Languages Disenfranchisement in the European Union

Victor Ginsburgh and Shlomo Weber

NOTA DI LAVORO 4.2004

JANUARY 2004

ETA – Economic Theory and Applications

Victor Ginsburgh, *ECARES*, *University Libre de Bruxelles and Centre of Operation Research and Econometrics, Louvain*
Shlomo Weber, *Southern Methodist University, Dallas and Center of Operation Research and Econometrics, Louvain*

Languages Disenfranchisement in the European Union

Summary

We introduce the notion of *language disenfranchisement* which arises if the number of EU working languages is reduced. We use the data on language proficiency in EU and show that, in spite of the widespread knowledge of English, the retention of French and German as working languages in essential to avoid a too large degree of disenfranchisement of citizens. The picture, however, becomes somewhat different if we consider the population under age of 40. We also argue that even though French is the second leading language within the EU, the situation is likely to be reversed after the enlargement.

Keywords: Languages, Disenfranchisement, European Union

JEL Classification: D70, O52, Z13

Address for correspondence:

Shlomo Weber
Department of Economics
Southern Methodist University
Dallas
USA
Phone: + 1214 768 3577
E-mail: sweber@post.cis.smu.edu

1 Introduction

The fifth and largest enlargement of the European Union that will take place next year will lead to the creation of a union of 450 million citizens and an economy in excess of nine trillion dollars (close to that of the United States). The Union faces tremendous challenges of finding a common ground for foreign, security, trade, asylum, defence, law enforcement, and immigration policies while maintaining and respecting the diversity of its members. The preservation of identities, cultural values and history of various countries underscores the important role of national languages.[2] To underline the importance of national differences, the draft of a new constitution of the European Union will be published in eleven current official and working languages[3] and in 21, after the ten additional candidate countries become member states.[4] Since the European Union is committed to the principle of multilingualism and to the fundamental rights of non-discrimination and equality of its citizens, this implies, in particular, equal rights of all citizens for information and access to legal documents in their national language.

However, the enlargement of the Union will bring new member countries where very different idioms are spoken (Polish, Czech, Slovakian, Slovenian, Hungarian, Latvian, Lithuanian, Estonian, Maltese), none of which is widely spoken outside the country of its origin. If the so-called "full language regime" is maintained, fourteen hundred extra interpreters and translators will be needed.[5] If, on the other hand, the Council accepts the idea that translations be restricted to "core documents" only,[6] then demands on interpre-

[2]The importance of language as a part of "nation-building," goes, as history has often shown, together with a unique language, whether in a natural way or imposed by law. This was the case in Ancient Greece, where the "speaking of Greek, and no other single factor, defined [who was Greek]." (Dalby, 2002, p. 128.) An ordinance taken by King Francois I in 1539 in France, fosters linguistic nationalism, by making compulsory the use of French in all legal documents and transactions (Dalby, 2002, p. 131.) and nowadays, though there is some resistance from time to time, every French citizen speaks French and has his children raised in French. Hebrew in Israel is a modern example, and so is English in the United States, where the influence of Spanish due to Mexican immigration will probably not last, or French in most former French and Belgian African colonies.

[3]Irish is also a EU Treaty language, but not an official and working language.

[4]At the time being, the only official language for Cyprus is Greek, which would make for 20 languages, and not 21 as is often argued.

[5]EU document PE 305.269/BUR/fin.

[6]"Core documents" consist of legislative documents, as well as documents for the Coun-

tation could be reduced and the number of additional positions is estimated at 675.[7] To cope with the difficulty of translating from any language to any other,[8] there is the idea to use English (and probably German and French, for obvious reasons) as a pivotal language, to which and from which other languages will be translated. Without reforming, the enlargement could, according to a conservative estimate based on previous enlargements, increase the workload, and thus costs, by some 80 percent.[9] Given that in 2000, some 686 million euros were spent on translation, this means an additional expenditure of 550 million euros. Though Neil Kinnock, Vice President of the European Commission, claims these are relatively small numbers per head (less than two euros per citizen in today's EU), and represent only 0.8 percent of the EU total budget, the absolute amounts are by no means small.

The financial consideration may pose the following important question: How many languages should be retained as working languages in the EU? A possible shift from "complete multilingualism" to "controlled complete multilingualism" will bring substantial monetary benefits but, at the same time, it may limit the access of some citizens to sometimes important information and documents. At a time when so many sensitive decisions on the future of the union and its members are contemplated, it is important to prevent, as much as possible, the alienation and "disenfranchisement" of a large number of the EU citizens.

In this paper, our objective is to provide estimates of the EU population that would be disenfranchised and would be limited in terms their language representation and access to the essentials of European policies (economic, social, cultural, etc.) and politics if the only languages they know are not considered as working languages by the various European institutions.

The paper is organized as follows. Section 2 is devoted to the empirical analysis and the introduction of the "disenfranchisement index" generated by a single language. In Section 3, we extend the notion of disenfranchisement to a group of languages and study how the introduction of various languages reduces the degree of disenfranchisement. Section 4 includes some reflections on the relative positions of French and German, and the possible

cil and the European Council.

[7]EU document PE 305.269/BUR/fin.

[8]It is doubtful that there exists a professional who can translate, say Finnish into Maltese!

[9]Rolf Schaerer (2003).

consequences of the enlargement. Section 5 contains concluding remarks.

2 Empirical Results

In 2000, the Directorate of Education and Culture of the EU ordered a survey on languages, that was conducted by INRA (Europe).[10] In each of the 15 countries, 1,000 interviews[11] were conducted on the use of languages. The information in which we are interested in this paper is concerned with the following two questions:

(a) What is your mother tongue? (note to the interviewer: do not probe; do not read [the list of languages] out; if bilingual, state both languages);

(b) What other languages do you know? (show card [containing a list of languages];[12] read out; multiple answers possible).

There were four possible choices for (b), and we assumed that the first two choices that came to the mind of the person interviewed were the languages that she knew best.

