

5. Do not know

6. Refusal

Table 3.15: **Descriptive statistics of variable** *spoor*

	# Observation	Percent
$spoor = 0$	12470	73.4
$spoor = 1$	4510	26.6
Total	16980	100.0

Table 3.16: **Descriptive statistics of variable** *srich*

	# Observation	Percent
$srich = 0$	14947	88.0
$srich = 1$	2033	12.0
Total	16980	100.0

Variable $left$

We try to control for the expected effect of political ideology as well. Right-wing workers may be reluctant to support higher taxes to support any inactive group. Among the elderly, however, old-age benefit is more likely to be seen as a reward deserved for the contributions paid earlier even if transfers come from a pay-as-you go system. Thus, while right wing pensioners may oppose redistribution among the elderly, they might well be supportive for the maintenance of a large social security system at a cost of other potential and, in their view, less legitimate scopes and beneficiaries.

We use question D1 ("*In political matters people talk of "the left" and "the right". How would you place your views on this scale?*") to define our $left$ variable. We assumed that a respondent placed himself on "the left" if he answered 1 to 4 (out of 10).

Table 3.17: **Descriptive statistics of variable** $left$

	# Observation	Percent
$left = 0$	12952	76.3
$left = 1$	4028	23.7
Total	16980	100.0

3.6.3 Robustness check

First we show the results of the ordered probit for the two parts of our dependent variable separately. Q67.2 addresses the question of assistance to the pensioners and Q44.7 the assistance towards the poor.

Table 3.18: **Results when the dependent variable is separated**

	Ordered Probit (NW countries)	
	Pensioners only	Poor only
beveridge	0.105 (.092)	– 0.142 (.087)
lazypoor	0.013 (.040)	0.303 (.037)***
lazypoor*beveridge	– 0.176 (.053)***	– 0.134 (.049)**
male	– 0.045 (.025)	– 0.004 (.023)
noretire	– 0.155 (.036)***	0.035 (.033)
time 16	– 0.071 (.034)*	0.043 (.032)
time 31	– 0.101 (.036)**	0.010 (.033)
primary	– 0.058 (.035)	0.005 (.033)
degree	0.043 (.031)	– 0.035 (.029)
poor	0.046 (.033)	– 0.070 (.030)*
rich	0.151 (.032)***	– 0.023 (.030)
spoor	0.055 (.032)	0.031 (.030)
srich	– 0.012 (.036)	0.012 (.034)
left	0.133 (.029)***	– 0.335 (.027)***
Country effects	yes	yes
Pseudo-R^2 Nagelkerke	0.045	0.044
# Observations	7875	7875

Second, using the results of Krieger and Traub (2011), we test test whether our results still hold when we use a continuous measure of the Bismarckian factor instead of the binary '*beveridge*' variable.

Table 3.19: **Estimated Bismarckian factor for selected European countries**

2011	Bismarckian factor	Frequency	Percent
Norway	-0.035	1037	6.1
Denmark	0.009	1001	5.9
United Kingdom	0.097	1303	7.7
the Netherlands	0.132	1006	5.9
Luxembourg	0.328	600	3.5
Sweden	**0.432**	**1000**	**5.9**
Ireland	0.436	996	5.9
Spain	0.444	1000	5.9
Belgium	0.516	1032	6.1
Austria	0.535	1000	5.9
Italy	0.551	992	5.8
Finland	0.553	997	5.9
Germany	0.556	1000	5.9
Greece	0.639	1004	5.9
France	0.764	1002	5.9
Portugal	N/A	1001	5.9

Source: Krieger and Taub (2011)

Table 3.20: **Results if country specific Bismarckian factor is used as explanatory variable**

*(ordered probit with 8 categories, * P<0.05, ** P<0.01, *** P<0.001)*

Significance of thresholds	NW countries, full model
pvp=2	– 1.880 (.101)***
pvp=3	– 1.358 (.099)***
pvp=4	– 0.750 (.098)***
pvp=5	0.001 (.098)
pvp=6	0.641 (.098)***
pvp=7	1.167 (.099)***
pvp=8	1.706 (.100)***

Table 3.21: **Results if country specific Bismarckian factor is used as explanatory variable cont'd**

*(ordered probit with 8 categories, * P<0.05, ** P<0.01, *** P<0.001)*

	NW countries, full model
bismarckfactor (NOR)	– 0.149 (0.057)***
bismarckfactor (DK)	0.118 (0.059)
bismarckfactor (UK)	– 0.002 (0.060)
bismarckfactor (NL)	0.245 (0.058)***
bismarckfactor (LUX)	– 0.081 (0.076)
bismarckfactor (SWE)	0.131 (0.057)
bismarckfactor (IRL)	– 0.139 (0.064)**
bismarckfactor (BEL)	0.061 (0.061)
lazypoor	0.283 (0.077)***
lazypoor*bismarckfactor (NOR)	– 0.047 (0.106)
lazypoor*bismarckfactor (DK)	– 0.072 (0.103)
lazypoor*bismarckfactor (UK)	– 0.194 (0.100)*
lazypoor*bismarckfactor (NL)	– 0.327 (0.109)***
lazypoor*bismarckfactor (LUX)	– 0.227 (0.119)*
lazypoor*bismarckfactor (SWE)	**0.037 (0.115)**
lazypoor*bismarckfactor (IRL)	– 0.414 (0.112)***
lazypoor*bismarckfactor (BEL)	– 0.084 (0.106)
male	– 0.023 (0.024)
noretire	– 0.048 (0.034)
time16	– 0.025 (0.032)
time31	– 0.050 (0.035)
primary	– 0.047 (0.034)
degree	0.001 (0.029)
poor	– 0.032 (0.032)
rich	0.075 (0.030)**
spoor	0.065 (0.031)**
srich	0.002 (0.034)
left	– 0.16 (0.028)***
Country effects	no
Pseudo-R^2 Nagelkerke	0.032
# Observations	7578