

Figure 1. Stepwise presentation of evaluation to identify the most effective strategic choices and opportunities of various immigration effects

In our application of the framework to the views of a panel of migration experts, we will apply a 'SCM' to evaluate the impact of those explanations and views, and select strategic choice(s) (conforming to the strategic intent), from various feasible and achievable options, that have the highest support and importance classes.

We will now first systematically outline the various steps in our evaluation of the various immigration effects for society, either nationally or locally specifically differentiated with respect to five distinct domains of socio-economic importance. This can be seen as a toolkit for strategy development for those countries worldwide which aim to take seriously the urgent need for proper data and applied research, in order to encourage an informed discussion on the pros and cons of migration and to induce new realistic perspectives on the future opportunities of international migration. The process of choosing feasible and achievable strategic choices is now presented as in Figure 1.

#### *Step 1: MIA*

In the first step, we make a short review of recent various empirical studies that address the socio-economic impacts of immigration on host countries, regions or cities on the basis of a systematic MIA. This is supported by a summary of the approaches and findings from previous applied empirical studies, often by providing extracts and direct citations from these studies.

*Step 2: SWOT framework for MIA*

In the second step, to position migration impacts in a broader strategic context of socio-economic benefits, we give a systematic overview of the various effects, preferably in the form of a SWOT analysis, covering a time horizon of at least one generation, in which past, current and future effects are assessed from a broad perspective.

*Step 3: assessment of impacts in SCM*

In the third step, the most important strengths (S) and weaknesses (W) elements, identified in Step 2 from a long-term perspective, are scored for five distinct domains of socio-economic importance in a structured way in an impact matrix, where those socio-economic areas of immigration refer to: labour market, economic development, external effects, cultural diversity, and public effects. During an international workshop 'KNAW workshop on MIA' with representatives from knowledge institutes, universities and policy-making bodies, we asked a group of experts to select and prioritize the most important strength and weakness factors for them from a long-term perspective for the five distinct domains of socio-economic importance.

*Step 4: elicitation of importance classes in a SCM*

In the fourth step, an important step is the assignment of importance classes to reflect the different order of magnitude of the impact of the most important S and W factors that can affect (future) opportunities (O) and threats (T), included in the SWOT analysis in Step 2.

*3.5 Step 5: analysis of the performance of a SCM*

In the fifth step, we perform the evaluation process, which consists of the application of a multi-criteria evaluation method. We applied regime analysis, which combines the information contained in the impact matrix and a set of weights to calculate a performance score for each alternative distinct domain of socio-economic importance.



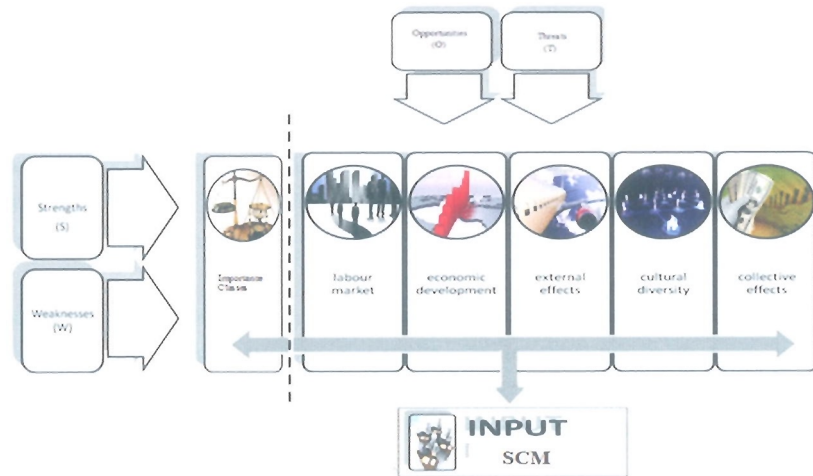


Figure 2. SWOT input for an SCM

Figure 2 shows the information gathered in the previous steps and the input for the SCM. The S and W factors were then ranked according to their preference, given the difference in scores of those factors for each alternative distinct domain of socio-economic importance and the weight of the respective S and W factors that can affect (future) O and T.

#### 7.4 SWOT Analyses for MIA

The wealth of literature shows that the impact of migration – in particular, labour migration – on welfare in the receiving and sending countries depends heavily on the flexibility of labour markets. As shown above, the labour market impact of migration has been examined in a large number of qualitative – often econometric – studies in Europe and elsewhere. These studies rely on a cross-section of either regions or branches, and use variations in migrant density in order to identify the impact of migration on wages and employment. The results of these studies show that, on average, migration has only a marginal impact on wages and employment of natives in the receiving countries (see Longhi et al., 2010).

It is noteworthy that many studies also show that migration provides many benefits the creation of new jobs are strongly associated with the willingness to take-up chances across regions, while the supply of jobs regulates the flow of people seeking work. Regional labour mobility in the EU-15 is low: only about one out of 200 workers changes residence every year compared with five in the USA, in spite of large income differentials within and across these countries (Boeri and Brücker, 2005). Hence, immigration from outside the European Union potentially has very crucial role for the creation of a higher level of labour mobility in Europe. If there is labour mobility, it is largely due to international migration (Zimmermann, 2005).

Europe is a place where migration is especially useful from an economic perspective. In the context of an ageing population and a need for higher skills, migrants may make an important economic contribution. A study by Boeri and Brücker (2005) shows that international migration can significantly increase income per capita in Europe. They have estimated that, given the wage and productivity gap between Western and Eastern Europe, a migration flow of 3% of the Eastern European population to the West could increase total EU GDP by up to 0.5%. The contributions of migrants to economic growth, and to a wide array of socio-economic benefits, will be examined further in the present section.

It cannot be denied that migration inflows exert a great variety of socio-economic and socio-cultural effects on society. Some of these effects may show up as measurable costs or benefits, others may be characterized by qualitative factors, while yet others may have the features of potential future opportunities and threats which might materialize into measurable impacts at some stage in the future.

To offer a systematic overview of the various effects it is meaningful to use a SWOT analysis in which past, current and future effects are assessed from a broad socio-economic perspective. This will be provided by means of a systematic analysis, according to five relevant, socio-economic areas of the phenomenon of immigration: namely, labour market, economic development, public sector, cultural diversity, and external effects. The estimated size and weights of these effects are qualitatively identified – on the basis of the information from the previous studies – as: \*\* – *strong effect*; \* – *moderate effect*; o – *negligible effect*; and ? – *unknown effect*. The related SWOT tables may assume the following form (see Figures 3–7).

STRENGTHS		WEAKNESSES	
S1: employment and jobs	o *	W1: labour force participation	*
S2: wage level	o *	W2: unemployment	o *
S3: labour productivity	o *	W3: dual labour market structure	*
S4: vacancies in labour market	*	W4: crowding-out effects	o *
S5: educational level	– *	W5: informal networks	*
S6: varied labour supply	**		
OPPORTUNITIES		THREATS	
O1: knowledge intensification	*	T1: poor transfer between labour market segments	*
O2: qualifications	**	T2: vulnerability	**
O3: internationalization	*	T3: structural unemployment	*
O4: flexibility	**	T4: female participation	o *
O5: second-generation entry	*	T5: discrimination	*

Figure 3. SWOT analysis – Labour Market

STRENGTHS		WEAKNESSES	
S1: economic growth	+	W1: focus on traditional sectors	+
S2: entrepreneurship	++	W2: below-average growth	++
S3: competition force	++	W3: transfer abroad	+
S4: innovation force	++	W4: youth participation	+
S5: contribution to ageing problem	++	W5: poor professionalization	+
S6: creative industry	+		
O1: international contacts	+	T1: traditional 'ethnic markets'	+
O2: new products	++	T2: rise of informal economy	+
O3: new markets	+	T3: 'low-tech' stigma	++
O4: enhancement small- and medium-sized businesses	++	T4: poor institutionalization	++
O5: creative business climate	+		
O6: sustainable competition	+		
O7: urban vitality	++		
OPPORTUNITIES		THREATS	

Figure 4. SWOT analysis – Economic Development

STRENGTHS		WEAKNESSES	
S1: international trade growth	++	W1: surplus on Balance of payments	+
S2: competitiveness	+	W2: new business modalities	+
S3: international transport	++	W3: emergence closed markets	++
S4: growth of tourism	++	W4: criminality	+
S5: niche-markets	+	W5: orientation on local market	+
S6: ethno-marketing	++		
O1: creative sectoral development	+	T1: social tension with 'natives'	++
O2: business support systems	++	T2: non-transparent market functionality	+
O3: diversity in SMEs	+	T3: emergence of black markets	++
O4: open entrance to large markets	+	T4: non-pro-active attitude towards doing business	++
OPPORTUNITIES		THREATS	

Figure 5. SWOT analysis – External Effects

STRENGTHS		WEAKNESSES	
S1: urban benefits 'melting pot'	++	W1: ethnic social tensions	++
S2: creativity	+	W2: quality of life	++
S3: socio-cultural enrichment	++	W3: dual society	+
S4: melting pot diversity	++	W4: loss of social trust	+
S5: strong social networks	+	W5: neighbourhood criminality	++
O1: internationalization of the city	+	T1: emergence of ethnic enclave	++
O2: product variety	+	T2: participation in labour market	+
O3: knowledge orientation	++	T3: language skills	++
O4: reinforcement internationalization	+	T4: social cohesion	+
O5: economic profile business	+	T5: social solidarity	+
O6: innovativeness	++		
OPPORTUNITIES		THREATS	

Figure 6. SWOT analysis – Cultural Diversity

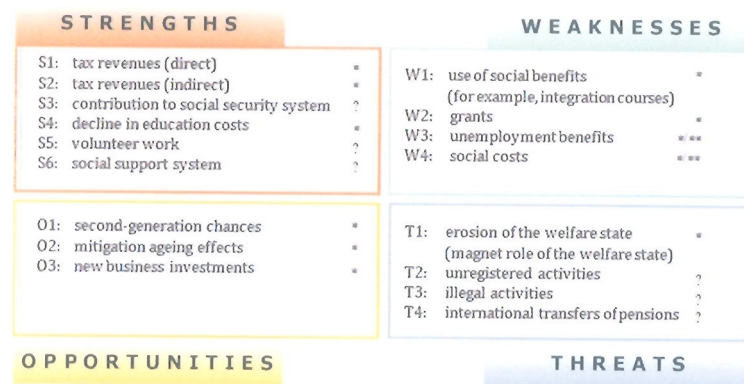


Figure 7. SWOT analysis – Public Sector

In more general economic terms, the short and long-term effects of immigration on the labour market are likely to be positive. It is necessary to catch both the short and the long-term effects of migration on the labour market, i.e., depending on education level and work motivation and the driving forces of migrants. Compared with the indigenous population, immigrant populations have in common that they are relatively young, and most immigrants of at least 15 years of age are first-generation immigrants, and therefore they can contribute positively to (regional) social-economic vitality.

The possible negative (long-term) effects of such a policy must, therefore, be weighted for particular target groups for 'labour market access' and 'life-long learning' for those who have acquired a respected position on the labour market. However, focused and novel scientific research on the relationship between migration and the labour market should be highly weighted in order to define and better achieve empirically valid and reliable general claims.

In general, migration is expected to have a favourable effect on economic growth, an assumption that is supported by the theory of international trade and mobility. The findings from various recent empirical country studies have shown that, in general, immigrants are the bridge between their country of origin and host country, and that they have a significant positive effect on the exports and imports of the country where they live (host country).

They foster international trade through their demand for home country outputs, and through their ability to facilitate trade between the host and home countries (e.g., cost differences, product differentiation, and migrants' tastes). Migrant networks are important in this context. Migrants often have a social or business network in their home country which may be used in the host country (e.g., to reduce transaction costs, which may increase both exports and imports).

In addition, greater labour mobility helps to facilitate trade, and increases the cross-border demand for domestic output. The nurturing of cultural diversity may further enhance trade. High-skilled migration, in particular, tends to create a well-educated diaspora who facilitate trade by helping to enforce contracts, act as intermediaries, and expand cooperation (World Bank, 2006). In



the context of an ageing population and a need for certain skills, migrants may make an important economic contribution. Most migrants are moving from poor countries to rich countries. One cause of this is the globalisation process that has enhanced mobility and improved accessibility to different places (Poot et al., 2008).

From our qualitative classification various positive effects are dominant over the negative effects. However, the negative effects are not negligible and require time and, in particular, sufficient attention from the private sector, as well as from the public sector.

The migration flows are quite diverse in terms of motives and ambitions (labour, family, asylum, education, retirement, etc.), and in terms of 'pluriformity' characteristics (nationality/ethnicity, education/skills, gender, age, profession, etc.). This variety in migrants leads to great cultural diversity, mainly in urban agglomerations. It can also significantly contribute to the economy by increasing the economic and cultural diversity of a city and reducing unemployment among immigrants. These cities gradually become a multicultural melting pot: a society with people of different cultures, races and religions (Jacobs, 1961, 1969) and a magnet to deliver new ideas for the creative industries and economic growth.

All these migrant categories have different motives and ambitions, and, hence, their socio-economic impact on a host area differs according to their migration motives. Consequently, a standard uniform MIA that covers all population groups is hard to undertake (see also Fritschi and Jann, 2007; Roodenburg et al., 2003).

Sometimes those motives form a rather striking parallel with the socio-economic goals of host regions, and this can cause social-economic tensions, e.g., crowding-out effects, ghetto effects, or safety effects. However, an overall evaluation shows that, in most cases, these effects are rather small or even negligible. In contrast, various empirical studies which adopt a long-range perspective – especially for skilled migrants – tend to find significantly positive effects, depending, of course, also on the specific migration policy adopted in the country concerned.

From this qualitative classification, it appears that, as well as different sectoral and external effects, also various negative effects arise. Those effects need an active effort from the migrants themselves to increase their participation level in Dutch society. Their participation rate in the labour market is on the whole, lower than that of the native population. In addition, certain segments of the immigrant labour force (e.g., women, young people, and elderly workers) encounter specific difficulties in entering the labour market, and, hence, they are often more exposed to short-term or structural unemployment than the native population. As a result, while their socio-economic progress is significant, it is still not sufficient to reduce the disparities. Therefore, a focused empirical research study on migration regarding their socio-economic position is essential.

One of the most important challenges facing modern societies is the increase in their social and cultural diversity, often also referred to as integration issues. Cultural diversity has arisen in most advanced countries, driven mostly by sharp increases in immigration. Both the positive and the negative implications of cultural diversity have been addressed by many researchers from different perspectives.



An overall evaluation demonstrates that socio-cultural diversity, rather than uniformity, appears to induce both cultural vitality and economic success. Diversity has a positive effect on creativity, innovation and performance at different scales from company or organisation to city, region or country. The reason is that being linked to creative activities is a major source of competitiveness for multicultural cities, as it not only stimulates creative ideas and facilitates creative activities but also assists the cities' efforts to boost their international profile, attracting investment and a well-educated, creative workforce. Therefore, cultural diversity tends to contribute to the improvement of the creative capacities of cities and regions.

An overall evaluation shows that the negative effects of diversity observed in both the economic and social arena largely depend on individual characteristics such as age, education, and income level. Lower educational attainments, low incomes, and unemployment are associated with the perception of the negative implications of diversity. However, at the country level, diversity is associated with higher productivity and economic growth, and there is no clear evidence that diversity has a negative impact on social cohesion.

From this qualitative classification it appears that cultural diversity serves as an important transformation mechanism for the urban economy. However, significant negative effects are also observed. Therefore, one of the biggest challenges of our 'age of migration' is to achieve a balance between the positive and the negative effects, with a focus on realizing a win-win situation. There is, no doubt that more research needs to be done in this area to provide a reliable and systematic overview of those consequences.

From an economic perspective, it seems reasonable that an estimate of the socio-economic (dis)advantages of significant migration inflows in the public sector requires an accurate analysis of various distinct ethnic groups (Western and non-Western immigrants). This belongs to rational policy analysis, in which systematic impact assessment is a *conditio sine qua non*.

However, the results of the international literature tend to be short-sighted about the net financial effects of the public sector, because many things depend on labour force participation and the education level of migrants. However, an overall evaluation shows that, in general, immigrants have made a positive contribution to public finance. This is because they have a higher labour force participation rate, pay proportionately more in indirect taxes, and make much lower use of benefits and public services.

All this paints a very positive picture of immigration, one of highly educated, young people, entering into the host country predominantly to work, with subsequent positive contributions to the tax system. This also suggests that the labour market situation of immigrants substantially improves with time in the host country, in terms of both wages and labour force attachment.

Obviously, decision-makers (e.g., responsible representatives, politicians, stakeholders and other actors) can calculate which policy effort and initiatives to make regarding specific ethnic groups. However, such calculation tends to be short-sighted, as they neglect the future revenues and (possible) savings which tend to compensate for initial entry costs. It is evident that many costs (e.g., for education) are to be seen as investments for the future.

Any calculation of costs and benefits needs to take account of the time trajectory of the flows of costs and benefits. As in most investment plans, the initial stages are characterized by high entrance costs (directly and indirectly), while at later stages the flows of benefits start to accrue. It is a well-known practice in economic cost-benefit calculations to assume a time period of 20 to 30 years. A shorter time horizon would lead to an overestimation of the costs and an underestimation of social revenues, and would make a cost-benefit analysis futile.

Hence, the information needed for a valid estimation of the system-wide socio-economic consequences of mass migration should not only address the financial and fiscal dimensions of the public sector or the directly measurable economic impacts, but should also address in particular the expected long-range returns and disadvantages, be their monetary or qualitative.

Here too, a focused empirical research study on migration regarding the migrants' socio-economic position is essential.

Table 1. An Integrated Strategic Choice Matrix for MIA

		Absolute frequency (f)	Relative frequency (%)	Relative Importance O	Relative Importance T
<b>Labour Market</b>					
Strength factors	S1: employment and jobs	1	8	3.00	3.00
	S2: wage level	0	0	na	na
	S3: labour productivity	6	46	30.00	30.00
	S4: vacancies in labour market	3	23	13.00	13.00
	S5: educational level	1	8	3.00	3.00
	S6: varied labour supply	2	15	6.00	6.00
	<b>Total</b>	<b>13</b>	<b>100</b>		
Weakness factors	W1: labour force participation	1	8	5.00	5.00
	W2: unemployment	7	54	31.00	31.00
	W3: dual labour market structure	3	23	9.00	9.00
	W4: crowding-out effects	1	8	3.00	3.00
	W5: informal networks	1	8	3.00	3.00
	<b>Total</b>	<b>13</b>	<b>100</b>		
<b>Economic Development</b>					
Strength factors	S1: economic growth	3	23	13.00	13.00
	S2: entrepreneurship	2	15	10.00	10.00
	S3: competition force	0	0	na	na
	S4: innovation force	5	38	25.00	18.00
	S5: contribution to ageing problem	3	23	11.00	11.00
	S6: creative industries	0	0	na	na
	<b>Total</b>	<b>13</b>	<b>100</b>		
Weakness factors	W1: focus on traditional sectors	2	15	8.00	5.00
	W2: below-average growth	5	38	18.00	13.75
	W3: transfer abroad	0	0	na	na
	W4: youth participation	3	23	11.00	11.00
	W5: poor professionalization	3	23	9.00	9.00
	<b>Total</b>	<b>13</b>	<b>100</b>		

		Absolute frequency (f)	Relative frequency (%)	Relative Importance O	Relative Importance T
<b>External Effects</b>					
<b>Strength factors</b>	S1: international trade growth	5	38	20.00	14.00
	S2: competitiveness	6	46	27.60	21.60
	S3: international transport	1	8	5.00	0.00
	S4: growth of tourism	0	0	na	na
	S5: niche-markets	1	8	3.00	3.00
	S6: ethno-marketing	0	0	na	na
	<b>Total</b>	<b>13</b>	<b>100</b>		
<b>Weakness factors</b>	W1: surplus on Balance of payments	0	0	na	na
	W2: new business modalities	1	8	0.00	5.00
	W3: emergence closed markets	0	0	na	na
	W4: criminality	10	77	28.00	50.00
	W5: orientation on local market	2	15	3.00	6.00
	<b>Total</b>	<b>13</b>	<b>100</b>		
<b>Cultural Diversity</b>					
<b>Strength factors</b>	S1: urban benefits 'melting pot'	0	0	na	na
	S2: creativity	5	38	25.00	20.00
	S3: socio-cultural enrichment	1	8	3.00	3.00
	S4: melting pot/diversity	6	46	24.00	23.00
	S5: strong social networks	1	8	3.00	3.00
	<b>Total</b>	<b>13</b>	<b>100</b>		
<b>Weakness Factors</b>	W1: ethnic social tensions	4	31	na	na
	W2: quality of life	0	0	5.00	5.00
	W3: dual society	1	8	21.00	26.00
	W4: loss of social trust	6	46	0.00	10.00
	W5: neighbourhood criminality	2	15	na	na
	<b>Total</b>	<b>13</b>	<b>100</b>		
<b>Public Sector</b>					
<b>Strength factors</b>	S1: tax revenues (direct)	5	38	23.00	9.00
	S2: tax revenues (indirect)	0	0	na	na
	S3: contribution to social security system	6	46	30.00	23.00
	S4: decline in education costs	1	8	3.00	5.00
	S5: volunteer work	0	0	na	na
	S6: social support system	1	8	5.00	5.00
	<b>Total</b>	<b>13</b>	<b>100</b>		
<b>Weakness factors</b>	W1: use of social benefits	5	38	16.00	21.00
	W2: grants	1	8	3.00	3.00
	W3: unemployment benefits	3	23	8.00	15.00
	W4: social costs	4	31	16.00	20.00
	<b>Total</b>	<b>13</b>	<b>100</b>		

On the basis of the chosen effective SWOT-elements, we now confront the S and W with the O and T factors in a SCM (which is the essence of a SWOT analysis). This is done in order to identify the main strategic points of attention with respect to the several variety of socio-economic and socio-cultural effects of migration on society (see Table 1), which can help to lay an empirical foundation for a sound political trade-off.

## 7.5 Strategic Choice Matrix

### 7.5.1 Introductory remarks

By means of a SCM, a tool that focuses on strategy formulation and undertaken strategic choice(s), it is now useful to determine which are most important strength and weakness factors that may affect the opportunities and threats included in the SWOT-analysis. The SCM is used to answer two main questions:

1. *What is the most important S factor and how can it be used to participate in, or take advantage of, O (SO strategies) and counter or avoid T (ST strategies)?*
2. *What is the most important W factor and can it be eliminated or improved in order to participate in O (WO strategies) and counter or avoid the impact of T (WT strategies)?*

The answers to these questions can aid in the development of appropriate immigration policies for host countries.

Perniciously, in Section 4 the S and W elements for five relevant, socio-economic areas of immigration along with their impact on O and T, and scores were presented in Figures 3–7. In addition to the relationship between S, W, O and T, the possible quality of policy strategies is now identified by applying appropriate scores and importance classes, which are set in accordance with their perceived impact (see Table 1). To determine the degree of importance of various scored factors, the rank order ranges from 5 = + + (strong impact) to 0 = O (no impact); and na = not available. After multiplying each scores by its given importance classes, we are able to synthesize all scores to determine the strongest factors for five relevant, socio-economic areas of immigration. This leads us to the conclusion that labour market impacts will always remain critical, but broader productivity and business sector impacts (e.g., competitiveness, innovativeness, SME effects) for the entire economy – either national or local – are equally important, and so are socio-cultural impacts.

Once the relevant factors have been reviewed in order to assess perceived importance categories, strategic choices are then made by selecting those factors that will most greatly influence policy strategies, viz. a combination of S and W elements for five relevant, socio-economic areas of immigration along with their impact on O and T. All this information can aid in the development of appropriate immigration strategic policies for countries.

The information for the construction of the SCM was provided by 13 experts during the international 'KNAW workshop on MIA' with representatives from knowledge institutes, universities, and policy making bodies. The interview questionnaire was not sent-out before the



workshop in order to increase the likelihood of spontaneity and unexpected responses in the answers of the experts. This is because the research was more about what experts really experienced in their field and practice than about looking for a correct (theoretical) answer. The main research instrument was our own survey questionnaire. The prioritized or important factors (i.e., those that received the highest scores) are presented in Table 1.

### 7.5.2 *Design of strategic options and derivation of the key strategies*

The results in Table 1 show which are the most important key factors as identified by the expert panel in the process, including both the S and W elements. These data indicate the relevant factors of each alternative area or theme, for five relevant, socio-economic areas of immigration along with their impact on the elements O and T. Taken together, all this information represents the vital and creative contribution of migration to the urban economy and can aid in the development of appropriate immigration strategic policies for countries.

First, we ranked the S and W factors from highest to lowest in percentages in each theme, e.g., the percentage scores for *labour market* are S3: labour productivity 46%; S4: vacancies 23%; S6: varied labour supply 15%; S1: employment and jobs 8%; S5: educational level 8%; S2: wage level 0%. And we then prioritize those with the highest rank, as strategic choices and changes for each theme, as the basis for the formulation and implementation of strategies to influence socio-economic composition of cities worldwide; and which aid in the development of appropriate immigration policies for countries.

The following most promising critical success factors and strategies are identified for five relevant, socio-economic areas of immigration: labour market; economic development; external effects; cultural diversity; and public sector.

#### 7.5.2.1 *Labour market*

In the first dominant theme 'labour market', by using a weighted average to assess a factor's impact, it can be concluded from the results of Figure 8 that the most important strength factor is labour productivity (S3) which comes in the first position (46%) with the highest impact on O and T (30.00 and 30.00, respectively), followed by vacancies in the labour market (S4) (23%) also with a strong effect due to the high impact of this factor on O and T (13.00 and 13.00, respectively). The strength factor wage level (S2) was not chosen (0%) by any experts.