There were also questions on whether the knowledge of each of the tongues mentioned was "very good," "good" or "basic," but we did not take these answers into account, since such qualifications are usually very subjective, vary across individuals and are, therefore, not very informative.

We must point out that the estimates we use are based on the results of a survey conducted in each EU country in 2000, and did not include the newcomers, for whom there is very little information. However, given that most of the newcomers were quite isolated from the rest of the world until very recently, it is unlikely that their arrival will change our conclusions in any significant way.

The results that we discuss, in particular, the number of people who claim

[10] INRA, Eurobaromètre 54 Special, Les Européens et les Langues, February 2001.

[11] With some minor variations: 1,300 interviews in the UK, 2,000 in Germany, 600 in Luxembourg.

[12] Danish, German, French, Italian, Dutch, English, Spanish, Portuguese, Greek, Irish, Swedish, Finnish, Luxembourgish, Arabic, Turkish, Chinese, Sign language, Other (specify first and second), None.

to know a language, do not mean that each of these can speak and write the language correctly. The literature on "languages in danger" is extremely pessimistic on language knowledge: Non-native speakers of a language do not use the right idiomatic expressions, mistranslate, misinterpret the real meaning of words or sentences and cannot make the difference between "might," used to mean power, or used as the past of "may" in a sentence such as "The wish that might make right..."[13] A language, they claim, needs 12,000 hours of study and practice to be known,[14] and a survey like the one we use certainly exaggerates the number of people who possess the language in some depth. Our argument for using the survey is twofold. First, it contains numbers, which are better than the usual guesswork on which discussions on knowledge of languages and the decisions that may follow, are based.[15] Second, this is the most complete and recent dataset that exists, and unless one has 15,000 people taking linguistic exams in several languages, it will be difficult to do any better. Clearly, there are individuals who tend to declare that they know a language, though their knowledge is basic; others are shy, and will refrain from doing so, even if they know the language reasonably well. Therefore, there is little doubt that the data that we use are biased in both directions, and our contention is that there are as many optimists as there are pessimists, and that the biases roughly cancel out.

Table 1 displays data for the six languages that are spoken most in Euroland: English, French, German, Italian, Spanish, and Dutch. The number of inhabitants who speak each language–they can of course speak more than one–is compared with the "natural" population that speaks the language (country of origin and extensions, for instance, France and 40 percent of Belgians for French). The last column of the table gives the "language multiplier," obtained as the ratio between those who (claim they) speak the language and the natural population. English comes out as the most frequently spoken language, and has also the largest multiplier: the number of speakers is 3.35 times larger than the number of citizens who live in the UK and Ireland. English is undoubtedly followed by French, but the situation is

[13] See Piron (1994, p. 67).

[14] See e.g. Piron (1994, p. 79).

[15] Fettes (1991) estimates that no more than six percent of Europeans understand English (quoted by Piron, 1994, p. 69), while Crystal (1997, pp. 55-61) estimates at 700 million the world population of fluent users of English and at 1,800 million the number of 'competent' users.

less clear for the next languages. Indeed, even if German is spoken by more individuals than Spanish, its multiplier is smaller than that of Spanish and it is clear that, internationally, if account is taken of Latin America, Spanish is more important. Italian and Dutch are spoken by some ten percent more people than their natural populations. Though we do not have the detailed numbers for other languages, it is quite clear that none of them is spoken much beyond the boundaries of its country of origin.

[Table 1 approximately here]

In Table 2, we show the degree of disenfranchisement across the EU member states if only one language were chosen as the working language of the EU. For each country, this is the percentage of citizens who would lose their ability to understand EU documents if only one among these six languages were chosen as working language.

[Table 2 approximately here]

The results displayed in Table 2 lead to two remarks. First, English is dominating. As appears from column 3 concerned with disenfranchisement rates, if English were the only language to be adopted, 45 percent of the EU population would nevertheless be disenfranchised. But this share rises to 66 percent or 69 percent if English were replaced by French or German only, and becomes of course worse if Italian, Spanish or Dutch were chosen (83, 85 and 94 percent, respectively). Nevertheless, the numbers that are given in Table 2 show that, even if globally, English is the widest known language, the disenfranchised population would be intolerably large in some countries, including in France, Germany, Spain and Italy, the four largest countries on the continent.

When we turn to the younger population, the future looks a bit brighter, since "English only" would merely disenfranchise 27 percent of the population under the age of 40.

[Table 2a approximately here]

However, disenfranchisement rates remain quite high (63 percent and 67 percent) for French and German. Therefore, the situation that prevails nowadays and the future are both favorable to English. The increase of knowledge of languages among the younger generations is really remarkable. If the whole EU population had the habits shared by those who are younger than 40, there would be 76 million more English speaking Europeans than today! It is worth pointing out that the increase in the number of English speakers takes place in each of the 15 member countries.

Since it is quite unlikely that in the short run only one of the languages will be retained as working language, the more important question is concerned with how many people speak one *or* the other language, if the EU were to decide that only two or three languages were to be retained, and how large the disenfranchised population would be if a second language were added to the first, a third to the second, etc. The data presented in Tables 2 and 2a does not allow for a direct answer to that question. They do not tell anything either on how the situation will evolve, since younger generations that will replace older ones in the years to come, may be speaking other languages than their parents. The analysis of these issues is presented in the next section.

3 Disenfranchisement: How Much is There to Gain by Adding Languages?

Mother tongue, second and third language are now bundled together, and results will be given for each EU country, and for the EU globally. It seems important to discuss both individual countries and the Union as a whole, since, as will become clear, some countries (Greece, Portugal, Finland among others) will be almost excluded if their native language is is, and one could reasonably argue that such a situation is unsustainable or undesirable.

