Structural and demand-led regional economic growth:

Value Added regional growth decomposition

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(draft)

Economic growth is equivalent with producing and selling more or better products and services. This economic growth can be due to economic growth accompanied with increasing demand from other regions, or it can be due to internal factors raising productivity and a region's competitive position. As a result a region may implement excellent regional policies and relatively outperform many other regions while having an overall negative growth rate caused by a collapse in demand from other regions. The economic crisis in Europe that started with the banking crisis in 2008 and still continues into 2014 is an illustration of these negative interregional demand spillovers. We therefore have to distinguish between regional growth that is the result of an increase in demand in other parts of the world, and growth that is due to a change in structural factors strengthening a region's competitiveness and increasing its productivity and market share. Only raising the competitiveness of a region can be influenced by regional economic policy and is therefore central in a regional economic smart specialization policy strategy.

This paper introduces a value added growth decomposition method based on an analyses of trade between European regions and the market shares on European regional markets. This method is implemented on the PBL multiregional Supply and Use tables (Thissen et al., 2013) and gives *region specific* sources of economic growth. Furthermore, it will give a ranking of those regions that outperform other regions and give a precise number by how much they outperform these other regions. Naturally, it also gives a ranking of regions that perform worse than the region under investigation. The performance of all regions is also analyzed on different product markets and different geographically markets. This gives the information needed to evaluate and monitor regional policies. The methodology allows to evaluate regional policies in either a worldwide economic boom or recession. Every year a region can analyze its performance vis-à-vis other regions and see which regions performed better and which regions performed worse. A careful analysis of policies implemented by the competitors will give insights into proven region specific policies that are successful on a region's markets. The decomposition can be done on the aggregate or sector level and since total trade is analyzed it can even be shown whether a European region loses competitiveness to, for instance, China or the US and it what geographical markets these gains or losses occur.

1. Introduction

The concept of regional competitiveness is a dominant concept in public policy (Bristow 2005) and increasing competitiveness is an explicit policy goal by regional, national and supra-national governments (i.e. the European Commission) across Europe (Baldwin and Wyplosz 2009). Relevant regional policies involve the conditions under which economic activities can prosper (Bristow 2010). A strategy increasing competitiveness involves the ability of regional governments to learn about the effects of economic policy, particularly through methods based on comparison or monitoring. Benchmarking and regional econometrics have become particularly popular within regional economic policy-making in recent years (Huggins 2010) to measure and compare competitive regional performance (Beaudry and Schiffauerova 2009, De Groot et al. 2009, Melo et al. 2009).

Conceptually, regional benchmarking and regional econometrics has progressed from quite simplistic forms that compare and rank different regions to more complex modes (see Huggins 2010, p.642 with respect to benchmarking). The main critique on the simplistic approaches highlighted the distinctiveness of regional environments as limiting the utility of what is considered 'copy-and-paste' and 'one-size-fits-all' policy-making, as regional stakeholders purport to transfer perceived 'best practices' from one region to another (Huggins 2010). Concerning regional development, Malecki (2002) and Tracey and Clark (2003) have therefore drawn attention to the potential importance of global networks as sources of goods and knowledge in shaping firm competitiveness in a particular area. Spatial econometrics and the concept of revealed competition (Thissen et al., 2013) bring interregional relatedness, region specific markets and circumstances into the econometric and benchmark evaluation of regional economic performance.

However, economic growth is equivalent to producing and selling more products and services. Economic growth can have two distinct sources. It can be due to economic growth and demand from other regions (demand led growth), or it can be due to internal factors raising productivity (structural growth). These internal factors that increase a region's competitiveness result in a gain in the market share of this region. If we represent the total economy as a large pie the first source of regional economic growth is due to growth of the total pie, while the second source is due to a region gaining a larger share of the pie. The first source of regional growth cannot be influenced by the region's governments as it is due to the independent growth of a region's export destinations. The second source of regional growth is due to structural factors inducing an increase in market shares and thereby the result of an increase in a region's competitiveness. These structural factors can be influenced by the region itself. Demand induced growth (or decline) is beyond a region's sphere of influence. In other words, a region may perform excellent locally but go into recession because of a lack in demand from other regions. Vice versa it may be the case that a region underperforms but still grows due to external factors. In this last case a region would underperform relative to its potential. Obviously, this leads to important implications for benchmarking and econometric analysis alike: Only structural growth can be

affected by regional policies and should therefore be taken into account in a policy evaluation.

Although structural growth is of primal importance to evaluate regional policy, demand led growth may be the most important factor explaining regional economic growth. Economic connections with growing markets and crucial trade hubs, can strongly affect growth opportunities. It determines the degree to which regional development is connected to growth conditions in other regions. The economic crisis in Europe that started with the banking crisis in 2008 and still continues into 2013 is characterized by such interregional spillovers of (negative) growth. These negative growth spillovers explain a large part of regional economic development, but make it difficult to analyze the performance of regions and thereby the effectiveness of regional policies to enhance a region's competitiveness. A region may implement excellent regional policies and relatively outperform many other regions while having a negative growth rate. This negative growth rate may be caused by a collapse in the demand for goods and services from other regions. We therefore have to take a closer look at regional economic growth. More specifically, we have to distinguish between regional growth that is the result of an increase in demand in other parts of the world, and growth that is due to a change in structural factors strengthening a region's competitiveness and increasing its productivity.

