



## **Sustainable Development in a Diverse World (SUS.DIV)**

### **POSITION PAPER OF RESEARCH TASK 1.2**

#### **“Cultural diversity as an asset for human welfare and development”**

## **Benefits of linguistic diversity and multilingualism**

### **Participants**

**Durk Gorter**, Fryske Akademy, the Netherlands, **research task leader**

**Jasone Cenoz**, University of the Basque Country, Donostia

**Paulo Nunes**, Venice International University and FEEM, Italy

**Patrizia Riganti**, University of Nottingham, UK

**Laura Onofri**, FEEM and University Bologna - Dept. in Rimini, Italy

**Barbara Puzzo**, University Como and Milano, Italy

**Rajesh Sachdeva**, Central Institute of Indian Languages, India

## **1. Introduction**

Linguistic diversity in the world today is an issue of growing social importance because a majority of all living languages are threatened in their continued existence. How they can be sustained is a matter of study and debate. Changes in the vitality of a language has important implications for individuals and societies. Multilingualism is a common and increasing phenomenon in present day society which can be studied from different perspectives. The purpose of the position paper is to focus on language as a cultural asset and to establish the relationship between linguistic diversity and human welfare from an economic perspective.

The position paper has the following structure. In section 2 a general overview of linguistic diversity around the globe will be given. The concepts of linguistic diversity and multilingualism are defined. Section 2.1 discusses the spread of multilingualism and of English world wide and in section 2.2 the focus is shiften to Europe. Section 2.3 discusses the relationship between linguistic diversity and biodiversity. Section 3 presents the theoretical concept of language vitality. In section 4 the relevance for policy is established. In section 5 the transition to economic variables is made by briefly summarizing the emerging field of the economic of language. In section 6 the economic valuation perspective is presented which will be used in the case studies that this task group will undertake in its ensuing research. In the appendix a bibliography of linguistic diversity

## **2. Linguistic diversity and multilingualism**

Nowadays there are between 5,000 and 7,000 languages in the world. It is difficult to know the exact number of languages because the distinction between a language and a dialect is not always clear. In fact languages are not isolated entities and in many cases there are no clear boundaries between them, it is rather a continuum that extends along a geographical area.

Linguistic diversity has been defined in a broad sense as the ‘range of variations exhibited by human languages’ ([www.terralingua.org](http://www.terralingua.org)). The Ethnologue (Gordon, 2005, [www.ethnologue.com](http://www.ethnologue.com)) considers that there are 6,912 languages in the world today, but

some of the languages included are just considered varieties or dialects in other accounts. The distribution of the languages in the different continents shows that there are important differences (see Table 1).

**Table 1.** Distribution of languages by area of origin ([www.ethnologue.com](http://www.ethnologue.com)).

Continent	Languages	
	Count	Percent
<a href="#">Africa</a>	2,092	30.3
<a href="#">Americas</a>	1,002	14.5
<a href="#">Asia</a>	2,269	32.8
<a href="#">Europe</a>	239	3.5
<a href="#">Pacific</a>	1,310	19.0
Totals	6,912	100.0

This table shows that Africa and Asia have a much larger number of languages than Europe. Most of the world's languages are spoken in a broad area on either side of the Equator - in South-east Asia, India, Africa, and South America.

The languages included in this table are living languages with speakers who have these languages as a first language and languages are only counted once as their country of origin even if they are spoken in more than one country.

The Ethnologue also provides information about the size of the languages and the number of speakers of the different languages.

**Table 2.** Distribution of languages by number of first-language speakers.

Population range	Count	Percent	Count	Percent
100,000,000 to 999,999,999	8	0.1	2,301,423,372	40.21
10,000,000 to 99,999,999	75	1.1	2,246,597,929	39.25
1,000,000 to 9,999,999	264	3.8	825,681,046	14.42
100,000 to 999,999	892	12.9	283,651,418	4.95
10,000 to 99,999	1,779	25.7	58,442,338	1.02
1,000 to 9,999	1,967	28.5	7,594,224	0.13
100 to 999	1,071	15.5	457,022	0.007
10 to 99	344	5.0	13,163	0.0002
1 to 9	204	3.0	698	0.00001
Unknown	308	4.5		
Totals	6,912	100.0	5,723,861,210	100.00000

The data indicate that 40% of the world's population have one of the most common eight languages as a first languages. These languages are Mandarin, Hindi, Spanish, English, Bengali, Portuguese, Arabic and Russian. In contrast, by far most languages (> 4.000) are spoken by less than 2% of the world's population and some of these only by a few hundred or a handful of people. The Ethnologue classifies 516 languages as nearly extinct because they are spoken by just a few elderly people. The distribution of these severely endangered languages is the following:

**Table 3.** Most severely endangered languages according to continent (from Ethnologue).

- [Africa](#) 46
- [The Americas](#) 170
- [Asia](#) 78
- [Europe](#) 12
- [The Pacific](#) 210

The diversity of languages in the world and the different vitality of the languages has important implications for individuals and societies. As there are between 5,000 and 7,000 languages in the world and only about 200 independent states thus multilingualism is indeed a very common phenomenon. The countries where more languages are spoken are the following: Papua New Guinea, Indonesia, Nigeria, India and Mexico. The governments of many countries give official recognition to only one or some of the languages spoken in the country and this creates the impression that multilingualism is not a common phenomenon. In fact, it would be difficult to find a country which is completely monolingual because multilingualism is the rule not the exception:

To be bilingual or multilingual is not the aberration supposed by many (particularly, perhaps, by people in Europe and North America who speak a 'big' language); it is rather a normal and unremarkable necessity for the majority in the world today (Edwards 1994\*: 1).

Most of the world's population speaks more than one language but most of the population in western cultures are monolingual in one of the 'big' languages in spite of being exposed to other languages mainly in the school context. Therefore we can say that multilingualism at the sociolinguistic level is more spread than multilingualism at the individual level but even in this case it is extremely common. The spread of multilingualism justifies its importance in research. In fact the study of different aspects of the diversity of languages should be one of the main goals of linguistics. At the psycholinguistic level this has been highlighted by Cook (1992).

“The primary question for linguistics should be not Chomsky's (1986) “What constitutes knowledge of language” (p.3), but “What constitutes knowledge of languages?” (Cook 1992: 579)

Multilingualism can be defined in different ways but basically it refers to the ability to use more than two languages. A basic distinction when discussing bilingualism and

multilingualism is between the individual and societal level. At the individual level, bilingualism and multilingualism refer to the speaker's competence to use two or more languages. At the societal level the terms bilingualism and multilingualism refer to the use of two or more languages in a speech community and it does not necessarily imply that all the speakers in that community are competent in more than one language.

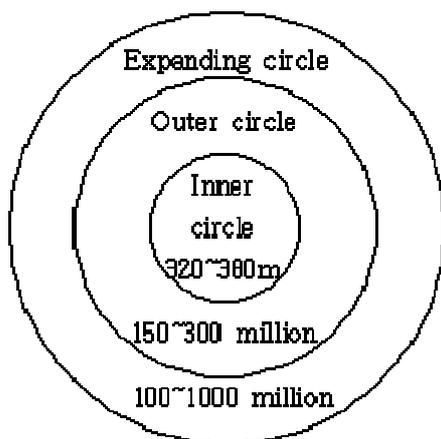
## **2.1 The spread of multilingualism and the spread of English**

Multilingualism can be the result of different factors. Some of them are the following:

- Historical or political movements such as imperialism or colonialism. In this case the spread of some languages, such as Spanish to Latin America, it results in the coexistence of different languages.
- Economic movements in the case of migration. The weak economics of some areas and countries results in movement of the population to other countries and to the development of multilingual and multicultural communities in the host countries.
- Increasing communications among different parts of the world and the need to be competent in languages of wider communication. This is the case with the development of new technologies and also with science. English is the main language of wider communication but it is used by millions of people who use other languages as well.
- Social and cultural identity and the interest for maintenance and revival of minority languages. This interest creates situations in which two or more languages co-exist and are necessary in everyday communication.
- Education. Second and foreign languages are part of the curriculum in many countries.
- Religion movements that result in people moving to a new country

English is the most important language of wider communication in the world as the result of British colonial power in the nineteenth century and the first decades of the twentieth century and the leadership of the US in the twentieth century. English is also the main language of science and technology in the world and its spread is advancing in many countries and regions where English has not been traditionally spoken. English is also the main language of popular culture and globalization as can be seen in advertising. Nowadays multilingualism usually implies English and other languages. English has also been considered a threat for linguistic diversity (Philipson, 1992).