If we try to determine the degree of disenfranchisement for a group of languages, the data of the survey need to be transformed. Indeed, since now we are interested to know how many citizens do speak "at least one of the languages in a specific group," the information about the number of

speakers of each language is, obviously, far from being sufficient. Consider the following example. According to the survey, out of one thousand Danes, 754 speak English and 375 speak German. We obviously cannot conclude that 754 + 375 = 1129 out of one thousand speak at least one of the two languages. To derive the correct number we have to realize that the people who speak both English and German were counted twice, once as English and once as German speakers. Since the data show that the number of Danes who speak both languages is 291 (out 1000), we subtract this number from 1,129 and conclude that 1,129 - 291 = 838 Danes (out of 1,000) speak German *or* English.[16] Obviously the calculations are much more intricate if we consider groups of three or more languages.[17] Our results are presented in Table 3.

[Table 3 approximately here]

As was indicated above, if English were the only language to be adopted, 45 percent of the EU population would be disenfranchised. Adding French decreases disenfranchisement to 30 percent, adding both French and German reduces this percentage to 19 percent. Disenfranchisement drops to 4 percent if the six most spoken languages (English, French, German, Italian, Spanish and Dutch) were adopted. But lack of comprehension would remain high in Finland (35 percent), Greece (50 percent), and Portugal (57 percent). It should be noted that, when Italian, Spanish, and Dutch get added to English, French and German, the only countries that really gain are Italy, Spain and the Netherlands, and that the only means to decrease disenfranchisement rates in Denmark, Finland, Greece, Portugal and Sweden would come from adding their languages to the previous ones. Therefore, only English, French and German really seem to fulfill the criterion of languages that decrease the global rate of disenfranchisement.

Again, the situation looks much more promising if we restrict our attention to the population under the age of forty, as can be seen in Table 3a.

[16]We are grateful to INRA, and in particular to Christine Kotarakos and Rosario Spadaro who kindly accepted to write and run the programs that allowed taking out all the double counts.

[17]The detailed calculations are available upon request from the authors.

[Table 3a approximately here]

English as the only language of the EU would lead to a disenfranchisement rate of 27 percent. This rate drops to 17 percent if French is added, and to 10 percent if both French and German are added, though 26 percent would still remain disenfranchised in Greece, 28 percent in Italy, 31 percent in Spain, and 33 percent in Portugal.

4 French, German and EU's Enlargement

The results given in Table 4 highlight comparisons that would be obtained with two different groups of two languages: English-French, and English-German (see also Stroobants, 2002 in *Le Monde*). Globally, the first choice is better than the second one, since it disenfranchises less citizens (2 percent, i.e. 7.4 million citizens), but this choice can hardly satisfy individual countries. Indeed, this group of languages dominates the other one only in Belgium, Spain, France (obviously), Italy, Luxembourg and Portugal, both among the total population, and among the young.

For these reasons, and even if French dominates German, it seems reasonable to keep English, French and German as working languages. This is even made more forceful since the ten new candidates for entering the EU are more German than French-oriented. The largest joining country, Poland, with a population of 38.6 million, barely speaks French. According to *Polityka* 30, July 27, 2002, 58 percent of the population know only Polish, while 16 percent speak English, 14 percent German and only 2 percent have a knowledge of French. A rough calculation shows that this would add 5.4 million more German speakers, and only 0.8 million French speakers. Since in today's EU, the difference in the numbers of citizens who speak French and German is equal to some 7.4 million, the addition of Poland would narrow the gap to 2.8 million. The gap disappears if we take account of Hungary, the Czech Republic, Slovakia and the Baltic countries, where German is spoken more often than French,[18] and French may thus lose its second position once the European Union is enlarged.

[18] See Reeves (1990) for similar conclusions.

[Table 4 approximately here]

5 Conclusions

It seems politically unavoidable that full multilingualism will prevail in meetings of the European Parliament, since "if the Parliament does not recognize their language, it is less likely that citizens will recognize it as being their parliament."[19] It is, however, recognized that pivot languages will have to be used, instead of bi-lateral interpretation.[20] Is it out of reach for Europe to do what American Indians had the great intelligence to do 300 years ago: "Sometimes it appears to have been a deliberate practice for children of chiefs to be fostered by a neighboring people who spoke a different language, as a method of training future diplomats or interpreters."[21]

It is quite clear, nevertheless, that not all the documents prepared by the various bodies of the EU can be translated into the 21 languages, and that not all the meetings can be held in 21 languages. This is not even the case nowadays, where *only* 11 languages are official.

It may be time for Europeans to be as clever as, here they are again, American Indians were. Dumont de Montigny, a Frenchman who, in the 1750s had settled in the region that came to be called Georgia, observed that "the Indian learns various languages and, in particular, the mother language. In this country, great and vast as it is, filled with such different nations, there is indeed a mother language spoken everywhere alongside that of each nation, just as Latin is among us."[22]

Transition rules can be and are being envisaged. One of these is to have those countries whose languages are used more often to contribute to a Fund from which other countries can draw to have more than the basic texts translated. But obviously, the American Indian solutions dominate.

[19] EU document PE 305.269/BUR/fin.

[20] Note that the UN experience seems to suggest that in this process, "fifty percent of the information is lost." (UN memo A/32/237, parag. 93, quoted by Piron, 1994, p. 110).

[21] See Dalby (2002, p. 154).

[22] Quoted by Dalby (2002, p. 155).

6 References

Crystal, David (1997), *English as a Global Language*, Cambridge: Cambridge University Press.

Dalby, Andrew (2002), *Language in Danger*, London: The Penguin Press.

European Union (2001), Preparing for the Parliament of the enlarged European Union, Report of the Secretary General, document PE 305.269/ BUR/fin, adopted by the Bureau on 3 September 2001.

Fettes, Mark (1991), Europe's Babylon: Towards a single European language, *History of European Ideas* 13, 201-202.

INRA (2001), Eurobaromètre 54 Special, Les Européens et les Langues, February.

Lamberton, Donald, ed. (2002),*The Economics of Language*, Cheltenham: Edward Elgar.