In this paper we therefore propose a new methodology to decompose growth in structural and demand led regional growth components. The growth decomposition will give a region specific ranking of regions with respect to their structural growth performance and their interregional connectedness. This gives the information needed to evaluate and monitor regional policies. The methodology allows to evaluate regional policies in either a worldwide economic boom or recession. Every year a region can analyze its performance vis-à-vis other regions and see which regions performed better and which regions performed worse. The decomposition can be done on the aggregate or sector level. The whole world can be included in the decomposition and it can be shown whether a European region loses competitiveness to, for instance, China or the US. It can even be shown in what geographical markets these losses occur.

The growth decomposition offers therefore an innovative perspective on distinguishing regional factors determining development opportunities, that can be influenced by regional policy makers, from international economic network determinants, that is much less easy to plan locally. Insight in this local-global blend of influences is important for distinguishing competitive strength and opportunities, and related to that location factors that locally can make a difference and may be subject to policy attention. The results of the growth decomposition can subsequently be used in benchmark or econometric analysis to increasing competitiveness by learning about the effects of economic policy on structural growth based on comparison and monitoring of region, sector and market specific competitors.

The second aim of this paper is to contribute to the recent discussion on place-based or place-neutral development strategies in the European Union. Barca et al. (2012)

summarise this debate in detail. Based on current economic geographical theories of innovation and density of skills and human capital in cities, globalisation, and endogenous growth through urban learning opportunities (e.g., Glaeser 2011 and McCann and Acs 2011), spatially blind approaches argue that intervention, regardless of the context, is the best way to resolve the old dilemma of whether development should be about "places" or about "people" (Barca et al. 2012, p. 140). It is argued that agglomeration in combination with encouraging people's mobility not only allows individuals to live where they expect to be better off but also increases individual incomes, productivity, knowledge, and aggregate growth (World Bank 2009, Thissen and Van Oort 2010). From this perspective, spatially blind policies are also seen as "people-based" policies, representing the best approach to improving people's lives (Glaeser 2008). Consequently, development intervention should be space-neutral, and factors should be encouraged to move to where they are most productive. In reality, this is primarily in large cities (Gill 2010). In contrast, the place-based approach assumes that the interactions between institutions and geography are critical for development, and many of the clues for development policy lie in these interactions. To understand the likely impacts of a policy, the interactions between institutions and geography, therefore, requires explicit consideration of the specifics of the local and wider regional context (Barca et al. 2012, p.140).

This debate is highlighted in the context of a series of recent major policy reports: the place-neutral policies in the 2009 World Bank report (World Bank 2009) and the European place-based development strategies in Barca (2009) and Barca et al. (2012). Place-neutral strategies rely on the agglomerative forces of the largest cities and metropolitan regions to attract talent and growth potential (Ross 2008, Florida 2008, Glaeser 2011). Place-based development strategists claim that the polycentric nature of a set of smaller- and medium-sized cities in Europe, each with their own peculiar characteristics and specialising in the activities to which they are best suited, creates fruitful urban variety, which enhances optimal economic development (compare to Henderson 2010). This claim implies that medium-sized cities and clusters of regions have not declined in importance compared to larger urban agglomerations over time, which has been indicated in monitoring publications by the OECD (2006, 2009, 2011) and Ni and Kresl (2010) but not sufficiently supported by explanations based in competitiveness and international empirical network conceptualisations.

2. Competitiveness, revealed competition and growth decomposition

By tradition, economists argue that competition is good, as it brings out the best of firms and regions and will ensure an efficient distribution of investments (Glaeser 2001). The measurement of competition and the sources of growth is however difficult. Economic growth is in general equivalent to producing and selling more products and services. This economic growth can have two distinct sources. It can be due to

economic growth and demand from other regions, or it can be due to internal factors raising productivity.

Conventionally the international trade literature has focused on variants of revealed comparative advantage (RCA) as presented by the Balassa (1965) Index. In the Balassa index the shares of different product categories in total exports of a country are compared to the shares of a group of reference countries. The Balassa index determines what types of products are overrepresented in a country's exports and tells us what export products a country is relatively "good" in. The competition between two regions is commonly measured by comparing the export structure of two regions in a specific market using Finger and Kreinin's (1979) export similarity index. Analogous to the Balassa index it measures to what degree two regions have the same comparative advantage in a specific regional market. The principle of revealed competition (Thissen et al., 2013) between regions concerns their market overlap. The competition a region A receives from a region B depends on two factors. First, it depends on the market share of firms from region B in each region. Secondly, it depends on the importance of each of the markets for region A, where a market is important for region A if a substantial share of its sales is destined to it. Accordingly, region A receives strong competition from region B if region B has a large market share in the regions which are important for region A. The competition between regions A and B would be less strong if region B has a large market share in the regions which are unimportant for region A, or if region B would have a low market share in the regions which are important for region A. After all, in such situations, there is only a limited market overlap and firms from regions A and B would have fewer opportunities to take market shares from each other. By investigating market overlap, we obtain insight into the markets being most important for the firms and the regions from which they obtain strongest competition.

The growth decomposition introduced in this paper places the concept of revealed competition in a dynamic context analyzing the developments in a region's market area. The growth decomposition can be easily explained by representing the total economy as a large pie. The first source of regional economic growth is due to growth of the total pie, while the second source is due to a region gaining a larger share of the pie. The first source of regional growth cannot be influenced by the region's governments as it is due to the independent growth of a region's export destinations. The second source of regional growth is due to structural factors inducing an increase in market shares and thereby the result of an increase in a region's competitiveness. These structural factors can be influenced by the region itself. Demand induced growth (or decline) is beyond a region's sphere of influence.