The spread of English has been visualized in terms of three circles representing the historical and sociolinguistic profile of English in different parts of the world (Kachru, 1985). The inner circle includes the countries that are traditionally considered the bases of English, where English is the first language for the majority of the populations: UK, USA, Ireland, Canada, New Zealand, Australia. Nevertheless, English is not the only language spoken in these countries because it is in contact with heritage languages or languages that are spoken as the result of immigration. The outer circle includes those countries where English is not the first language of the majority of the population but English is a second language that is used at the institutional level as the result of colonization. The expanding circle includes those countries where English has no official status and is taught as a foreign language.



**Fig 1.** The three circles of Kachru (1985).

The contact between English and other languages in the three circles and the spread of English in the outer and expanding circles has important sociolinguistic and psycholinguistic implications. At the sociolinguistic level, the spread of English has important implications regarding the ownership of English and the varieties of English. The spread of English as a lingua franca threatens the traditional ownership of English as a property of native speakers. At the same time, new non-native varieties of English (Indian English, Nigerian English, etc) have been developed as the result of the contact between English and other languages in different parts of the world. Furthermore, the contact between English and other languages and the spread of English also has implications at the psycholinguistic level. English is being learned by many individuals not only as a second language but also as a third or fourth language and in many cases English is one of the languages in the multilingual's linguistic repertoire.

## **2.2 Linguistic diversity and multilingualism in Europe**

The current 48 states in Europe have 38 different official state languages. In total there are about 240 spoken indigenous languages. The five languages spoken by most people in Europe are, by number of mother tongue speakers, Russian, German, English, French, Italian. But most European countries operate routinely with several languages. The exceptions are small states such as Iceland, Liechtenstein and the Holy See (Vatican), and even in these places we find significant use of second languages.

States such as Italy, the United Kingdom, Germany, Poland, France, Spain, Romania, and Ukraine have many indigenous minority or regional languages.

Russia has by far the highest number of languages spoken on its territory. The number differs from 130 to 200 depending on the criteria of including (or not) of former and present dialects of peoples of Russia and also languages of minorities from the now independent republics.

Some of the minority languages in Europe have obtained official status. For example, Basque, Catalan and Galician have official status in Spain. Welsh has protective language rights in the United Kingdom, as does Irish in Ireland, Frisian in the Netherlands and the Sámi languages in Norway, Sweden and Finland.

Due to the influx of migrants and refugees from all over the world, Europe has become increasingly multilingual. London, for example, has more than 300 languages spoken as a home language. Most other larger cities, particularly in Western Europe, easily have 100-200 languages spoken as mother tongues by their school populations. The most important immigrant languages include Arabic, Berber, Turkish, Kurdish, Hindi, Punjabi, and Chinese. However, many of the immigrant languages are spoken by small minorities, and their future is under threat in the new country.

Multilingualism is thus also a common phenomenon in Europe even though the linguistic diversity of Europe is not rich as in other continents. Only 3,5% of the world's total number of languages are indigenous to Europe, still Europeans often feel their continent to have an exceptional number of languages, especially when compared to North America or Australia. Multilingualism usually involves English as one of the languages. Some of these situations are the following:

**i.** Native speakers of a minority language who are also proficient in the majority language and use English as a language of wider communication. This is the case of native speakers of autochthonous languages such as Basque, Breton, Sardinian, Catalan, Frisian, Ladin or Sámi and also native speakers of well spread European languages whose language is a minority language at the national level such as German in France, Italy or Belgium.

**ii.** Native speakers of a majority language who learn a minority language at school and also learn and use English as a language of wider communication. This is the case of native speakers of Spanish who learn Catalan or Basque at school or native speakers of Dutch who learn Frisian at school and also learn and use English.

**iii.** Native speakers of more or less spread European languages who learn other languages of wider communication. For example, native speakers of Dutch in Belgium who learn French as a second language and English as a third language or native speakers of Swedish in Vaasa who learn Finnish and English. This group also include speakers of more spread languages such as French or German who learn other languages including English.

**iv.** Immigrants from non-European countries who learn the official language of the new country and learn and use English. For example, Turkish immigrants in Germany or The Netherlands.

Due to the spread of English as a language of wider communication multilingualism involving more than two languages is less common in countries where English is the dominant language such as the UK and Ireland.

Multilingualism with English is also common in other parts of the world. For example, English is learned as a third language for many school children who are speakers of heritage languages (Guarani, Quechua, Mohawk, etc) and live in Central America, South America or French speaking Canada. English is also a third language for many African speakers living in countries where French is widely used as a second language (Mozambique, Mauritius) and also for those children who live in African countries where English is widely used at the institutional level (Kenya, Nigeria, etc) but already speak two languages before they go to school. English is also a third language for many speakers in other parts of the world such as Asia or the Pacific where a large number of languages are spoken but English is needed for wider communication. English is also the third language for a large number of immigrants who have established themselves in countries where English is learned as a second language (French speaking Canada, Israel, Japan, etc) and also for immigrants who already spoke two languages before they established themselves in English speaking countries (US, Australia, New Zealand, etc). Multilingualism can also exist without English. For example in the Danish-German border area several languages and dialects are present: High German, Low German, Danish, Jutish and different North-Frisian dialects, or in the case of North-eastern Italy trilingualism exists between Slovene, Italian and German.

### **2.3 Linguistic diversity and biodiversity**

The arguments to support ecological diversity can also be extended to linguistic diversity. Crystal (2000) highlights two of the arguments used to support biodiversity for their applicability to linguistic diversity:

1. The whole concept of ecosystem is based on networks of relationships and 'damage to any one of the elements in an ecosystem can result in unforeseen consequences for the system as a whole'. (Crystal 2000: 33).
2. Diversity is necessary for evolution and the strongest ecosystems are those which are more diverse.

The death of a language is a significant loss because they imply a loss of inherited knowledge. Cultures are transmitted through languages and languages also reflect the history of the people who have used them. Linguistic diversity is not less important than ecological diversity. As Krauss (1992: 8) says:

“Surely, just as the extinction of any animal species diminishes our world, so does the extinction of any language. Surely we linguists know, and the general public can sense, that any language is a supreme achievement of a uniquely human collective genius, as divine and endless a mystery as a living organism. Should we mourn the loss of Eyak or Ubykh any less than the loss of the panda or California condor?”

Similar views have been discussed by Maffi (\*...) who refers to biocultural diversity as the link and interdependence between the various manifestations of the diversity of life: biodiversity, cultural diversity, and linguistic diversity. Skutnabb-Kangas (\*....) even refers to linguistic genocide and considers that the educational system is in many cases responsible for language loss.