Further, Figure 8 shows that the most important weakness factor is unemployment (W2) (54%) with the highest impact on both O and T (31.00 and 31.00, respectively), followed by dual labour market structure (W3) (23%) with a low impact on O and T (9.00 and 9.00, respectively). The weakness factors crowding-out effects (W4) (8%) and informal networks (W5) (8%) scored worst with the lowest impact on both O and T (3.00; 3.00 and 3.00; 3.00, respectively).

In the first dominant theme 'labour market', the following critical success factors and strategies are needed to face the challenge of international migration. They are based on the most



important S and W points in order to take advantage of (future) O, (SO and WO). Serving as a basis for actions and selective (urban) policy activities, these factors and strategies are:

- Improvements in diverse communities', societies' and firms' ability to integrate migrants (e.g., into life and work), and supporting diversity could increase the contribution of migrants' skills to productivity growth by helping migrants to fully utilise their (specialised) skills in the host countries' creativity and innovation-driven new economy, and be more efficient in terms of cultural vitality and economic success.
- Diversity fosters creativity and innovation, contributes to entrepreneurship, enhances productivity, and promotes economic growth. Being linked to creative activities, diversity offers a major source of competitiveness for multicultural cities; and assists the cities' efforts to boost their international profile, attracting investments and a well-educated, creative workforce. Therefore, including promoting networking with home countries – transaction costs are lowered as immigrants will have knowledge of their home countries' markets, business practices and laws – and supporting diaspora arrangements for source country development contribute to the improvement of the creative capacities of cities and regions.
- Greater labour mobility helps to facilitate trade and increases the cross-border demand for domestic output. The nurturing of cultural diversity may further enhance trade. However, social cohesion and the accumulation of social capital are not natural outcomes in increasingly diverse societies, but require resources to be allocated to the promotion of desirable social outcomes. Thus, the social evaluation of greater cross-border mobility resulting from greater international economic integration must go hand in hand with the economic assessment.

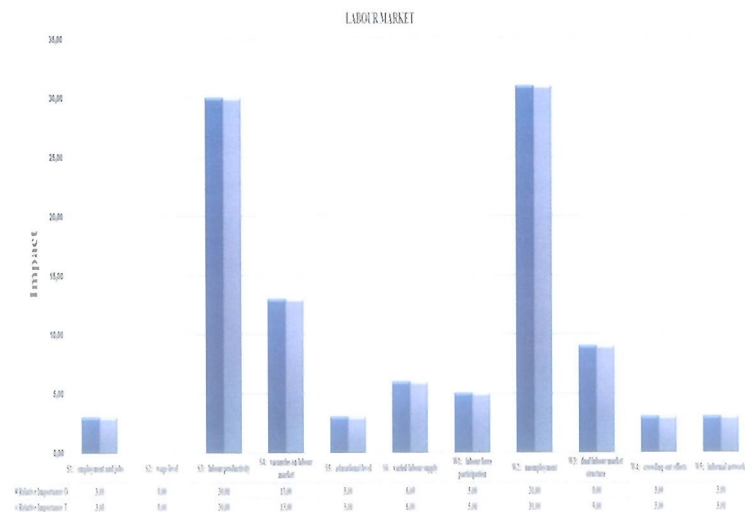


Figure 8. S-W factors for the labour market

From a different angle, in the first dominant theme 'labour market', the following critical success factors and strategies are needed to face the challenge of international migration. Here, they are based on the most important S and W points, in order to avoid or reduce the impact of (future) T, (*ST* and *WT*). Serving as a basis for actions and selective (urban) policy activities, these factors and strategies are:

- Create new market opportunities for business entry and the success of ethnic entrepreneurs and stimulate market expansion (viz. 'breaking out' and 'breaking-in' strategies) to bridge the gaps that exist between the various ethnic entrepreneurs in their local social informal network and (other) formal networks, institutions or groups in host society (on the local, regional and national levels), all of which build confidence and lead to increased awareness, knowledge and trust.
- Expansions strategies will trigger further mobilise immigration, in particular high-skilled professionals who are complementary to investment flows in the sectors in which they are employed, and thus attract more investments.
- New business and market opportunities should be created to stimulate transfer between labour market segments and job creation in host countries for both the native population and certain segments of immigrant labour force (e.g., low-skilled migrants, women, young people, and elderly workers, who are disadvantaged partly due to discrimination and inappropriate access to schooling and training) who encounter specific difficulties in entering the labour market, are often more exposed to short-term or structural unemployment (e.g., lack of ambition, various social problems) than the native population, and experience vulnerability in the labour market. This will also increase productivity.
- Immigrants affect both the supply and the demand side of the local economy from their day of arrival. On the supply side, one or more members of the migrant household are likely to enter the local labour market, which affects the supply of labour with skills and attributes similar to those of the immigrants. The impact on other workers, either native born or earlier immigrants, depends greatly on the extent to which the different types of labour can substitute for each other in production, and the extent to which firms change the composition of output and production methods following an immigration-induced labour supply shock. On the demand side, migrant earnings and/or migrant wealth, and sometimes social security payments, fund the consumption and housing of migrant households.

#### 7.5.2.2 Economic development

In Figure 9, we present the results for the second dominant theme 'economic development', where, in general, innovation force (S4) (38%), economic growth (S1) (23%) and contribution to ageing problem (S5) (23%) achieved the highest scores by experts as the most important strength factors, where S1 has a high impact on O and T (25.00 and 18.00, respectively). The scores gradually get lower for entrepreneurship (S2) (15%), competition force (S3) (0%), and creative industry (S6) (0%); but for entrepreneurship (S2) the impact on O and T is stronger. Further, Figure 9 shows that

below-average growth (W2) scores high (38%) as the most important weakness factor in this theme with the highest impact on O and T (18.00 and 13.75, respectively), followed by youth participation (W4) (23%) and poor professionalization (W5) (23%), but with a weak impact on both O and T (11.00; 11.00 and 9.00; 9.00, respectively). However, the score become gradually lower for the weakness factor ‘focus on traditional sectors’ (15%), but with almost no impact on reducing T (8.00 and 5.00, respectively).

In the second document theme ‘economic development’ the following critical success factors and strategies are needed to face the challenge of international migration. They are based on the most important S and W points in order to take advantage of (future) O, (SO and WO). Serving as a basis for actions and selective (urban) policy activities, these factors and strategies are:

- There is a need to create a new vision where higher diversity can lead to more innovation and creativity. Creativity in general seems to be enhanced by immigration and cultural diversity. Diversity and different conditions in people’s working and living environment stimulates and creates potential benefits by increasing the variety of goods, services and skills available for consumption, production, new ideas, innovation and economic growth.
- An innovative economy will bring cultural, creative and innovative activities into a new focus, which can contribute to the creation of new products and markets, the business climate, a vital urban environment, and economic growth. Creative and innovative activities are often associated with entrepreneurship, where creative and innovative regions can enjoy a high level of dynamic entrepreneurship, so that creativity and innovation offer a positive stimulus for new firm formation in an open and flexible (innovative) economy.

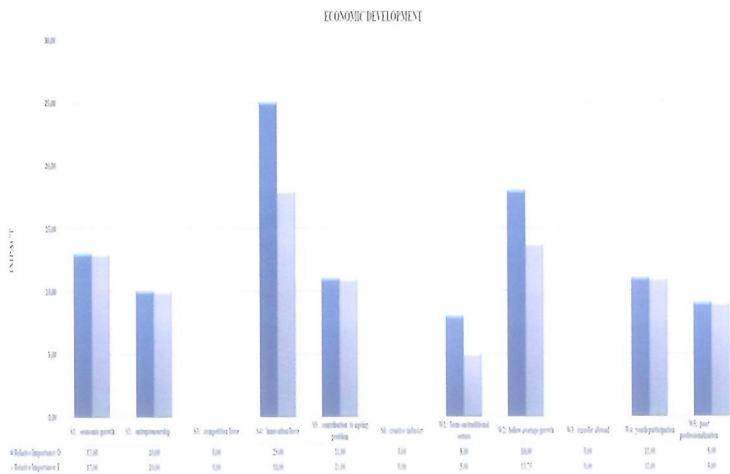


Figure 9. S-W factors for economic development

From a different angle, in the first dominant theme ‘economic development’, the following critical success factors and strategies are needed to face the challenge of international migration. Here, they are based on the most important S and W points, in order to avoid or reduce the impact of (future) T, (ST and WT). Serving as a basis for actions and selective (urban) policy activities, these factors and strategies are:

- It is important to increase new entrepreneurship in our society: as the necessary condition to create innovations in a competitive economic system; as a provider of new industrial creativity, innovation performance, and technological change; and as a key player for the well-being of local and regional communities.
- New entrepreneurship contributes to the development of integration and great diversity in entrepreneurship in our modern social-economy. Immigrants form a heterogeneous group of people with a wide range of skills, education, innovativeness and business attitude. Migrant entrepreneurs form a significant part of the SME sector in our modern cities, and have become a source of new economic opportunities for regions and cities.
- The innovation force of migrants can help to tackle threats such as ‘traditional ethnic markets’, the rise in the informal economy, low-tech stigma, and poor institutionalization, and, at the same time, it hinders the emergence of these threats. But it should be recognized that in various cases significant barriers still exist (e.g., language and cultural barriers, skill levels, poor professionalization, etc.) that can lead to threats such as below-average growth through the low level of ambition of the low-educated migrant and the indifference of migrants economic growth, which is a danger to urban vitality and to a creative climate.
- Investments in education and training encourage a greater proportion of the work and innovation force of migrants to invest in human capital, thereby generating a positive spill-over in the labour market and economic development. It is no secret that the vast majority of migrant entrepreneurs go bankrupt within three years because of underdevelopment and incompetence.

#### 7.5.2.3 *External effects*

In Figure 10, we now present the results for the third dominant theme ‘external effects’, where competitiveness (S2) outperforms all other strength factors (46%) with a very high impact on O and T (27.60 and 21.60, respectively), followed by international trade growth (S1) (38%) with a high impact on both O and T (20.00 and 14.00, respectively). The remaining variables score worst with no impact on both O and T.

Further, Figure 10 shows that the most important W factor, in the third theme ‘external effects’, is criminality (W4) with the highest score (77%) and a very high impact on O and T. The scores gradually become worse for orientation on local market (W5) (15%), new business modalities (W2) (8%), emergence of closed markets (W3) (0%), and surplus on balance of payments (W1) (0%).



In the third document theme ‘external effects’, the following critical success factors and strategies are needed to face the challenge of international migration. They are based on the most important S and W points in order to take advantage of (future) O, (SO and WO). Serving as a basis for actions and selective (urban) policy activities, these factors and strategies are:

- Cross-fertilization of ideas in a diverse urban environment (Jacobs externalities) creates a contextual environment where more ideas are produced and turned into innovative outputs. Higher competitiveness and availability of knowledge spillovers in a culturally diverse setting contributes to the innovativeness of the host regions. Therefore, the competitiveness of a region should be improved in order to stimulate creativity, innovativeness and entrepreneurship – and hence growth. This will have a positive effect on the regional economy.
- The contribution of immigrants to job creation have not just been limited to ethnic niches and markets, but they can enlarge and expand their market domain through, for example, ‘breaking out’ and ‘breaking-in’ strategies (viz. diversity in SMEs, international trade). These markets are characterized by dynamic competition based on high quality products and services for a broader group of clients and markets outside their own indigenous ethnic group. New trends in migrant entrepreneurship and the migrants’ growth strategies show a rise in second-generation migrant entrepreneurs in business and professional services, information and communication technologies (ICT) and the creative industries (CIs) (e.g., creative sectoral development creates possibilities for entrepreneurship and wage moderation) rather than a focus on traditional sectors, where the first generation is operating. Thus, there is a movement from market penetration or product development towards diversification (moving out of the easy part and meeting the challenges) – and this generational change is also contributing to this transformation.

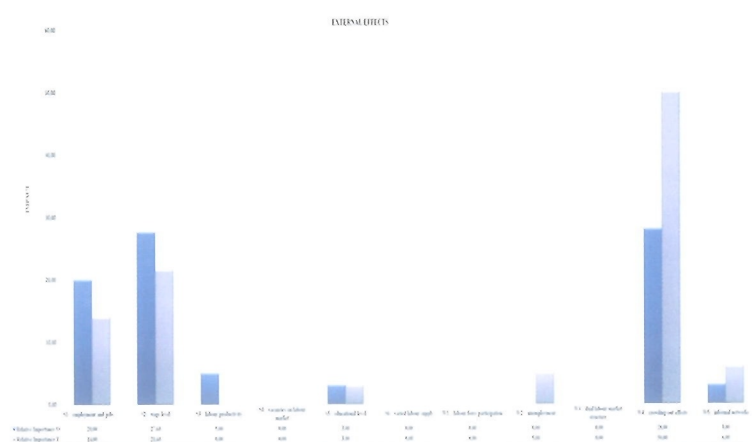


Figure 10. S-W factors for external effects



From a different angle, in the third dominant theme 'external effects', the following critical success factors and strategies are needed to face the challenge of international migration. Here, they are based on the most important S and W points, in order to avoid or reduce the impact of (future) T, (*ST* and *WT*). Serving as a basis for actions and selective (urban) policy activities, these factors and strategies are:

- The stimulation of ethnic entrepreneurs has a substantial impact on the urban economy and they also can act as role models for socio-economic integration. They operate in interesting niches and form a positive stimulus for creative business-making in modern cities. As mentioned above, a growing number of second-generation migrant entrepreneurs and an orientation to non-traditional sectors have become the new trends in migrant entrepreneurship.
- More diverse groups have the potential to consider a greater range of perspectives – people with different backgrounds have more diverse and novel ideas, as well as different points of view. And they can also generate more high quality and innovative solutions – in order to solve group conflicts and take all aspects into account. Diversity leads to the confrontation of different ideas, more creativity, and superior solutions to problems.
- The heterogeneous settlements of host cities and regions, with an unprecedented innovative, creative and cultural diversity (with respect to skills, education, age, gender, welfare position, cultural background, ethnicity, and motivation) – which are competitive assets to improve the socio-economic performance of cities and regions – encourage smaller group cohesion, reduce criminality and stimulate high adaptability and help to shape a spectacular new and diverse urban design and lifestyle for accelerated economic growth. On the other hand, criminality, group cohesion and a non-transparent market may: impede the emergence of new firms and entrance to the local markets, isolate (migrant) entrepreneurs; block the efficient functioning of business support systems; lead to high dependency on the welfare state among migrants; and increase social tension with natives.
- Host countries could improve their competitiveness relative to the migrant-sending countries through the devaluation effect on the exchange rate and through the additional spending capacity generated in the migrant-sending countries.

#### 7.5.2.4 Cultural diversity

Figure 11 presents results for the fourth theme 'cultural diversity', where melting pot/diversity (S4) (46%) and creativity (S2) (38%) achieved the highest scores by experts as the most important strength factors, where S4 has the highest impact on reducing T (24.00 and 23.00, respectively). The remaining variables score worst by the experts.

Further, Figure 11 shows that loss of social trust (W4) scores high (46%) as the most important weakness factor in this theme with a high impact to take advantage of O, followed by the weakness factor ethnic social tensions (W1) (31%) with a higher impact on T. However, the score and importance become gradually lower for the other factors. In the fourth document

theme ‘cultural diversity’, the following critical success factors and strategies are needed to face the challenge of international migration. They are based on the most important S and W points in order to take advantage of (future) O, (SO and WO). Serving as a basis for actions and selective (urban) policy activities, these factors and strategies are:

- On the regional level, cities can offer by means of their agglomeration advantages (e.g., local identity, an open and attractive urban ‘milieu’ or atmosphere, use of tacit knowledge, the urban embeddedness of new business initiatives, and access to social and financial capital and networks) a broad array of business opportunities for creative cultures. In particular, self-employment opportunities, SMEs and the internationalization of the city may play a central role in creating new (urban) economic vitality.
- A ‘cultural and socio-ethnic pluriformity’ approach help to determine the various impulses which stimulate many different (high-skilled) ethnic groups to become engaged in the creative industries by deploying urban space as an action platform and mobilizing all resources. This approach can significantly contribute to the economy by increasing the economic and cultural diversity of a city and reducing unemployment among immigrants. These cities have become multicultural melting pots: societies with people of different cultures, races and religions and a magnet to deliver new ideas for the creative industries and economic growth; and which have a significant positive impact on social cohesion.
- Multiple cultures lead to a better variation in products, innovation and the reinforcement of the internationalization of the city, through the creation of new international (ethnic) networks; greater investment and transfer of technology, knowledge, skills and new ideas via professional immigrants’ network; which all improve the socio-economic welfare of host countries.

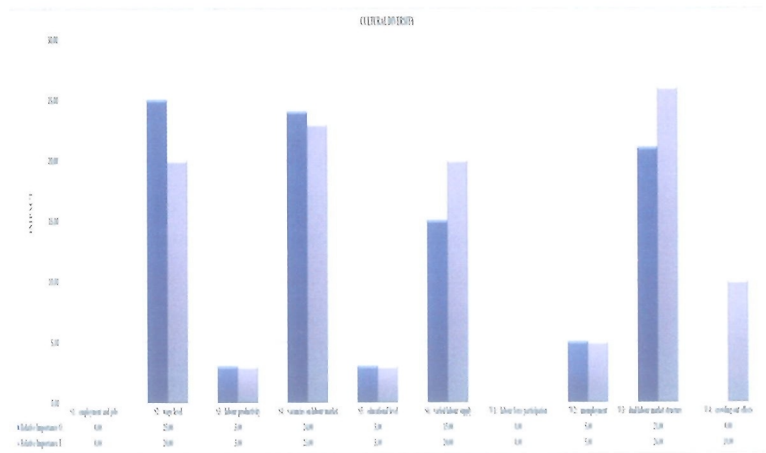


Figure 11. S-W factors for cultural diversity

From a different angle, in the fourth dominant theme ‘cultural diversity’, the following critical success factors and strategies are needed to face the challenge of international migration. Here, they are based on the most important S and W points, in order to avoid or reduce the impact of (future) T, (ST and WT). Serving as a basis for actions and selective (urban) policy activities, these factors and strategies are:

- A new orientation on the non-traditional sector with a combination of personal characteristics, skills and experience may produce a very high economic performance and success level of the second-generation entrepreneurs. Therefore, this new orientation may also help them to: escape from ethnic or migrant enclaves (which can cause a language skills problem because the migrants have no incentive to speak the language of host country fluently, erosion of social cohesion, solidarity and trust to tolerate different behaviour, or ghetto formation, all of which create loners in the crowded melting pots); break out from their ethnic dependency; and make more use of, for example, formal networks, formal organizations, governments, financial institutes.
- Moreover, this external orientation may also help them to expand their market into high-volume trade by engaging in trade with indigenous entrepreneurs and other ethnic groups, which contributes to (the regional) business climate and vitality. However, this external orientation does not mean that they will not also continue to benefit from their own ethnic group (enclave economy). Migrant groups who produce a strong entrepreneurial group can be of great economic significance for the migrant business community, as well as for the total community, through job and opportunity creation.

#### *7.5.2.5 Effects on the public sector*

Finally, we present in Figure 12 the results for the fifth dominant theme ‘effects on the public sector’, where contribution to the social security system (S3) outperforms all other strength factors (46%) with the highest impact on O and T (30.00 and 23.00, respectively), followed by tax revenues (direct) (S1) (38%) with a strong impact on O and T (23.00 and 9.00, respectively). The scores gradually become lower for the factors decline in education costs (S4) and social support system (S6); with both having a very low impact on O and T. Further, Figure 12 shows that use of social benefits (for example, integration courses) (W1) and social costs (W4) score the highest (38% and 31%) as the most important weakness factor in this theme with strong impact on T. The remaining variables score worst.

In the fifth document theme ‘effects on the public sector’, the following critical success factors and strategies are needed to face the challenge of international migration. They are based on the most important S and W points in order to take advantage of (future) O, (SO and WO). Serving as a basis for actions and selective (urban) policy activities, these factors and strategies are:

- A high share of economic migration – implying that immigrants have a speedier access to work – will positively contribute to the Treasury and have a positive influence on population

and labour force growth. If natural population growth turns negative, immigration can help maintain a constant level of population and labour force.

- Immigration could remedy shortages of labour and skills that are unrelated to demographic processes. However, immigration is not a solution for tackling the consequences of demographic ageing in Europe. The level of net migration required to keep the old-age dependency ratio constant would entail increases of inflows well beyond socially desirable and politically sustainable levels.
- It is necessary to create and encouraging direct and new (business) investment, foster the business climate, and persuade the private sector to attract migrants of the optimal composition of skill levels in the labour force, e.g., in relation to innovativeness, knowledge intensification, creativity, cultural enrichment, flexibility, diversity, and international orientation, which create challenges for second-generation migrants. All this also vitalizes the labour market, fosters growth and increases demand for unskilled native workers. This also offers a major strategic opportunity to increase the contribution of immigration to productivity, as well as higher demand for goods and services (due to population growth through immigration).

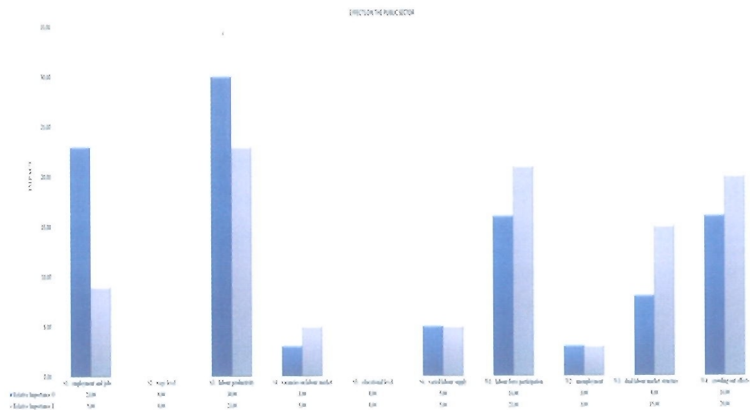


Figure 12: S-W factors for effects on the public sector

From a different angle, in the fifth dominant theme ‘effects on the public sector’, the following critical success factors and strategies are needed to face the challenge of international migration. Here, they are based on the most important S and W points, in order to avoid or reduce the impact of (future) T, (ST and WT). Serving as a basis for actions and selective (urban) policy activities, these factors and strategies are:



- The stimulation of migrant diversity (based on different origin and socio-economic cultural characteristics) makes a positive contribution to public finance and a potentially favourable contribution to welfare of the host regions and countries.
- When highly-educated, young people, enter into host countries predominantly to work they subsequently make positive contributions to the tax system. This is because they have a higher labour force participation rate, pay proportionately more in indirect taxes and social security contributions, and make much less use of benefits and public services.
- Young immigrant workers contribute financially to the social security system (e.g., pensions, social transfer payments), and can significantly increase income per capita and productivity in host countries. However, the net fiscal impact depends substantially on the migrant's age, education, and the permanency of the stay.
- The coordination of migration policies will have important cross-country spill-overs. If one nation closes its borders to migrants, migration flows are diverted disproportionately to other nations, so the other nations react by closing their borders. As a result of this lack of coordination, all host countries can end up with migration restrictions that are higher than is collectively optimal. The cost to host countries for the lack of coordination of migration policies will be high.

## 7.6 Conclusions and Recommendations

In the age of globalization international mobility, closely related to migration, is a 'normal' socio-economic phenomenon. Where there is clearly no forced migration (e.g., refugees), migration has a clear socio-economic background in terms of income, wage, and job motives. Therefore, it cannot be ignored that the rising importance of migration worldwide is becoming an important part of our modern economic research. It is clearly a major development in our society, with many positive but also negative consequences involved.

The Netherlands – in contrast to many other countries – does not have a strong tradition in assessing the socio-economic impacts of immigration. However, there is a rich supply of foreign investigations available. These studies contain a variety of questions and methodological tools and techniques, but many of them address these on the basis of a valid systematic MIA. From a wide variety of international studies an 'average irrefutable' conclusion can be drawn: namely, to date, in general there is no single sufficient piece of empirical evidence for the assumption that migration flow leads to wide variety of negative effects on welfare in host countries.

From a European view, the Netherlands takes average position concerning immigration with respect to migrant composition and share. It is not inevitable that foreign findings on the socio-economic effects of migration would yield another view for the Netherlands; however, it the urgent need for proper data and applied empirical research needs to be taken seriously. Unfortunately, the empirical research on migration effects in the Netherlands is greatly hampered by the lack of appropriate data, particularly at the individual or ethnic group level.



In light of the various perceptions regarding the negative effects of immigration, in recent years, a call for a social cost-benefit analysis of migration has been made in the Netherlands. Nevertheless, from an economic perspective, it seems reasonable to make an estimate of the socio-economic (dis)advantages of significant migration inflow, if all costs and benefits can be quantified accurately.

Information on the costs of migration, in retrospect, are well known, but there is hardly any information available in the Netherlands on benefits, on the basis of which past, current and future effects can be assessed. Therefore, currently the application of a cost-benefit analysis is not appropriate, because a bias will arise in the estimation and confrontation of cost and benefits. In this context, the concept of 'MIA' is a preferable analytical vehicle, in the form of a SWOT analysis that forms a basis for a balanced research programme on the role of migrants by means of the socio-economic impacts on host countries.

A SWOT analysis is not meant to calculate the effects of migration on purely financial grounds, but rather it is used to calculate various socio-economic aspects of migration as far as it is possible for each dimension. Such an analysis systematically follows the confrontation of the S and W with the O and T factors, whereby past, current and future effects are assessed, in a SCM (also the essence of SWOT analysis). This helps both to determine the existing fit of migration in its environment and to devise effective strategies in response to issues in the socio-economic environment; in brief, the matrix indicates what options suit the key issues.

