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**Conference Paper**

## Studying Regional Economic Change - Using Census of Enterprises

50th Congress of the European Regional Science Association: "Sustainable Regional Growth and Development in the Creative Knowledge Economy", 19-23 August 2010, Jönköping, Sweden

**Provided in Cooperation with:**

European Regional Science Association (ERSA)

*Suggested Citation:* Svanlund, Jonatan (2010) : Studying Regional Economic Change - Using Census of Enterprises, 50th Congress of the European Regional Science Association: "Sustainable Regional Growth and Development in the Creative Knowledge Economy", 19-23 August 2010, Jönköping, Sweden, European Regional Science Association (ERSA), Louvain-la-Neuve

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# **Studying Regional Economic Change**

## **– Using the Census of Enterprises**

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*Paper for the ERSA conference in Jönköping, august 2010. Special session 23: Challenges for Regional  
Economic history*

## 1. Introduction

In economic history the importance of a regional perspective is often emphasised. One example of this is the European industrialisation where the importance of a regional perspective has been put forward.<sup>1</sup> Beside the spread of industrialisation and questions about growth a regional perspective is of great importance when questions concerning globalisation and spread of new technology is debated. In order to analyse these questions one major challenge in regional economic research concerns question of data and data availability.

As Enflo et. al. points out that historical regional development often has been studied by distribution of population, sector employment or regional distribution of wages and income differentials. These variables can describe differences in types of production and development but they do not show the spatial differences in economic activity since they do not take into account differences in productivity.<sup>2</sup> Enflo et. al concludes that “the lack of historical regional production data therefore partly hindered any attempt to measure a vital aspect of the spatial distribution of economic activities in the long run”.<sup>3</sup> Another aspect concerns a common feature in research namely the gap between more aggregated variable, such as GDP and wage levels and population development, and more micro oriented studies concerning business and entrepreneurship. In this paper I will discuss how data concerning firms can be used in studying regional economic change and how this can be linked to new research concerning Regional National Accounts. Focus in the paper will be on how different types of data and databases can be used in order to shed light on the regional economic development. Therefore will this paper have a more explorative character and not trying to answer any hypothesis.

First a short outline concerning the state of research for regional GDP and some of the results in these studies will be given. Thereafter three provinces, *Stockholm's*, *Gävleborg's* and *Västerbotten's län* will be used as empirical examples on how one can make use of data from the Census of Enterprises. Some final remarks about future challenges for regional economic history research will be given at the end of the paper.

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<sup>1</sup> Olsson (2007) p. 1.

<sup>2</sup> Enflo et al. p. 1.

<sup>3</sup> Enflo et al. p. 1.

## 2. Studying Regional Economic change through Gross Regional Products.

In the last years new research projects aiming at estimate historical Gross Regional Products (GRP) for Sweden has been initiated. This gives researcher new historical data on regional economic development since the official series of Gross Regional Products from the Statistics of Sweden starts as late as 1993. One example is the economic historian Fredrik Olsson-Spjut at Umeå University. He has estimated GRP for the period 1968-1992 and linked his new estimation with the official ones from Statistics of Sweden and thereby created consistent GRP data for the period 1968-2007.<sup>4</sup>

Olsson-Spjut estimates GRP from the production side, in other words the sum of value added for different sectors. Olsson-Spjut uses data from the official Industry statistics<sup>5</sup> regarding value added for the mining and manufacturing industry. From 1968 and onwards one can find these data for the different Swedish provinces. But this is the only sector one can find this type of information. Olsson-Spjut's argues that one must find methods to estimate the other sectors regional value added. Olsson-Spjut points out that different method can be used but due to the lack of historical data the methodological options are reduced.<sup>6</sup> The method that he utilises is based on the assumption that sectors have the same labour productivity (value added per person) in all regions. Thereafter the regional value added is estimated by multiply labour productivity for a specific sector by the total employment in that sector and for that specific region. The statistics concerning employment at regional level is taken from the Statistical Yearbook.<sup>7</sup> The data for value added, beside the mining and manufacturing industry, is taken from Swedish Historical national Accounts (SHNA).<sup>8</sup> The sector that is utilised in Olsson-Spjuts GRP estimation are: Agriculture, Manufacturing and handicrafts, Building and Construction, Transport and Communication, Private and Public Services.<sup>9</sup>

By using this method Olsson-Spjut estimates GRP for the period 1968-1996. This gives him three reference years to compare his estimations with the official ones from 1993. He found small differences between his series and the official ones. The new historical series was a bit lower than the one from Statistics of Sweden were most part of the underestimation came

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<sup>4</sup> Olsson-Spjut (2010a).

<sup>5</sup> SOS (Industry).

<sup>6</sup> Olsson-Spjut (2010a) p 2.

<sup>7</sup> Statistical Yearbook

<sup>8</sup> Krantz & Schön (2007).

<sup>9</sup> Krantz & Schön (2007) p. 18.

from Stockholm's län. By eliminate differences in levels between the two series Olsson-Spjut link together his historical series with the one from Statistics of Sweden.<sup>10</sup>

In another project economic historians and economic geographers from Lund has created Swedish historical GRP for the period 1855-2007.<sup>11</sup> Enflo et. al. uses a method suggested by Geary and Stark<sup>12</sup> (G-S method) which is designed to estimate regional GDPs by using a minimum of data which is often the case in historical projects. The advantages with the G-S method, that is put forward by Enflo et. al. is that in its most basic form it only requires data on national value added for a broad set of industries (agriculture, manufacturing and services) and that it offers a solution to the predicaments that arises when no data for value added per employee on industry/regional level is available.