2.1. Value Added regional growth decomposition

In order to explain the decomposition of regional economic growth in demand led and structural growth more formally we first define the market share $M_{i,j,t}$ in products p of (producing) region i in (market) region j during time period t as described in the following equation

$$(1) \qquad M_{p,i,j,t} = \frac{H_{p,i,j,t}}{D_{p,j,t}}$$

Where $H_{p,i,j,t}$ is the trade from region i to region j and $D_{p,j,t} = \sum_i H_{p,i,j,t}$ is the demand or size of the market in region j. Please note that we the regions are used to describe both producing regions as the markets or regions where the products are sold.

We can now define the two different growth components. The demand led growth $G_{p,i,t}^{dem,x}$ measured in production levels x is equal to

$$(2) \qquad G_{p,i,t}^{dem,x} = \sum_j M_{p,i,j,t-1}\left(D_{p,i,j,t} - D_{p,i,j,t-1}\right)$$

and the structural growth $G_{p,i,t}^{struc,x}$ is therefore defined as

$$(3) \qquad G_{p,i,t}^{struc,x} = \sum_j \left(M_{p,i,j,t} - M_{p,i,j,t-1}\right)D_{p,i,j,t}$$

Such that the overall growth rate $G_{p,i,t}^{x}$ is equal to the sum of both the demand led $G_{p,i,t}^{dem,x}$ and the structural growth $G_{p,i,t}^{struc,x}$.

However, the growth of production may be the result of an increase in the price of intermediate goods and thereby production costs. As a consequence the growth in the value of production may not be representative for the actual growth of regional GDP. It is therefore important to calculate the associated value added with the increase in these production levels. A complicating factor to translate the production value into value added is that value added is used in the production process to produce different products. We therefore have to use information from both the supply and the use tables to correctly translate the growth in production value into the growth in value added.

The formula's for the growth decomposition in value added are therefore as follows. The demand led growth $G_{p,i,t}^{dem,va}$ measured in value added va is equal to

$$(4) \qquad G_{p,i,t}^{dem,va} = \sum_s V_{s,i,t} T_{s,p,i,t} \sum_j M_{p,i,j,t-1}\left(D_{p,i,j,t} - D_{p,i,j,t-1}\right)$$

and the structural growth $G_{p,i,t}^{struc,va}$ in value added is therefore defined as

$$(5) \qquad G_{p,i,t}^{struc,va} = \sum_s V_{s,i,t} T_{s,p,i,t} \sum_j \left(M_{p,i,j,t} - M_{p,i,j,t-1}\right)D_{p,i,j,t}$$

Where $V_{s,i,t}$ can be directly taken from the regional use table and is the value added used per unit production of sector s in region i, and $T_{s,p,i,t}$ can be directly taken from the regional supply table and is the technology parameter that gives the share of products p produced per unit production of sector s in region i. Notice that the overall growth rate in value added also equals the sum of both the demand led and the structural growth.

2.2. A stylized example

We illustrate the difference between structural and demand induced growth by use of a stylized example based on fictive data. This example of a decomposition of regional growth is shown in Table 1. In table 1 we see that the region of Vienna experienced a growth rate of 3% over a certain period of time. It seems therefore that the region of Vienna performed well and no policy intervention is needed. A more detailed look at the decomposition of the growth shows however that the region actually had a structural negative growth. It underperformed relative to its potential and a change in policy may be required.

The main part of the growth of Vienna is decomposed on the first line of Table 1 into growth due to an overall change in demand (growth of the pie) and growth due to a gain in market share (a larger share of the pie). We see that the growth of Vienna was mainly due to an increase in demand (6%) although there was also a recession in some of the demanding regions resulting in a decline in demand (2%) and an overall total net increase in demand (4%). In the last two columns of the first row of Table 1 we see however that Vienna lost a substantial part of its market share (2%) on markets where losses occurred and gained only little (1%) in the other markets. Thus, although the region is growing with 3% it is actually losing ground to other regions.

In the last rows of Table 1 the growth is further decomposed over different regional markets. In the first column we see those regions that induced growth in Vienna due to an increase in their overall demand. In the second column we see all those regions that induced a decline in Vienna because they were faced with a recession themselves. Although the growth of a region due to the demand from other regions is an important determinant of economic growth we are more interested in the last two columns with a decomposition of the structural growth (decline) of Vienna. We observe in our example that Vienna gains market share from the neighbouring Austrian region of Graz and regions in France and Belgium. However, it loses more of its market share to China, Munich and Budapest.

Table 1: An example of structural and demand induced growth in a region

Growth of GDP in a region (Vienna, 3%)				
Type of growth	Growth (Demand induced)	Decline (Demand induced)	Structural growth (market share gain)	Structural decline (market share loss)
Total (3%)	(6%)	(-2%)	(1%)	(-2%)
Regional decomposition of growth	China (1.0%) US (0.5%) Munich (0.4%) … (…)	Athens (-0.5%) Seville (-0.3%) Palermo (-0.1%) … (…)	Graz (0.2%) Liège (0.1%) Alsace (0.1%) … (…)	China (-1.0%) Munich (-0.4%) Budapest (-0.2%) … (…)

The third columns of Table 1 gives a detailed ranking of regions that perform worse than the region of Vienna. Vienna improved its competitive position vis-a-vis these regions. The fourth and last column of Table 1 gives the regions that outperformed the Vienna region. They all performed better than Vienna and got a larger part of the economic pie at the cost of Vienna.