Many international MIA-experiences confirm the general overview that there is no reason to fear that in general a large influx of migrants will generally lead to considerable negative socio-economic consequences for the host country. Rather a significant increase of economic benefits in the long-term, is to be expected depending largely on certain features such as education level, motivation and duration of the stay of migrants. If the government has a good accommodation policy for migrants, after a certain period of time, a point is reached when significant positive socio-economic effects dominate the negative effects. There is, of course, a great variety in the behaviour of migrants and their influence on the national, regional or local economy. However, from many empirical studies undertaken in various countries a general conclusion can be drawn: namely, that immigration does not have an evident negative economic influence on the host country after a certain period of time, certainly if high-skilled migrants are being well-matched on the labour market.

In addition, the fears that migrants are likely to take jobs away from 'natives' is unjustified. There is hardly any empirical evidence that migration leads to repression and crowding-out effects. On the other hand, a growing strand of the literature argues positively that migrants bring along new skills that have an enriching effect on the local or regional labour market, which improve competition and innovation in a sense relating to this domain. The same applies even more strongly for local entrepreneurship ('migrants or ethnic entrepreneurship'); and for international trade, infrastructure and tourism.

As mentioned above, migration, with the exception of forced migration, has a clear social-economic background. Better opportunities and network externalities are offered by large cities. Therefore it comes as no surprise that large cities in the Netherlands have a relative high share of migrants. Those cities are increasingly experiencing the same phenomenon as that in North America: namely, a ‘melting pot’ of cultures and people.

Cultural diversity represents a new challenge and provides opportunities for cities in host countries, and international studies of various cities show that cultural diversity leads to favourable socio-economic conditions where there are complementary labour opportunities or niche-markets. To manage cultural diversity with the focus on the optimisation of constellation of socio-economic characteristics of cities requires the utmost in managerial courage and ability.

This SCA has provided a systematic view of the positive and negative social-economic effects of migration for host country. There is, however, only partial information regarding various effects based upon a rigorous, systematic, scientific analysis of the empirical data. But, for the present, there is no reason to approach the migration phenomenon negatively or hysterically, but what is certain is that solid information is an absolute prerequisite for a reliable and balanced dialogue.

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## 8 MIGRANT ENTREPRENEURS AS URBAN HEALTH ANGELS – RISK AND GROWTH STRATEGIES\*

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### Abstract

This paper highlights the importance of migrant entrepreneurs as economic change agents in cities in the developed world. The focus will in particular be on transition strategies of second-generation migrant entrepreneurs, as their ‘break-out’ strategies may lead to a convergence of migrant entrepreneurship with mainstream entrepreneurship. The present study will address both the driving forces of this ‘new entrepreneurship’ and the socio-economic implications for modern cities. To test the above proposition, a unique extensive micro-database is used for a diversified set of migrant entrepreneurs in the four largest cities in the Netherlands. Detailed information on their risk and growth strategies was obtained from personal interviews with these entrepreneurs. The research first offers statistical findings from this data set, and subsequently it uses a multidimensional classification tool from artificial intelligence, viz. self-organizing maps (SOMs), to identify and present patterns of manifest differences and similarities in the migrant entrepreneurs’ behaviour and attitudes. Finally, a causal econometric model is designed and estimated to assess the importance of various behavioural variables and control factors for the business performance of the entrepreneurs concerned.

**Keywords:** Migrant entrepreneurship, break-out strategies, change agents, second-generation migrant entrepreneurs, self-organizing mapping

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### 8.1 New Urbanism and New Entrepreneurship

Recently, much research and policy interest has emerged regarding the drivers of the structural rise in urbanization – and its consequent implications for the dynamics of residential patterns – in our world (see for a review Kourtit and Nijkamp 2013). The city has not only strengthened its position as the centre of residential and entrepreneurial activity, but has also become a hub of knowledge, innovation and creativity in a global network of cities (see Neal 2012). Clearly, the reinforced external position of the city – ranging from medium-sized cities to mega-cities – is predominantly determined by the rising centripetal and centrifugal forces generated by the city itself. Besides popular expressions such as ‘the global village’, ‘the cyber-city’, ‘the virtual city’ and the like (see e.g. Tranos and Nijkamp 2013), in recent years a new concept describing the dynamics generated within the city has become ‘en vogue’, viz. ‘urban buzz’. Urban buzz refers to the dynamic synergy of various business and social capital activities in the city, partly instigated by urban locational and cultural heritage factors, which prompts an unprecedented ‘milieu’ of creative development in the city (see e.g. Bathelt et al. 2004). The hospitality, arts, entertainment and fashion sector provides a good example of the latter phenomenon (see Arribas-Bel et al. 2013). The latter ‘new urbanism’ to a considerable extent finds its genesis in new developments in urban entrepreneurship.

Traditionally, entrepreneurship is at the heart of economic progress and it is a *sine qua non* for efficient organization of our economy, including the urban economy. Entrepreneurial energy is the heartbeat of thriving economic development (see Thurik 2009). There is a long-standing tradition of research into the motives and impacts of entrepreneurship (see e.g. Knight 1921; Schumpeter 1934; Kirzner 1973; Hébert and Link 1982; Sharma and Chrisman 1999; Kuratko and Hodgetts 2001). Despite some ambiguity in the definition of entrepreneurship, it is generally accepted that entrepreneurs are change agents who invent, introduce and commercially exploit new products or production processes in a competitive and risky economic environment. The motivations for entrepreneurship may be manifold, ranging from psychological or demographic to social or economic determinants (see e.g. Verheul et al. 2001; Audretsch and Thurik 2004; Carree and Thurik 2010).

In recent years, we have also witnessed a rising interest in the complex interlinkage between entrepreneurship and innovation on the one hand and creativity and knowledge on the other hand (see e.g. Cohen and Levinthal 1989; Acs et al. 2006; Caragliu and Nijkamp 2012). It has been determined that entrepreneurship is not a neutral phenomenon that emerges in a random way in geographical space. There are clearly many counties, regions and cities that are more entrepreneurially oriented than others. This may be explained partly by location factors, but also by knowledge institutions (and access thereto), a creative urban ambiance (like ‘urban buzz’) or an appropriate social support system provided by cultural or ethnic population groups. The combination of cultural and locational stimuli has prompted the emergence of several entrepreneur-rich urban districts, often with an unprecedented cultural diversity that may offer

a vibrant entrepreneurial climate in the city (Lin 2011). Consequently, modern entrepreneurship takes place in a dynamic socio-economic context.

A particular form of recent new entrepreneurship can be found in so-called migrant entrepreneurship.<sup>1</sup> Migrant entrepreneurs are often seen as the new ‘entrepreneurial heroes’ who turn dreams into reality under harsh initial development conditions, especially in the SME sector (see also Waldinger et al. 1990; Kloosterman and Rath 2003; Masurel and Nijkamp 2003; Dana 2007; Sahin 2012). The present study will address specifically the performance of migrant entrepreneurs in modern cities. More particularly, the focus will be on second-generation migrant entrepreneurs. Our study aims to investigate whether and to what extent second-generation migrant entrepreneurs are oriented towards mainstream or modern competitive markets. This will be tested using an extensive micro-database on migrant entrepreneurs in the four largest cities in the Netherlands.

The present paper is organized as follows. Section 8.2 offers a concise overview of migrant entrepreneurship and outlines our specific research questions. Next, Section 8.3 provides a brief introduction to the database that has been created to test our propositions, including a descriptive statistical presentation of the main micro-based findings. In Section 8.4, a new multidimensional data-organizing technique, viz. self-organizing maps (SOMs), is introduced and applied to identify various patterns in the socio-economic and geographic data set for the migrant entrepreneurs at hand. Finally, an explanatory econometric model is presented and estimated in Section 8.5, which serves to trace the determinants of the performance of second-generation migrant entrepreneurs, with a view to analysing their position in a second-generation migrant entrepreneurship system. The paper will conclude with some policy lessons and research implications.

## 8.2 Migrant Entrepreneurship in Perspective

The motives to become an entrepreneur and to run a business as a migrant entrepreneur have been extensively investigated in the scientific literature. There are personal and psychological motives, such as economic necessity, family tradition or welfare ambition, but there are also contextual conditions, such as the local competitive environment, new market opportunities, public or private support systems and networks, innovative product change and challenging growth potential. In addition, a wealth of supplementary factors often exists, such as gender, age, ethnic background, education or location. All such factors – described extensively in the so-called GALAXY model developed by Sahin (2012) – determine the entrepreneur’s business performance, for instance in terms of profit, turnover, market share, etc. It is clear from the above list of determinants that entrepreneurs are by definition risk-taking change agents.

As mentioned in Section 8.1, migrant entrepreneurs have in the past decades become new drivers of urban change and economic vitality. More recently, we have observed in this context an interesting transition, viz. a shift from involvement in traditional business activities

<sup>1</sup> Sometimes related terms such as ‘ethnic entrepreneurship’ or ‘minority entrepreneurship’ are also used, but we prefer to use the more neutral term ‘migrant entrepreneurship’.

towards modern, mainstream economic business activities (e.g. consultancy, ICT, fashion). This is often called a 'break-out' strategy, as such migrant entrepreneurs – often second-generation entrepreneurs – employ their resources (human capital, social networks, financial capital) to enter more promising – though also more risky – markets.

Migrant entrepreneurs are often found in the SME sectors of urban economies. They usually have a distinct socio-economic or ethnic profile and often find their economic strength and potential in an ethnic market orientation and the use of informal networks. They are motivated to strive for more independence, more responsibility and more profit-making business activity by entering higher segments of the market. Given this new orientation, there is a greater need to exploit their creativeness, innovativeness, flexibility and uncertainty management in an urban business environment. Several conceptual frameworks have been presented to offer due background insight into the manifold motives for migrants to become entrepreneurs (see Choenni 1997), such as the economic opportunity model, the cultural background model, the socio-economic response model and the high ambition model.

These 'new entrepreneurs' are a source of many economic opportunities for cities and regions, as they contribute to new job creation and diversification, stimulate the introduction of new products or processes (and hence create market dynamics by attracting new firms), strengthen socio-economic cohesion and cultural diversity, introduce new forms of markets and challenge the incumbent firms in the same market segment.

The business model for the transition of migrant entrepreneurship from traditional ethnic markets to mainstream markets can be described by means of an adjusted and updated version of the so-called Ansoff (1957) model (see Figure 1). This model maps out the stages of diversification and growth strategies of firms. In the *market penetration* stage, entrepreneurs sell 'more of the same to the same people,' without caring about new clients. They tend to use traditional marketing channels. This is a *short-term, low-risk* strategy. In the *market expansion* stage, the entrepreneur aims to sell 'more of the same' by expanding his range of clients or geographical markets. This is characterized by a *short-term, medium-risk* strategy. The *product expansion* stage is characterized by an extension of the range of products and/or services by offering differing variants of the original product and/or services. In this case, we have a *medium-term, medium-risk* strategy. Finally, in the *diversification* stage, completely new products and/or services may be produced. This is a typical case of a *long-term, high-risk* strategy.

The different motivation levels of migrant entrepreneurs can also be described using a more contemporaneous variant of the theory of human motivation developed by Maslow (1943). In the case of migrant entrepreneurship, we then obtain Figure 2 (Maslow's pyramid).



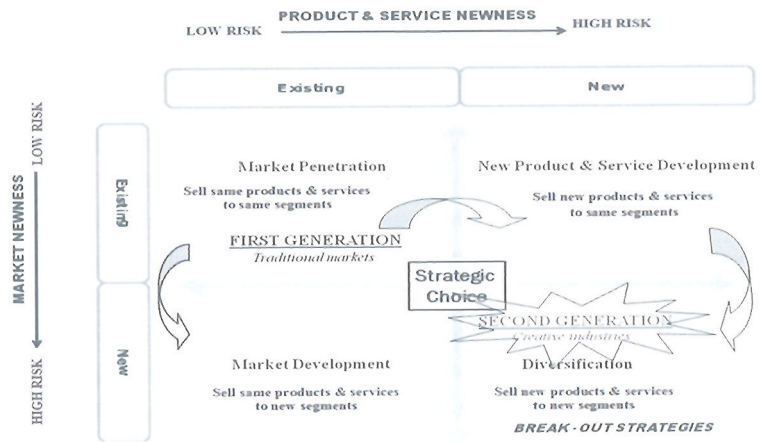


Figure 1. Business model of migrant entrepreneurship

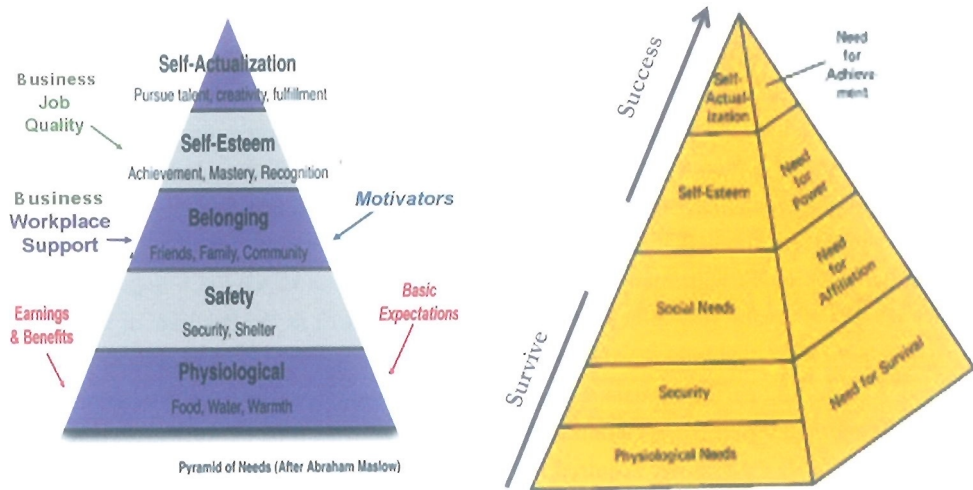


Figure 2. Maslow's needs pyramid

The above exposition suggests a clear hypothesis for the motivation and behaviour of second-generation migrant entrepreneurs, namely that they tend to leave the traditional market segments in favour of more advanced (and competitive) markets, for which innovation and skills (education) are a necessary condition (see Cormack and Niessen 2002). Since these second-generation migrant entrepreneurs are normally born in the host country, it is conceivable that they enjoy a higher education and hence are more ambitious in their entrepreneurial development strategies. This will be further tested in the present study. We will now, in Section 8.3, describe briefly the database for our empirical analysis in Sections 8.4 and 8.5.

### 8.3 Database of Migrant Entrepreneurship<sup>2</sup>

The database used in our analysis concerns the attitude and performance of first- and second-generation migrant entrepreneurs in the four largest cities in the Netherlands (Amsterdam, Rotterdam, the Hague and Utrecht). The age span covers approximately from 18 to 65 years. The first-generation group comprises mostly traditional migrants who came to the Netherlands for employment reasons in a period of a tight labour market. In most cases, these entrepreneurs set up their business in a rather ad hoc and impulsive manner, without any business plan or detailed market analysis. The second-generation migrant entrepreneurs consist of young dependents born in the Netherlands. This group is in general more ambitious and highly educated, and tends to opt for a higher market segment for which more market insights and business strategies are needed.

The countries of origin of these migrants considered in our analysis are: Turkey, Morocco, Surinam and the Dutch Antilles. These countries are the dominant migrant sending countries. The data set considers in particular migrants in the high-tech and business services sectors and contains detailed interview information – obtained through a standardized survey questionnaire – from about 200 migrant entrepreneurs (about 50 in each of the above-mentioned four Dutch cities). In this way, due insight into their entrepreneurial motives as well as their attitudes and performance could be obtained (for details see Sahin 2012). A particularly important issue is whether the traditional risk-avoiding ‘satisficer’ attitude of migrant entrepreneurs in the first stage has been replaced by a more aggressive and innovative ‘maximizer’ strategy in the second stage, forcing them to opt for a ‘break-out’ strategy towards more advanced markets.

It should be noted that the collection of detailed micro-data on individual migrant entrepreneurs is fraught with many difficulties. The identification of who is a migrant is – for privacy reasons – already very difficult. Another major bottleneck in the low level of willingness to participate in a detailed interview is caused by the sensitive issues (e.g. financial, labour force) involved. A significant part of the data had to be collected through personal contacts, snowballing, yellow pages, formal business associations, ad hoc contacts and informal network meetings. In the end, a rather reliable data set was acquired, which would serve our research on the assessment of critical success conditions for break-out strategies of second-generation migrant entrepreneurs in the main urban agglomerations in the Netherlands.

The database itself contains detailed individual information on four major factors: motivation, socio-economic context, business environment and policy factors. Most respondents in the survey appear to fall into the age cohort of 40 to 50 years, with a higher vocational education level and the male gender.

The major questions in the survey questionnaire addressed the following items (apart from a list of personal questions):

- age
- level of education
- first or second generation

<sup>2</sup> The authors wish to thank Mediha Sahin for making this database available.

- legal form of business
- diversification and growth strategies
- target group(s)
- personal expertise
- experience in the market
- risk-taking issues
- starting problems
- market competition
- use of information or professional advice in business
- (formal and informal) network contacts or participation
- use of ICT
- knowledge and expertise enhancement (training, courses)
- success factors for business
- major bottlenecks in business
- innovative attitude (products, processes, organization)
- growth strategies and future orientation (short term and long term)
- business performance: turnover
- profitability
- high-quality products
- innovation

The full data set contains – as mentioned above – more than 200 interviewees; however, due to various geo-coding issues and limitations, we were able to assign a reliable location to only 172 of them. As shown in Figure 3, almost the entire set (77%) can be allocated to one of the four largest cities in the Netherlands: the Hague ('s-Gravenhage), Amsterdam, Rotterdam and Utrecht.

Although the questionnaires included more items, in this study, we narrow the analysis to a limited set of variables that fit into our conceptual framework outlined in the previous sections. In particular, we use for our subsequent analysis the list presented in Table 1, along with some basic descriptive statistics. In addition to some basic demographics ('age', 'education'), we incorporate a variable that specifically indicates whether the entrepreneur is a first- or second-generation migrant ('generation') and that will later be instrumental in testing our conceptual framework. There is also a set of variables that capture diverse aspects of their entrepreneurial activity: the legal form of the company ('legal form'), sector in which they operate ('Ansoff matrix sector'), degree of competition in the market ('competition level') and use of IT systems ('IT support'). Finally, the remaining variables relate to the attitude and skills of the entrepreneur in developing his activity: the degree of experience ('experience') and expertise ('expertise a/b'), a measure of risk-taking behaviour ('risk taking'), whether problems were encountered at the beginning of the enterprise ('problems starting'), whether they have received information and advice ('info advice'), whether they participate in business-related networks ('participating network'), whether they are part of

other formal and informal networks ('formal network' and 'informal network'), the presence of different forms of innovation ('innovation') and success ('success') in the company and whether established plans and strategies are in place for the future ('future').

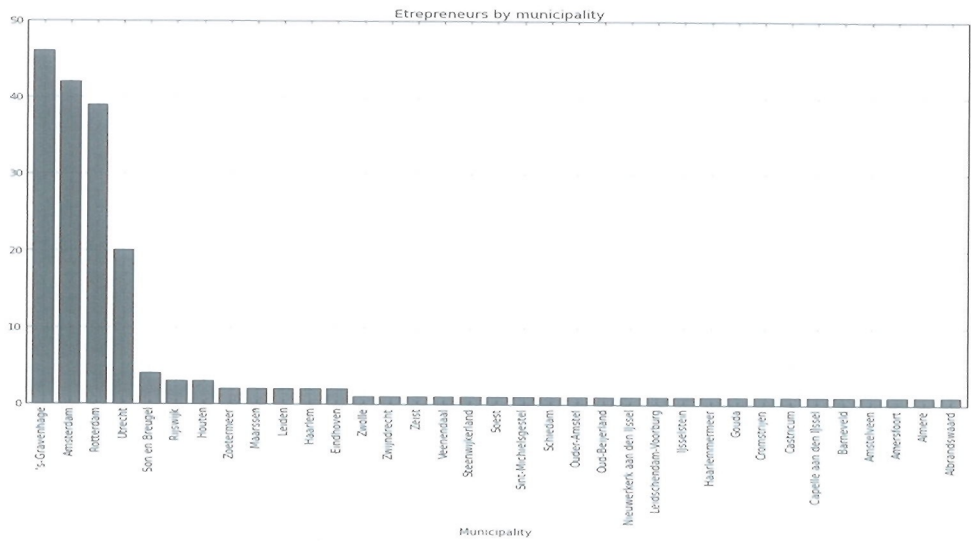


Figure 3. Distribution of migrant entrepreneurs by municipality

An important note of caution that will have consequences for the regression analysis, as we shall see later on, relates to the nature of these variables. As mentioned earlier, the willingness to be part of this study, on the entrepreneurs' side, was fairly low due to the privacy-sensitive character of some of the questions asked. Because of that, we were sometimes forced to use discrete variables that would otherwise look more sensible in a continuous form. As an example, the age of each entrepreneur was not reported as a single number but the answer was selected on a scale of 10 groups of ages; hence, there was a minimum value of 0 and a maximum value of 9. Similarly, education was created by mapping different levels of attainment (high school, university, etc.) onto a scale from 1 to 4. This made it possible to obtain realistic answers from the entrepreneurs, but at a significant loss of precise numerical information.

These data are next used as the empirical basis for assessing the transition strategies from first- to second-generation entrepreneurs and their critical success factors. The findings are provided in Sections 8.4 and 8.5.



Table 1. Descriptive statistics

Variables	Min.	Max.	Mean	Std
<i>Age</i>	0	9	2.59	1.13
<i>Education</i>	1	4	3.01	0.89
<i>Generation</i>	1	2	1.69	0.46
<i>Legal form</i>	1	4	1.52	0.55
<i>Ansoff matrix sector</i>	1	4	3.27	0.91
<i>Experience</i>	1	4	1.78	0.98
<i>Risk taking</i>	1	4	2.86	1.05
<i>Competition level</i>	1	4	3.40	0.79
<i>Problems starting</i>	0	8	2.67	1.49
<i>Info advice</i>	0	7	2.20	1.47
<i>Participating network</i>	1	2	1.40	0.49
<i>Informal network</i>	1	2	1.06	0.23
<i>Formal network</i>	1	2	1.21	0.41
<i>IT support</i>	0	6	4.20	1.90
<i>Expertise a</i>	1	2	1.48	0.50
<i>Expertise b</i>	1	2	1.45	0.50
<i>Innovation</i>	0	5	0.72	1.12
<i>Success</i>	0	7	3.02	1.63
<i>Future</i>	0	4	1.29	0.89

#### 8.4 SOM Analysis

Next, we present the patterns emerging from these data in a new form. Once we have presented the main characteristics of the database, we set out to explore it in order to grasp its structure in a better way. For that purpose, we adopt a methodology that, although it has existed for quite some time and already proved successful in other fields, it is only in recent years that it has begun to enter the social sciences. The technique is called the self-organizing map, or SOM hereafter (Kohonen 2001); it belongs to the class of unsupervised computational neural networks.

The SOM simultaneously performs data quantization (reduction of the number of observations) and projection (reduction of the number of dimensions). In this regard, it is similar to other clustering algorithms, such as K-means or hierarchical clustering, in that it is able to map the original observations into groups with internal homogeneity (quantization) and, at the same time, it is also similar to data reduction techniques, such as principal component analysis, which compress highly dimensional data sets into a low number that typically can be represented visually. Although the mechanism that underlies the SOM involves some sophistication, its output can easily be interpreted with a few guidelines. For that reason, in this paper, we will focus on the output and give the reader the intuition needed to follow the analysis of the results. For a deeper coverage of

the methodology, the interested researcher is referred to Kohonen (2001) or Agarwal and Skupin (2007), who tackle the main algorithms as well as several extensions and interesting applications at greater length; for similar applications of the SOM in the context of the social sciences, recent examples include Arribas-Bel et al. (2011), Delmelle et al. (2012) and Kourtiti et al. (2012).

The main feature of an SOM consists of its capability to transform a large highly dimensional data set into a two-dimensional output that contains all the useful information and statistical variation. This output is represented in the form of a network of connected *neurons*. In this study, we use hexagonal neurons, which are the most commonly used ones. In particular, we select 400 neurons arranged in a squared net of 20 by 20; once the SOM algorithm has been run, they represent what we will call the *trained network*, the output space or, for simplicity, the SOM.

Figure 4 shows the distribution of migrant firms across the input, in which the global score SOMs are better spread across the networks, indicating a *larger degree of diversity* between the observations as well as more particular and unique combinations of relevant characteristics. Furthermore, the map shows a few small clear clusters of migrant firms, suggesting that these are similar groups of observed migrant firms.

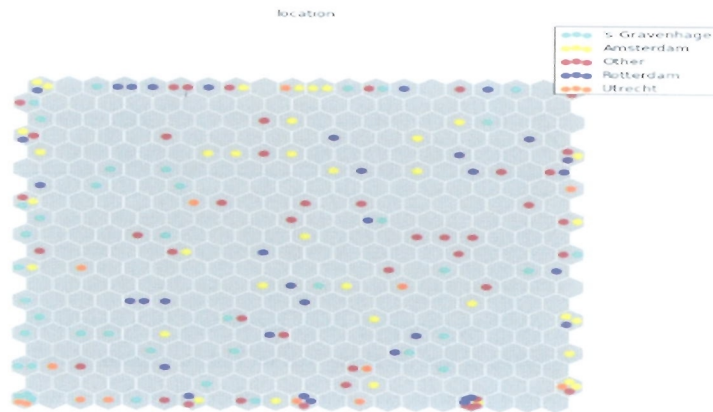


Figure 4. Topological virtual map obtained from an SOM network

Although there are several ways to exploit and analyse a trained SOM, we will focus on the so-called *component planes*. The output network can be understood as a map of the statistical space that contains all the information from the original data set. Every neuron has a set of characteristics in terms of the original variables used to train the algorithm, and every original observation is assigned to one of them based on its particular values. In this way, values relating to every input variable can then easily be visualized by using a colour gradient in what effectively becomes a (statistical) choropleth. The component planes reveal the profile of each region of the

map and allow for quick identification of the patterns and associations between the behaviour of every variable and how this interacts with the other ones.