A well known analogy between linguistic and ecological diversity is the 'language garden analogy' proposed by Garcia (in Baker and Prys Jones 1998:205). According to Garcia it would be dull and boring to travel around the world and see that all gardens are of the same one-colour flower. The variety of flowers of different shapes, sizes and colours makes our visual and aesthetic experience rich and enjoyable. Linguistic diversity also makes the world more interesting and colourful but as in the case of flowers it makes the garden more difficult to tend. Some flowers (and some languages)

spread very quickly and others need extra care and protection. Language diversity requires planning and care and involves some actions such as:

1. Adding flowers to the garden: Learning other languages can be an enriching experience
2. Protecting rare flowers: Protecting languages at risk through legislation and education
3. Nurturing flowers in danger of extinction: Intervention may be necessary and may imply positive economic discrimination
4. Controlling flowers that spread quickly and naturally: Spread can be allowed if it does not kill other species.

The comparison between biodiversity and linguistic diversity has also gone a step further in some works which compare the geographical distribution of both. Harmon (1996, 1998) compared the geographical distribution of the world's species and languages and found a striking overlap between countries with high endemism for vertebrates, plants and birds and countries with high numbers of endemic languages (defined as languages restricted in range to a single country). Harmon (1996) explains that this endemism can be related to some geographical and environmental factors that increase biodiversity but also linguistic diversity because they induce isolation and therefore linguistic diversification. For example, the countries with more linguistic diversity tend to rate high on biodiversity.

**Table 4.** Biodiversity in countries with highest linguistic diversity.

	<b>Endemic vertebrates</b>	<b>Flowering plants</b>	<b>Endemic bird areas</b>	<b>On mega-diversity list</b>
<b>Papua New Guinea</b>	13th	18th	6th	
<b>Indonesia</b>	4th	7th	1st	yes
<b>Nigeria</b>	No data			
<b>India</b>	7th	12th	11th	yes
<b>Australia</b>	1st	11th	9th	yes

### **3. Linguistic diversity and language vitality**

As we have already seen there are many languages 'at risk' in the world nowadays because their number of speakers is very limited. Krauss (1992, 1995) estimates that 50% of languages could die in the next 100 years and that in the long term 90% of the world languages could die. The demographic factor is crucial when looking at the vitality of a language but the vitality of a language is a complex construct which is also related to other factors.

First, it is important to consider that the vitality of a language is not static. Important languages, such as Latin have died and the vitality of many others has changed dramatically. For example, the extraordinary vitality that English enjoys nowadays has not been always been the same. After the Norman Conquest (1066), the king of England and his court were not fluent in English which was the language of the lower classes.

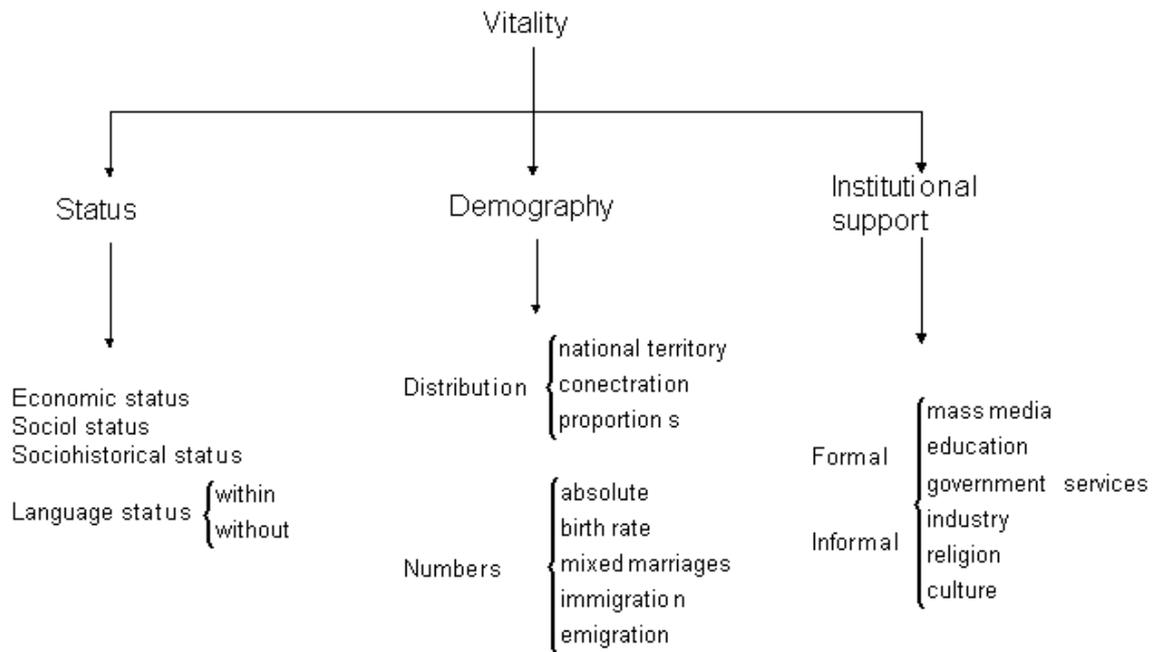
The vitality of a language is related to several factors. According to Giles et al. (1977), the relative ethnolinguistic vitality that a specific language group has as compared to other language groups is based on its demography, its institutional control and its status. From a social psychological perspective Giles et al. (1977) consider that the vitality of an ethnolinguistic group is "that which makes a group likely to behave as a distinctive and active collective entity in intergroup situations" (Giles et al. 1977: 308). This means that the more vitality a group has, the more chance it has surviving and thriving as a group. So individuals want to belong to such a strong and healthy group. There are three factors that influence this vitality: status, demography and institutional support (see Fig. 2).

The status variables are "those which pertain to a configuration of prestige variables of the linguistic group in the intergroup context" (Giles et al, 1977: 309). So that means that the more status a group has, the more vitality a group has and the more desirable this group will be. There are four status variables. The first is the economic status, which refers to the extent to which to a group has control over the material and financial goods in its community. It is calculated country by country on the basis of the figures

given for the number of native speakers and for the country's GNP (Gross National Product). Another status variable is the social status, which refers to the image this group has, both its own view and the view from the other groups. The third status variable is the sociohistorical variable and this refers to the amount of shared cultural history a group has, like for example a battle that was won or a famous person. When a group has many of these events and persons, it binds the group. The last status variable is the status the group's language has. The history of a language, the prestige value and the degree to which the own language has changed into the language of the dominant group can also be something to be proud or be ashamed of. This language status can be divided into status within the community (so what do the own people think of their language) and status outside the community (so what do other groups think of this language). These are all status variables.

A second factor that influences the vitality has to do with demography. This factor can be divided into two sub-factors: group distribution factors and group number factors. The group distribution factors have to do with the relative numbers of a group, so how much territory does a group have and how the group is concentrated within this territory. Also important are how many members a group has in comparison to the dominant group. The second sub-factor is the group number factor: how many (absolute) members does a group have, how high is the own birth-rate compared to the birth-rate of the dominant group, immigration and emigration patterns. Forced emigration can effect the vitality of a group seriously, like in the case of the Romani or Jews.

The third factor that influences the vitality is the institutional support a group gets. This refers to the amount of help a group gets from institutions in their nation or region. It also refers to the extent to which a group organises itself. A group, which organises itself, has more chance to survive.



**Figure 2:** A taxonomy of the structural variables affecting etholinguistic vitality (Giles et al, 1977: 309).

This taxonomy has been used in studies of intergroup and intragroup identities in social psychology. These approaches contribute to the study of language as one of the salient dimensions of ethnic identity but they have also been criticized. For example Pavlenko and Blackledge (2003) consider that the relationship between language and identity is very complex and multidimensional and that it involves a large number of sociopolitical, socioeconomic and sociocultural factors which are not included in the model. The model has also been criticized for the difficulty to use objective measures (Husband & Khan, 1992).