The presented decomposition analyses is much more than a comparison of regions. Competition of firms between regions takes place on many markets and all these markets have to be taken into account simultaneously (Thissen et al. 20013a). Vienna may gain in competitiveness from China in Paris while losing from China in Munich. It is therefore crucial that the decomposition is performed on trade flows on a low aggregation level. The demand induced growth should also be determined on a low level of aggregation since trade is highly dependent on distance and countries are therefore often simply a too high aggregation level. The example also showed that a comparison of growth rates of regions that are susceptible to different demand induced shocks is of limited value to evaluate regional economic policy. Standard regional econometric growth analysis which is often used in policy evaluation can only be applied under the assumption of comparable demand induced growth. Whether spatial econometrics may capture the decomposition effect is still to be analysed and more information on the decomposition of regional growth is therefore needed.

2.3. Regional winners and losers

We decompose the economic growth in structural components due to factors increasing the competitiveness of a region and demand driven components due to factors external to the region. This decomposition gives for every European region the most important markets for its economic growth. It also gives the specific economic regions it outperforms on the markets important for this region. Finally, it gives for every European region the regions that have performed better over the analyzed time period. All these results are sector and region specific.

Economic growth is in general equivalent with producing and selling more products and services. This economic growth can have two distinct sources. It can be due to economic growth and demand from other regions, or it can be due to internal factors raising productivity. These internal factors that increase a region's competitiveness result in a gain in the market share of this region. In the case we represent the total

economy as a large pie the first source of regional economic growth is due to growth of the total pie, while the second source is due to a region gaining a larger share of the pie. The first source of regional growth cannot be influenced by the region as it is due to the independent growth of a region's export destinations. The second source of regional growth is due to structural factors inducing an increase in market shares and thereby the result of an increase in a region's competitiveness. These structural factors can be influenced by the region itself.

Figure 1: A Boston diagram of the performance of European regions
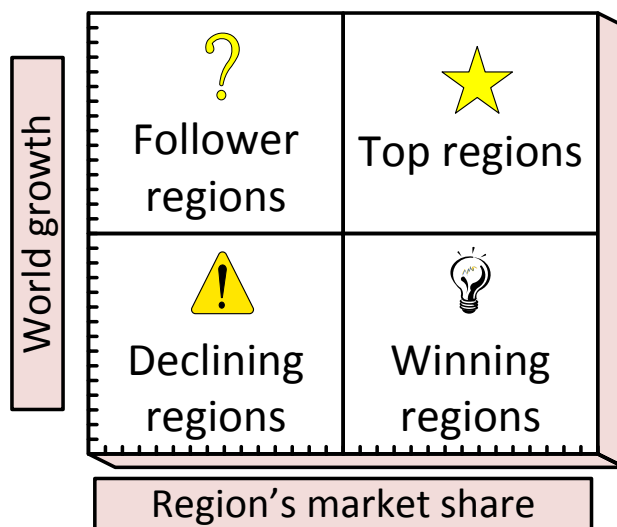
Next to the region specific results we may also classify all European regions in the Boston diagram presented in figure 3. In the top right corner of the diagram we have the top regions that gain because of world economic growth (external factors) and who gain a larger market share due to structural factors in the regions. These regions are the driving forces of economic growth in Europe. We also have winning regions that are in the bottom right corner. These regions gain market share due to good structural policies but they are active on the wrong markets or have a bad regional location. Thus these regions do everything good but their growth lags behind because of external factors. In the top left corner we find the follower regions. These regions lose market share and underperform to their expectations, but they have still a positive growth rate due to external factors. These regions clearly fall into the danger zone of economic development and they could do much better. Finally we find the declining regions in the bottom left corner. These regions lose market share and the markets they sell their goods also have a shrinking market. These regions (if any) are having the largest economic problems and should attempt to change their policies.

Place based development: structural and demand led regional growth in Europe

The unique, consistent and complete database of the PBL with detailed regional trade between 256 European Nuts2 regions and the trade of these regions with the rest of the world (Thissen et al. 20013a, 2013b and 2013c) in a regional supply and use framework contains all the information to make a detailed decomposition of European regional growth from 2000 to 2010. We can decompose the growth at the sector or aggregate level, for every year during this period or for the total period of 11 years.