The result of running the algorithm on the variables presented in the previous section can be seen in Figure 5, which uses a gradient of blues to display nine equal intervals, with higher values in dark blue and lower ones in white.

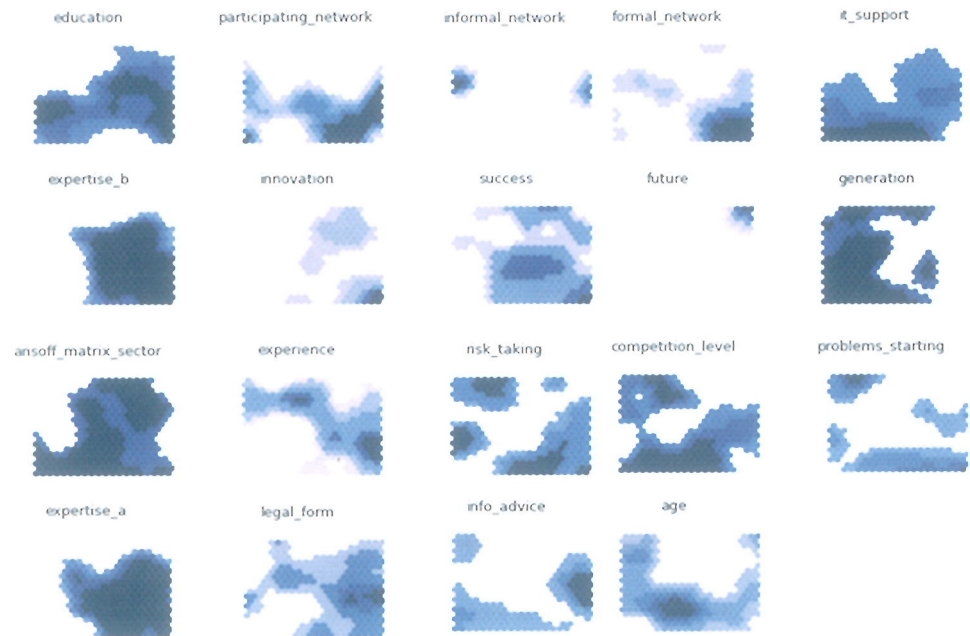


Figure 5. Distribution of performance planes

The first thing that is striking is that, in general, the patterns are fairly distinct across the variables. This is a sign of the complexity and richness of the data set: if every variable was distributed in the same way among the regions of the SOM (and among the entrepreneurs, by extension), it would make little sense to use all of them, because they would reveal the same information. This general trend of divergence has some exceptions: the two measures of expertise ('a' and 'b'), for example, have a very similar dispersion across the network, with higher values located in the centre and the bottom-right corner, while lower ones are found in the left and upper part. As mentioned above, this set-up allows us to profile the different regions of the map and to observe quickly the associations between different variables and subsets of the data. As an example, let us consider the upper-left region of the SOM. By looking at this part of the map in the component plane of every variable, we can learn about the characteristics of the set of entrepreneurs located in such an area. In this way, we can see how such a given group of migrant entrepreneurs displays a low level

of education (plain white in that plane), is of middle age and has faced problems when starting the business, for instance. Additionally, it is interesting to observe that this group of migrants is composed of both first- and second-generation migrants and that the degree of experience is mixed, but on the lower side (only white and light blue). The entire network can be explored in the same way as we have just analysed the upper-left part of the SOM, yielding interesting insights into the data used in the present study and, at the same time, highlighting the inherent complexity in the relationships that underlie the interplay between the characteristics of the migrant entrepreneurs.

### 8.5 Explanatory Econometric Model

In this section, we switch from an exploratory to a more confirmatory approach by adopting a causal regression framework. In particular, we aim to test the hypothesis of whether second-generation migrants tend to attain higher levels of performance. Accordingly, we consider three distinct indices to measure the entrepreneur's output: 'turnover', 'high quality' and 'profitability'. These are included in subsequent models in which the following equation is estimated by means of ordinary least squares:

$$\begin{aligned} \text{perf}_i = & \beta_0 + \beta_1 \text{age}_i + \beta_2 \text{education}_i + \beta_3 \text{generation}_i + \beta_4 \text{legal\_form}_i + \beta_5 \text{Ansoff\_matrix\_sector}_i + \\ & \beta_6 \text{experience}_i + \beta_7 \text{risk\_taking}_i + \beta_8 \text{competition\_level}_i + \beta_9 \text{problems\_starting}_i + \beta_{10} \text{info\_advice}_i \\ & + \beta_{11} \text{participating\_network}_i + \beta_{12} \text{informal\_network}_i + \beta_{13} \text{formal\_network}_i + \beta_{14} \text{it\_support}_i \\ & + \beta_{15} \text{expertise\_a}_i + \beta_{16} \text{success}_i + \beta_{17} \text{future}_i + \varepsilon_i, \end{aligned}$$

where  $\text{perf}_i$  is the output performance measure for entrepreneur  $i$ , in any of the three versions we work with,  $\beta_0$  is a constant term and  $\beta_x$  are coefficients associated with the explanatory variables introduced in the previous sections. Given the insights obtained from the SOM analysis, we decide to include only one of the expertise measures, as it was clearly shown that these were both very similar.<sup>3</sup>

The econometric results are shown in Table 2. Although clear differences exist in the way the exogenous variables are related to the endogenous variables, depending on the output measure, there are evidently also clear general patterns. The three models – related to the above-mentioned three response variables – have an explanatory power of around 18% (16.9%, 19.3% and 18%). This may seem low, but it is important to keep in mind the discrete nature of the data mentioned before: relevant information may partly be lost by transforming continuous phenomena (such as age) to a discretization based on age intervals, so that some variation is missed out, and this may have an impact on the statistical model fit.

From this perspective, the results shown in the table may be interpreted as a lower bound. Stronger patterns, however, remain and we can observe them arising in the three models: *age* is always significant and has a negative sign, indicating that younger entrepreneurs tend to perform

<sup>3</sup> We estimated the models with the other measures as well and the results did not change dramatically. The results are available from the authors on request.



better than older ones; the presence of *problems in starting* the business negatively affects the performance; and the role of *IT support* appears to be significant in each model, displaying a positive impact. Other variables are relevant in only some of the models; in particular, participating in either a formal or an informal network is positively correlated with quality, but being part of a formal network appears to have a negative effect on turnover.

Table 2. Results of regression models for various response variables

	tur		activa		profitability	
	Coef.	Std Err.	Coef.	Std Err.	Coef.	Std Err.
<i>C</i>	3.1353***	0.993	3.2572***	0.846	2.9288***	0.979
<i>Age</i>	-0.2082**	0.085	-0.1379*	0.072	-0.1594*	0.084
<i>Education</i>	0.0375	0.121	-0.1087	0.103	-0.0589	0.120
<i>Generation</i>	0.4329*	0.227	0.2156	0.193	0.3854*	0.224
<i>Legal_form</i>	-0.0601	0.188	0.0268	0.160	0.0587	0.186
<i>Ansoff_matrix_sector</i>	0.0026	0.123	0.0033	0.105	0.0576	0.121
<i>Experience</i>	0.0527	0.107	0.0247	0.091	-0.0079	0.106
<i>Risk_taking</i>	-0.0457	0.100	-0.0376	0.085	-0.0279	0.099
<i>Competition_level</i>	-0.0662	0.131	0.0251	0.112	0.0002	0.130
<i>Problems_starting</i>	-0.1272*	0.076	-0.1595**	0.065	-0.1783**	0.075
<i>Info_advice</i>	-0.0171	0.069	-0.0281	0.059	-0.0368	0.068
<i>Participating_network</i>	0.3424	0.211	0.3182*	0.180	0.3361	0.208
<i>Informal_network</i>	0.3628	0.396	-0.0966	0.337	0.1424	0.390
<i>Formal_network</i>	-0.5016*	0.993	-0.3195	0.227	-0.3892	0.263
<i>IT_support</i>	0.0999*	0.085	0.0902*	0.048	0.1092*	0.056
<i>Expertise_a</i>	0.0516	0.121	0.1069	0.187	0.0448	0.217
<i>Innovation</i>	0.0514	0.227	-0.0301	0.094	0.0397	0.108
<i>Success</i>	0.0470	0.188	0.0853	0.059	0.0605	0.068
<i>Future</i>	-0.0018	0.123	0.1196	0.097	0.0481	0.112
<i>R<sup>2</sup></i>	0.169		0.193		0.18	

\* Significant at the 10% level

\*\* Significant at the 5% level

\*\*\* Significant at the 1% level

Legend: the performance indicators used here are: TUR (turnover), ACTIVA (quality) and PROFITABILITY (expected or realized profit).

The rest of the characteristics appear insignificant in almost every instance, most likely due to the discretization of the variables. Given our interest in the effect of the second generation of migrant entrepreneurs on the performance, the variable ‘generation’ is key to testing whether the children of first-generation migrants tend to earn better outcomes. As can be seen, the coefficient associated with the binary variable is positive in every model, but only significant in the cases

of turnover and profitability. This is an indication that our preliminary hypothesis is confirmed. In effect, these results suggest that second-generation migrants who take on more risks and lead break-out strategies are compensated by higher performance.

## 8.6 Concluding Remarks

Migrant entrepreneurs are a source of new socio-economic opportunities in modern cities. The Netherlands offers many examples of an ethnically colourful country, where migrant entrepreneurship has become a major component of the SME sector. In our study, we have focused our attention on four migrant groups, viz. Moroccans, Surinamese, Antilleans and Turks. Clearly, these groups have different motives, attitudes and achievements regarding migrant entrepreneurship, but they also share many common features. In general, traditional sectors are popular among first-generation migrant entrepreneurs, but as a result of increasing market pressure and high competitiveness in these traditional areas, there is a trend towards new niches, such as advanced producer services (e.g. finance, insurance, real estate and business-related professional services), ICT and creative industries.

It is also noteworthy, however, that human capital, access to financial resources, language, access to business information and industrial orientation may produce significant systematic differences among different migrant groups. Despite differences in sectoral specialization, in almost all the cases we observe a shift towards new market niches. The driving forces for new market orientation are formed by network support systems, personality and history, management and marketing skills, and business attitude.

The 'new entrepreneurs' are increasingly making up an important part of the SME sector in Dutch cities, as they make a solid contribution to competitive urban social cohesion and offer new services to a broad group of clients. In this way, the transition to mainstream business sectors is encouraged, not least because the educational level of most migrant entrepreneurs is rising. Therefore, there is rising business performance of second-generation migrant entrepreneurs in mainstream parts of urban economies.

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## PART C:

# URBAN AMBIANCE

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*Cultural heritage for locals*

*Creative minds in cities*

*Breeding places and urban buzz*



## 9 RESIDENTS' APPRECIATION OF CULTURAL HERITAGE IN TOURIST CENTRES – A MICRO-SIMULATION MODELLING APPROACH TO AMSTERDAM\*

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### Abstract

This paper addresses the question of the value attached by residents of tourist places to the wealth of cultural heritage in their city. Particular attention is given to the impact of various types of information (ranging from traditional to advanced ICT sources) on the residents' valuation of cultural heritage. Based on an extensive survey among inhabitants of Amsterdam, a two-stage analytical approach is adopted: (i) an econometric (ordered logit) modelling approach to identify the most prominent vectors of the residents' appreciation of cultural heritage; (ii) a micro-simulation modelling approach to generate a comprehensive picture of the value set of inhabitants regarding the cultural heritage in their city. This information may also serve as a basis for urban strategies on tourism policy, cultural heritage planning and information services management.

**Keywords:** Cultural Heritage, Residents, Tourism, Ordered Logit Model, Microsimulation, ICT, Amsterdam

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\* Leeuwen, E.S., van, Kourtiti, K., and Nijkamp, P. (2013). Residents' Appreciation of Cultural Heritage in Tourist Centres – A Micro-Simulation Approach to Amsterdam. *Tourism Economics* (accepted for publication).

### 9.1 Tourism and Cultural Heritage: A Multidimensional Phenomenon

Tourism has over the past decades turned into a rapidly rising international trade sector. Clearly, the tourist market does not have a uniform economic constellation; it has developed into a highly segmented sector, with a great diversity of travel motives, expenditure patterns, visits to cultural heritage, socio-economic characteristics, and ecological implications (see e.g., Frochot and Morrison 2010, Hsieh et al. 1997, Johns and Gyimothy 2002, Matias et al. 2011). This diversified tourism market evokes interesting challenges for tourism marketing strategies (see Buhalis 2000, Fusco Girard and Nijkamp 2009, Kotler et al. 1999, Middleton 2000), in which ecological and cultural heritage tourism have gained an increasingly more prominent place in modern economic research. It should be added that – next to the pluriform nature of the demand side of tourism – also the supply side exhibits a great differentiation. An important aspect in terms of both physical or cultural characteristics of destination areas is the behavioural or attitudinal characteristics of residents in tourist centers. Especially the latter factor has in the past years enjoyed increasing and profound attention, as the identity of a place or the liveability in a tourist area is often perceived in different ways by different groups of residents. Some groups of residents may be proud of their city as a place of interest to foreigners, while others perceive a large influx of tourists as an intrusion of their quality of life, their place identity or their sense of quiet. A third group of residents may see significant tourist flows as a source of unprecedented revenue generation. Therefore, a micro-oriented analysis of how residents perceive the tourist attractions in their city, particularly cultural heritage, is justified.

For a tourist destination, the above observations lead to cumbersome trade-offs. For example, a question of strategic importance is: what is the optimal size and mix of heterogeneous tourist flows so as to maximize local benefits from visitors' expenditures without jeopardizing the interest of citizens in their own cultural heritage? This question has far-reaching implications for tourism marketing (see e.g., Czinkota and Kotabe 2001, Formica and Littlefield 2000), especially from the perspective of a tourism destination image and the choice sets involved (see also Crompton and Ankomah 1993). Tourism volume and composition in a destination area has of course spatial and socio-economic consequences for residents who usually also have a high degree of taste variety for the type of tourists attracted to their place. However, in many cases the appreciation of residents for visitors is part of a much broader set of choice and preference attributes of their local environment, such as noise, crowding effects, politico-cultural heritage, local entertainment, etc. (see also Neuts and Nijkamp 2012).

It is therefore, important to investigate the perceptions and preferences of residents in a tourist place from a much broader perspective that is geared toward their total complex view on their living environment. And hence, the focus of our research will be on preferences, attitudes and appreciations of locals in a major tourist place, namely Amsterdam<sup>1</sup>. We will address in particular

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<sup>1</sup> It should be noted that a parallel research trajectory has been undertaken on the appreciation and views of visitors and tourists in Amsterdam. The findings have been described in Van Leeuwen and Nijkamp (2010)



cultural heritage attractiveness in the city. The methodology employed in our applied work is based on micro-simulation (MS) in the context of ordered choice modelling.

The paper is organized as follows. Sections 9.2 and 9.3 will offer a concise overview of the economics of urban cultural heritage, and cultural heritage and ICT. In Section 9.4 a brief record will be offered of the methodological framework and the data base used for the city of Amsterdam. Next, Sections 9.5 and 9.6 will briefly introduce the econometric modelling and micro-simulation approach as our main analytical apparatus, followed by a brief presentation of empirical results in each section concerned (Section 9.7). Section 9.8 will interpret the various findings. Finally, Section 9.9 will offer some concluding remarks.

### 9.3 Cultural Heritage as an Urban Resource

Modern cities are not only characterized by contemporary architecture and built environment; they house also a wealth of physical – and often non-physical – assets that map out the history of that place. The Acropolis in Athens, the Forum Romanum in Rome, the Bastille in Paris, the Tower Bridge in London or the Anne Frank house in Amsterdam, they refer to particular episodes or historical features of these cities.

In our global economic environment, the articulation and understanding of cultural heritage values – as a welfare-enhancing resource of today's world – have acquired a greater importance, both scientifically and politically. Cultural heritage is a resource that is as diverse in appearance as it is rich in scope. It includes a collection of (non-)physical and (in)tangible artefacts which refer to historical-cultural heritage, performing arts, theatres and museums, attractive cultural urban 'ambiance', or ecological values of urban areas that have an explicit and recognized connotation to the past of a place or area and may be seen as a self-identifying landmark for that area (see e.g. Fusco Girard and Nijkamp 2009, Nijkamp 2012, Riganti and Nijkamp 2009, Throsby 1999, Snowball 2008).

The awareness of the value and increased interest in cultural heritage plays a central role in creating new urban vitality, focussing on improvements in new lifestyles and cultural developments in our modern society. In addition, cultural heritage is increasingly seen as a foundation for the emergence of the creative sector (see e.g. Kourtiti et al. 2011).

Many modern cities (e.g., Paris, Barcelona, Florence, Genoa, Athens, Amsterdam, Marrakesh, Acapulco, etc.) pay a great deal of attention to their cultural heritage, which is considered to be a sustainable urban resource for accelerated urban economic growth, with far-reaching implications for the quality of life in a broad sense (the so-called 'XXQ' concept; see Nijkamp, 2009). It is used as a critical component of the quality-of-life image for marketing purposes to create positive images of the city to current and potential investors, employers, residents, and visitors. Consequently, the presence of a great diversity of cultural heritage prompts historical and cultural areas, places or cities to transform their territories in ways that generate economic benefits from visitors and tourists. Local cultural heritage may thus create local economic advantages from recreation and tourism.

The abundant presence of urban cultural resources and tourist facilities in many cities contributes to an innovative urban climate that attracts a new world cluster of talented ‘creative minds’ (such as new residents or tourists, investors and businesses) in a vibrant environment in modern and globally networked cities. This means that cultural heritage, tangible as well as intangible, does not only include cultural and social values contributing to inspiring visions, but it is also a great potential for urban development and delivers significant economic impacts. Indeed, it is a fact that the cultural sector represents increasingly a productive branch, which is growing in importance. Therefore, the historico-cultural or cultural heritage capital of a city is frequently regarded as a key element – in particular, the exclusive linkage to the ‘sense of place’ and the occurrence of (spatial-) economic externalities in the supply of this capital good – for regional and urban economic development. From this perspective, cultural heritage tourism is often regarded as an important contributor to sustainable urban development. Consequently, cultural heritage is a vital dimension to the countries’ overall progress and an important urban source for sustainable development and the social and economic interests of the population for each host community (Holden 2000; Girard et al. 2008), even though various shifts in entrepreneurial ramifications may take place in our turbulent economic environment.

In general, culture has become a crucial urban resource in a post-industrial economy, as reflected in the use of cultural heritage in the development strategies of the European Union and other national and international bodies (see Kourtiti et al. 2012). Cultural heritage – a broad container concept – has a hate-love relationship with modern tourism. Firstly, it acts as an attraction force for people from different places of origin, while it stimulates local socio-economic development and reinforces a sense of local identity and pride. On the other hand, vast volumes of tourist flows may be at odds with ecologically-benign developments of localities and may negatively affect social cohesion at a local level.

Cultural values may be enriched by enhancing the quality or attractiveness of a place for visitors. This capacity to attract people and new activities does not only depend on the attributes of cultural heritage itself, but also on other complementary resources, services, or material and immaterial constituents. Clearly, all relevant positive and negative economic, environmental, social and cultural impacts in the short, medium and long term are to be properly managed in order to identify and implement win-win projects or plans.

#### 9.4 Cultural Heritage and ICT

As there is also competition among cities for attracting cultural visitors, specific marketing and supporting vehicles and tools are to be used. One of them is the use of ICT devices that offer so-called e-services (e.g., e-tours, video-channels, interactive maps (with information on all kind of activities), online booking facilities (accommodation, attractions, on stage information), e-forum/e-participation, full virtual tours including unique selling points of the city and its surroundings (linked to the city portals), and downloadable/printable contents (also on mobile devices)). Through the access to various ICT tools, many places become more accessible. The increased use of ICT has

thus resulted in a significant change in the structure of the cultural industry, Not only for tourists but also for residents. Internet and cyberspace have changed radically the way people live, and interact socially among each other. It creates and fosters new market opportunities for traditional local small and medium-sized enterprises (SMEs). It is important to stimulate market expansion towards global e-markets for those SMEs, for instance, by providing local and traditional product and services to customers and businesses world-wide without making extra costs (cost-efficient).

Thus, ICT can support place-branding planning and help the city's stakeholders (urban decision makers, city marketeers, but also private companies and representatives of civic organizations) to promote the city's cultural sites and activities so as to maximize the number of visitors. It is likely to affect also the creation of economic value of urban resources, such as cultural heritage. As a consequence, several cities in Europe have enhanced their ICT capabilities. Research on e-governance and (public and private) e-services is booming at present. The European Commission (2005) has argued that Europe needs efficient, effective, inclusive and open governments in order to offer high-quality services for citizens and business. E-services may incorporate personalized information in the form of a 'tourist profile', a personalized travel plan, or information on sub-sites dedicated to specific types of tourists or residents. For example, the city of Amsterdam already offers many multi-lingual e-services on various cultural facilities. In general, e-services in a global world appear to be powerful and competitive tools in the regional or urban tourist industry (Kourtiti et al. 2011). Intense competition among cities and business heightens the need for strong brand identity, for developing new marketing and strategic priorities for creative and innovative urban development, and for attracting potential (cultural) visitors from all over the world. Tourism will affect clearly the economic position and well-being of residents in a tourist place, in both a positive and a negative way. This issue will be further explored in our paper, by offering a modeling study on the micro views of inhabitants of Amsterdam on the cultural tourist facilities in the city.

#### 9.4 Methodology and Data Base

The city of Amsterdam attracts millions of visitors every year, mainly as a result of its unique cultural heritage, its political-economic constellation, and its historical architecture. In our research we aim to depict the perceptions and preferences of residents regarding the presence of cultural tourism amenities in the city centre of Amsterdam, which attracts on a structural basis many foreign visitors. Tourism policy aims to encourage foreign tourism (e.g., through the use of e-services), but residents may have different views, given the many positive, but also many negative externalities (e.g., crowding) involved. Now our specific research question is: which empirical conclusions can be inferred from a closer analysis of the individual preferences of the inhabitants regarding the cultural amenities in Amsterdam, from the perspective of a multiplicity of e-services offered in our modern ICT age? This research question is mapped out in more detail in Figure 1.

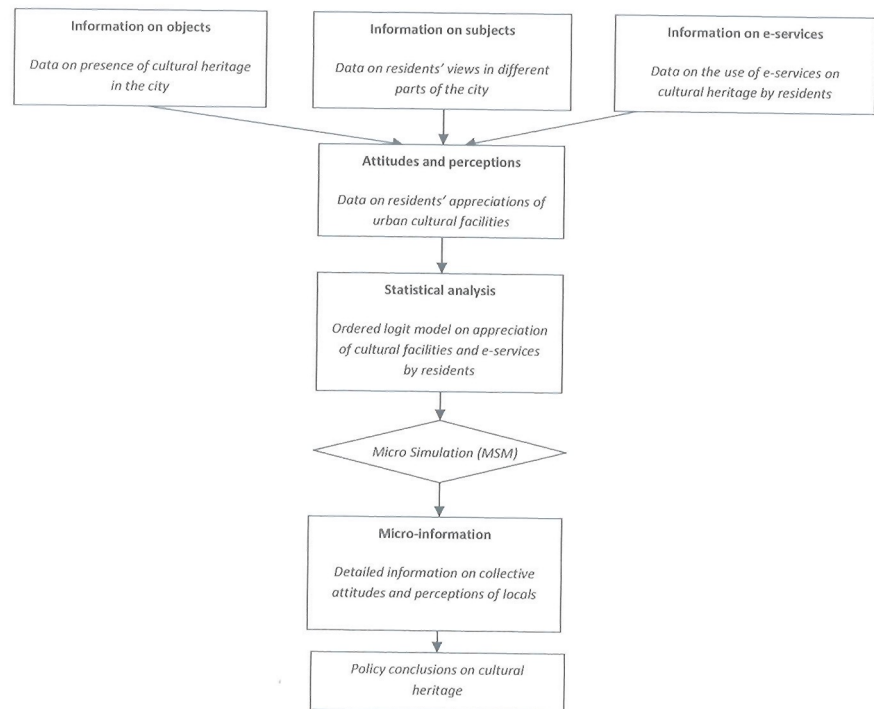


Figure 1. Structure of the econometric and micro-simulation research design

Our research on the perceptions and preferences of the residents of Amsterdam regarding the importance of cultural amenities and the information provided by e-services on these amenities is based on a survey (on-line, face-to-face interviews, stand-alone laptops) among approx. 650 inhabitants which took place in 2007 (ISAAC D1.4 2007). The types of cultural tourism amenities distinguished were: 1) architecture; 2) monuments; 3) museums; 4) urban landscape; 5) cultural events; 6) traditions; 7) local customs; and 8) knowledge. The preferences are measured on a five-point scale, in which 5 relates to a strong appreciation and 1 to a very weak appreciation.

When looking at the appreciation of the locals of Amsterdam for the various above mentioned types of cultural heritage variables (see Figure 2), it turns out that residents appreciate the architecture and urban landscape in the city rather high, while local customs get the lowest score.