#### 4. Linguistic diversity and language policy

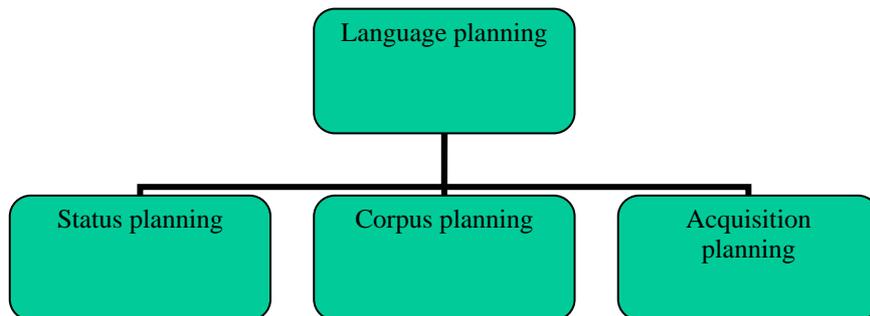
Taking into account the large number of endangered languages and the relationship between language loss and power, discrimination and marginalization many scholars feel the need to establish policies to maintain language diversity. Crystal (2000) gives five reasons to justify the importance of language diversity:

- i. Ecological diversity.
- ii. Languages express identity
- iii. Languages are repositories of history
- iv. Language contribute to the sum of human knowledge
- v. Languages are interesting in themselves

A free language economy could mean the extinction of many languages and therefore language planning is essential.

#### 4.1 What is language planning?

Language planning refers to ‘deliberate efforts to influence the behavior of others with respect to acquisition, structure or functional allocation of their language codes’ (Cooper 1989: 45). Cooper breaks down the process into three components: corpus, status, and language planning (see Figure 3).



**Figure 3:** Language planning consists of status, corpus and acquisition planning.

Status planning involves the allocation of language to given social functions.

Corpus planning involves the technical process of creating new forms, modifying old ones or selecting an alternative.

To these two are well established concepts in the literature, Cooper has added a third, acquisition planning, which is involved in those cases in which the goal is to expand the number of speakers of a language, either in a country or even globally, for example through language teaching.

Because status planning comprises 'deliberate efforts to influence the allocation of functions among a community's languages (Cooper 1989: 99), it can be stated that status planning is involved when a language policy can be targeted at the following:

- Official uses of language (laws, etc)
- Planning at a regional (state, country, province) level
- Wider communication across regional and state borders
- International, particularly ..spread of English
- Use in specific domains such as education, religion

In contrast, corpus planning is involved when a language is used for a new functions that it has not previously served, then the corpus or 'body' of that language may need to be adapted or elaborated to make it suitable for the new communicative functions. A prime example of this is the creation of new scientific and technological terminology, but it can also be used for creating suitable language styles. A language may be modified to attain non-linguistic goals. A colloquial standard may be developed for use in mass literacy and education. Cooper identifies 3 aspects of corpus planning:

- Graphization: reduction to writing of a previously unwritten language
- Standardization
- Modernization

As for acquisition planning this concerns organized efforts to promote the learning or re-learning of a language. Either through formal education, courses or informal learning.

Cooper (1989: 98) presents a scheme for a descriptive understanding language planning in a specific case by asking a series of key questions:

- which actors?
- attempt to influence which behaviours?
- of which people?
- for what ends?
- under what conditions?

- by what means?
- through what decision-making processes and means?
- with what effect or outcome?

Different groups can be analyzed in this way: politicians, civil servants, military but also literary writers. Language planning is more likely to succeed when it is promoted by elite groups.

Spolsky (2004: 39-41) builds upon Cooper but takes a somewhat different approach. He distinguishes four main features for his theory of language policy. The first is that Spolsky divides 'language policy' into 1) language practices (i.e. actual language behavior) 2) language beliefs and ideologies (also called language attitudes) and 3) language management (the plans and activities to modify language).

His second main notion is that language policy can be involved 'with all individual elements at all levels that make up a language'. The third is that language policy operates in a speech community (of whatever size). And his fourth basic notion is that language policy functions in an ecological relationship with linguistic and non-linguistic factors. Basically language policy is about choice (Spolsky 2004: 217).

In the literature there are a number of other well-known models of language planning which could be of relevance. One is the model by Haugen (1966) that consists of four stages: selection, codification, implementation and elaboration. Another is the model by Fishman (1991, 2001) of Reversing Language Shift (RLS) in which he develops the Graded Intergenerational Disruption Scale (GIDS) to indicate the degree of dislocation of a language group. For Fishman the nexus between family, neighborhood and community is of central importance for the continued intergenerational transmission of a language. In his model the control over education is of great importance as it is the watershed between a community with a diglossic division of language functions (the language is mainly used in informal and lower domains) and a community that tries to overcome such diglossic situation and aims for more formal and higher domains of language use. These models will not be elaborated upon here (for the moment).

## **5. Language and economy: the economics of language**

In several publications Grin (1990, 1996, 2002) has provided an overview of the study of the economics of language. For orientation on those studies a brief summary will be given here.

Grin (1990) emphasizes that the field of language economics, although it already arose in the 1960s, is still very young and underdeveloped. Language processes are affected by economic processes and the other way around. In Grin (1996a:1-2) he calls the economics of language an “emerging field of research”, with few researchers who are often unaware of each other’s work. He mentions as key issues “the benefits and costs of various arrangements for intergroup communication, differential access to labor markets, language-based distributional inequality, the provision of language-specific goods, language use in the market place, the role of language in economic development, and the economic pros and cons of various language-teaching policies.” (Grin 1996a: 3).

Grin (2002) defines the field as follows: “The economics of language [...] refers to the paradigm of mainstream theoretical economics and uses the concepts and tools of economics in the study of relationships featuring linguistic [...] variables; it focuses principally, but not exclusively, on those relationships in which economic variables also play a part.” (see also Grin 1999: 13, Grin 1996a: 6).

According to Grin (2002: 12-14) the development of the economics of language can be summarized in three periods. The first studies look at language as ethnic attribute (e.g. mother tongue) which may have an effect on the person’s socio-economic status (particularly earnings). Such studies were carried out in the US and in Canada.

The ‘second generation’ of studies look at language as human capital, they are linked to education economics, thus language skills are interpreted as a source of economic advantage.

The ‘third generation’ considers both dimensions jointly.

Other studies have been looking at language as medium of trade (Grin warns here for the inaccuracy of the parallel between languages and currencies). These studies were mainly North American and language was an explanatory factor of economic variables (e.g. language determines labour income).

In Europe in the late eighties there is some interest in the reverse relationship of economic variables as explanatory factors of linguistic variables (e.g. effect of earnings on language use, or on language maintenance).

Other studies look at the role of economics as a tool for evaluating language policy, in particular in terms of costs and benefits.

Grin (2002: 14-20) also mentions the main directions of current research. He briefly describes (1) language and labour income, (2) language dynamics, (3) language and economic activity, and (4) the economics of language policy.

A short summary of each theme can be given.

(1) *language and labour income*: the basic idea is that linguistic attributes can influence earnings. Belonging to a language group may result in a wage rate disadvantage (other things being equal). This line of work also reconsiders the metaphor of 'language as value' which "usually falls short of a reliable guide for policy action" (p 15)

(2) *language dynamics*: this is related to language maintenance and language shift. There is no general sociolinguistic theory, but the RLS (=Reversing Language Shift) approach by Fishman (1991, 2001) is making progress. Economists have developed models of language behaviour. Interesting are the 'network effects' "one intriguing dimension of languages (which sets them apart from most other 'commodities' in an economic sense) is that when more people use a language, the more useful it becomes, ... to other people". This has an effect on the attractiveness of learning particular languages.