Stroobants, Jean-Pierre, Une Europe à 21 langues, nouveau boulet budgétaire pour la Commission, *Le Monde*, July 3, 2002, p. 6.

Piron, Claude (1994), *Le défi des langues*, Paris: L'Harmattan.

Reeves, Nigel (1990), The foreign language needs of U.K.-based corporations, *Annals of the American Academy of Political and Social Sciences* 511, 60-73, reprinted in Donald Lamberton, ed. (2002), *The Economics of Language*, Cheltenham: Edward Elgar.

Schaerer, Rolf (2003), Multilingualism in the enlarged European Union and its institutions. Report presented at a brainstorming session on languages, European Commission, Brussels, January 27-28, 2003.

Table 1
Main Languages Spoken in the EU

	Natural population (millions)	Population that speaks the language in the EU (millions)	Language multiplier (units)
English	62.3	208.6	3.35
French	64.5	127.8	1.98
German	90.1	118.3	1.31
Italian	57.6	65.2	1.13
Spanish	39.4	56.3	1.43
Dutch	21.9	24.3	1.11

English is the "natural language" in Great Britain and Ireland. For French, it is France and 40 percent of the Belgians. Spanish and Italian are only spoken "naturally" in Spain and Italy, respectively, German is the natural language of Germany and Austria, and Dutch is the natural language in The Netherlands and for 60 percent of Belgians.

Table 2
Population and Disenfranchisement Rates
(Total population)

	Population (millions)	Disenfranchisement rates (%)					
		E	F	G	I	S	D
Austria	8.1	54	89	1	93	99	100
Belgium	10.2	60	25	90	95	99	31
Denmark	5.3	25	95	63	100	98	100
Finland	5.1	39	99	93	100	99	100
France	60.4	58	0	92	95	85	100
Germany	82.0	46	84	3	99	98	99
Greece	10.5	53	88	88	92	95	95
Italy	57.6	61	71	96	1	97	100
Ireland	3.7	5	77	94	99	98	100
Luxembourg	0.4	81	9	26	89	97	96
Netherlands	15.8	30	81	41	98	99	1
Portugal	10.8	65	72	98	99	96	100
Spain	39.4	64	81	98	98	1	100
Sweden	8.9	21	93	69	100	96	99
United Kingdom	58.6	1	78	91	98	95	100
EU 15	376.8	45	66	69	83	85	94

Notes: E = English only; F = French only; G = German only;
I = Italian only; S = Spanish only; D = Dutch only.

Table 2a
Population and Disenfranchisement Rates
(Population less than 40 years old)

	Population (millions)	Disenfranchisement rates (%)					
		E	F	G	I	S	D
Austria	8.1	34	84	1	91	98	100
Belgium	10.2	45	17	92	94	98	31
Denmark	5.3	16	95	62	100	98	100
Finland	5.1	13	99	94	100	100	100
France	60.4	37	0	87	95	78	100
Germany	82.0	26	82	3	99	97	98
Greece	10.5	29	89	92	94	99	100
Italy	57.6	37	67	95	0	96	100
Ireland	3.7	4	62	90	100	97	99
Luxembourg	0.4	73	13	35	88	96	96
Netherlands	15.8	20	79	40	98	98	1
Portugal	10.8	41	57	97	99	95	100
Spain	39.4	39	77	98	98	1	100
Sweden	8.9	6	90	67	99	95	100
United Kingdom	58.6	2	73	88	99	95	100
EU 15	376.8	27	63	67	83	84	94

Notes: E = English only; F = French only; G = German only;
I = Italian only; S = Spanish only; D = Dutch only.

Table 3
Population and Disenfranchisement Rates
(Total population)

	Population (millions)	Disenfranchisement rates (%)					
		1	2	3	4	5	6
Austria	8.1	54	52	0	0	0	0
Belgium	10.2	60	18	17	17	17	0
Denmark	5.3	25	24	16	15	15	15
Finland	5.1	39	39	36	36	35	35
France	60.4	58	0	0	0	0	0
Germany	82.0	46	44	0	0	0	0
Greece	10.5	53	53	51	50	50	50
Italy	57.6	61	48	47	0	0	0
Ireland	3.7	5	4	3	3	3	3
Luxembourg	0.4	81	4	1	0	0	0
Netherlands	15.8	30	20	14	14	14	0
Portugal	10.8	65	59	58	57	57	57
Spain	39.4	64	57	56	56	0	0
Sweden	8.9	21	20	18	18	18	18
United Kingdom	58.6	1	1	1	1	1	1
EU 15	376.8	45	30	19	11	5	4

Notes: 1 = English only; 2 = English and French; 3 = English, French and German; 4 = English, French, German and Italian; 5 = English, French, German, Italian and Spanish; 6 = English, French, German, Italian, Spanish and Dutch.

Table 3a
Population and Disenfranchisement Rates
(Population less than 40 years old)

	Population (millions)	Disenfranchisement rates (%)					
		1	2	3	4	5	6
Austria	8.1	34	32	0	0	0	0
Belgium	10.2	45	8	8	7	7	0
Denmark	5.3	16	15	6	6	6	6
Finland	5.1	13	13	12	12	11	11
France	60.4	37	0	0	0	0	0
Germany	82.0	26	25	0	0	0	0
Greece	10.5	29	28	26	26	26	26
Italy	57.6	37	29	28	0	0	0
Ireland	3.7	4	3	2	2	2	2
Luxembourg	0.4	73	6	1	0	0	0
Netherlands	15.8	20	11	9	8	8	0
Portugal	10.8	41	34	33	33	32	32
Spain	39.4	39	32	31	31	0	0
Sweden	8.9	6	5	4	4	4	3
United Kingdom	58.6	2	2	2	2	2	2
EU 15	376.8	27	17	11	6	3	3

Notes: 1 = English only; 2 = English and French; 3 = English, French and German; 4 = English, French, German and Italian; 5 = English, French, German, Italian and Spanish; 6 = English, French, German, Italian, Spanish and Dutch. Total population numbers are used as weights to compute disenfranchisement at EU level.