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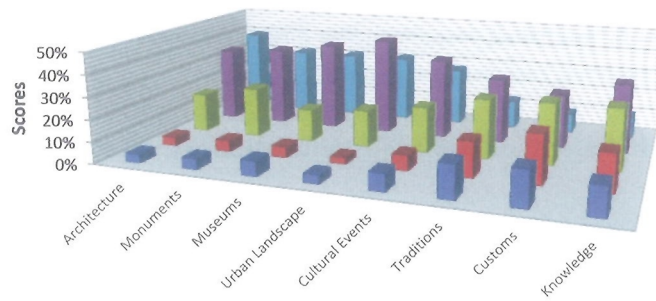


Figure 2. Appreciation of different aspects of cultural heritage by Amsterdam residents on a scale of 1-5

Furthermore, we are interested in whether the access to and use of up-to-date information on the wealth of cultural amenities concerned played a role in the appreciation of these amenities by the residents. To that end, the following types of e-services were distinguished; 1) interactive maps; 2) personalized information; 3) booking systems; 4) journey planner; 5) e-forum; 6) virtual tours; and 7) interactive games.

From the total sample of approx. 650 respondents, 73% appeared to use on a regular basis one or more types of the above mentioned e-services distinguished. The total appreciation of various categories of e-services is given in Figure 3. This figure shows that more traditional types of e-services enjoy a higher usage, although the younger generation turns out to have a clear preference for modern information channels such as interactive games. In general, the older age cohort is less interested in using e-services.

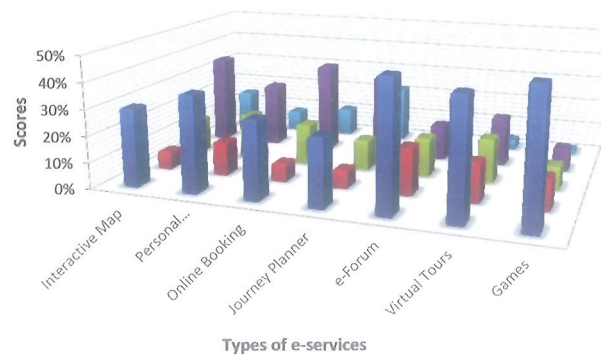


Figure 3. Appreciation of different e-services by Amsterdam residents on a scale of 1-5

In the next section, we will proceed with our statistical analysis of the appreciation of cultural tourist facilities in Amsterdam by estimating an econometric model – an ordered logit choice model – in order to offer an appropriate explanatory framework.

### 9.5 An Ordered Logit Model for the Residents' Appreciation of Cultural Tourism Amenities

Based on our sample of about 650 residents in the city of Amsterdam, the appreciation of locals for the above mentioned 8 classes of cultural heritage was estimated by using an ordered logit choice model. Since the preferences were measured on a categorical 5-point scale, ranging from very important to totally irrelevant, the data might be handled by both descriptive statistical analysis and by explanatory ordered choice models in which the dependent variable has a limited number of ordered outcomes (see Greene and Hensher 2008; Train 2003). In our case we will use more specifically an ordered logit model in which the error terms are assumed to have an independent and identically distributed Gumbel distribution. The explanatory factors used in the model are: Access to and use of e-services; Age; Being employed; Education level; Gender; Resident in the City (South of the river IJ); Resident in Amsterdam-North (North of the river IJ).

The estimation results are given in Table 1. It appears that the use of *e-services* has an ambiguous impact on the appreciation of cultural heritage (CH), except for cultural events and museums. *Age* has a significant and positive influence on the evaluation of tangible cultural heritage variables (e.g., architecture, monuments and urban landscape), but a negative impact on intangible forms (e.g., cultural events, traditions, local customs, and knowledge). Thus, younger locals appreciate intangible aspects more than the older cohorts do. Having a *job* has in almost all cases a positive and significant impact on the appreciation of cultural amenities, while *education* has mostly a clearly positive effect on the appreciation of tangible types of cultural heritage. There is a clear *gender* effect in the results: women tend to have a higher appreciation for tangible cultural tourism amenities, in particular architecture, museums and urban landscape. Finally, *location* matters: residents in the more isolated part of the city, i.e. Amsterdam-North, attach a lower value to the urban architecture, while the more centrally located inhabitants of Amsterdam appear to appreciate monuments and museums in the centre.

Table 1. Coefficients of the ordered logit models estimating the preferences of residents in Amsterdam for different types of CH

	Architecture	Monuments	Museums	Urban Landscape	Cultural events	Traditions	Customs	Knowledge
<i>E-service</i>	-0.055 (0.177)	-0.084 (0.194)	0.419** (0.191)	0.116 (0.179)	0.852*** (0.189)	-0.029 (0.194)	-0.163 (0.186)	0.074 (0.171)
<i>Age</i>	0.379*** (0.105)	0.293*** (0.104)	0.148 (0.097)	0.284*** (0.095)	-0.284*** (0.107)	-0.299*** (0.100)	-0.198** (0.101)	-0.017 (0.100)
<i>Employed</i>	0.457*** (0.166)	0.709*** (0.165)	0.252 (0.168)	0.530*** (0.158)	0.333** (0.160)	0.394** (0.159)	0.489*** (0.164)	0.459*** (0.154)
<i>Education</i>	0.146** (0.069)	-0.004 (0.071)	0.196*** (0.073)	0.041 (0.070)	-0.037 (0.073)	-0.189** (0.074)	-0.101 (0.068)	-0.228*** (0.073)
<i>Gender</i>	0.368** (0.156)	0.034 (0.153)	0.701*** (0.157)	0.497*** (0.151)	0.240 (0.155)	0.157 (0.149)	-0.016 (0.150)	-0.179 (0.152)
<i>Amsterdam North</i>	-0.342* (0.182)	-0.055 (0.175)	0.001 (0.176)	-	-	-	-	-
<i>City Centre</i>	0.209 (0.202)	0.326* (0.194)	0.377* (0.214)	-	-	-	-	-
<i>Observations</i>	622	623	624	618	624	616	613	618
<i>Log Likelihood</i>	-760.542	-829.271	-777.158	-768.495	-822.815	-918.777	-912.382	-921.623
<i>Restricted log likelihood</i>	-789.741	-852.335	-804.291	-786.973	-844.906	-928.772	-918.926	-931.061
<i>McFadden pseudo-R<sup>2</sup></i>	0.037	0.027	0.034	0.023	0.026	0.011	0.007	0.010

Legend: Significant at \*\*\* 0.01, \*\* 0.05 and \* 0.10 levels.

The next step is to perform an econometric analysis on the appreciation of the various classes of e-services used by the residents of Amsterdam. The explanatory variables have already been described above. The results in Table 2 show that, not surprisingly, *having access to and using e-services in general* appears to lead to a positive value attached to various types of e-services available. Next, *higher educated* people appreciate interactive types of e-services (e.g., e-forum, interactive games) more than lower educated people do. Traditional e-services (e.g., interactive maps, booking services) are often higher valued by higher educated inhabitants. There is a clear *gender* effect: women appreciate in particular journey planners and booking services, while men attach a higher value to e-forums and interactive games. *Age* plays also a role, in the sense that older people appreciate less various types of e-services. Having a *job* appears to have a positive effect on the evaluation of e-services, in particular personal information, booking services and interactive games. Finally, there is also a clear *neighbourhood* effect: residents from Amsterdam-North appreciate most e-services higher than centrally-located residents, a plausible result given their more isolated location.

Table 2. Coefficients of the ordered logit models estimating the preferences of residents in Amsterdam for different types of ES

	Interactive map	Personalised information	Booking service	Journey planner	e-Forum	Virtual Tours	Interactive games
<i>E-service</i>	0.901*** (0.180)	0.687*** (0.196)	1.456*** (0.185)	0.714*** (0.192)	0.333 (0.209)	0.661*** (0.206)	-0.165 (0.230)
<i>Education</i>	0.129* (0.072)	-0.040 (0.071)	0.151** (0.071)	0.133* (0.072)	-0.175** (0.073)	-0.165** (0.072)	-0.475*** (0.089)
<i>Gender</i>	0.018 (0.149)	0.062 (0.148)	0.362** (0.154)	0.641*** (0.154)	-0.406*** (0.152)	-0.235 (0.153)	-0.569*** (0.188)
<i>Age</i>	-0.492*** (0.110)	-0.496*** (0.105)	-0.289*** (0.098)	-0.598*** (0.104)	-0.261** (0.107)	-0.181 (0.111)	-0.513*** (0.137)
<i>Employed</i>	0.159 (0.167)	0.500*** (0.156)	0.436*** (0.156)	0.172 (0.159)	0.284* (0.169)	0.449*** (0.161)	0.639*** (0.216)
<i>North</i>	0.518*** (0.171)	0.421** (0.174)	0.350** (0.177)	0.528*** (0.174)	0.285 (0.181)	0.330** (0.180)	0.328 (0.212)
<i>City Centre</i>	0.380* (0.203)	0.379* (0.196)	0.405** (0.201)	-0.239 (0.199)	-0.244 (0.199)	-0.049 (0.203)	-0.263 (0.264)
<i>Observations</i>	622	622	622	622	622	622	622
<i>Log Likelihood</i>	-961.551	-984.550	-934.874	-915.257	-877.182	-936.038	-613.484
<i>Restricted log likelihood</i>	-987.316	-1001.983	-976.242	-950.697	-903.941	-949.968	-647.860
<i>McFadden pseudo-R<sup>2</sup></i>	0.026	0.017	0.042	0.037	0.019	0.015	0.053

Legend: Significant at \*\*\* 0.01, \*\* 0.05 and \* 0.10 levels.

Based on these findings of which personal and spatial characteristics are most closely related to certain preferences for cultural heritage and e-services, we can now design the microsimulation approach.

## 9.6 Micro-Simulation as a Macroscope

### 9.6.1 Introduction

Micro-simulation (MSM) is essentially a type of multi-agent analysis (Hewitt 1977, Bousquet and Le Page 2004), in which decision-making units – such as households – are represented by individual agents, while the interaction with their environment is represented by spatial data. Through the collective focus on individual decision-making entities, it is possible to incorporate – or to simulate – social interactions and non-monetary influences as group processes (see Orcutt 1957, Clarke and Holms 1987, Matthews et al. 2007). MS aims to generate synthetic data by tracing the impact of interventions on a representative – hypothetical – sample of micro-units. It does so by replacing the effects of behaviour in a real environment, as mapped out by empirical data or empirically validated models. In this way, conditional questions ('*what...if...*') can be addressed. In addition to this static approach, also long-term trend analysis can be treated by MS experiments. The transition rules in MS experiments can be either deterministic or probabilistic (see Ballas et al. 2005a). In a spatial context, spatial MS may be instrumental to "*paint a picture of the possible or most probable life of households at various geographical scales*" (Ballas et al. 2005b, p 14).

One of the major advantages of (spatial) MS is its ability to link various data sources. Another advantage is the consistent treatment of individual behaviour and micro processes. A wide variety of (spatial) MS models has been generated in the past years, for instance, in the area of household travel behaviour (Jonnalagedda et al. 2001), regional policy impact assessment (Rephann and Holm 2004), spatial impact analysis (Ballas et al. 2005a), transportation networks (Veldhuisen et al. 2000), local retail developments (van Leeuwen 2010), the spatial demography of tourism (Lundgren 2004), and so forth.

### 9.6.2 Simulating the residents of Amsterdam

In this contribution, MSM will be applied to the spatial analysis of the appreciation of various categories of cultural heritage as expressed by various residents in different districts of Amsterdam.



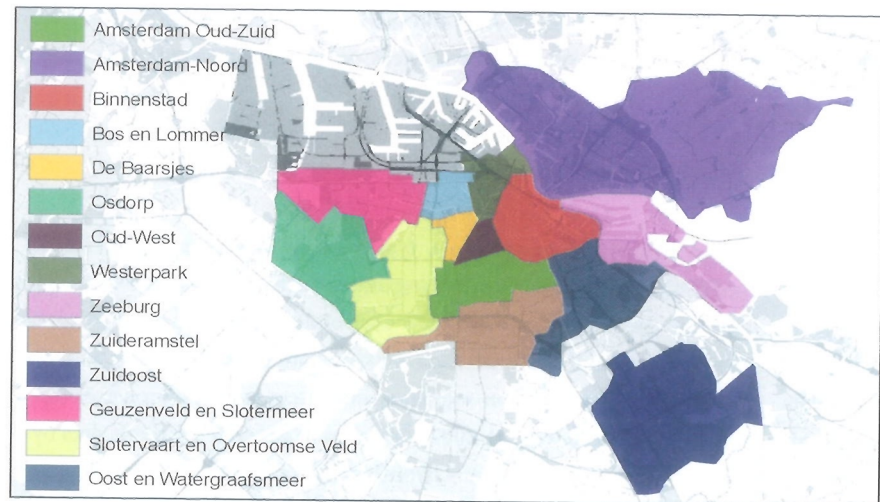


Figure 4. Neighbourhood districts in Amsterdam

The spatial unit of the MSM experiment will be the neighbourhood level (or district).

In total, Amsterdam consists of 14 such neighbourhoods. We included only the population of 15 years and older, the so-called working population, and the elderly. This resulted in a population of almost 620,000 citizens. Figure 4 shows the location of the 14 neighbourhoods in Amsterdam. An important step in the MSM approach is the selection of the main variables that will be used to project or simulate the questionnaire results to fit the total population of Amsterdam. These main variables are called constraint variables.<sup>2</sup> We distinguish four constraint variables: gender, age, employment and education.<sup>3</sup> We will now pay more attention to these four constraint variables.<sup>3</sup>

*Gender:* To calculate the total number of men and women in each neighbourhood we used data from the Neighbourhood Statistics from 2007.

*Age:* For the constraint variable age, we mainly used information from O+S Amsterdam at the neighbourhood level. To convert the age classes to the relevant classes used in the questionnaire, we assumed that the number of tourists is equally distributed over the number of years in the class. For example, when the age class included 16-25 years, we assume that 10 per cent of the persons in this class has the age of 16. For a precise estimation of the number of persons aged 15-18 years, we combined information from Statistics Netherlands with the O+S Amsterdam data.

<sup>2</sup> Unfortunately, it is not possible to include the relevant constraint variable income. Income would have been a useful constraint variable to include more neighbourhood differences, but unfortunately this question has such a low response in the survey, that we were forced otherwise to exclude 20 per cent of our micro population.

<sup>3</sup> The total values (the constraints) are all derived from the Neighbourhood Statistics 2007 from Statistics Netherlands and information from O+S Amsterdam.

*Employment:* For the constraint variable employment, we used information from the Neighbourhood Statistics about the share of the working population which is registered as a student, the share of the working population that is employed, and the share of the total population that is retired. The rest of the population is classified as 'other'.

*Education:* Education is an important variable, as it has a different effect on the appreciation of tangible and intangible CH, while also the education levels can differ considerably between prosperous and less prosperous neighbourhoods, as income does. This will add more heterogeneity to the results at the neighbourhood level. For the constraints, we used data from O+S Amsterdam about the share of lower educated persons (pre-high-school and high-school) and the share of higher educated persons (bachelor and higher). We decided to keep young students with only a high-school diploma out of the group of low educated persons.

When we compare the distribution of the values of the constraint variables according to external statistics on the totals with the distribution of the values according to the micro-population, we find some differences. The share of females is very large, the share of 18-34 years old very large, as well as the share of elderly is rather small, the share of students is rather large and of retired people rather small. The share of employed persons is comparable to the actual situation. The aim of the MS exercise is now to reweight the micro-population, and then to replicate the actual population as much as possible, given that we know the total values from the external statistics.

Table 3. Comparison of the actual population according to external statistics with the micro population (questionnaire results)

Constraint	Class	External Statistics		Micro population	
		#	%	#	%
<i>Gender</i>	Male	304628	49	265	42
	Female	314191	51	369	58
<i>Age</i>	15-17	14858	2	22	3
	18-34	209121	34	330	52
	35-54	231481	37	186	29
	>54	163359	26	97	15
<i>Employment</i>	Student	32092	5	193	30
	Employed	342319	55	344	54
	Retired	96574	16	38	6
<i>Education</i>	Low	230399	36	90	14
	High	193865	32	366	58
<i>Total</i>		618819	100	635	100

When performing a micro simulation it is important to undertake a sensitivity analysis to evaluate the quality of the simulation outcomes. This is done by comparing the simulation results with the external statistics. Overall, it appears that that gender has been simulated very well in our experiment. Only in the city centre the simulated number of women is slightly too high. The simulation of the age of the residents was a little bit more difficult: the number of persons between 35-54 years old is somewhat underestimated (by around 3 per cent). The level of education shows a general overestimation of the number of lower educated persons, in particular in the neighbourhoods Zuid-Oost and Zuideramstel (9 and 12 percent, respectively). When interpreting the results, we should keep such observations in mind.

### 9.6.3 *Detailed picture of the resident population in Amsterdam*

The MSM allows us to obtain a detailed picture of the population of Amsterdam based on combined personal characteristics that are not publicly available. In Figure 5, we see clear differences between neighbourhoods in terms of educational level and age. We can observe some clear spatial patterns. First, most residents that live further away from the city centre are older and have a lower educational degree ((pre-)high school, vocational). People living in the city centre, especially in neighbourhoods Binnenstad, Oud-Zuid and Oud-West, are often having a relatively high degree. We know from previous research (see e.g., De Wolff & Slijpe 1973) that income and high degree of education are strongly correlated. Since the property values in the city centre are substantially higher than in the neighbourhoods that are more distant from the centre, people living in the city centre need in general a higher income to be able to afford housing. Therefore, it is logical that the people with a high educational degree tend to live in the city centre. Furthermore, we see that in general older people tend to live in the city centre neighbourhoods. This can be explained by the fact that older people also tend to have higher incomes and therefore, they can afford to live in the centre. In 2007, five neighbourhoods of Amsterdam are marked as '*probleemwijk*' (problematic neighbourhood) by the former minister of Living, Neighbourhoods and Integration (Vogelaar). These neighbourhoods are found in Bos and Lommer, Noord, parts of Osdorp and Zuidoost. It is therefore, not surprising that we observe in these neighbourhoods a relatively high share (70%) of older people that have a low educational degree.

RESIDENTS' APPRECIATION OF CULTURAL HERITAGE IN TOURIST CENTRES –  
A MICRO-SIMULATION MODELLING APPROACH TO AMSTERDAM

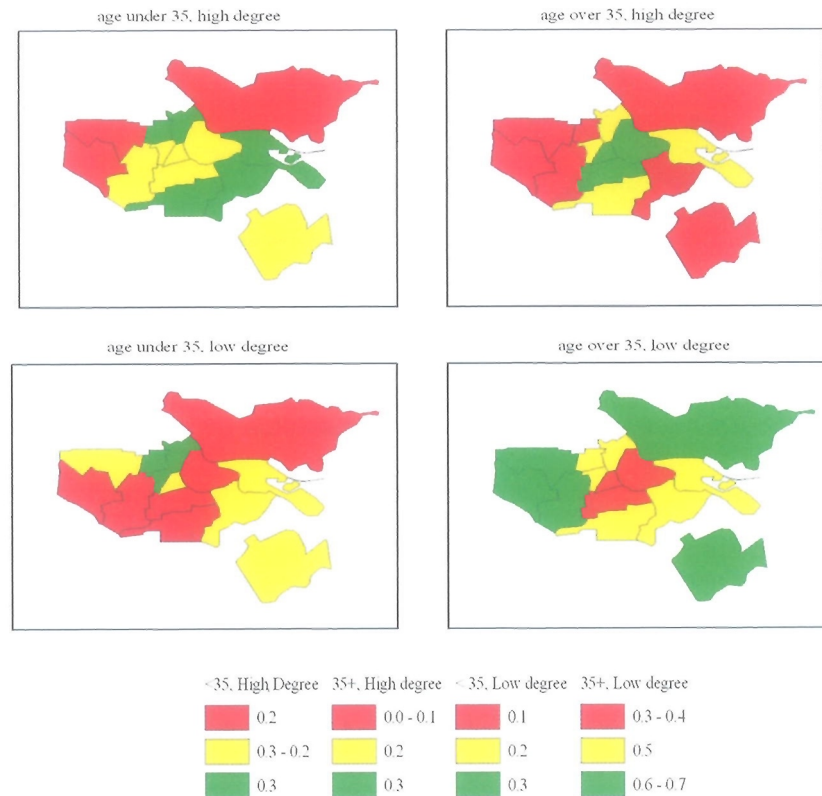


Figure 5. Age and educational level of Amsterdam residents

We can now relate this information to the use of e-services in various areas in Amsterdam, as shown in Figure 6. In general, 65% of the population of Amsterdam uses these services. We observe also notable spatial differences. In the neighbourhoods that are further away from the city centre (e.g. Osdorp, Geuzenveld, Noord, Zuidoost) people use less e-services. This pattern is to some extent correlated with the pattern we saw in Figure 5; apparently, people who have a higher degree tend to use more e-services. Looking at the spatial differences in membership of a cultural organisation, we find a rather similar pattern: people living in the centre are more often member of such a civic association.

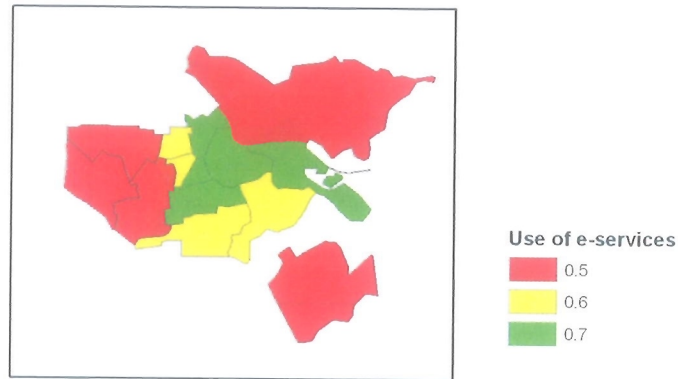


Figure 6. Spatial map of the use of e-services by residents of Amsterdam

To summarise, residents living in the city centre of Amsterdam use in general more e-services and are more often a member of a cultural heritage association, while residents living in the North, West or South of Amsterdam, use e-services less often or have a membership of a cultural organisation. In promoting cultural heritage and supporting e-services, the municipality of Amsterdam may have to take into account that there are differences in income, education degree and social participation between individuals and neighbourhoods. In promoting cultural heritage and supporting it, is probably wise to focus on specific target groups of residents. For example, a policy can be implemented to engage residents in these neighbourhoods characterized by social problems, for instance, older and lower educated people, more with cultural heritage and supporting e-services.

## 9.7 Residents

### 9.7.1 Cultural heritage

Figure 2 showed the overall appreciation of different aspects of CH. Using the results of the MSM experiment, we can observe whether there is a difference in appreciation for CH between district neighbourhoods. From the data it becomes clear that in general the differences in valuation between the neighbourhoods are rather small. But, despite these small differences, we can observe some spatial regularities. These are summarised in Figure 7.



RESIDENTS' APPRECIATION OF CULTURAL HERITAGE IN TOURIST CENTRES –  
A MICRO-SIMULATION MODELLING APPROACH TO AMSTERDAM

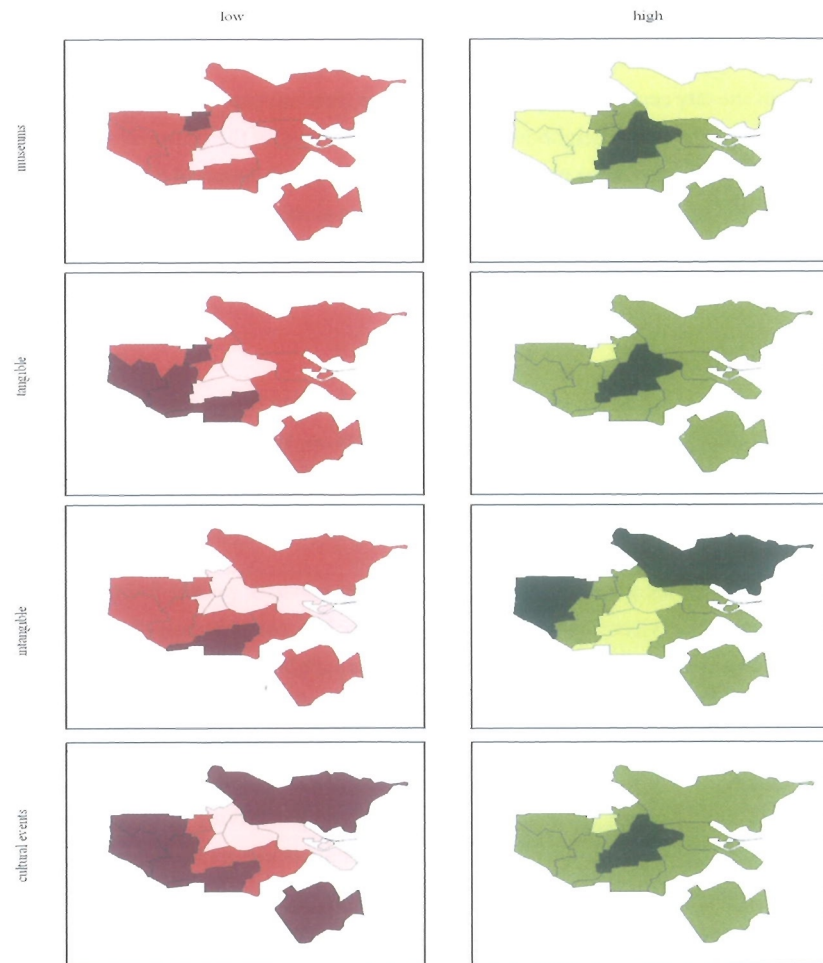


Figure 7. Spatial differences in preferences (low and high) of residents for different aspects of CH

The red maps show the share of residents that valued the different CH aspects with a 1 or 2 score (low preference), the green maps the share of residents that valued the CH with a 4 or 5 (high preference). The darker the colour, the higher is the share. We see that in general residents from the city centre (Binnenstad, Oud-Zuid, Oud-West) value different aspects of CH higher than residents from neighbourhoods that are more distant from the city centre. It was already argued that this could be related to the fact that much CH is actually located in the centre of Amsterdam. The spatial difference in appreciation may be explained by the fact that residents living in the centre experience CH in their everyday life, because they live nearby. However, it may also be that residents that are interested in CH are willing to pay more to live in the centre to be able to enjoy

CH more often (a sorting effect). Furthermore, our results also reveal that people with higher incomes tend to appreciate CH somewhat higher than people with lower incomes. Since a lot of the residents of the city centre are high-income earners, this can explain the higher appreciation of e-services by people from the neighbourhoods that are located in the centre of Amsterdam.