(3) *language and economic activity*: (not a significant part of language economics) there are diverse lines of mainly descriptive work about the role of language in production, consumption and exchange. E.g. the study of language use in advertising and consumer relations: preference in Catalonia or Québec for goods in their own language. Other research is more on the role of minority language maintenance as factor of regional economic vitality. Sabourin (1985) studies matching between employees on linguistic dimensions in a firm, but is more theoretical. Generally the concepts of supply, demand and market for any good or service also apply to language goods.

(4) *the economics of language policy*: mostly the position of one language vis-a-vis other languages, or the broader question of *linguistic diversity*. It establishes links with other branches of economics, its closest 'cousin' is environmental economics: "the type

of trade-offs to be envisaged regarding our linguistic environment are akin to those ... (of) the natural environment.”. “Much of the ongoing work on language policies goes towards identifying and measuring the elements of benefits and costs which characterise policy options” (Grin and Vaillancourt 1999). The aim is to identify the main sources of benefits and costs from the perspective of individuals and of society ... of various policy alternatives.

In the rest of the article Grin (2002) focuses on education which he designates as “the single most important channel of government intervention in the sphere of language” as well as “the most important vehicle of language policy”.

Grin (1996b: 29) makes a few rather critical remarks on Bourdieu’s use of terms such as markets, capital, profit etc “Most of the time this is pure metaphor, which says nothing about the actual “value” of language or some elusive “linguistic market” .. It is not an economic analysis of language use or a theory of the value of languages (see Grin 1994).

According to Grin (1996: 30-31) economics can prove useful in two ways (a) by understanding language-related processes and (b) by for language policy studies.

## **6. Economic valuation**

### **6.1 Introduction**

In a democratic system, policy makers should take into account the preferences of the taxpayers belonging to that system. Because we live in a world with scarce resources, one is asked to make the choice regarding the use and management of these resources. In this context, if policy makers decide to invest on the protection of cultural goods or services, less financial resources would be available for other policy areas, for example national defence. In addition, the investment on the protection cultural goods and services brings along with it the provision of public benefits, which are not fully priced on current markets. In other words, cultural goods provide a wide range of benefits to humans and most are not valued on market prices. For example, cultural diversity when expressed in terms of multilingualism provide an important role in gathering storing and transferring a collection of ancient traditions across generations and we do not observe a market price that reflects such benefit. Given that most human activities are priced in

one way or other, in some decision contexts, the temptation exists to downplay or ignore multilingualism benefits on the basis of non-existence of prices for such a type of cultural benefit. The simple and simplistic idea here is that a lack of prices is identical to a lack of values. Clearly, this is a slightly biased perspective.

The micro-economic theory of externalities teaches us that many values cannot be incorporated in conventional market transactions. The question is then how to translate such values into monetary dimensions. This is a challenging question to be addressed by economists. The underlying idea is that economists need to rely on particular economic valuation methods in order to retrieve the monetary value of these marine benefits. Since these are not directly observed in the market, the valuation methods are called non-market valuation methods and constitute the core of the present chapter. We will articulate the discussion as follows. Section 2 provides a discussion regarding the concept of economic value, and its underlying valuation perspective, linking the valuation of non-market resources to micro-economic theory. Section 3 illustrates the different value components associated with the provision of a minority language, modelling its significance when ranking policy preservation decisions.

## **6.2. The economic valuation perspective**

### *6.2.1 Introduction*

Neo-classical theory attempts to model the demand for goods given, certain assumptions. The central assumption pertains to the behavioral characteristics of the individual, i.e., the consumer. The theory assumes that consumers act rationally. This behavioral premise implies two things. First, individual consumers have coherent preferences over the different states of the world. These states can be defined so broadly that they can encompass the distribution of private goods and services, or the provision of public goods like cultural goods. Second, when making choices among alternative states of the world, the individual does this on the basis of her preferences, choosing the state that is most preferred. The underlying intuition that one can draw from the rationality premise is that if an outside observer knew the preferences of any given individual as the individual knows them, that knowledge could be used to explain the human behavior as it relates to choices.

### *6.2.2 The concept of economic value*

The notion of cultural value is a matter of considerable and often heated debate, both in its conceptualization and in its application. Humanistic scholars of cultural forms and values often bristle at the mention of an outsider economist, trained in theories of prices and firms, colonizing cultural studies. There is a (mis)perception that the economic approach relies on soulless, cold and calculating rational actors. This leads many, who work in the cultural arena, to be suspicious of and sometimes even deny any possibility of economists' contribution. In order to avoid such situation, we pay particular attention in clarifying the notion of value embraced by the economist. Economic analysis and valuation of multilingualism is based on an instrumental perspective on the value cultural. This means that the value of multilingualism is regarded as the result of an interaction between humans and the object of valuation, which is 'changes in the diversity of languages and its range of cultural underpinings'. Therefore, 'Economic value' does not denote an absolute value of levels, but of system changes, preferably marginal or small ones. The reason for this is that the theoretical basis of economic valuation is monetary (income) variation as the response to a certain policy or language change. Therefore, the terms 'economic value' and 'welfare change' can, in principle, be used interchangeably. Therefore, economic valuation provides a monetary indicator of linguistic-cultural system value. The reason for this is that the theoretical basis of economic valuation is monetary (income) variation as a compensation or equivalent for direct and indirect impact(s) of a certain linguistic-cultural change on the welfare of humans. Explicit linguistic-cultural changes, preferably in terms of accurate indicators, should be related to these. The economic valuation approach is based on a reductionist approach value. This means that the total economic value is regarded as the result of aggregating various use and nonuse values, reflecting a variety of human motivations (see Nunes and Onofri 2005). Moreover, the economic valuation of linguistic-cultural change starts from the premise that social values should be based on individual values, independently of whether the individuals are experts in language-related issues or not. This can be considered consistent with the democratic support of public policies.

### 6.2.3 The basic model

The present section draws on the theoretical perspective that individuals make welfare-optimising consumption decisions. These decisions are captured in the consumer demand functions with respect to available goods and services. Environmental attributes enter those demands. For some environmental benefits, such as the recreational visits to an urban green park, the consumer exercises direct choice over the amount consumed, assuming that the park is open to all residents. To illustrate this setting, we consider an individual whose utility function has the following form,

$$V = V(x, q, z) \quad (1)$$

Here  $x$  is the consumption of the private good,  $q$  the quantity of the cultural resource, and  $z$  a linguistic-cultural quality indicator. For example,  $q$  could represent the number of books available (either in a local store or library) and  $z$  the number of different languages (that the book has been originally written). We assume that all commodities have prices. Moreover, we assume that  $x$  is a composite private good whose price is normalised to one, and  $p$  is the price associated with  $q$ , and that  $p$  is fixed. We also assume that the consumer exercises direct choice over  $q$  but not over  $z$ . The consumer maximises utility subject to a budget constraint,

$$p \cdot q + x \leq M \quad (2)$$

where  $M$  is money income. Assume non-satiation, i.e., assume that the consumer uses the available budget fully. For a particular level of  $M$  and  $z$ , the consumer solves,

$$\begin{aligned} & \underset{\{x, q\}}{\text{Max}} V(x, q, z) & (3) \\ & \text{s.t.} \\ & p \cdot q + x = M \\ & q, x \geq 0 \end{aligned}$$

yielding some level of utility,  $V^*$ , and an optimal consumption bundle,  $(q^*, x^*)$ , both of which are functions of  $p$ ,  $M$  and  $z$ . To investigate a change in  $z$ , holding utility constant, we proceed to the total differentiation of  $V(q^*, x^*, z)$  and  $p \cdot q^* + x = M$ . Formally, we have:

$$dV = \frac{\partial V}{\partial q} dq + \frac{\partial V}{\partial z} dz + \frac{\partial V}{\partial x} dx \quad (4)$$

and

$$dM = qdp + pdq + dx \quad (5)$$

We focus how changes in  $q$  and  $z$  can be compensated by changes in  $M$ . Thus, we let  $dV=0$ . The assumption of fixed prices means that  $dp=0$ , so the first term in (5) drops out. Rearranging (4)- (5), we get:

$$-dx = \frac{\partial V / \partial q}{\partial V / \partial x} dq + \frac{\partial V / \partial z}{\partial V / \partial x} dz \quad (6)$$

and

$$-dx = pdq - dM \quad (7)$$

Now let  $z$  be the attribute for which a change is contemplated. Setting equal the right-hand sides of the expressions (6)- (7) gives,

$$\frac{\partial V / \partial q}{\partial V / \partial x} dq + \frac{\partial V / \partial z}{\partial V / \partial x} dz - pdq = -dM \quad (8)$$