Table 4
English-French (EF) or English-German (EG)
Disenfranchisement Rates (in %)

	Total population		Population under 40	
	EF	EG	EF	EG
Austria	52	0	32	0
Belgium	18	53	8	41
Denmark	24	16	15	7
Finland	39	37	13	12
France	0	57	0	35
Germany	44	0	25	0
Greece	53	52	28	27
Italy	48	59	29	36
Ireland	4	4	3	0
Luxembourg	4	15	6	20
Netherlands	20	15	11	9
Portugal	59	64	34	40
Spain	57	63	32	38
Sweden	20	19	5	4
United Kingdom	1	1	2	2
EU	30	32	17	19

Notes: 1 = English only; 2 = English and French; 3 = English, French and German; 4 = English, French, German and Italian; 5 = English, French, German, Italian and Spanish; 6 = English, French, German, Italian, Spanish and Dutch. Total population numbers are used as weights to compute disenfranchisement at EU level.

NOTE DI LAVORO DELLA FONDAZIONE ENI ENRICO MATTEI

Fondazione Eni Enrico Mattei Working Paper Series

Our Note di Lavoro are available on the Internet at the following addresses:

http://www.feem.it/Feem/Pub/Publications/WPapers/default.html

http://www.ssrn.com/link/feem.html

NOTE DI LAVORO PUBLISHED IN 2003

PRIV	1.2003	*Gabriella CHIESA and Giovanna NICODANO*: Privatization and Financial Market Development: Theoretical Issues
PRIV	2.2003	*Ibolya SCHINDELE*: Theory of Privatization in Eastern Europe: Literature Review
PRIV	3.2003	*Wietze LISE, Claudia KEMFERT and Richard S.J. TOL*: Strategic Action in the Liberalised German Electricity Market
CLIM	4.2003	*Laura MARSILIANI and Thomas I. RENSTRÖM*: Environmental Policy and Capital Movements: The Role of Government Commitment
KNOW	5.2003	*Reyer GERLAGH*: Induced Technological Change under Technological Competition
ETA	6.2003	*Efrem CASTELNUOVO*: Squeezing the Interest Rate Smoothing Weight with a Hybrid Expectations Model
SIEV	7.2003	*Anna ALBERINI, Alberto LONGO, Stefania TONIN, Francesco TROMBETTA and Margherita TURVANI:* The Role of Liability, Regulation and Economic Incentives in Brownfield Remediation and Redevelopment: Evidence from Surveys of Developers
NRM	8.2003	*Elissaios PAPYRAKIS and Reyer GERLAGH*: Natural Resources: A Blessing or a Curse?
CLIM	9.2003	*A. CAPARRÓS, J.-C. PEREAU and T. TAZDAÏT*: North-South Climate Change Negotiations: a Sequential Game with Asymmetric Information
KNOW	10.2003	*Giorgio BRUNELLO and Daniele CHECCHI*: School Quality and Family Background in Italy
CLIM	11.2003	*Efrem CASTELNUOVO and Marzio GALEOTTI*: Learning By Doing vs Learning By Researching in a Model of Climate Change Policy Analysis
KNOW	12.2003	*Carole MAIGNAN, Gianmarco OTTAVIANO and Dino PINELLI (eds.)*: Economic Growth, Innovation, Cultural Diversity: What are we all talking about? A critical survey of the state-of-the-art
KNOW	13.2003	*Carole MAIGNAN, Gianmarco OTTAVIANO, Dino PINELLI and Francesco RULLANI* (lix): Bio-Ecological Diversity vs. Socio-Economic Diversity. A Comparison of Existing Measures
KNOW	14.2003	*Maddy JANSSENS and Chris STEYAERT* (lix): Theories of Diversity within Organisation Studies: Debates and Future Trajectories
KNOW	15.2003	*Tuzin BAYCAN LEVENT, Enno MASUREL and Peter NIJKAMP* (lix): Diversity in Entrepreneurship: Ethnic and Female Roles in Urban Economic Life
KNOW	16.2003	*Alexandra BITUSIKOVA* (lix): Post-Communist City on its Way from Grey to Colourful: The Case Study from Slovakia
KNOW	17.2003	*Billy E. VAUGHN and Katarina MLEKOV* (lix): A Stage Model of Developing an Inclusive Community
KNOW	18.2003	*Selma van LONDEN and Arie de RUIJTER* (lix): Managing Diversity in a Glocalizing World
Coalition Theory Network	19.2003	*Sergio CURRARINI:* On the Stability of Hierarchies in Games with Externalities
PRIV	20.2003	*Giacomo CALZOLARI and Alessandro PAVAN* (lx): Monopoly with Resale
PRIV	21.2003	*Claudio MEZZETTI* (lx): Auction Design with Interdependent Valuations: The Generalized Revelation Principle, Efficiency, Full Surplus Extraction and Information Acquisition
PRIV	22.2003	*Marco LiCalzi and Alessandro PAVAN* (lx): Tilting the Supply Schedule to Enhance Competition in Uniform-Price Auctions
PRIV	23.2003	*David ETTINGER* (lx): Bidding among Friends and Enemies
PRIV	24.2003	*Hannu VARTIAINEN* (lx): Auction Design without Commitment
PRIV	25.2003	*Matti KELOHARJU, Kjell G. NYBORG and Kristian RYDQVIST* (lx): Strategic Behavior and Underpricing in Uniform Price Auctions: Evidence from Finnish Treasury Auctions
PRIV	26.2003	*Christine A. PARLOUR and Uday RAJAN* (lx): Rationing in IPOs
PRIV	27.2003	*Kjell G. NYBORG and Ilya A. STREBULAEV* (lx): Multiple Unit Auctions and Short Squeezes
PRIV	28.2003	*Anders LUNANDER and Jan-Eric NILSSON* (lx): Taking the Lab to the Field: Experimental Tests of Alternative Mechanisms to Procure Multiple Contracts
PRIV	29.2003	*TangaMcDANIEL and Karsten NEUHOFF* (lx): Use of Long-term Auctions for Network Investment
PRIV	30.2003	*Emiel MAASLAND and Sander ONDERSTAL* (lx): Auctions with Financial Externalities
ETA	31.2003	*Michael FINUS and Bianca RUNDSHAGEN:* A Non-cooperative Foundation of Core-Stability in Positive Externality NTU-Coalition Games
KNOW	32.2003	*Michele MORETTO*: Competition and Irreversible Investments under Uncertainty
PRIV	33.2003	*Philippe QUIRION:* Relative Quotas: Correct Answer to Uncertainty or Case of Regulatory Capture?
KNOW	34.2003	*Giuseppe MEDA, Claudio PIGA and Donald SIEGEL*: On the Relationship between R&D and Productivity: A Treatment Effect Analysis