An exception to the above mentioned pattern is the appreciation of intangible aspects of CH (knowledge, traditions, and local customs). We see that in general people from the neighbourhoods that are more distant to the city centre are appreciating the intangible aspects of CH more. However, only 40 per cent appears to like the intangible aspects of CH.

### 9.7.2 *E-services*

Earlier we saw that, in general, CH is highly appreciated by the inhabitants of Amsterdam. However, when looking at the appreciation of e-services we see more or less the opposite. Many residents care apparently less about the supporting e-services than about the CH itself. The spatial differences in appreciation of e-services are bigger than the differences in appreciation of CH (see Figure 8).

In case of journey planners and online booking services, people living in or nearby the centre value these e-services higher than people who live further away from the centre. For example, only 40 per cent of the residents vote 4 or 5 in neighbourhoods like Amsterdam Noord, Geuzenveld and Osdorp, while at least 50 per cent of the residents in neighbourhoods like Oud-Zuid, Oud-West and Zeeburg vote 4 or 5 for online booking services. Looking at virtual tours, we see that neighbourhoods that are more distant from the city centre are having more residents that like virtual tours. Clearly, some 25 per cent of the residents living in the neighbourhoods of Amsterdam Noord, Osdorp, Geuzenveld and Zuidooost appears to appreciate virtual tours. Still, the share of people that like this e-service is much lower than, for example, the booking services.

In previous results we also saw that the educational level and the appreciation of interactive games are negatively related. In neighbourhoods where the average educational degree is higher, the appreciation of interactive games is apparently lower. For example, in the Binnenstad, Oud-Zuid, Oud-West and Zuideramstel neighbourhoods in Amsterdam, the percentage of high income earners and high-educated people is higher. Still, only around 12.5 per cent of the residents of Amsterdam-Noord and Geuzenveld/Osdorp appears to like interactive games. To conclude, there are clear spatial differences in the appreciation of e-services. However, these differences can be explained by individual-specific characteristics (e.g. income, gender). In providing supporting e-services to a specific target group, it is important to take these specific characteristics into account.

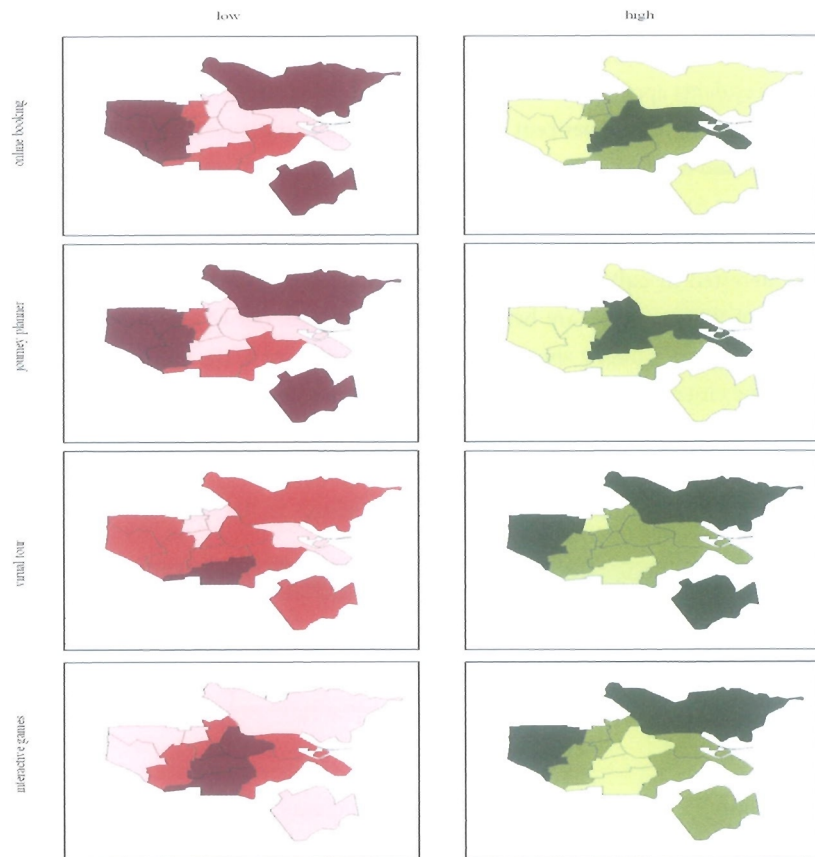


Figure 8. Spatial differences in preferences of residents for different elements of ES

## 9.8 Target groups residents

A way to positively affect the attitude of residents towards visitors and tourist might be to involve them more directly in local CH attractions. For the residents, the appreciation for tangible forms of CH (architecture, monuments, museums and urban landscape) is on average around 4, for intangible forms of CH (traditions, local customs and knowledge) around 3, and for cultural events around 4.

The easiest way to attract more visitors to CH sites is to address those that are already interested in CH, and therefore we selected in our MS model those persons that already did use e-services and that valued tangible CH higher than a score 4.5, intangible CH higher than a score 4, and cultural events with a score 5 (see also Table 4).

It appears that 16 per cent of the total Amsterdam population might be considered as a target group for e-services promoting tangible CH. This equals around 100,000 locals. The differences per

neighbourhood are not very big. However, the highest participation percentage can be found in the city centre and Oud-west (20 per cent), the lowest in the neighbourhood Noord (13 per cent). Most of those residents appears to be between 18-34 years old. Concerning the locals that appreciate intangible CH, we find that 13 per cent of the Amsterdam population belongs to the target group, which equals around 82,000 persons. Those persons are even more evenly spread over the different neighbourhoods of Amsterdam.

The largest group of persons that could be affected by the CH platform are those that are very much interested in cultural events: 26 per cent of the Amsterdam population or 160,000 persons. Most of those persons are between 18-34 years old, but when we look at the share of persons within each age group, it appears that around 30 percent of the group between 15-17 years old belongs to the target group, 38 per cent of the persons between 18-34, 21 per cent of the persons between 35-54, and 16 per cent of the persons older than 55.

Table 4. Percentage of the Amsterdam population that belongs to the target group for Tangible CH, Intangible CH and/or Cultural Events

	Tangible CH	Intangible CH	Cultural Events	Total
<i>Tangible CH</i>	7	3	4	14
<i>Intangible CH</i>	3	0	13	16
<i>Cultural Events</i>	4	13	9	26

Only around 3 per cent of the Amsterdam population belongs to all three target groups, 13 per cent belongs to either the Intangible CH or the Cultural Events target group, and 4 per cent to the Tangible CH and Cultural Events target group. This suggests that it is preferable to focus on the one hand on residents that are interested in Tangible CH and on the other hand on residents interested in Intangible CH and Cultural Events, of which most of them are interested in cultural events.

It is also interesting to explore which e-services may be important to attract these target groups. When looking at the target group for Tangible CH, it appears from Table 5 that those people prefer in particular an online booking system and a journey planner; furthermore, they appreciate interactive maps. The target group for Intangible CH prefers in particular a journey planner, as well as interactive maps. Half of them also appreciates online booking systems, which means that this kind of e-service is slightly less important for Intangible CH. Compared to the other target groups, the persons interested in Intangible CH enjoy more often interactive games and an e-forum. Also the Cultural Events target group mostly favours a journey planner; furthermore, they appreciate online booking systems and interactive maps.



Table 5: Appreciation of e-services by persons in the three target groups

	Interactive map	Personal information	Online booking	Journey planner	E-forum	Virtual tours	Interactive games
<i>Low value (1+2)</i>							
<i>Tangible</i>	13	14	5	11	20	12	20
<i>Intangible</i>	9	10	11	8	17	10	33
<i>Cultural Events</i>	8	5	9	5	11	9	29
<i>High value (4+5)</i>							
<i>Tangible</i>	64	45	70	71	11	29	12
<i>Intangible</i>	65	38	51	72	28	36	27
<i>Cultural Events</i>	62	42	63	74	23	30	17

From the above results it appears that the preferences of people in the distinct target groups are not very different. Most of them would appreciate a journey planner, but also interactive maps and online booking systems are appreciated by more than half of these locals. However, persons interested in Intangible CH also like interactive games, and those interested in Intangible CH and Cultural Events appear to appreciate also an e-forum.

## 9.9 Conclusions and Lessons

Modern cities with a relative abundance of cultural heritage tend to enhance the quality or attractiveness of a place for both visitors and residents. An effective use of ICT allows cities to build their own brand images, develop new products, promote their visitors' resources and expand their customer base so as to ultimately increase the visitors' revenues and to contribute to local development. ICT offers cities an online vehicle to market their cultural diversity, and heritage, as well as to facilitate the marketing and provision of associated CH products.

In addition, ES could be used to involve residents in local CH. This might serve two purposes: (i) to stimulate an increase in the number of visitors to CH sites; (ii) to positively affect the attitude of residents towards tourists. A systematic definition and mapping of a rich diversity of perceptual and attitudinal elements that characterize the (current or future) profile of a city (a place's innovative positioning and branding strategy and its related objectives) for various stakeholders (e.g., residents, businesses and visitors) is feasible.

Our research on the spatial distribution of CH elements in Amsterdam shows a strong CH concentration in the city centre. Our MS model indicates that all residents of Amsterdam, including those also the ones living in the outskirts of the city, appreciate CH more or less to the same extent. This means that when new CH elements or activities are planned, locations outside the city centre could be successful as well. For example, intangible forms of CH are also appreciated by residents living in the North and in the West of Amsterdam. A recommendation would be to also develop the 'Hidden Treasures' project in these neighbourhoods (namely, the development



of an integrated collection of less well known CH assets outside the city centre). According to our analysis, useful e-services to promote 'Hidden Treasures' would be a journey planner for local visitors, as well as a multilingual E-forum.

In our empirical investigation, we have defined distinct target groups for the residents of Amsterdam. It appears that 16 per cent of the total Amsterdam population could be considered as a target group for e-services promoting Tangible CH. This equals around 100,000 persons. The differences between neighbourhoods where these persons live are not very large. However, the highest percentages can be found in the city centre and Oud-west, the lowest in the neighbourhood Noord. Most of those residents are between 18-34 years old. Concerning the persons that appreciate Intangible CH, 13 per cent of the Amsterdam population appears to belong to the target group, which is around 82,000 persons. These persons are rather evenly spread over the different neighbourhoods of Amsterdam as well. The largest group of persons that could be affected by the CH platform are those that are particularly interested in cultural events: 26 per cent of the Amsterdam population, or 160,000 persons in total. Most of those persons turn out to be relatively young.

The main policy focus of Amsterdam is to develop more CH attractions or activities outside the centre to attract more residents. It is then important to know that in the district south-west of the centre, residents are more interested in Tangible CH, and that these residents can be best reached by conventional e-services. In the North and West of Amsterdam, the use of Intangible CH elements can be increased as well, while in this case interactive e-services are the best tools to attract additional visitors.

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## 10 CREATIVE PROFESSIONALS AND CULTURAL AMBIANCE IN URBAN AGGLOMERATIONS\*

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### Abstract

Creative industries have received considerable attention in the past years from the research community, in relation to both technological innovation and knowledge spillovers. In the same vein, the concept of a creative class and a creative city has gained rising popularity. Much less attention has been paid to the urban geographic location of creative people. The present paper aims to fill this gap in the literature by classifying people based on their profession into three creative classes, bohemians, the creative core and creative professionals. It first shows the regional distribution of these three creative classes in the Netherlands. Next, the shares of these creative classes are related to the cultural, ecological, ethnic and geographic characteristics of Dutch municipalities. Bohemians and people who are part of the creative core appear to be over-represented in municipalities with relatively high levels of culture, nature and ethnic diversity and short distances to large labour markets.

**Keywords:** creative professions, creative classes, creative cities, cultural heritage, cultural amenities

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## 10.1 Introduction

Innovation and knowledge have become keywords in modern national and local economic growth policies. It is nowadays widely accepted that innovation and knowledge are not generated in a 'wonderland of no spatial dimensions'. Scale and agglomeration advantages related to industrial clustering and geographical proximity are often recognized and identified as critical determinants and vehicles of accelerated growth. In this context, the concept of open innovation has come into being (see Chesbrough 2003). This concept refers to modes of knowledge production and organization through which R&D externalization, outsourcing, knowledge networking and valorization are favoured. A related strand of literature focuses its attention on the cognitive and learning dimensions of innovation and knowledge in relation to the external environment of firms. In particular, the concept of 'creative industries', 'creative classes' or 'creative cities' has become en vogue, inspired by such authors as Florida (2002), Scott (2006), Landry (2007), Storper and Scott (2009) and Andersson et al. (2011). It should be added, however, that creativity as a research issue already has a much longer history, especially in psychology. As argued by Törnqvist (2011), a pioneering contribution to the analysis of creativity in regional science was made by Andersson and Strömquist (1989), several years before the creativity fashion in regional science started. In a subsequent article, the first author even launched the concept of a *C-society*, where *C* stands for creativity (see Andersson 1985).

In recent years, much attention has been given to cities as breeding places for creativeness and innovativeness (see e.g. Glaeser 2011; Van Geenhuizen and Nijkamp 2012; Kourtit and Nijkamp 2013a,b,c). In this context, the concept of buzz cities has gained popularity (see Storper and Venables 2004; McCann 2008). This concept refers to the innovation-enhancing potential of modern open, interactive cities. The geographic projection of urban buzz may then manifest itself in so-called 'urban buzz piazzas' (see Arribas-Bel et al. 2013).

The creative class is generally regarded as a key determinant of urban economic growth and innovation. It includes a broad variety of occupations: it was subdivided by Florida (2002) into a super-creative core (e.g. science, research, arts, design, media), creative professionals (e.g. knowledge workers) and 'bohemians' (e.g. writers, artists, photographers, entertainers). Cities offer in many cases appropriate seedbed conditions for the emergence of the creative class through their abundant availability of talent, tolerance and technology. In both the open innovation literature and the creativeness literature, the notion of knowledge externalities plays a critical role. Additionally, in both cases, a positive contribution of knowledge and knowledge spillovers (including learning, skills, training, cognitive talent, etc.) to economic growth is taken for granted (see also Cooke 2006). There is considerable evidence that the presence of creative minds (entrepreneurs, workers, decision makers) has manifested positive implications (see e.g. Kourtit et al. 2012). Numerous studies have in the meantime demonstrated the significance of the presence of a creative urban or regional environment. Admittedly, the urban creativity notion has also faced serious criticism in relation to its conceptual basis, its methodology and its spatial relevance (see e.g. Peck 2005; Markusen 2006; Batabyal and Nijkamp 2013). It should be added that critical remarks on the



empirical validity of the creative class paradigm have also been voiced (for instance, Glaeser 2005 and Comunian et al. 2010).

A hitherto less investigated issue is the spatial urban location of creative professions in relation to the historical districts of cities. This issue refers to work qualifications and determinants at the individual level of workers – in contrast to economic sectors, branches, cities or regions – in combination with the historical urban seedbed conditions for creativity. Research along these lines calls for disaggregate labour market research in the context of historical cultural heritage. Another under-investigated question is the impact of the ‘urban ambiance’ (cultural heritage, entertainment, sociocultural environments in cities) as an attraction factor for creative workers. The central research question in this study is: *what is the nature of the relation between the presence of creative jobs and sociocultural and historical heritage?*

The micro-based Dutch labour survey (*Enquête Beroepsbevolking*) allows us to identify creative workers and determine their regional distribution. Additionally, we use meso-data on the level of municipalities, which cover several topics like demographics, culture, nature, wages and connectivity. This study is organized as follows. Section 10.2 provides a more detailed discussion of the relevant research questions. Section 10.3 contains a description of the data, while Section 10.4 presents some results on the relationship between the presence of creative people and the relevant characteristics of municipalities. Section 10.5 offers some concluding remarks.

## 10.2 Research Design for Urban Ambiance Analysis

Knowledge-based cities (or urban areas) offer innovation- and productivity-enhancing potential in a globalizing open economy. They contain a diversity of competences that make a city a vibrant ecosystem. This forms the attraction force of cities to creative minds in an open – often local or regional – innovation system (Lundvall 2007). It is noteworthy that, in contrast to Florida (2002), who – on the basis of a broad definition of the creative class – argues that the creative class in many OECD countries amounts to some 30–45 per cent of the total labour force, Asheim (2012) claims that the real-world picture is more diversified. He makes a plea for a differentiated knowledge-based approach, on the basis of a systematic knowledge-based typology (analytic, synthetic and symbolic), and claims that creative occupations may be everywhere, from traditional to high-tech industries (see also Storper and Scott 2009). They may also be found in unexpected places depending *inter alia* on the type of regional innovation system concerned, including its underlying social capital. In this paper, we follow the European classification of the creative classes (see Van Aalst et al. 2006), which is very similar to the classification by Florida (2002) and also consists of bohemians, the creative core and creative professionals. There is a strong branch of literature that also distinguishes these three creative classes (see for more information *inter alia* McGranahan et al. 2001; Wojan et al. 2007a,b; Currid 2009; Florida and Mellander 2010). Another reason for using the European classification of creative classes is that it makes it possible to compare the results we find for the Netherlands with the results found for other European countries.

Creativity is indeed a complex and often ambiguously defined concept. An interesting conceptual discussion of the roots and usage of this term is presented by Törnqvist (2011). He makes a useful distinction of the creativity concept by offering a classification into four Ps involved with creativity: product, person, process and place. Following Hall (1998), who published a seminal contribution on 'cities in civilization', he also argues that cities – especially metropolises – are the places 'par excellence' where creativity can be found. It is clear that a locational analysis of creative minds calls for detailed individual research on the labour qualifications of employees as well as a systemic mapping of local and regional contextual moderator variables (including urban historical-cultural heritage and urban seedbed conditions). In many studies on creativity, a great deal of attention is paid to indicators for defining or supporting creativity (such as tolerance indicators), but less attention has been paid to impact measurements of creativity on business performance. In a recent study by Kourtiti and Nijkamp (2013), an applied modelling study is presented to link spatial differentiating factors and the spatial presence of creative business to the business performance of these firms. Urban agglomerations appear to attract more creative businesses, while they offer favourable seedbed conditions for the emergence of new (small) firms.

The urban ambiance – including the local visual quality – indeed appears to form an important attraction force for creative entrepreneurs. In a recent study by Smit (2011), in which creative firms in various urban districts are investigated, the author comes to the conclusion that there is a significant relation between direct visual quality and location choices of creative entrepreneurs. Such visual quality may comprise various factors, e.g. urban design, architecture, waterfronts, historical neighbourhoods, urban parks, etc.

Next to creative firms, there is also the question of the location of creative workers. In a study by Boschma and Fritsch (2007), the authors present regression results on the determinants of the creative population in various regions in Europe. They find that the creative class is unevenly distributed across European regions. It appears that the urbanization degree, health care or education do not offer a clear attraction force for creative workers, in contrast to regional employment growth. The so-called cultural opportunity index tends to have a much more significant impact. This finding calls for a more focused and streamlined investigation of the drivers of the geography of creative jobs in a spatial system (see also Peck 2005).

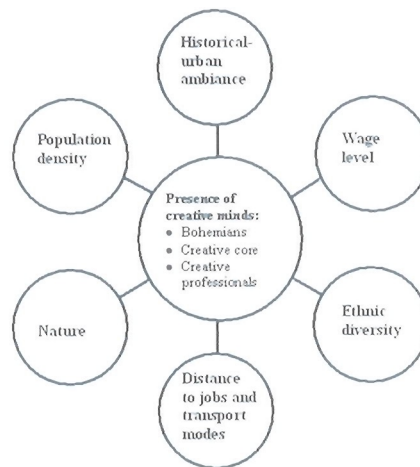


Figure 1. Research framework

In our study, we will address in particular the impact of a historical ‘urban ambiance’ (like the presence of cultural heritage and monuments) on the presence of creative minds in municipalities, while controlling for other possible explanatory variables (see Figure 1). This figure presents in a condensed way the main propositions put forward in the recent literature on creative classes. To test these propositions, a research framework has been developed. To that end, an extensive database has been created (see Section 10.3), which serves to support the examination of a set of structured research hypotheses.

### 10.3 Data Description

#### 10.3.1 Creative classes

In order to determine the regional distribution of creative occupations, we follow the European classification of creative classes (see Van Aalst et al. 2006). This classification is based on Florida (2002), who distinguishes between creative professionals, the creative core and bohemians. This European classification is constructed from the International Standard Classification of Occupations (ISCO 1988). Table 1 shows the main groups of occupations that are allocated to each of the three creative classes.

Table 1. European classification of creative classes: main groups

Classification of creative classes	ISCO 1988	Description
<i>Creative professionals</i>	11	Legislators and senior officials
	12	Corporate managers
	13	Managers of small enterprises
	22	Life science and health professionals
	24	Other professionals
	31 (excluding 3131)	Physical and engineering science associate professionals
	32	Life science and health associate professionals
	34	Other associate professionals
<i>Creative core</i>	21	Physical, mathematical and engineering science professionals
	22	Life science and health professionals
	23	Teaching professionals
	243	Archivists, librarians and related information professionals
	244	Social science and related professionals
	249	Public service administrative professionals
<i>Bohemians</i>	245	Writers and creative or performing artists
	3131	Photographers and image and sound recording equipment operators
	347	Artistic, entertainment and sports associated professionals
	521	Fashion and other models

Source: Van Aalst et al. (2006)

We obtained detailed micro-data on the professions of workers from the Dutch annual labour survey (*Enquête Beroepsbevolking*). In 2011, the survey achieved over 400,000 observations. The ISCO 1988 occupation was not available for all the observations. We translated the Dutch classification (*Standaard Beroepenclassificatie 1992*) into the ISCO 1988, whenever the SBC 1992 was available. Table 2 shows the number of observations for which we were able to determine the relevant occupations, for the period 1996–2011. The average number of observations for which the occupation was known was about 62,000 in the period 1996–2000 and about 241,000 in the period 2001–2011. Thus, this ambition of two large databases allowed us to create a unique data system at the individual level. We will now first offer some descriptive statistical results, to be followed later on by an explanatory econometric model.

Table 2. Number of observations in the labour survey

Year	Occupation available	Occupation not available	Share available data
1996	68,800	97,700	41.3%
1997	67,900	95,500	41.6%
1998	63,300	81,900	43.6%
1999	53,600	64,700	45.3%
2000	56,900	60,700	48.4%
2001	196,300	195,600	50.1%
2002	219,600	211,300	51.0%
2003	226,700	217,300	51.1%
2004	261,800	241,300	52.0%
2005	263,800	229,200	53.5%
2006	268,400	223,300	54.6%
2007	252,900	202,800	55.5%
2008	254,900	195,600	56.6%
2009	244,500	181,300	57.4%
2010	227,200	168,800	57.4%
2011	237,900	178,700	57.1%
Total	2,964,600	2,645,800	52.8%

Source: own calculations based on data from Statistics Netherlands (CBS)

Figure 2 shows the development of the shares of the three creative classes distinguished in our research over the period 1996–2011. All three classes appear to experience an increase in their share between 1996 and 2011. In relative terms, the increase appears to be largest for the creative core. This can be seen in Figure 3, which plots the index values of the shares over time. The share of the creative core increased from 10.6 per cent in 1996 to 14.1 per cent in 2011. The share of bohemians and the share of creative professionals increased from 1.7 per cent and 29.2 per cent in 1996 to 2.1 per cent and 31.4 per cent in 2011, respectively. The share of the total of the three creative classes increased from 41.6 per cent in 1996 to 47.6 per cent in 2012, which means that almost half of the labour force can be classified as creative.

The labour survey also contains the municipality of the survey respondents. This allows us to determine the regional distribution of the creative classes. In this way, we can quantify the shares of each creative class for the municipalities in the Netherlands. Table 3 shows some descriptive statistics for the shares in the 418 municipalities in 2011.<sup>1</sup>

<sup>1</sup> Note that some municipalities had a relatively small number of observations in the labour survey, which makes the sample average somewhat less reliable. This problem is most serious for small groups, like bohemians, in these places.