Table 2: Average structural and demand led growth (European regions 2000 – 2010)

| European	Total Growth	Total Growth		Total Growth					
		domestic	foreign	Structural	domestic	foreign	Demand	domestic	foreign
Total Production	3,8%	3,2%	0,7%	1,4%	1,0%	0,5%	3,4%	2,9%	0,6%
Agriculture	2,5%	1,9%	0,7%	1,5%	0,9%	0,6%	1,7%	1,5%	0,2%
Food	4,0%	2,4%	2,0%	2,5%	1,2%	1,4%	3,1%	2,0%	1,3%
Materials	3,8%	2,5%	1,6%	2,7%	1,6%	1,3%	2,7%	1,6%	1,3%
Hightech	4,9%	4,1%	1,2%	3,3%	2,5%	1,1%	3,3%	3,0%	0,4%
Chemicals	5,5%	3,1%	3,1%	3,7%	1,9%	2,2%	3,8%	2,2%	2,0%
Financial Services	5,0%	4,6%	0,7%	2,4%	2,0%	0,5%	4,3%	4,0%	0,5%
Business Services	5,7%	5,2%	0,9%	2,3%	1,7%	0,6%	5,6%	5,1%	0,7%
Other Services	3,9%	3,7%	0,3%	1,4%	1,1%	0,3%	3,4%	3,2%	0,2%

Table 2 shows the average absolute growth decomposition in 256 EU NUTS2-regions. The growth decomposition is determined for total production and for 8 typical economic sectors covering the total economy. In the first column of Table 2 we see the overall yearly total growth rate. The highest growth rates have been in the Hightech, chemical, financial and business services sectors. In the second and third column a division is made in the source of growth due to an increase in domestic or foreign sales. We see in the first two columns that except for the chemical sector, most of the growth rate is due to an increase in domestic sales. Please not that the decomposed average absolute growth figures do not add up to the overall total. This is because there are positive and negative growth figures.

In the last part of the table we see the decomposition in structural and demand led growth. Both the structural and demand led growth are also subdivided into a domestic and a foreign component. We see that on average for total production that the average demand led growth (3.4%) is 2.5 times larger than the average structural growth. This leads to the conclusion that only a maximum of 30 percent of the regional growth rate can be caused by regional policy since only the structural growth is affected by regional policy. However, there can be large sector differences. For instance, in the competitive high-tech and chemistry sectors where halve of the growth rate may be determined by regional factors.

In Figure 2 we see the Boston diagram showing the regional performance in Europe. The figure shows that many regions are on the diagonal. That is that most regions are either top regions or declining regions. Moreover we saw that the strongest top
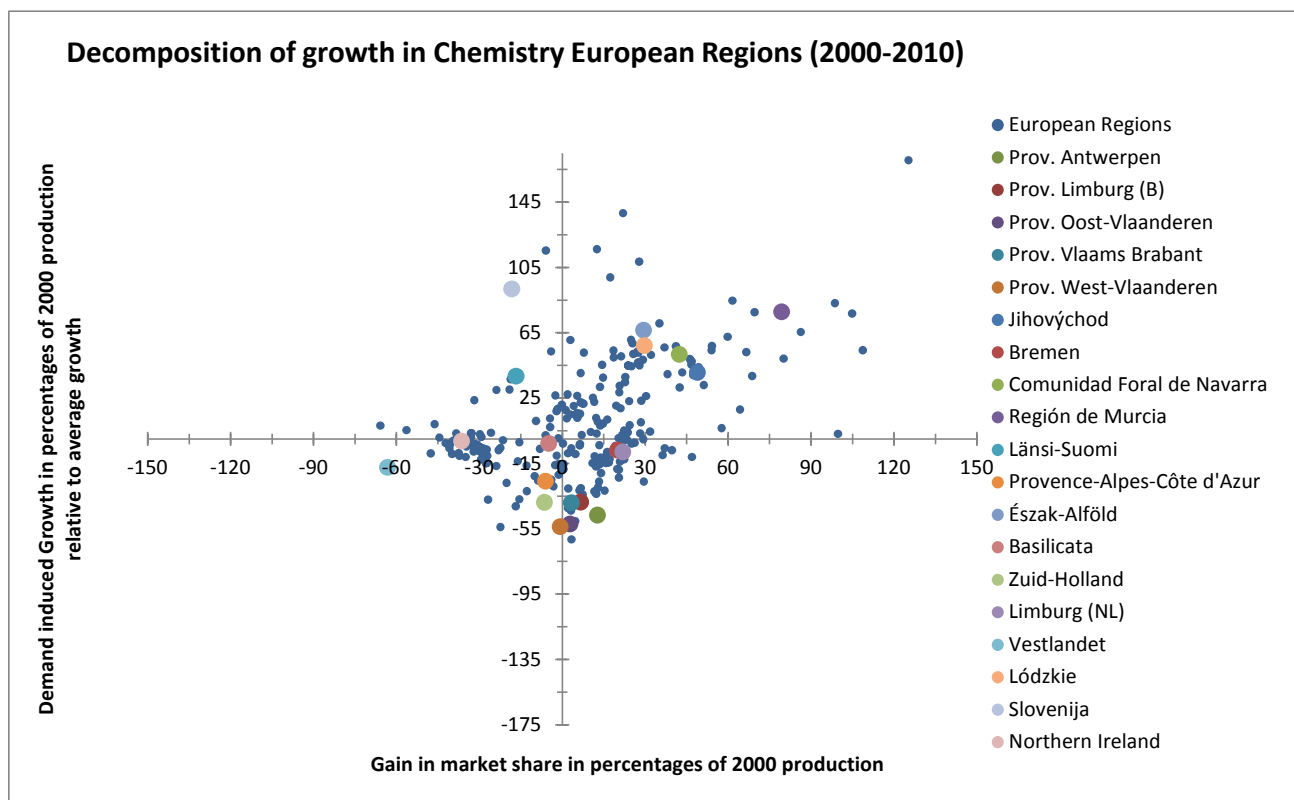
regions are in the periphery (i.e. Eastern Europe and Spain), while the central and western European regions are all relatively declining.