ETA	35.2003	*Alessandra DEL BOCA, Marzio GALEOTTI and Paola ROTA:* Non-convexities in the Adjustment of Different Capital Inputs: A Firm-level Investigation
GG	36.2003	*Matthieu GLACHANT*: Voluntary Agreements under Endogenous Legislative Threats
PRIV	37.2003	*Narjess BOUBAKRI, Jean-Claude COSSET and Omrane GUEDHAMI*: Postprivatization Corporate Governance: the Role of Ownership Structure and Investor Protection
CLIM	38.2003	*Rolf GOLOMBEK and Michael HOEL*: Climate Policy under Technology Spillovers
KNOW	39.2003	*Slim BEN YOUSSEF*: Transboundary Pollution, R&D Spillovers and International Trade
CTN	40.2003	*Carlo CARRARO and Carmen MARCHIORI*: Endogenous Strategic Issue Linkage in International Negotiations
KNOW	41.2003	*Sonia OREFFICE*: Abortion and Female Power in the Household: Evidence from Labor Supply
KNOW	42.2003	*Timo GOESCHL and Timothy SWANSON*: On Biology and Technology: The Economics of Managing Biotechnologies
ETA	43.2003	*Giorgio BUSETTI and Matteo MANERA*: STAR-GARCH Models for Stock Market Interactions in the Pacific Basin Region, Japan and US
CLIM	44.2003	*Katrin MILLOCK and Céline NAUGES*: The French Tax on Air Pollution: Some Preliminary Results on its Effectiveness
PRIV	45.2003	*Bernardo BORTOLOTTI and Paolo PINOTTI*: The Political Economy of Privatization
SIEV	46.2003	*Elbert DIJKGRAAF and Herman R.J. VOLLEBERGH*: Burn or Bury? A Social Cost Comparison of Final Waste Disposal Methods
ETA	47.2003	*Jens HORBACH*: Employment and Innovations in the Environmental Sector: Determinants and Econometrical Results for Germany
CLIM	48.2003	*Lori SNYDER, Nolan MILLER and Robert STAVINS:* The Effects of Environmental Regulation on Technology Diffusion: The Case of Chlorine Manufacturing
CLIM	49.2003	*Lori SNYDER, Robert STAVINS and Alexander F. WAGNER*: Private Options to Use Public Goods. Exploiting Revealed Preferences to Estimate Environmental Benefits
CTN	50.2003	*László Á. KÓCZY and Luc LAUWERS* (lxi): The Minimal Dominant Set is a Non-Empty Core-Extension
CTN	51.2003	*Matthew O. JACKSON* (lxi)*:*Allocation Rules for Network Games
CTN	52.2003	*Ana MAULEON and Vincent VANNETELBOSCH* (lxi): Farsightedness and Cautiousness in Coalition Formation
CTN	53.2003	*Fernando VEGA-REDONDO* (lxi): Building Up Social Capital in a Changing World: a network approach
CTN	54.2003	*Matthew HAAG and Roger LAGUNOFF* (lxi): On the Size and Structure of Group Cooperation
CTN	55.2003	*Taiji FURUSAWA and Hideo KONISHI* (lxi): Free Trade Networks
CTN	56.2003	*Halis Murat YILDIZ* (lxi): National Versus International Mergers and Trade Liberalization
CTN	57.2003	*Santiago RUBIO and Alistair ULPH* (lxi): An Infinite-Horizon Model of Dynamic Membership of International Environmental Agreements
KNOW	58.2003	*Carole MAIGNAN, Dino PINELLI and Gianmarco I.P. OTTAVIANO*: ICT, Clusters and Regional Cohesion: A Summary of Theoretical and Empirical Research
KNOW	59.2003	*Giorgio BELLETTINI and Gianmarco I.P. OTTAVIANO:* Special Interests and Technological Change
ETA	60.2003	*Ronnie SCHÖB:* The Double Dividend Hypothesis of Environmental Taxes: A Survey
CLIM	61.2003	*Michael FINUS, Ekko van IERLAND and Robert DELLINK*: Stability of Climate Coalitions in a Cartel Formation Game
GG	62.2003	*Michael FINUS and Bianca RUNDSHAGEN*: How the Rules of Coalition Formation Affect Stability of International Environmental Agreements
SIEV	63.2003	*Alberto PETRUCCI:* Taxing Land Rent in an Open Economy
CLIM	64.2003	*Joseph E. ALDY, Scott BARRETT and Robert N. STAVINS*: Thirteen Plus One: A Comparison of Global Climate Policy Architectures
SIEV	65.2003	*Edi DEFRANCESCO*: The Beginning of Organic Fish Farming in Italy
SIEV	66.2003	*Klaus CONRAD*: Price Competition and Product Differentiation when Consumers Care for the Environment
SIEV	67.2003	*Paulo A.L.D. NUNES, Luca ROSSETTO, Arianne DE BLAEIJ*: Monetary Value Assessment of Clam Fishing Management Practices in the Venice Lagoon: Results from a Stated Choice Exercise
CLIM	68.2003	*ZhongXiang ZHANG:* Open Trade with the U.S. Without Compromising Canada's Ability to Comply with its Kyoto Target
KNOW	69.2003	*David FRANTZ* (lix): Lorenzo Market between Diversity and Mutation
KNOW	70.2003	*Ercole SORI* (lix): Mapping Diversity in Social History
KNOW	71.2003	*Ljiljana DERU SIMIC* (lxii): What is Specific about Art/Cultural Projects?
KNOW	72.2003	*Natalya V. TARANOVA* (lxii):The Role of the City in Fostering Intergroup Communication in a Multicultural Environment: Saint-Petersburg's Case
KNOW	73.2003	*Kristine CRANE* (lxii)*:* The City as an Arena for the Expression of Multiple Identities in the Age of Globalisation and Migration
KNOW	74.2003	*Kazuma MATOBA* (lxii): Glocal Dialogue- Transformation through Transcultural Communication
KNOW	75.2003	*Catarina REIS OLIVEIRA* (lxii): Immigrants' Entrepreneurial Opportunities: The Case of the Chinese in Portugal
KNOW	76.2003	*Sandra WALLMAN* (lxii): The Diversity of Diversity - towards a typology of urban systems
KNOW	77.2003	*Richard PEARCE* (lxii): A Biologist's View of Individual Cultural Identity for the Study of Cities
KNOW	78.2003	*Vincent MERK* (lxii): Communication Across Cultures: from Cultural Awareness to Reconciliation of the Dilemmas