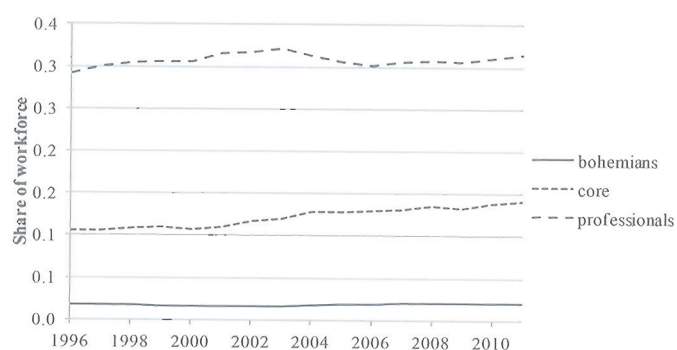


Figure 2. Development of the shares of the creative classes, 1996–2011

Source: own calculations based on data from Statistics Netherlands (CBS)

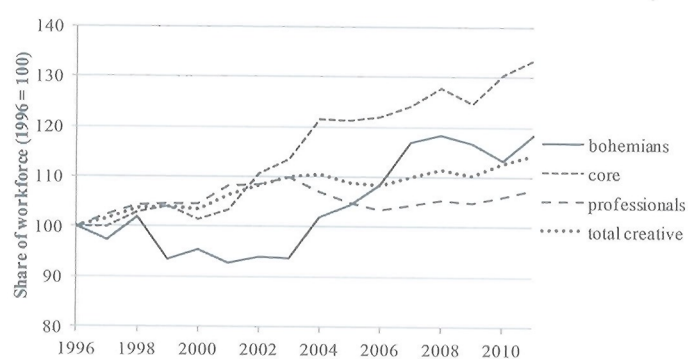


Figure 3. Development of the index of the shares of creative classes, 1996–2011 (1996 = 100)

Source: own calculations based on data from Statistics Netherlands (CBS)

Table 3. Descriptive statistics of the shares of creative classes (2011)

Creative classes	Mean	Standard deviation	Minimum	Maximum
Total creative classes	0.456	0.074	0	0.706
Bohemians	0.017	0.015	0	0.148
Creative core	0.123	0.047	0	0.328
Professionals	0.316	0.051	0	0.490

Source: own calculations based on data from Statistics Netherlands (CBS)

We also present maps of the shares of the creative classes, which are shown in Figures 4–7. Figures 4–7 suggest that people with creative professions are over-represented in urbanized areas, in particular in the Randstad (the densely populated area in the western part of the country). This pattern seems to be caused mainly by the bohemians and the creative core: the creative professions do not seem to be concentrated in a particular area.

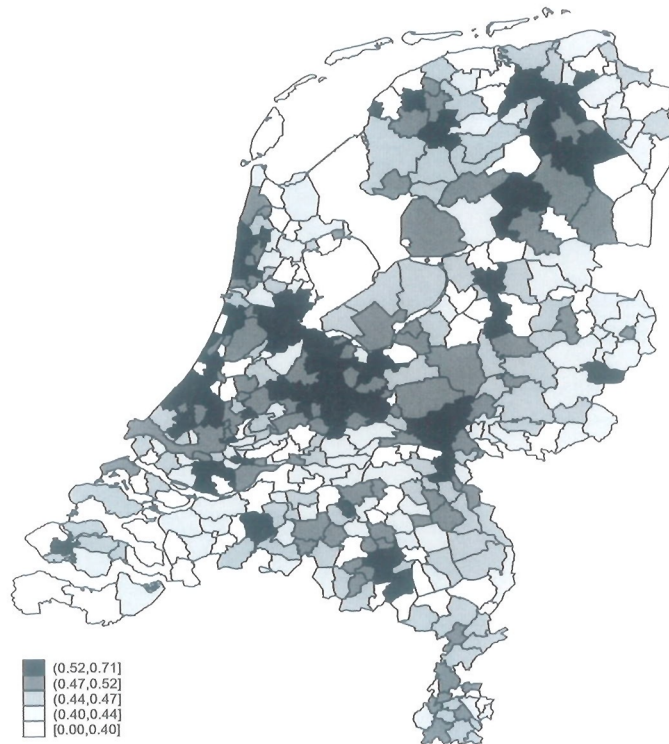


Figure 4. Share of creative occupations, 2011

Source: own calculations based on data from Statistics Netherlands (CBS)

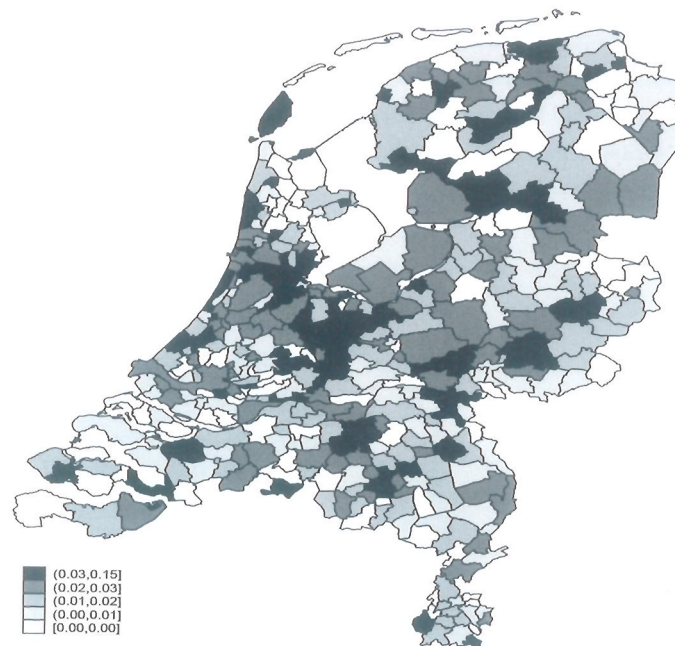


Figure 5. Share of bohemians, 2011

Source: own calculations based on data from Statistics Netherlands (CBS)

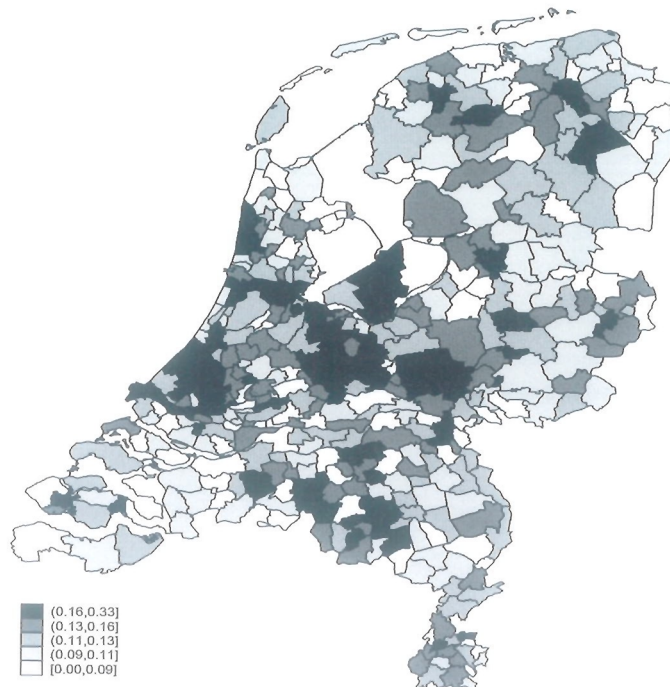


Figure 6. Share of the creative core, 2011

Source: own calculations based on data from Statistics Netherlands (CBS)

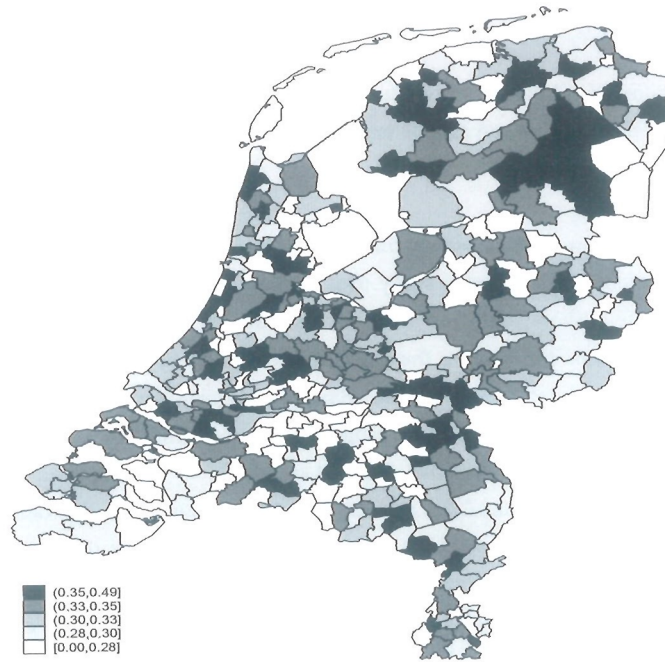


Figure 7. Share of creative professionals, 2011

Source: own calculations based on data from Statistics Netherlands (CBS)

### 10.3.2 Data on municipalities

We will now offer an explanatory analysis by using moderator variables at a meso-level. Our explanatory variables on municipalities come from several sources. Our explanatory analysis is based on the conceptual framework sketched in Figure 1. To transform this framework into a set of mutually connected, explanatory and measurable variables, a geographically – functionally and relevant – set of data is needed. These data can be crudely classified into five topics: *demography*, *culture*, *nature*, *wages* and *connectivity*.

The demographic variables are population density and ethnic diversity. The population density of municipality  $i$  is simply defined as the number of inhabitants ( $\times 1000$ ) divided by the size of the municipality in square kilometres:

$$pop\_density_i = \frac{population_i}{size_i * 1000}$$

Ethnic diversity is often calculated as a fractionalization index (see, for example, Ottaviano and Peri 2006). The ethnic diversity index used in this paper is obtained from Möhlmann (2013) and is calculated as follows (for  $N \geq 2$ ):

$$diversity_i = 1 - \sum \frac{N_E(N_E - 1)}{N_T(N_T - 1)},$$

where  $N_E$  is the number of inhabitants of ethnicity  $E$  and  $N_T$  is the total number of inhabitants. For large values of  $N_T$ , the function can also be expressed as a function of the ethnicity shares  $s_E$ :

$$diversity_i = 1 - \sum s_E^2.$$

The interpretation of this index is the probability that two randomly selected inhabitants have different ethnicities. The present study uses the index calculated by Möhlmann (2013) for the year 2008. These authors base this index on the country of birth of the inhabitants of the municipalities concerned. The data on the country of birth were obtained from the micro-based central municipality register (*Gemeentelijke Basisadministratie*), made available by Statistics Netherlands. The index can, in principle, range from 0 (all inhabitants are born in the same country) to 1 (all inhabitants are born in a different country).

The cultural variables used in our explanatory analysis are the density of national monuments and the density of museums, theatres and cinemas. Clearly, these are all proxies for a broader set of constituents that all make up the cultural capital in a city. National monuments are real estate assets that are recognized by the government as monuments for their cultural or historic value. There are about 62,000 national monuments in the Netherlands, of which about two-thirds are used for housing. The data on national monuments are obtained from the Netherlands Institute for Cultural Heritage (*Rijksdienst voor het Cultureel Erfgoed*). The number of museums, theatres and cinemas ( $\times 100$ ) is obtained from ABF Research.

For both variables, we divided by the size of the municipalities in square kilometres in order to obtain densities:

$$mon\_density_i = \frac{state\ monuments_i}{size_i * 100}$$

and

$$cult\_density_i = \frac{museums_i + theaters_i + cinemas_i}{size_i}.$$

The share of nature in the total land use is also obtained from ABF Research. It is calculated by dividing the size of the natural landscape in a municipality by the total size of the municipality:

$$nature_i = \frac{size\ of\ nature_i}{size_i}$$

Our data on wages are measured as the average wage per hour, corrected for the characteristics of workers. This variable represents spatial productivity differences, which may be the result of, for example, agglomeration externalities. These data are based on a recent study by Groot et al. (2011). These authors estimate a so-called Mincer equation for the wages in the period 2000–2005, correcting for several characteristics of workers and jobs, like education, age, gender, country of birth, part-time or full-time jobs and industrial sector. We will use in our empirical model the natural logarithm of the corrected hourly wage.



The data on connectivity capture the network connectivity of the municipalities to the rest of the Netherlands, and in particular to large spatial labour markets. We include the distance to the nearest labour market of at least 100,000 jobs, the distance to the nearest intercity train station and the distance to the nearest highway on-ramp. These distances are calculated as the average Euclidean distances to all 4-digit postal code areas in a municipality, weighted by population:

$$distance_i = \frac{\sum_{ik} distance_{ik} * population_{ik}}{\sum_{ik} population_{ik}}$$

where  $distance_{ik}$  is the distance of postal code area  $k$  in municipality  $i$  and  $population_{ik}$  is the population of postal code area  $k$  in municipality  $i$ .

Clearly, the data set collected for our study is rich and contains many interesting indicators and moderator variables. Table 4 shows the source and the year from which the variables concerned originate, as well as some descriptive statistics.

Given the multivariate nature of the data, it is also possible to use at a later stage a systematic data reduction method based on principal component analysis (PCA) for NUTS-3 regions (into what is called in Dutch the COROP level, which contains 40 Dutch regions) in the Netherlands. We refer to Appendix A for more details.

Table 4. Sources and descriptive statistics of the explanatory variables

Explanatory variables	Source	Period	Mean	Standard deviation	Minimum	Maximum
<i>Population density</i> (1000 per km <sup>2</sup> )	CBS	2011	7.13	8.70	0.05	50.9
<i>Density of national monuments</i> (100 per km <sup>2</sup> )	RCE	2008	0.23	0.48	0	5.37
<i>Density of museums, theatres and cinemas</i> (per km <sup>2</sup> )	ABF Research	2006	0.63	0.91	0	6.91
<i>Share of nature</i>	CBS	2007	0.13	0.14	0.00	0.94
<i>Ln</i> (corrected hourly wage level)	Groot et al. (2011)	2000 – 2005	2.91	0.04	2.72	3.07
<i>Ethnic diversity</i>	Möhlmann (2013)	2008	0.13	0.08	0.03	0.52
<i>Distance to concentration of 100,000 jobs (in 100 km)</i>						
<i>PBL</i>		2000	0.15	0.07	0.03	0.57
<i>Distance to intercity station</i> (in 100 km)	ABF Research	2000	0.10	0.07	0.01	0.42
<i>Distance to highway on-ramp</i> (in 100 km)	ABF Research	2005	0.06	0.05	0.00	0.34

Notes: These descriptive statistics refer to the municipalities that existed in 2011. There have been several municipal mergers in recent years. For older data, we used the weighted average in the case of merged municipalities. We have data available for 415 out of 418 municipalities (the small municipalities of Vlieland, Kaag en Braasem and Dantumadiel are missing).

### 10.4 Estimation Results

The conceptual exposition, along with the statistical maps in the previous section, suggests that people with creative professions are over-represented in urbanized areas, in particular in the Randstad. This seems to be caused mainly by the bohemians and the creative core, while there does not appear to be a clear spatial pattern for creative professionals. We attempt to explain the share of creative occupations by several relevant characteristics of municipalities, as discussed in Section 10.3. Since most of the municipality characteristics are not dynamic, we restrict our analysis to the shares of the creative professions in the most recent year in our data, viz. the year 2011. We explain the shares of the creative classes using a standard OLS regression analysis. The estimation results are shown in Table 5.

The results in Table 5 show that in the regression that explains the share of creative professionals, none of our explanatory variables are statistically significant. The interpretation of this finding is that creative professionals have similar residential preferences to people who do not have a creative profession. A possible reason for this is that the group of creative professionals is rather heterogeneous and large: more than 30 per cent of the working population falls into this group, as can be seen in Figure 2.

For the other two groups, we do indeed find various statistically significant relations with our explanatory variables. The share of the creative core appears to be higher in municipalities with a higher density of national monuments, a higher share of nature, more ethnic diversity and a smaller distance to a large labour market. This suggests that people with professions in the creative core are willing to pay more for these characteristics than people with other professions. This may reflect differences in preferences as well as differences in income. The positive coefficient for ethnic diversity may also indicate a stronger level of tolerance of people from the creative core. The bohemians also seem to value these characteristics highly, although the significance level is somewhat smaller for this group. Additionally, the share of bohemians has a negative relationship with population density. We find no statistically significant relationship for the density of museums, theatres and cinemas, wage premium, distance to an intercity station and distance to a highway on-ramp.

Table 5. OLS regression results for the shares of creative classes

Dependent variable	Share of total creative	Share of bohemians	Share of creative core	Share of creative professionals
<i>Population density</i> (1000 per km <sup>2</sup> )	-0.0005 (0.0007)	-0.0003** (0.0002)	-0.0001 (0.0004)	0.0000 (0.0005)
<i>Density of national monuments</i> (100 per km <sup>2</sup> )	0.016 (0.010)	0.004* (0.002)	0.017** (0.007)	-0.005 (0.008)
<i>Density of museums, theatres and cinemas</i> (per km <sup>2</sup> )	0.006 (0.007)	0.002 (0.002)	0.002 (0.004)	0.002 (0.006)
<i>Share of nature</i>	0.07*** (0.02)	0.02*** (0.005)	0.06*** (0.01)	-0.01 (0.02)
<i>Ln</i> (corrected hourly wage level)	0.08 (0.07)	0.03 (0.02)	0.02 (0.05)	0.03 (0.06)
<i>Ethnic diversity</i>	0.09 (0.06)	0.04*** (0.01)	0.09*** (0.04)	-0.04 (0.04)
<i>Distance to concentration of 100,000 jobs</i> (in 100 km)	-0.26*** (0.08)	-0.04** (0.02)	-0.20*** (0.05)	-0.03 (0.06)
<i>Distance to intercity station</i> (in 100 km)	-0.09 (0.06)	-0.00 (0.01)	-0.06 (0.04)	-0.03 (0.05)
<i>Distance to highway on-ramp</i> (in 100 km)	-0.11 (0.08)	-0.00 (0.02)	-0.02 (0.05)	-0.09 (0.06)
<i>Constant</i>	0.27 (0.22)	-0.06 (0.05)	0.07 (0.14)	0.25 (0.17)
<i>R</i> <sup>2</sup>	0.26	0.16	0.32	0.02
<i>Observations</i>	415	415	415	415

Note: Standard errors in parentheses. Statistical significance at a 10 per cent, 5 per cent or 1 per cent level is indicated by \*, \*\* or \*\*\*, respectively.

The results shown in Table 5 are based on standard OLS estimations. Since the dependent variables are based on survey results of which the number of observations differs between municipalities, the reliability of the dependent variable varies over the municipalities as well. The number of observations that is used to determine the share is on average 569 and 1 per cent of the municipalities are based on fewer than 41 observations, while 1 per cent of the municipalities are based on more than 3,135 observations. To account for these differences in the reliability of the dependent variable, we also report the estimation results for the weighted OLS estimations, in which the weights are based on the number of observations used for determining the dependent variable, following the approach advocated by Hanushek and Jackson (1977).

The estimation results of the weighted OLS regressions are presented in Table 6. They are similar to those of the unweighted OLS regressions. The shares of bohemians and the creative core still have a positive relationship with the density of national monuments and with the share of nature and the ethnic diversity, while they still have a negative relationship with the distance to a large labour market. The significance level appears to decrease for some variables in the regression

for the creative core. Additionally, the density of museums, theatres and cinemas tends to become more significant than in the unweighted OLS regressions for the bohemians and the creative core. The share of professionals now has a statistically significant positive relationship with the corrected hourly wage level and a statistically significant negative relationship with cultural diversity.

Table 6. Weighted OLS regression results for the shares of creative classes

Dependent variable	Share of total creative	Share of bohemians	Share of creative core	Share of creative professionals
<i>Population density</i> (1000 per km <sup>2</sup> )	-0.0004 (0.0006)	-0.0005*** (0.0001)	-0.0000 (0.0004)	0.0001 (0.0004)
<i>Density of national monuments</i> (100 per km <sup>2</sup> )	0.013* (0.007)	0.006*** (0.002)	0.006 (0.005)	0.001 (0.005)
<i>Density of museums, theatres and cinemas</i> (per km <sup>2</sup> )	0.012* (0.007)	0.003** (0.001)	0.008* (0.004)	0.001 (0.004)
<i>Share of nature</i>	0.036 (0.023)	0.009* (0.005)	0.03** (0.02)	-0.00 (0.02)
<i>Ln</i> (corrected hourly wage level)	0.08 (0.09)	0.02 (0.02)	-0.07 (0.06)	0.13** (0.06)
<i>Ethnic diversity</i>	0.02 (0.04)	0.04*** (0.01)	0.04* (0.02)	-0.07*** (0.03)
<i>Distance to concentration of 100,000 jobs</i> (in 100 km)	-0.24*** (0.08)	-0.05*** (0.02)	-0.22*** (0.05)	0.02 (0.05)
<i>Distance to intercity station</i> (in 100 km)	-0.10 (0.06)	0.01 (0.01)	-0.06 (0.04)	-0.05 (0.04)
<i>Distance to highway on-ramp</i> (in 100 km)	-0.14* (0.08)	-0.00 (0.02)	-0.04 (0.05)	-0.10* (0.05)
<i>Constant</i>	0.26 (0.22)	-0.03 (0.05)	0.34** (0.16)	-0.05 (0.17)
<i>R</i> <sup>2</sup>	0.39	0.43	0.32	0.04
<i>Observations</i>	415	415	415	415

Note: Standard errors in parentheses. Statistical significance at a 10 per cent, 5 per cent or 1 per cent level is indicated by \*, \*\* or \*\*\*, respectively.

The above results are clearly plausible and interpretable in the light of both the existing literature and the geographic statistical patterns in the Netherlands. This also allows for a sensitivity analysis of the results for geographical scale. Especially in the context of the Netherlands, many polycentric developments – with lower densities – are observed, in contrast to the standard monocentric model. Meijers (2008) finds evidence that fewer cultural, leisure and sports amenities are present in ploycentric agglomerations, in contrast to monocentric cities.

Our econometric analysis is rather straightforward and leads to clear conclusions. It aggregates the available micro-data to determine the distribution of creative people across



municipalities in the Netherlands. A suggestion for future research is to estimate a model on the level of individual households.

### 10.5 Concluding Remarks

This study has focused on the regional distribution of creative people within the Netherlands. This is a mixed group, which is split up into bohemians, the creative core and creative professionals. The latter form the largest creative class and do not appear to be concentrated in a particular area. The bohemians and the creative core encompass more specific creative professions, and these creative classes are relatively strongly present in urban areas.

Our results show that a considerable part of the regional distribution of creative classes can be explained by culture, nature, ethnic diversity and the distance to a large labour market. Bohemians and people who are part of the creative core are over-represented in areas with an abundance of culture, nature, ethnic diversity and a smaller distance to a large labour market. The share of creative professionals appears to be positively related to regional productivity levels and negatively related to ethnic diversity.

This study has to be positioned in the broader framework of the impacts of cultural diversity. The latter concept refers to heterogeneous population groups – in term of ethnicity, lifestyle, professional career patterns, etc. – which leave a distinctive footprint (e.g. location behaviour, use of amenities) in a certain geographical setting. Clearly, a wealth of new research endeavours on the urban buzz–creativity–cultural heritage relationship may be envisaged. Both the micro-behavioural determinants of creative cities and the institutional support frameworks for attracting creative people deserve due attention in future research. In this context, interaction effects (for instance, a given share of bohemians may increase the probability of new bohemians arriving, provided the sociocultural amenities are present) may also be further analysed, e.g. by conditional logit modelling. Regarding urban policy, the above results are no doubt very relevant. A city that sees creative minds as one of the focal points of its attractiveness has to pay attention to – and invest in – the supply of its historical–cultural heritage, and in a broader sense also in its urban ambiance. In conclusion, the historical urban atmosphere plays an important role in the city in attracting and retaining talented people in order to enhance its economic development.

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## APPENDIX: A Standard OLS Based on Principal Component Analysis (PCA)

The previous results were obtained at the level of municipalities (NUTS-4) in the Netherlands. As a robustness check, we also estimate a model on the level of COROP regions (NUTS-3). Since our variables are strongly correlated on the level of COROPs, estimating the same model as we did on the level of municipalities raises multicollinearity problems. Therefore, this appendix shows the results of a principal component analysis (PCA). The PCA shows that only two components have eigenvalues greater than 1. These two components are used as explanatory variables in an OLS regression to explain the shares of the creative classes. The results of this regression are shown in Table A1.

The first component correlates strongly with most of the variables. It has an eigenvalue of 5.2 and explains 58 per cent of the total variance. Since it has a positive correlation with population density, the density of national monuments, cultural density, wage level and ethnic diversity, and a negative correlation with the distance variables, we interpret this component as an indicator of concentrated urbanization in a given place. This indicator essentially reflects the local concentration of human and cultural capital. The second component has a smaller overall correlation with our explanatory variables. It has an eigenvalue of 1.3 and explains about 15 per cent of the total variance. The strongest correlations are with nature (negative), the distance to the nearest station (positive) and the distance to the nearest highway (positive). A plausible interpretation of this component is the distance to transport modes. Together, the two components account for about 73 per cent of the variance in the original 9 explanatory variables.

The two components are used as explanatory variables in four OLS models, of which the dependents are the shares of each of the creative classes. The results are presented in Table A1. The first component is positive and statistically significant in all the models except for the share of creative professionals. This suggests that bohemians and people who are part of the creative core are relatively strongly attracted to urbanized regions, with a density of human and cultural capital, while creative professionals are more uniformly distributed over the regions. This result is similar to – and hence supports – the results found in this paper based on data on the municipality level, which are presented in Tables 5 and 6. Apparently, urban ambiance matters in attracting creative minds.

Table A1. OLS regression results for the shares of creative classes based on PCA

Dependent variable	Share of total creative	Share of bohemians	Share of creative core	Share of creative professionals
<i>Component 1</i>	0.013*** (0.002)	0.0022*** (0.0004)	0.009*** (0.001)	0.001 (0.001)
<i>Component 2</i>	-0.009** (0.004)	-0.0003 (0.0009)	-0.005** (0.003)	-0.003 (0.003)
<i>R</i> <sup>2</sup>	0.53	0.43	0.62	0.06
<i>Observations</i>	40	40	40	40

Notes: Standard errors in parentheses. Statistical significance at a 10 per cent, 5 per cent or 1 per cent level is indicated by \*, \*\* or \*\*\*, respectively. Additional results from the principal component analysis are available from the authors upon request.