Figure 2: Regional performance in Europe (Total production)
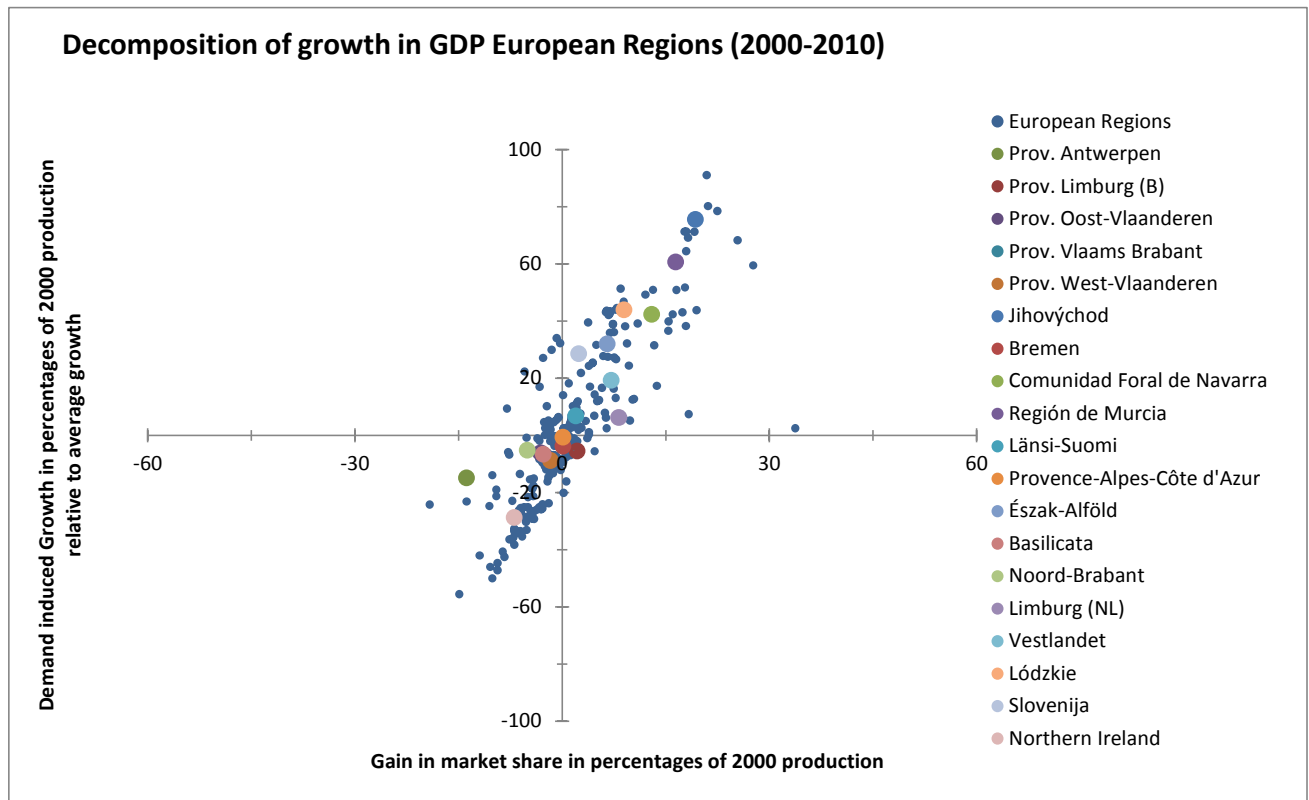
In Figure 3 we present the Boston diagram for the chemical industry. We see that there are now an equal amount of regions in all four quadrants. We observe still the difference in regions in Eastern Europe and Spain that were characterized by relatively strong demand led growth or, in other words, where active in growth markets. However, we also see striking differences in regions that were active in comparable geographical markets such as the harbor regions of South-Holland (Rotterdam) and Antwerp. Both regions have a strong chemical sector and they were not active in the strongest growth markets. We see however an important difference: Antwerp gained market share and is therefore classified as a winning region while South-Holland is classified as a declining region.

Figure 3: Regional performance in Europe (Chemical products)

Decomposition of growth in Chemistry European Regions (2000-2010)

Legend:
- European Regions
- Prov. Antwerpen
- Prov. Limburg (B)
- Prov. Oost-Vlaanderen
- Prov. Vlaams Brabant
- Prov. West-Vlaanderen
- Jihovýchod
- Bremen
- Comunidad Foral de Navarra
- Región de Murcia
- Länsi-Suomi
- Provence-Alpes-Côte d'Azur
- Észak-Alföld
- Basilicata
- Zuid-Holland
- Limburg (NL)
- Vestlandet
- Lódzkie
- Slovenija
- Northern Ireland