Equation (8) establishes that the monetary payment must equal the difference between the personal worth of the change in quantity and quality, the first two terms on the left-hand-side, and the change in the expenditure on  $q$ , the last term on the left-hand-side. A fundamental condition in consumer theory is that the consumers that make welfare-

optimising consumption decisions equate the marginal rate of substitution to the ratio of product prices. In the present case,  $p$  is normalised with respect to the price of composite commodity  $x$ :

$$\frac{\partial \mathcal{N} / \partial q}{\partial \mathcal{N} / \partial x} = p \quad (9)$$

Substituting (9) into (8) and cancelling the terms results in:

$$\frac{\partial \mathcal{N} / \partial z}{\partial \mathcal{N} / \partial x} = - \frac{dM}{dz} \quad (10)$$

i.e., the marginal rate of substitution between  $z$  and  $x$  must equal the change in income that will keep utility constant as  $z$  changes, which can be interpreted as the introduction of a set of new regulations on the protection of the local libraries, and its books. That income change is the “price” that reflects the consumer’s maximum willingness to pay (WTP) to avoid an undesirable change in  $z$ . In other words, the theoretical economic measure of welfare change, as described by (10), is the payment that will make a consumer indifferent between having and not having a particular change in the quality or quantity of the cultural-linguistic attribute. This is the measure of welfare change that CVM researchers look for through the use of direct questioning.

### **6.3. Motivation for assessing the economic value of multilingualism**

#### *6.3.1 Introduction*

The economic valuation of cultural assets in general, and multilingualism in particular, is today among the most pressing and challenging issues confronting economists. One may wonder for what reason such monetary assessments of cultural goods and services are undertaken. Two main reasons can be identified. First, values estimated using these methods can help inform decisions over the level of funding of cultural diversity. Public values for cultural (diversity) goods can provide a strong argument in favour of public

funding for those goods. They can show the possibilities and limitations of relying on contributions or access charges in supplying a good that generates values to a much broader set of people than just those few who choose to visit the good or donate to its preservation and merit goods. They produce externalities and are non-market goods. Second, public preferences can help when making decisions among cultural (diversity) goods. While there is always a central role for expert opinion in deciding which types of cultural (diversity) goods will receive attention, information about the general public's preferences over such decisions is a useful complement to expert judgement.

### *6.3.2 Economic values of multilingualism*

The concept of total economic value of cultural diversity has its foundations in welfare economics: the basic premise of economic valuation is its effect on the well-being of the individuals who make up the society. Therefore, if society wishes to make the most in terms of individuals' well-being maximisation, the issue of the monetary assessment of the total economic value of cultural diversity is a key issue in terms of policy decisions. Conceptually, the total economic value of cultural diversity such as to speak a second language, consists of its use value and nonuse value – see Table 1.

Use values are what they seem to be: values arising from the actual use/consumption made of the second language under consideration. Use values are further divided into direct use values, indirect use values and option values. Since we focus on the value assessment of the benefits derived from operating in a second language (the emblematic case is the use of English – or the local dialect – in addition to the mother language), the direct use value refers to benefits deriving from use of such a communication tool on your daily life (e.g. able to read a newspaper or follow the news on the TV); the indirect use value refers to the various forms of potential that the use of a second language is able to provide in terms of individual productivity (e.g. from the consumer perspective this may be reflected in terms of additional job possibilities; from the producer perspective this may be reflected in terms of additional production possibilities); the option value refers essentially to the individual's willingness to pay for the preservation of the local dialect against some (subjective) probability that the individual will make use of it at a future date. In addition, by operating also in a second language, it brings

along with impacts on the well-being of the individuals that are not directly associated with use or consumption of such a dialect. In the literature, these are referred to as the nonuse values, i.e., anthropocentric values which are not associated with current or expected use. The nonuse values are usually divided between the bequest value and the existence value. The bequest value refers to the benefit accruing to any individual from the knowledge that others might benefit from the use of the dialect in the future; the existence value refers to the benefit derived simply from the knowledge of continued protection of the dialect (e.g. sort of identity effect). The nonuse values have typically a public good character for which no market price is available to disclose accurate monetary valuation. The lack of such market price information may convey the impression that benefits of language conservation policies are unimportant, when compared to the market priced allocation alternatives (e.g. allocation of public money in transport infrastructures). As a consequence, policy makers may have based their decisions on an undervaluation of the cultural and languages resources which has thus resulted in a misallocation of public money in the management of that same resources.

*Table 1:*

Use	direct use value	Communication tool and leisure e.g. reading the newspaper, follow a TV show
	indirect use value	Individual productivity e.g. additional job possibilities, differentiated production
Total economic value	option value	Safeguard of use benefits e.g. future communication tool or productivity factor
	bequest value	Legacy benefits e.g. conservation for the use of the future generations
Nonuse	existence value	Existence benefits e.g. knowledge of protection of a cultural identity

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The monetary assessment of the use and nonuse benefits involved with operating in a second language is, therefore, an important step in the definition of policy decisions regarding the decision of how much financial resources will be used in this area, and not in others (such as the construction of roads) . As we have seen, a minority language provides a wide range of benefits. The money value assessment of such cultural assets requires special tools.

A second important step in the definition of policy decisions about financial resources to be used in the protection of minority languages refers to the financial costs of the protection action and respective expected level of success. Finally, one needs to consider and quantify the level of the distinctness within the minority languages set. This idea will be explored in more detail in the next subsection.

### *6.3.3 Ranking policy preservation decisions in minority languages*

Suppose that the European policy maker faces the problem of which and how many within the existent minority languages he should preserve. To provide an answer to such a question, we need to formalize the ranking function of the policy maker, which will be used to rank the different minority languages that have been presented for preservation.

This will be done by applying the Weitzman model, originally conceived for the analysis of biodiversity protection. In our opinion, Weitzman model can be applied to the problem of evaluating linguistic minorities for two reasons. The first reason is theoretical: linguistic diversity can be interpreted as biodiversity. The second reason is methodological: Weitzman propose is firmly rooted in a mathematically rigorous optimization framework, so that its theoretical underpinnings are clear. The model, so called the 'Noah's Ark Problem,' is intended be a kind of canonical form, whose analytical essence is the problem of best preserving (linguistic) diversity under a limited budget constraint. In other words, the central issue is to develop a cost-effectiveness formulation that can be used to rank priorities among projects that preserve different minority languages.