KNOW	79.2003	*Giorgio BELLETTINI, Carlotta BERTI CERONI and Gianmarco I.P.OTTAVIANO*: Child Labor and Resistance to Change
ETA	80.2003	*Michele MORETTO, Paolo M. PANTEGHINI and Carlo SCARPA*: Investment Size and Firm's Value under Profit Sharing Regulation
IEM	81.2003	*Alessandro LANZA, Matteo MANERA and Massimo GIOVANNINI:* Oil and Product Dynamics in International Petroleum Markets
CLIM	82.2003	*Y. Hossein FARZIN and Jinhua ZHAO*: Pollution Abatement Investment When Firms Lobby Against Environmental Regulation
CLIM	83.2003	*Giuseppe DI VITA*: Is the Discount Rate Relevant in Explaining the Environmental Kuznets Curve?
CLIM	84.2003	*Reyer GERLAGH and Wietze LISE*: Induced Technological Change Under Carbon Taxes
NRM	85.2003	*Rinaldo BRAU, Alessandro LANZA and Francesco PIGLIARU*: How Fast are the Tourism Countries Growing? The cross-country evidence
KNOW	86.2003	*Elena BELLINI, Gianmarco I.P. OTTAVIANO and Dino PINELLI:* The ICT Revolution: opportunities and risks for the Mezzogiorno
SIEV	87.2003	*Lucas BRETSCGHER and Sjak SMULDERS:* Sustainability and Substitution of Exhaustible Natural Resources. How resource prices affect long-term R&D investments
CLIM	88.2003	*Johan EYCKMANS and Michael FINUS:* New Roads to International Environmental Agreements: The Case of Global Warming
CLIM	89.2003	*Marzio GALEOTTI:* Economic Development and Environmental Protection
CLIM	90.2003	*Marzio GALEOTTI*: Environment and Economic Growth: Is Technical Change the Key to Decoupling?
CLIM	91.2003	*Marzio GALEOTTI and Barbara BUCHNER*: Climate Policy and Economic Growth in Developing Countries
IEM	92.2003	*A. MARKANDYA, A. GOLUB and E. STRUKOVA*: The Influence of Climate Change Considerations on Energy Policy: The Case of Russia
ETA	93.2003	*Andrea BELTRATTI*: Socially Responsible Investment in General Equilibrium
CTN	94.2003	*Parkash CHANDER*: The γ-Core and Coalition Formation
IEM	95.2003	*Matteo MANERA and Angelo MARZULLO*: Modelling the Load Curve of Aggregate Electricity Consumption Using Principal Components
IEM	96.2003	*Alessandro LANZA, Matteo MANERA, Margherita GRASSO and Massimo GIOVANNINI:* Long-run Models of Oil Stock Prices
CTN	97.2003	*Steven J. BRAMS, Michael A. JONES, and D. Marc KILGOUR:* Forming Stable Coalitions: The Process Matters
KNOW	98.2003	*John CROWLEY, Marie-Cecile NAVES* (lxiii): Anti-Racist Policies in France. From Ideological and Historical Schemes to Socio-Political Realities
KNOW	99.2003	*Richard THOMPSON FORD* (lxiii*)*: Cultural Rights and Civic Virtue
KNOW	100.2003	*Alaknanda PATEL* (lxiii): Cultural Diversity and Conflict in Multicultural Cities
KNOW	101.2003	*David MAY* (lxiii): The Struggle of Becoming Established in a Deprived Inner-City Neighbourhood
KNOW	102.2003	*Sébastien ARCAND, Danielle JUTEAU, Sirma BILGE, and Francine LEMIRE* (lxiii) : Municipal Reform on the Island of Montreal: Tensions Between Two Majority Groups in a Multicultural City
CLIM	103.2003	*Barbara BUCHNER and Carlo CARRARO:* China and the Evolution of the Present Climate Regime
CLIM	104.2003	*Barbara BUCHNER and Carlo CARRARO:* Emissions Trading Regimes and Incentives to Participate in International Climate Agreements
CLIM	105.2003	*Anil MARKANDYA and Dirk T.G. RÜBBELKE:* Ancillary Benefits of Climate Policy
NRM	106.2003	*Anne Sophie CRÉPIN (*lxiv*):* Management Challenges for Multiple-Species Boreal Forests
NRM	107.2003	*Anne Sophie CRÉPIN* (lxiv)*:* Threshold Effects in Coral Reef Fisheries
SIEV	108.2003	*Sara ANIYAR (* lxiv): Estimating the Value of Oil Capital in a Small Open Economy: The Venezuela's Example
SIEV	109.2003	*Kenneth ARROW, Partha DASGUPTA and Karl-Göran MÄLER(*lxiv*):* Evaluating Projects and Assessing Sustainable Development in Imperfect Economies
NRM	110.2003	*Anastasios XEPAPADEAS and Catarina ROSETA-PALMA(*lxiv*):* Instabilities and Robust Control in Fisheries
NRM	111.2003	*Charles PERRINGS and Brian WALKER* (lxiv): Conservation and Optimal Use of Rangelands
ETA	112.2003	*Jack GOODY* (lxiv): Globalisation, Population and Ecology
CTN	113.2003	*Carlo CARRARO, Carmen MARCHIORI and Sonia OREFFICE*: Endogenous Minimum Participation in International Environmental Treaties
CTN	114.2003	*Guillaume HAERINGER and Myrna WOODERS*: Decentralized Job Matching
CTN	115.2003	*Hideo KONISHI and M. Utku UNVER*: Credible Group Stability in Multi-Partner Matching Problems
CTN	116.2003	*Somdeb LAHIRI*: Stable Matchings for the Room-Mates Problem
CTN	117.2003	*Somdeb LAHIRI*: Stable Matchings for a Generalized Marriage Problem
CTN	118.2003	*Marita LAUKKANEN*: Transboundary Fisheries Management under Implementation Uncertainty