(Y-axis: Demand induced Growth in percentages of 2000 production relative to average growth; X-axis: Gain in market share in percentages of 2000 production)
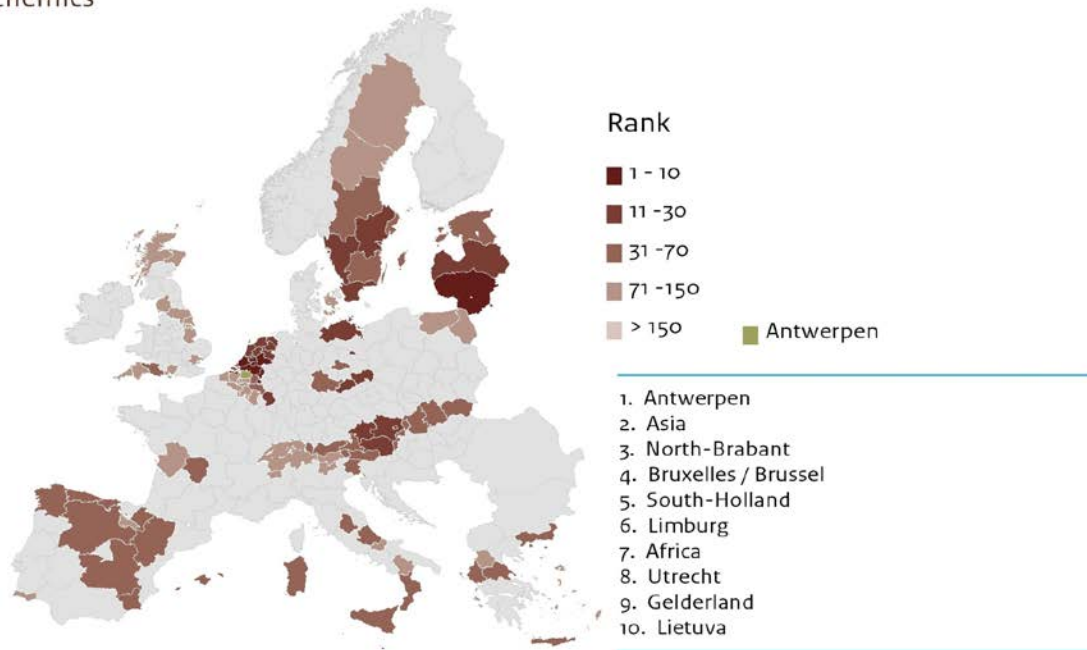
Learning from regions

To derive any policy lessons from these evaluations we have to analyse the sector and region's situation at a lower aggregation level. To derive good policies we should not look at the general winners but at specifically those regions that won market share at the consequence of your region's industries. We therefore present in Figure 4 the regions that won market share from the chemical industry in Antwerp. In the top of the Figure we see that although Antwerp is winning market share on average it is losing market share in most of the neighboring regions. Moreover, in the bottom of the Figure we see that it is mainly loosing market share from Dutch and German competitors. Thus, although on average Antwerp outperforms South-Holland, it is still losing market share from South-Holland and policies implemented in South-Holland may therefore be an example for policy makers in Antwerp. As a counterpart for South-Holland we may suggest to take a closer look at the markets where Antwerp has been winning market share to expand their market area in that direction. The complete decomposition of the chemical industry for the Antwerp region according to the example in Table 1 is presented in the Appendix.

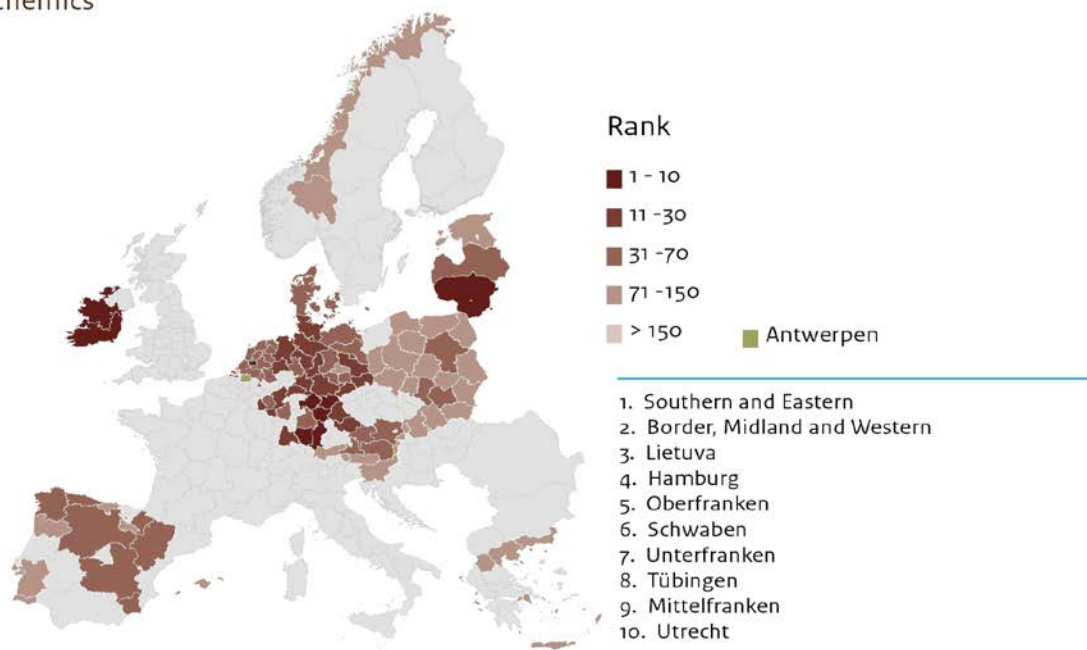Figure 4: Antwerpen losing market share; where and from whom?