For the purpose of our research, Weitzman paper can be adapted in this way. The unit of analysis is constituted by “minority language type”. If the underlying preservation units stands for “minority languages type  $i$ ”, it is useful to conceptualize a “language conservation” project” as follows. Project  $i$  is some preservation action that increases the probability of preservation of minority languages type  $i$  by  $\Delta P_i$  at a cost of  $C_i$ . Let  $U_i$  represent the direct utility of how much the stakeholders like or value the existence of “minority language type  $i$ ” (note that  $U$  conveys all the information described in the above sections). Let the distinctiveness of minority language type  $i$  (its difference or distance from its closest resembling unit) be  $D_i$ . Then the following relationship can be formalized in order to convey on heuristic grounds the roughly “right priorities” for ranking alternatives.

$$R_i = D_i + U_i \left( \frac{\Delta P_i}{C_i} \right) \quad (11)$$

As a ranking criterion,  $R_i$  is a measure of the “expected marginal distinctiveness plus utility per dollar” of “minority language type  $i$ . When making preservation decisions, the conservation authorities are asked to look at four factors  $D_i$ ,  $U_i$ ,  $C_i$  and  $\Delta P_i$ ., The formula is operational enough to be useful in suggesting what to look at when actually determining conservation priorities among different minority languages.

## 7. Valuing Multilingualism as a Cultural Good

### 7.1 Introduction

Language diversity can be regarded as an economic good and to this extent can be valued. However, given the peculiar nature of a language with respect to other economic goods, its valuation presents some specific characteristics, and therefore requires specific tools. First of all, a language presents an interesting supply and demand curve, where the supply, especially for endangered languages, is often determined by institutional constraints. The demand curve is related to the “status” of the language and the level of social cohesion of the community the language refers to. Moreover, some of the usual characteristics shown by a typical non market economic good seem to fail: a language does not incur in congestion phenomena, since the more it is spoken the better is for the people who are using it. To this extent, an immediate comparison with other *intangible cultural goods*, such as music, rites, traditions, etc., can be made. Some of these peculiarities highlight the nature of a language as a *public* good, and sometimes as a *common* good.

A language is a crucial part of the heritage of a specific community, shapes and builds its identity in the same way as its physical heritage does. Therefore its existence needs to be valued and preserved as we do with the cultural and environmental heritage of a region. In other terms, many of the considerations that one can make for cultural heritage goods (except for the congestion issue) seem to hold for languages. In particular, the benefits brought by the existence or the use of a language, are not always relevant from a pure market perspective, and have to be considered using techniques outside the normal market valuation tools. Many of the benefits brought by languages are non market benefits and require being valued within such a theoretical framework. The following 2 subsections describe first the alternative available valuation tools, and then focus on a specific economic valuation technique, conjoint analysis, which can be potentially very useful to elicit the economic value of languages.

## 7.2 Valuation approaches

To assess people's preferences, two main approaches can be used: one can look at the way people have behaved in the market, or look at the way people state they would behave in a future (hypothetical) market. The first class of methodologies goes under the name of revealed preferences techniques, while the second one is known as stated preferences methods. Other ways of assessing preferences can be obtained through techniques applying multiattributes theory.

Economic valuation of non-market goods has represented an important step towards incorporating economic considerations in decision-making about natural resources, environmental quality, and the quality of life in urban areas. Attaching monetary values to intangible features, such as quality of natural beauty and built environments, helps accounting for them in *benefit-cost analyses*, and hence in *decision making processes*. A change in the provision of a non-market commodity, such the provision of a specific learning programme for an endangered language, has social and economic impacts and can be perceived either as a gain or as a loss by the affected population. Sometimes the loss is related to symbolic values that the public perceive as disregarded by the project, despite the overall improved conditions (see "status of the language").

Three major classes of valuation techniques can be used for this purpose, and are briefly discussed as follows:

### *Social cost-benefit analysis*

Social cost-benefit analysis aims to assess the costs and benefits of a proposed public project for society at large. In the early literature, the Pareto-optimality concept played a prominent role, in order to incorporate also distributional effects. In the more recent literature on cultural goods valuation, external effects are included mainly by means of two methods.

One specific class is the well-known *travel cost method*, through which the benefits of a visit to a cultural good are approximated by means of the estimated difference between the willingness-to-pay and the actual costs (i.e., travel costs, costs of travel time, and entry fees). Examples of this method can be found inter alia in Willis and Garrod (1991) and Loomis et al (1991).

Another market-based evaluation method is the hedonic pricing technique. It aims to assess the advantages and disadvantages (including externalities) of a given asset to the user. The value of an asset is supposed to be determined by asset-specific features and contextual features such as neighbourhood conditions, accessibility etc. Applications of this method to cultural heritage problems can be found inter alia in Moorhouse and Smith (1994) and Schaeffer and Millerick (1991).

One can see that these methods are hardly efficient to measure the benefits brought by the existence of a language. Hedonic pricing applications could be devised to understand the benefits of clustering with respect to the protection of a specific language, but would be not adequate to elicit other non market benefits.

#### *Survey methods*

In recent years, stated preference based survey techniques – in particular, contingent valuation methods – have gained much popularity. These methods aims to trace the latent demand curve for goods, such as cultural heritage, which cannot be exchanged in traditional markets. To this purpose a *contingent, hypothetical* market is being created where people are asked to state their willingness-to-pay (or willingness-to-accept) for a change in provision of the good object of the valuation exercise. These methods have shown to be particularly suited for the elicitation of *non-use values*. Interviewees are usually confronted with questions on option values, existence values, bequest values and the like. Clearly, issues related to uniqueness and irreversibility are not easy to handle in an experimental context, but significant progress has been made in recent years. Considerable efforts have been put in the minimizations of the most common biases that seemed to hamper the validity of the results. Examples of such survey-based methods can be found inter alia in Henley and Ruffel (1993), Lockwood et al. (1993), and Willis (1989). Recently, a book has been dedicated to applications of contingent valuation methods to different sorts of cultural goods (Navrud and Ready, 2002).

These techniques show great potential for application in the realm of languages preservation and valuation of the benefits of multilingualism.

### *Multicriteria analysis*

Multi-criteria analysis is a class of multidimensional evaluation methods that is rather rich in scope, as it is able to encapsulate both priced and non-priced effects, as well as both quantitative and qualitative effects of an object under investigation. Multi-criteria analysis is able to encapsulate the political context of complex decision-making by including political weight schemes and interactive evaluation based on learning-by-doing principles. It has also gained much popularity in the area of cultural heritage in recent years. Various applications can be found in Coccossis and Nijkamp (1994).

Multicriteria analysis would be potentially very useful to compare and rank alternative policy packages related to the implementation of programmes to incentive multilingualism. This valuation approach would not give monetary indicators for the components of these packages; therefore the obtained results could not be used in a cost–benefit analysis exercise. A combination of multicriteria and state preferences exercises would create a very comprehensive picture for the valuation of alternative policy packages.

### **7.3 The potential of conjoint analysis to value the non market benefits of multilingualism**

Conjoint analysis is a survey-based technique used to place a value on a good. It is a stated-preference method, in the sense that it asks individuals what they would do under hypothetical circumstances, rather than observing actual behaviours on marketplaces.

Usually, one can infer how much individuals value a good by observing the amount of this good that is exchanged on the market and its price. However, most public goods, such as environmental resources or cultural heritage sites, are typically *not* exchanged on regular markets, making it impossible to observe prices and quantities. To circumvent this problem, economists have resorted to special techniques for estimating the value of environmental quality changes, or other products that are not as yet on the market.

One such technique is the method of contingent valuation, which directly asks individuals how much they are prepared to pay for specified changes in environmental

quality or a future programme.<sup>1</sup> The willingness to pay (WTP) for the proposed change in environmental quality (or for obtaining a public good) is the amount of money that can be subtracted from a person's income at the higher level of environmental quality for him to keep his utility unchanged, and is the theoretically correct measure of the value individuals place on the change. Contingent valuation, has been used in recent years to value cultural resources (Pollicino and Maddison, 2001; Riganti and Willis, 2002). Noonan (2003) summarizes the empirical literature on contingent valuation of cultural goods concluding that the methodology, when rigorously applied to cultural heritage, can produce important information for management policies.