CTN	119.2003	*Edward CARTWRIGHT and Myrna WOODERS*: Social Conformity and Bounded Rationality in Arbitrary Games with Incomplete Information: Some First Results
CTN	120.2003	*Gianluigi VERNASCA*: Dynamic Price Competition with Price Adjustment Costs and Product Differentiation
CTN	121.2003	*Myrna WOODERS, Edward CARTWRIGHT and Reinhard SELTEN*: Social Conformity in Games with Many Players
CTN	122.2003	*Edward CARTWRIGHT and Myrna WOODERS*: On Equilibrium in Pure Strategies in Games with Many Players
CTN	123.2003	*Edward CARTWRIGHT and Myrna WOODERS*: Conformity and Bounded Rationality in Games with Many Players
	1000	**Carlo CARRARO, Alessandro LANZA and Valeria PAPPONETTI: One Thousand Working Papers**

NOTE DI LAVORO PUBLISHED IN 2004

IEM	1.2004	*Anil MARKANDYA, Suzette PEDROSO and Alexander GOLUB:* Empirical Analysis of National Income and So_2 Emissions in Selected European Countries
ETA	2.2004	*Masahisa FUJITA and Shlomo WEBER*: Strategic Immigration Policies and Welfare in Heterogeneous Countries
PRA	3.2004	*Adolfo DI CARLUCCIO, Giovanni FERRI, Cecilia FRALE and Ottavio RICCHI:* Do Privatizations Boost Household Shareholding? Evidence from Italy
ETA	4.2004	*Victor GINSBURGH and Shlomo WEBER*: Languages Disenfranchisement in the European Union

(lix) This paper was presented at the ENGIME Workshop on "Mapping Diversity", Leuven, May 16-17, 2002
(lx) This paper was presented at the EuroConference on "Auctions and Market Design: Theory, Evidence and Applications", organised by the Fondazione Eni Enrico Mattei, Milan, September 26-28, 2002
(lxi) This paper was presented at the Eighth Meeting of the Coalition Theory Network organised by the GREQAM, Aix-en-Provence, France, January 24-25, 2003
(lxii) This paper was presented at the ENGIME Workshop on "Communication across Cultures in Multicultural Cities", The Hague, November 7-8, 2002
(lxiii) This paper was presented at the ENGIME Workshop on "Social dynamics and conflicts in multicultural cities", Milan, March 20-21, 2003
(lxiv) This paper was presented at the International Conference on "Theoretical Topics in Ecological Economics", organised by the Abdus Salam International Centre for Theoretical Physics - ICTP, the Beijer International Institute of Ecological Economics, and Fondazione Eni Enrico Mattei – FEEM Trieste, February 10-21, 2003
(lxv) This paper was presented at the EuroConference on "Auctions and Market Design: Theory, Evidence and Applications" organised by Fondazione Eni Enrico Mattei and sponsored by the EU, Milan, September 25-27, 2003

2003 SERIES

CLIM	*Climate Change Modelling and Policy* (Editor: Marzio Galeotti)
GG	*Global Governance* (Editor: Carlo Carraro*)*
SIEV	*Sustainability Indicators and Environmental Valuation* (Editor: Anna Alberini)
NRM	*Natural Resources Management* (Editor: Carlo Giupponi)
KNOW	*Knowledge, Technology, Human Capital* (Editor: Gianmarco Ottaviano)
IEM	*International Energy Markets* (Editor: Anil Markandya)
CSRM	*Corporate Social Responsibility and Management* (Editor: Sabina Ratti)
PRIV	*Privatisation, Regulation, Antitrust* (Editor: Bernardo Bortolotti)
ETA	*Economic Theory and Applications* (Editor: Carlo Carraro)
CTN	*Coalition Theory Network*

2004 SERIES

CCMP	*Climate Change Modelling and Policy* (Editor: Marzio Galeotti)
GG	*Global Governance* (Editor: Carlo Carraro*)*
SIEV	*Sustainability Indicators and Environmental Valuation* (Editor: Anna Alberini)
NRM	*Natural Resources Management* (Editor: Carlo Giupponi)
KTHC	*Knowledge, Technology, Human Capital* (Editor: Gianmarco Ottaviano)
IEM	*International Energy Markets* (Editor: Anil Markandya)
CSRM	*Corporate Social Responsibility and Management* (Editor: Sabina Ratti)
PRA	*Privatisation, Regulation, Antitrust* (Editor: Bernardo Bortolotti)
ETA	*Economic Theory and Applications* (Editor: Carlo Carraro)
CTN	*Coalition Theory Network*