Structural decline of Antwerpen in European and World Markets, 2000-2010
Chemics

Rank
■ 1 - 10
■ 11 -30
■ 31 -70
■ 71 -150
□ > 150   ■ Antwerpen

1. Antwerpen
2. Asia
3. North-Brabant
4. Bruxelles / Brussel
5. South-Holland
6. Limburg
7. Africa
8. Utrecht
9. Gelderland
10. Lietuva

Structural growth of Antwerpen losing from European and World regions, 2000-2010
Chemics

Rank
■ 1 - 10
■ 11 -30
■ 31 -70
■ 71 -150
□ > 150   ■ Antwerpen

1. Southern and Eastern
2. Border, Midland and Western
3. Lietuva
4. Hamburg
5. Oberfranken
6. Schwaben
7. Unterfranken
8. Tübingen
9. Mittelfranken
10. Utrecht

Conclusions and discussion

In this paper we introduced a new theoretical framework to analyze regional economic competitiveness in the form of a growth decomposition of value added earned on different product markets. The newly introduced growth decomposition is based on the development of market shares in different geographical and product markets. Our analyses showed that regional policy only determines 30 percent of regional economic growth. This severely limits the possibilities of regional policy makers. In other words, to a large content regional economic development is beyond the control of the local policy maker.

We also presented a framework to ex-post evaluate regional and sector performance. The growth decomposition gave us very precise information on winning and losing competitors on the specific markets that a sector in a region is active. It also shows us that the general picture is only of limited use giving policy advise. Winning regions may not be a good example for other regions since they may be active in very different markets. Detailed analysis shows that taking the market area into account is crucial for distinguishing among good an bad policy examples to learn form.

This brings us to the last conclusion. The presented growth decomposition show that with regard to policy only one size fits one. Although there are general economic processes, they operate in specific (geographical and product) markets that therefore require location specific policies. We found that regional economic development differs strongly among sectors and regions with a strong geographical component in the location of growth. Growth does not only take place size-based classes of the largest conurbations or the medium-sized regions, but in regions that have specific characteristics or are imbedded in typical networks according. The specific characteristics of these regions depend on, for instance, the sector under investigation. This supports European place-based policy strategies (Barca 2009 and Barca et al 2012) more than place-neutral ones (World Bank 2009).

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Appendix 1: Detailed growth decomposition of the chemical industry in Antwerp

Antwerpen-CHEMIE GDP growth between 2000 and 2010 is -2,02% (European growth rate is 22,48%) - All figures are percentages of value added of this sector in this region						
	Type of growth				Competition growth	
	Demand induced (total growth is -14,76%)		Structural (total growth is 12,74%)		Structural (total growth is 12,74%)	
rank	gain in	loss in	gain in	loss in	gain from	loss from
1	UnitedStates (2,93)	Antwerpen (-27,28)	UnitedStates (8,84)	Antwerpen (-28,16)	IledeFrance (2,84)	SouthernandEastern (-6,49)
2	LuxembourgGrandD (1,79)	RegiondeBruxelles (-1,01)	Koln (2,51)	Asia (-2,64)	Lombardia (2,39)	BorderMidlandsandWestern (-1,64)
3	Asia (1,22)	IledeFrance (-0,85)	Darmstadt (2,12)	North-Brabant (-0,94)	RhoneAlpes (1,68)	Lietuva (-0,76)
4	Lietuva (0,76)	North-Brabant (-0,45)	IledeFrance (2,05)	RegiondeBruxelles (-0,86)	Koln (0,93)	Hamburg (-0,55)
5	Attiki (0,54)	South-Holland (-0,43)	Arnsberg (1,99)	South-Holland (-0,83)	HauteNormandie (0,89)	Oberfranken (-0,5)
6	Koblenz (0,38)	Stuttgart (-0,38)	Oberbayern (1,67)	Limburg (-0,82)	Piemonte (0,88)	Schwaben (-0,49)
7	Africa (0,31)	Lombardia (-0,35)	Karlsruhe (1,56)	Africa (-0,7)	EmiliaRomagna (0,81)	Unterfranken (-0,49)
8	CastillalaMancha (0,28)	RhoneAlpes (-0,33)	RheinhessenPfalz (1,44)	Utrecht (-0,65)	Centre (0,8)	Tubingen (-0,49)
9	Thuringen (0,28)	North-Holland (-0,31)	Stuttgart (1,43)	Gelderland (-0,62)	enceAlpesCotedAzur (0,78)	Mittelfranken (-0,48)
10	Utrecht (0,27)	Arnsberg (-0,23)	Dusseldorf (1,4)	Lietuva (-0,59)	Veneto (0,77)	Utrecht (-0,47)
11	CastillayLeon (0,26)	Koln (-0,22)	Lombardia (1,4)	North-Holland (-0,52)	Vastsverige (0,76)	Dresden (-0,45)
12	KentrikiMakedonia (0,25)	Dusseldorf (-0,22)	LuxembourgGrandD (1,34)	Niederosterreich (-0,51)	NordPasdeCalais (0,58)	Chemnitz (-0,44)
13	Limburg (0,25)	Oberbayern (-0,21)	Koblenz (1,25)	Chemnitz (-0,49)	ostraMellansverige (0,57)	Giessen (-0,43)
14	Galicia (0,24)	Darmstadt (-0,19)	RhoneAlpes (1,14)	Overijssel (-0,46)	Japan (0,56)	Koblenz (-0,43)
15	Kassel (0,21)	Cataluna (-0,18)	SouthernandEastern (1,05)	Dresden (-0,43)	Arnsberg (0,53)	Braunschweig (-0,43)