Conjoint choice is a variant of contingent valuation where people are asked to choose between hypothetical commodities described by attributes. This exercise requires people to make tradeoffs between attributes, one of which is typically the cost of the commodity to the respondent. Both contingent valuation and conjoint choice are stated preference methods, in that they rely on individuals reporting what they say they would do under hypothetical circumstances.

Interestingly enough, conjoint analysis has a market analysis origin. In fact, conjoint analysis is a technique widely used in market analysis to estimate the value that consumers associate with features/attributes of particular products (Moore et al, 1999). It is an essential marketing tool when the objective is to assess people preferences for products that are not yet on the market (Lee et al, 2004). Companies use conjoint analysis to form benefit segments and make design tradeoffs decisions among various possible features of the product. This is an invaluable market tool that has proven very successful in helping forecast how costumers will welcome a product and to help companies develop a consumer oriented approach.

From a pure market analysis' standpoint, conjoint analysis can be used, for instance, to help design product platforms by bringing together demand-side forecasting methods with supply-side cost estimates. In this way it is possible to compare sales and profit-

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<sup>1</sup> See Mitchell and Carson (1989) for a comprehensive survey of the theory and practice of contingent valuation.

maximizing designs. There has been considerable interest in the use of conjoint analysis to develop optimal product configurations, i.e., designs forecast to maximize sales or profits for a given competitive setting. Conjoint analysis is therefore used to enhance firms' competitiveness. Conjoint choice experiments were initially developed by Louviere and Hensher (1982) and Louviere and Woodworth (1983). Louviere and Hensher (1982) apply the technique to forecast the choice of attendance at various types of international exhibitions. Though coming directly from market analysis theory, conjoint choice experiments have been widely used to value environmental and natural resources.

In a typical *conjoint choice* question, we show respondents a set of alternative representations of a good, expressed by a number of features, or attributes, and ask them to pick their most preferred. The alternatives differ from one another in the levels taken by two or more of the attributes. Fig 1 shows an example of a typical conjoint choice question, in this case referring to the benefits of cultural tourism in the city of Syracuse (Riganti, 2006). The crucial step is the definition of the attributes and their levels to be presented to the respondent. One can see that conjoint analysis has the capability to incorporate multiattribute theory, whilst still providing very simplified results that use money as a proxy for the weight people associate to different attributes. Through appropriate statistical modelling of the responses to the choice questions, it is possible to estimate the marginal value of each attribute (see following section). In addition, if the "do nothing" or status quo option is included in the choice set, it is possible to estimate the full value (the willingness to pay, or WTP) of any alternative of interest.

The conjoint choice approach has the advantage of simulating real market situations, where consumers face two or more goods characterized by similar attributes, but different levels of these attributes, and must choose whether they would buy one of the



Fig. 1. Example of a typical conjoint study (source Riganti, 2006).

goods or none of them. Another advantage is that the choice tasks do not require as much effort by the respondent as in rating or ranking alternatives.

### Theoretical Model (Random Utility Model)

To motivate the statistical analysis of responses to conjoint choice experiment questions, we assume that the choice between the two alternatives is driven by the respondent's underlying utility. The respondent's utility can be broken down in to two components, the first of which can be determined and is a function of the attributes of the alternatives, individual characteristics and a set of unknown parameters to be estimated. The second component is an error term that captures what cannot be observed. Formally stated, the Random Utility Model (RUM),

$$(1) \quad V_{ij} = \bar{V}(x_{ij}, \beta) + \varepsilon_{ij}$$

generally expresses that the respondent  $i$ 's utility for attribute  $j$  depends on a vector of attributes,  $\mathbf{x}$  (that vary across alternatives and individuals), and an error term,  $\varepsilon$  that captures individual and alternative-specific factors that influence utility, but are not observable to the researcher.

$\mathbf{x}$  can be further broken down into attributes of the alternative ( $\mathbf{x}$ ) and individual characteristics ( $\mathbf{z}$ )

$$(2) \quad V_{ij} = \bar{V}(\beta_1 x_{ij} + \beta_2 z_{ij}) + \varepsilon_{ij}$$

where,  $\beta_1$  represents the marginal utility of the attributes  $x$  of alternative  $j$ , as described in the conjoint choice experiment question.

We assume that the respondent chooses the alternative in the choice set resulting in the highest utility. Because the observed outcome of each choice task is the selection of one out of  $K$  alternatives, the appropriate econometric model is a discrete choice model that expresses the probability that alternative  $k$  is chosen. Formally,

$$(3) \quad \Pr(k \text{ is chosen}) = \Pr(V_k > V_1, V_k > V_2, \dots, V_k > V_K) = \Pr(V_k > V_j) \quad \forall j \neq k,$$

If the error terms  $\varepsilon$  are independent and identically distributed and follow a standard type I extreme value distribution, the probability that respondent  $i$  picks alternative  $k$  out of  $K$  alternatives is:

$$(4) \quad \Pr(k) = \frac{\exp(\mathbf{w}_{ik} \boldsymbol{\beta})}{\sum_{j=1}^K \exp(\mathbf{w}_{ij} \boldsymbol{\beta})}$$

where  $\mathbf{w}_{ij} = \begin{bmatrix} \mathbf{x}_{ij} \\ C_{ij} \end{bmatrix}$  is the vector of the attributes of alternative  $j$ , including cost  $C$ , and  $\boldsymbol{\beta}$

is equal to  $\begin{bmatrix} \beta_1 \\ -\beta_2 \end{bmatrix}$

The full log likelihood function of the conditional logit model is:

$$(5) \quad \log L = \sum_{i=1}^n \sum_{k=1}^3 y_{ik} \cdot \log \Pr(i \text{ chooses } k),$$

where  $y_{ik}$  is a binary indicator that takes on a value of 1 if the respondent selects alternative  $k$ , and 0 otherwise.

The marginal price of each attribute is computed as the negative of the coefficient on that attribute, divided by the coefficient on the cost variable. The willingness to pay for the chosen alternative is computed as:

$$(6) \quad WTP_i = \frac{\mathbf{x}_i \hat{\boldsymbol{\beta}}}{\hat{\beta}_2},$$

### **Towards a conjoint analysis application to languages**

In a comprehensive bibliography of contingent valuation studies on arts and cultural, Noonan (2002) does not report any application to the language sector. However, attempts have been made in literature to develop applications for broadcasting and performing arts (festivals). As discussed above, conjoint analysis, which is a specific development of stated preferences techniques, and to this extent belongs to the contingent valuation family, shows a great potential to be used to assess the added value of multilingualism. The crucial step is of course the definition of the scenarios, i.e. the alternatives to be presented to perspective respondents. The scenarios have to be presented in terms of the attributes which better describe them, and the appropriate levels.

From a pure economic perspective, each combination of attributes and levels would identify different economic goods to be valued, since not one unique economic good is associated to the presence of language diversity. For instance, the provision of educational programs to enhance and promote language diversity is one of the many possible goods associated to multilingualism.

A possible example describing an educational program is listed below, in table 1. However, the appropriate attributes and levels would need to be defined using focus groups discussions and pre-tests to understand which priorities stakeholders give to the chosen scenarios. A very sensitive issue to be explored would then be the payment vehicle definition and the appropriate sample strategy.

**Table 1.** Attributes and levels of an hypothetical scenario

<b>Attributes</b>	<b>Levels</b>
Language in which current curricula is taught	Basque, Spanish, English
Language of official communication in school	1, 2
Age since multilingual teaching starts	4, 6, 8
Added number of hours for a 3 <sup>rd</sup> language	2 hours per week
4 <sup>th</sup> language	YES, NO
Cost (tax reallocation)	€15, 20, 40

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