## 11 SOCIO-CULTURAL DIVERSITY AND URBAN BUZZ\*

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### Abstract

Cities have become playgrounds for competitive behaviour and rapid economic dynamics. However, in many cities (or urban agglomerations), economic growth is mainly manifested in specific geographic areas, where creative people and innovative entrepreneurs are located. This paper offers first the foundation for analysing the so-called ‘urban buzz’ and its interlinked primary drivers. The paper will next develop an analytical framework for testing the buzz hypothesis, with a special reference to the importance of social networks in Amsterdam. In our empirical analysis, we use a unique data set on social network connectivity and spatial concentration in a city, based on location-sharing services through the use of Foursquare. Our urban buzz model shows clearly that buzz and socio-economic (cultural) diversity are closely connected phenomena.

**Keywords:** cultural diversity, urban buzz, agglomeration, creativity, piazza, spatial dependence, social networks

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### 11.1 The Urban Stage

In the past decades, the awareness has grown that cities have become epicentres of socio-economic dynamism. New knowledge, innovations, creative lifestyles and entrepreneurial heroism often find their genesis in urban agglomerations. The rising importance of the ‘urban magnetism’ is clearly demonstrated in the ever-increasing urbanization rates worldwide. Clearly, there are examples of shrinking cities (such as Detroit or Leipzig), but the loss in their urban population is overshadowed by the rise in urbanization elsewhere. The urbanized way of living – not necessarily in compact city centres, but more broadly in urban agglomerations including satellite towns and edge cities – has gradually become a dominant megatrend in our world. In several recent publications, Kourtit and Nijkamp (2013a,b,c) offer considerable evidence of the emerging ‘urban century’, which they coined the ‘*New Urban World*’.

It should be noted however, that the ‘*New Urban World*’ does not display a uniform settlement pattern. On the contrary, it is characterized by great diversity in living and working patterns, in urban land use and architecture and in urban management and governing institutions. There is an abundance of literature that traces the roots of rising urbanization. These are mainly sought in the presence of spatial externalities (often in the form of so-called MAR – Marshall–Arrow–Romer – externalities dealing with various economies of scale in urban areas) and social capital benefits (often referred to as ‘melting pot’ advantages in the spirit of Jane Jacobs). Extensive treatment of these issues can be found in Nijkamp (2008) and van der Ploeg and Poelhekke (2008).

The variety of scholarly contributions on the advantages of urban areas can essentially be subsumed under the heading of three driving forces, viz. economies of *density*, economies of *proximity* and economies of *connectivity*. The first category focuses essentially on the joint advantages of the spatial concentration of people and activities (see e.g. Glaeser et al. 1992; Nijkamp 2008). The next class addresses the benefits of physical or socio-psychological access of people and activities to each other (see e.g. Boschma 2005; Torre and Gilly 2005; Tranos et al. 2013). The final category concerns the economies generated in a city that emerge from social capital or network linkages – physical or virtual – among heterogeneous groups of people and activities (see Sahin et al. 2007), be they at a short distance or at a long distance (see Tranos et al. 2013).

These classes of external economies explain the booming character of modern cities, in contrast to small towns, villages or rural areas. This does not mean that the latter areas have no socio-economic prospect (see e.g. Noronha Vaz et al. 2013), but in general the socio-economic future of our world tends to be determined by areas with a high degree of urbanization, as such areas generate a wealth of unrivalled centripetal and centrifugal forces and associated benefits. One of the resulting dynamic urban constellations to be frequently mentioned in the current literature on urbanization advantages is ‘urban buzz’, the potential to generate creative, innovative and unconventional initiatives or activities in cities or specific urban districts. In the next section, we will offer a concise introduction to this urban buzz. The aim of the paper is to investigate whether and to what extent the above-mentioned economies of density, proximity and connectivity offer a significant contribution to the emergence of urban buzz. The paper will address in particular

the impact of socio-economic diversity – including cultural diversity – as an intervening factor in favouring urban buzz. This conceptual model will next be operationalized and empirically tested in a case study on Amsterdam. An extensive database from the Foursquare location-sharing service will be employed to estimate econometrically the ‘urban buzz equation’.

## 11.2 Urban Buzz

The phenomenon of urban buzz has to be seen against the background of firm dynamics and innovation in urban areas. Innovative firms are change agents in a creative urban ‘milieu’. The economic performance of business enterprises depends on both the firms’ indigenous capabilities and the supply of resources in their flanking environment (see e.g. Barney 1991; Kourtit and Nijkamp 2012; Kramer and Diez 2012). Clearly, the growth of companies will be constrained if there is a shortage or weakness in the available resources or in the capability to mobilize or generate adequate resources. Reid and Garnsey (1998) distinguish between different stages of growth, ranging from the achievement of access to resources to the mobilization of resources, and the companies’ own generation of resources. The use of the right combination of resources at the right time by young, innovative entrepreneurs enables them to undertake a jump in growth (Kourtit and Nijkamp 2012). Failing to use the right combination at the right time may cause a delay in growth and even a fall back into previous stages (Vohora et al. 2004). In the early growth stages and after a fall back to such stages, firms rely heavily on the resources available in the direct environment or proximity, including the urban environment and its constituent infrastructure and suprastructure.

Cities offer in many cases the creative network conditions for acquiring new knowledge and expertise. In recent years, the resource-based growth perspective has clearly extended its scope from physical resources to human and social capital resources. It is nowadays broadly accepted that regions and cities – and sometimes urban districts in a Marshallian sense – may use their indigenous resources and may offer unique geographic and location conditions and facilities, beyond other competitive assets, to attract talents and firms to (relatively less favoured) regions in the belief that they generate (more) positive externalities. In turn, this may bring about positive socio-economic achievements, which may enhance the territorial competitive advantages. As a result, over the past decades, cities – and their creative districts – all over the world have managed to reinforce their socio-economic position, albeit sometimes with up and downs. This brings us to the notion of urban buzz.

Urban buzz – as a result of density, proximity and connectivity externalities – has received quite an amount of attention in the recent urban literature. Buzz areas – be they cities as a whole or urban districts – are powerhouses of innovation, creativity and unconventional lifestyles. In a study by Storper and Venables (2003), the authors refer in particular to the ease of communication and information exchange between different actors in the urban space as the source of a local buzz economy. A recent article by Rodriguez-Pose and Fitjar (2012) highlights the need for a broader interpretation of urban buzz: this concept is a container for local entrepreneurial dynamism (Acs et al. 2008), innovation access and intensity (Duranton and Puga 2001), knowledge generation

and diffusion (Puga 2010), competitive cluster formation (Porter 1990), industrial districts (Pyke and Sengenberger 1992), learning areas (Morgan 1997) or spatial systems of innovation (Cooke et al. 1998). More detailed analyses of buzz phenomena can be found *inter alia* in Amin and Thrift (1994), Gertler (1995), Bathelt et al. (2004), McCann (2008) and Polèse (2009). Many of these contributions point out important elements of dynamic urban developments, but in most cases, a solid evidence-based econometric test of the underlying hypotheses is missing. The main ambition of the present study is to offer a statistical–econometric framework for examining the validity of the urban buzz hypothesis.

It should be noted that urban buzz may relate to socio-economic factors and productivity-enhancing factors. The first class relates to the economies of cultural and social diversity in urban areas (Jacobs 1961 1969; Waldinger et al. 1990; Choenni 1997; Perdikogianni and Penn 2005; Sahin et al. 2007; Longhi et al. 2010; Kahanec and Zimmermann 2011; Kourtiti and Nijkamp 2012). Such social buzz factors create various advantages for the population concerned, such as a great variety in product supply, variability in skills and socio-economic capabilities (e.g. ethnic entrepreneurship) (Masurel et al. 2002; Kloosterman and Rath 2003; Zhou 2004; Kourtiti and Nijkamp 2011; Ozgen et al. 2011; Sahin et al. 2012), seedbed functions for new forms of art and culture, etc. The second class is more focused on business sector advantages, such as a rise in innovativeness, access to creative ideas, vicinity of institutions for higher education, use of advanced telecommunication systems and networks, etc.

Urban buzz is not a phenomenon that is uniformly spread over all population groups in the city or urban districts. There is a clearly demographic component involved with intra-urban dynamics, in particular in regard to the ethnic variety in modern cities. The underlying idea is that in modern cities a great deal of socio-economic dynamics is created by various types of foreign migrants. In particular, the emergence of migrant entrepreneurship has led to unprecedented dynamics in many cities (see e.g. Kourtiti and Nijkamp 2012).

In many cases, urban buzz appears not only all over a city, but in dedicated or specific areas where a concentration of initiatives, innovations and interactive expressions of lifestyles are taking place. This action place of urban buzz resembles the *piazza* of old Italian cities, where in the past all activities and communications in the city were concentrated. The *piazza* is essentially the spatial bundling of urban buzz and very much depends on factors relating to both the built environment and the socio-economic conditions. Therefore, in our research on the spatial expression and geographic projection of urban buzz, we will concentrate our efforts on the economic functioning and outreach of such *piazze* in modern cities.

We will focus our attention in this paper mainly on urban social networks, in particular from a cultural diversity perspective on urban buzz. Clearly, there are other determinants of local dynamism as well, but we will offer in this contribution an explanatory analysis of the broader cultural diversity components of an urban buzz constituency. Thus, we will regard creative classes, migrants and social media users as major change agents in a local or urban economy, at the interface of urban buzz and cultural diversity.



### 11.3 Methodological Framework for Urban Buzz Analysis

From the previous section, we conclude that urban buzz results from a series of background factors. Some have a more physical background, like urban form or infrastructure, while others stem from the characteristics of the environment associated with the people who live or spend time there, like the type of amenities available. Additionally, as this paper argues, the presence of a culturally diverse neighbourhood might be considered as an additional amenity valued by the main actors who drive urban buzz and hence induce a higher intensity of activity and interactivity. Now we will test the above propositions on the basis of a case study in the Netherlands.

Our empirical contribution is centred around the city of Amsterdam. Two main reasons explain the decision to opt for this location. In the first place, Amsterdam has a long tradition of openness and tolerance. Historically, the city has offered shelter to various cultures and ethnicities and has shaped its character around this idea of inclusion. If cultural diversity is to have an effect on the popularity of a given area within a city, this effect is likely to appear in Amsterdam more than anywhere else. Secondly, on a more practical level, Amsterdam is sufficiently large, culturally oriented and high-tech-savvy to induce a degree of penetration of location-sharing services that ensures meaningful results when using the data set designed to capture urban buzz (see also Section 10.4 for an in-depth description). We use the boundaries of the municipality of Amsterdam to delineate the spatial extent of our analysis. Furthermore, in order to study the variation of activity within the city, we use the neighbourhood ('buurt' in the Dutch terminology) level, because it combines a good spatial resolution and relevant data on migrants' presence.

In order to test the effect of cultural diversity on the level of buzz formally, we need to translate the ideas from the previous section into a framework that allows for hypothesis testing. In particular, we use regression analysis to estimate the existence and importance of such an effect. Based on the literature reviewed in the previous section, we hypothesize that the volume of buzz in a particular area of a city may be conceptually expressed as a function of the following factors:

$$B_i = \alpha + \beta_1 F_i + \beta_2 E_i + \gamma Div_i + \varepsilon_i \quad (1)$$

where  $B_i$  is the level of buzz in neighbourhood  $i$ ,  $\alpha$  is a constant term,  $F_i$  is a set of variables relating to the amount of possibilities for buzz to occur in  $i$ ,  $E_i$  is a group of variables describing different characteristics of the urban form in  $i$ ,  $Div_i$  is the level of cultural diversity that characterizes  $i$  and  $\varepsilon_i$  is a well-behaved error term. At the same time,  $\beta_1$ ,  $\beta_2$  and  $\gamma$  are parameters that capture the effect on the level of buzz. The particular implementation, the definition and methodology to quantify buzz in  $B_i$ , as well as the actual selection of variables that we consider to represent  $F_i$ ,  $E_i$  and  $Div_i$  empirically, are explained in detail in Section 4.

Ultimately, what we are interested in is the sign and magnitude of  $\gamma$ , which will allow us to state whether cultural diversity does indeed have an effect on buzz at an intra-urban level. A positive sign will point to a positive impact, meaning that the more cultural diversity, the higher the buzz; the opposite will apply if the sign is negative. An insignificant coefficient would suggest no



relationship between the two. However, this analysis can also shed some light on other determinant factors. Since the idea of quantitatively measuring buzz in a city is one of the novel contributions of our work, the question of which aspects of a neighbourhood matter for the level of local activity is also of interest in this context. This means that we will also pay attention to the sign and magnitude of the estimates of  $\beta_1$  and  $\beta_2$ . They will help us to gain a better understanding of the nature of buzz and the type of human activities and economic functions that trigger this phenomenon.

The distribution of buzz across Amsterdam is likely to have a marked spatial dimension. Some parts of the city, such as the historical old town, will most likely have much higher levels of activity than other more peripheral and residential ones. At the same time, this pattern is not likely to match the administrative boundaries of the neighbourhoods perfectly. While these entities do capture to some extent the socio-economic characteristics that drive the outcome, they remain fairly stable over time and hence cannot accommodate the more dynamic nature of buzz. If this is the case, spatial autocorrelation will be present in the data that we observe since the spatial unit we use (i.e. neighbourhood, see Section 4) does not perfectly capture the extent of the phenomenon we are studying, that is, urban buzz. The issue of spatial autocorrelation, although a technical econometric problem, may have important consequences for the final conclusions drawn from the analysis. In particular, failing to account for the spatial correlation of the dependent variable in an econometric model when necessary makes the estimates biased and inefficient (Anselin 1988). For that reason, we decided to expand the baseline model to include what is commonly known as ‘spatial lag’: an explanatory variable that expresses the value of the dependent variable in the surrounding neighbourhood. In particular, the extended model may be formulated as:

$$B_i = \alpha + \rho \sum_j w_{ij} B_j + \beta_1 F_i + \beta_2 E_i + \gamma Div_i + \varepsilon_i \quad (2)$$

where  $\rho$  is a parameter and  $w_{ij}$  is the value of row  $i$  and column  $j$  of the spatial weights matrix  $W$ . This  $N \times N$  matrix contains a formal representation of the spatial relationships between all the observations in the sample; if  $i$  is defined as a spatial neighbour of  $j$ ,  $w_{ij} > 0$ ; otherwise, the weight assigned to such a relationship is zero. When  $W$  is row-standardized, the spatial lag of  $B_i$  effectively becomes the average value of  $B$  in  $i$ ’s surrounding locations.

The justification for the introduction of a spatial lag in this context is akin to the filtering of temporal correlation in the time series literature.<sup>1</sup> If we consider equation (2) in matrix form:

$$B = \alpha + \rho W B + \beta_1 F + \beta_2 E + \gamma Div + \varepsilon \quad (3)$$

and rearrange it, we obtain:

$$B - \rho W B = B(I - \rho W) = \alpha + \beta_1 F + \beta_2 E + \gamma Div + \varepsilon \quad (4)$$

<sup>1</sup> For a similar discussion in the context of housing prices, we refer to Anselin and Lozano-Gracia (2008).

which reflects the correction of the spatial scale mismatch present in  $B$  by the operator  $(I - \rho W)$ . This introduction, however, has clear implications for the estimation method required. A spatial lag of the dependent variable introduces endogeneity into the model that must be accounted for and corrected when the model is estimated. To that end, we use OLS for the baseline equation but adopt a maximum likelihood (ML) approach, as suggested by Anselin (1988), for the spatial lag model.

## 11.4 Database

### 11.4.1 *Measuring buzz with location-sharing services*

This paper adopts a novel approach to measuring buzz within an urban environment. We take advantage of a new phenomenon that is spreading quickly among the creative residents of cities: location-sharing services. These are online applications with which users, empowered by a location-aware device connected to the Internet, such as a smartphone or tablet, can share their geographical position at a given point in time with their friends and broadcast it on the Internet. To offer a sense of their degree of penetration, Foursquare, one of the main leaders in this industry, claimed to be processing one million posts per day in 2010 (Grove 2010). Since then, its popularity has increased even more, particularly among the young and skilled stratum of the population. A key piece of these services is what has come to be known as check-in. Whenever a user finds him/herself in a place and wants to share it with his/her social network (and potentially with the whole Internet), this kind of mobile application can be used to 'check in'. The place where the check-in occurs, or venue, can vary greatly in its nature: from a bar or restaurant to a train station or even a park; most urban spaces can be 'checked into'. A check-in is not only defined by the place/venue where the user finds him/herself at a particular moment, but also by its accurate coordinates (provided by the digital device carried) and a time stamp. This degree of detail automatically translates into a data set with very high granularity in both space and time.

The data set we employ for this application comprises more than 70,000 check-ins extracted by the original database presented by Cheng et al. (2011). Throughout most of 2010 and the beginning of 2011, Cheng et al. (2011) crawled the social network Twitter to compile check-ins from Foursquare broadcast, not only to the immediate social network but to the whole Internet. This yielded more than 20 million observations that they later released<sup>2</sup> in an open format and that have already been included in some studies by other researchers (e.g. Cranshaw et al. 2012). Although the observations are scattered all around the world, because they are georeferenced, we can subset them to consider only those that occurred within the Amsterdam city boundary limits. In its basic form, each observation includes the latitude and longitude of the check-in, a time stamp and some text from the tweet, which we use to link it to the venue and then are able to obtain more characteristics (see Section 4.2 for a more detailed explanation). These data, although appealing, are not without drawbacks. One in particular stands out: it is not possible to know details about the characteristics of the users since they are anonymized. This means that we cannot trace back

<sup>2</sup> See <http://infolab.tamu.edu/data> for more information.

the origins of buzz (who is *producing* it) and thus we cannot be totally sure about who it comes from. This certainly limits some of the applications the data set could be used for, since it prevents us from delving more deeply into the actual nature of the buzz, but not all of them. In particular, the focus of this paper, the extent to which cultural diversity and other socio-economic factors influence the volume of buzz in a neighbourhood (whoever this activity comes from), can still be tested.

Figure 1 displays the distribution of the check-ins, both at the point level (points have been made extremely small and transparent in order not to overcrowd the figure) and aggregated at the neighbourhood level, which is the unit we will be using for the analysis. The check-ins closely match the spatial structure of Amsterdam. Smaller, more central and denser neighbourhoods of the historical centre capture most of the check-ins and peripheral, larger areas devoted to residential and industrial uses (e.g. the harbour in the NW area) barely attract any activity. An exception is a large polygon in the SE of the city, which shows a large volume of check-ins, considering its location and neighbours. This corresponds to the Bijlmer area, where a whole entertainment centre was developed, including the soccer team (Ajax) stadium, many cinemas and a large concert hall. By looking at the map, one can easily conclude that the data set is appropriate for measuring urban buzz at a very detailed level.

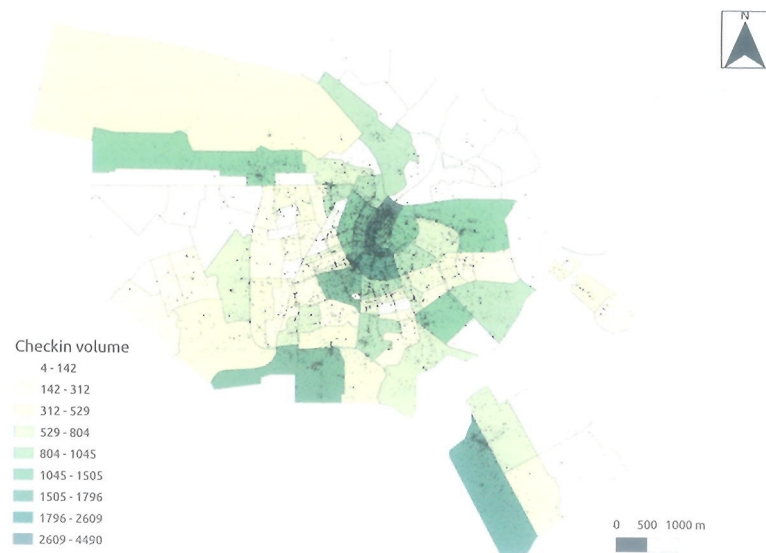


Figure 1. Distribution of the volume of Foursquare check-ins

### 11.4.2 Cultural diversity and land use data

Once we have presented our measure of buzz, the effect of cultural diversity can only be examined by adopting an index that captures its presence in a quantitative way. Although the literature on how to measure this phenomenon is extensive and rich (e.g. Sassen 1994; Alesina et al. 1999; Alesina et al. 2004; Boeri and Brücker 2005; Musterd and Deurloo 2006; Ottaviano and Peri 2006a,b; Nijkamp 2008; World Bank 2008; Evans 2009; Kourtit and Nijkamp 2011; Ozgen et al. 2011b), in this case, we decide to take a traditional approach and adopt a well-established index. In particular, we use the index of fractionalization, presented by Mauro (1995) and widely employed in other studies on the effects of cultural diversity, such as that of Ottaviano and Peri (2006). Its formal expression is:

$$divr = 1 - \sum_{i=1}^M (CoB^r)^2 \quad (5)$$

where  $div_r$  is the diversity index in area  $r$ ,  $M$  is the total number of different cultural origins and  $CoB^r$  is the share of the population with cultural origin  $i$  in area  $r$ . The index is bounded between 0 and  $(1 - 1/M)$  and accounts for two aspects of cultural diversity: the richness, or how many different groups there are, and the evenness, or how the population is distributed across those groups. In an extreme case in which everyone in a neighbourhood belongs to the same group, the probability of picking up two different groups at random is non-existent and, accordingly,  $div = 0$ . As a neighbourhood includes more variety ( $M$  increases) and the distribution across them remains even or proportionate, the probability of randomly selecting two different persons increases and so does the index. To calculate this measure in the Amsterdam neighbourhoods, we use data from the Dutch Bureau of Statistics (CBS in its Dutch acronym). At that level of resolution, we can access the shares of immigrants in the following groups: Western migrants, Moroccans, Surinamese, Turkish and people from Antilles and other origins. In this context, a person is considered to be a migrant if at least one of his/her parents was born outside the Netherlands. Equally, a migrant is considered to be a Westerner if he/she comes from Europe, North America, Japan, Indonesia and Oceania. This implies that, in the context of equation (5),  $M = 7$  and thus the maximum degree of diversity we can reach in our data set is 0.86.

In addition to cultural diversity, we include other variables to explain the volume of check-ins in a neighbourhood. These are introduced to control for the number of possibilities available to users and for the economic function of the area. The first set of controls is extracted from the Foursquare, Inc. (2012) database using their Venue platform. It contains information about all the venues where the users checked in during the time the check-ins data set was compiled.<sup>3</sup> In order to use it in conjunction with the cultural diversity index in a regression framework, we aggregate the data to the neighbourhood level and simplify it to include only major venue categories. The result is reflected in the eight following variables: the total number of venues as well as the percentage

<sup>3</sup> The process of linking check-ins with the venue where they occurred consisted of extracting the link of the venue from the tweet text to query later the Foursquare venue platform for further information.



of venues in ‘arts and entertainment’, ‘college and university’, ‘food’, ‘outdoors and recreation’, ‘professional and other places’, ‘travel and transport’ and ‘other’. Some other minor categories were initially considered but dropped later due to multicollinearity.

The last source we use in this study introduces land use data. These come from the Dutch register of addresses and buildings (BAG, to use its Dutch initials<sup>4</sup>), which keeps track of the land use category at the unit level, even within a building. In the municipality of Amsterdam, this means almost half a million records. Similarly to the venue data, we need to bring these to a spatial unit at which they can be linked to the degree of cultural diversity. This is possible by aggregating the amount of area devoted to each use in every neighbourhood and obtaining the percentage it represents of the total. For this analysis, we use the percentages of use in the following categories: industrial, office space, sports and retail. Additionally, we include the number of units, which is correlated with the building density and urban form of the area.

## 11.5 Empirical Results

In this section, we present the results and main interpretation of applying the methodology outlined in Section 2 to the data described in Section 4. In the first place, as a benchmark, we adopt a non-spatial approach and estimate equation (1) through traditional OLS, which allows us to obtain a set of baseline results. In the second stage, we introduce a spatial lag into the model and estimate the results via maximum likelihood (ML henceforth) as expressed in equation (2). Finally, we present an extension in which we ‘stretch’ the data into a pseudo-panel, taking advantage of the temporal granularity of the Foursquare data, in order to break the results into different times of the day.

The first column of results in Table 1 shows the coefficients estimated for the non-spatial model using traditional OLS. Focusing first on the control variables, we can see that they show the expected signs. A higher density of buildings, measured by the total number of units (within buildings) in the neighbourhood, has a large positive impact; that is, the more crowded and denser the area, the more Foursquare activity it receives. This is a highly anticipated result that nevertheless can be taken as a sanity check on the validity of the data set. Intuitively, the presence of more possibilities to ‘check in’, measured by the amount of venues, leads to higher total volumes of activity. In terms of shares, larger proportions of all the categories included, with the exception of ‘college and university’, are associated with more activity as well. The strongest effect, unsurprisingly, comes from the presence of venues in the category ‘arts and entertainment’, in which most cultural amenities, such as museums and cinemas, are included as well as some bars.<sup>5</sup> This is in line with the consumption amenity nature of Foursquare check-in data and reinforces the argument that they constitute a good index of urban buzz. Different proportions of land use in a neighbourhood shape different profiles in terms of its socio-economic role within the larger context of the city. This is reflected in the coefficients for the shares of land use types. The presence of office

<sup>4</sup> For more information, see <http://bag.vrom.nl/>.

<sup>5</sup> The coding scheme that determines which category a venue falls into is not totally deterministic in that it depends on the judgement of users. Because of this, for example, some bars are coded as ‘arts and entertainment’ while others are part of ‘food’.