The data required to estimate GRP according to the Geary-Stark method are first, historical GDP, value added and employment for a few of industries at national level. Secondly it requires regional employment data and regional wage data per industry.<sup>13</sup> Enflo et. al. estimations are based from four different datasets. Population data for the different provinces is taken from the statistical yearbook. Secondly, historical GDP from is from the Swedish Historical National Accounts and regional employment data is taken from a variety of sources foremost different kind of population census. Finally data of regional wages is used. This was also the most complicated data to collect and the data with the least complete coverage. The main goal was to establish relative regional wage differentials therefore the inconsistency of data over time did not pose as a major problem.<sup>14</sup>

Enflo et. al. assume that the total national GDP at factor cost is defined as the sum of regional GDP for a specific year. The GRP is defined as: the average value added per worker in a region  $i$  and industry  $j$  and the number of workers in region  $i$  and industry  $j$ ;  $L_{ij}$ . Labour productivity ( $Y_{ij}$ ) for an industry/region is estimated from average labour productivity in a specific year at the national level. Then assuming that regional differences in labour productivity (in each industry) shows in the regional wage differentials. In other words they assume that wages reflect the marginal productivity of labour. To sum up the G-S method

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<sup>10</sup> Olsson-Spjut (2010a), p 3.

<sup>11</sup> Enflo et. al. (2010).

<sup>12</sup> Geary & Stark (2002).

<sup>13</sup> Enflo et. al. (2010) p. 7.

<sup>14</sup> Enflo et. al. (2010) pp. 10-13.

distributes the already known national GDP (sector value added) by using data on regional labour input and regional wages. Therefore Enflo et. al. argues that G-S method allows for estimations of GRP that are consistent with existing historical national accounts for Sweden.<sup>15</sup>

Enflo et. al. identify three potential problems with the G-S method. First the unreliable assumption problem; which deals with the assumption that regional wage differences really reflect differences in labour productivity. Here many factors regarding institutional setting on the labour market make this assumption dubious. The second type of problem is called the sector aggregation problem and refers to the sensitiveness of the G-S method to industry aggregation and mainly the question of how many different industries that should be used and what consequences of using a broad aggregate instead of many industries at a more disaggregated level have for the results. Finally, Enflo et. al. points out the correlation/regional structure problem which concerns problems of estimate GRP with the G-S method for small regions with very specialised production. Estimation from a national average for a broad set of manufacturing will bias the GRP for a small region that is highly specialised in a small and highly productive part of the manufacturing industry.<sup>16</sup>

Enflo et al finds as well as Geary and Stark that estimations of GRP that uses wage differentials as proxy for productivity differentials gives a more precise estimate than only an average national productivity measure. Enflo et. al. show that by using wage differentials both the average mis-specification and the maximum regional differences were reduced when their estimation were compared with the official estimates. They also showed that the number of industries that is used may have some but relatively small implications for the aggregated result. Estimation problems of regional specific character must be addressed according to Enflo et. al. The comparative higher labour productivity in forestry compared to agriculture might cause a regional bias for the Swedish case since forestry is unevenly distributed with a larger share of forestry industry taking place in Northern provinces. But since many wood workers also work in the agricultural sector under conditions of mixed and seasonal farming they prefer to treat agriculture and forestry as integrated sectors. Under these conditions the higher productivity of Northern provinces is reflected in favourable wage differentials compared to the rest of the country. They point out that sensitivity of the estimations will

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<sup>15</sup> Enflo et. al. (2010) pp. 7-8.

<sup>16</sup> Enflo et. al. (2010) pp. 8-9.

increase the smaller the size of a region. For the case of Sweden Enflo et al argues that a region with less than 150 000 inhabitants the G-S method is not recommended.<sup>17</sup>

## **2.1 Results from the GRP studies**

From the new series of Gross Regional Products one can study the process of convergence and divergence within Sweden and identify regions according to their long-term growth performance. This gives us new insight in the regional economic development. A short outline of the major results from GRP studies will be presented here. Thereafter the Census of Enterprises will be presented and used to analyse three provinces economic development.

In their study from 2010 Enflo et. al. uses the above described GRP-series to analyse trends in the Swedish regional system from 1850 to 2007. They find greater instability in the regional system during the early stages of industrialisations which means that the growth rates were uneven distributed. The decisive point is found in the inter-warperiod which means that the changes in distribution do not occur in the same pace after 1910 as for the period 1850-1910.<sup>18</sup>

If the distribution of regional GDP is measured as the Coefficient of Variation the inequality increases substantially over time the whole period 1855-2007 although somewhat less if Stockholm's län is excluded. One can also find different phases where the inequality increases faster. The coefficient of variation is rather stable between 1855 until 1900 but between 1900-1940 the dispersion increased substantially. This was followed by a period of stability from 1940 until the beginning of the 1980s thereafter the inequality has risen fast again. This can mainly be explain by the expansion of the larger provinces (also the major urban centres Stockholm, Gothenburg and Malmö). For example Stockholm's share of the national GDP increased from 12% 1855 to 28 percentage 2007. So a relative increase for a regions share of the national GDP goes more or less hand in hand with a relative increase of the population.<sup>19</sup>

If one compare the income levels (GDP per capita) between the provinces one can see a clear trend of convergence. The trend of convergence was broken around 1910 and there was a trend towards divergence until 1940. Thereafter the dispersion fell until 1980 and a new trend towards divergence starts.

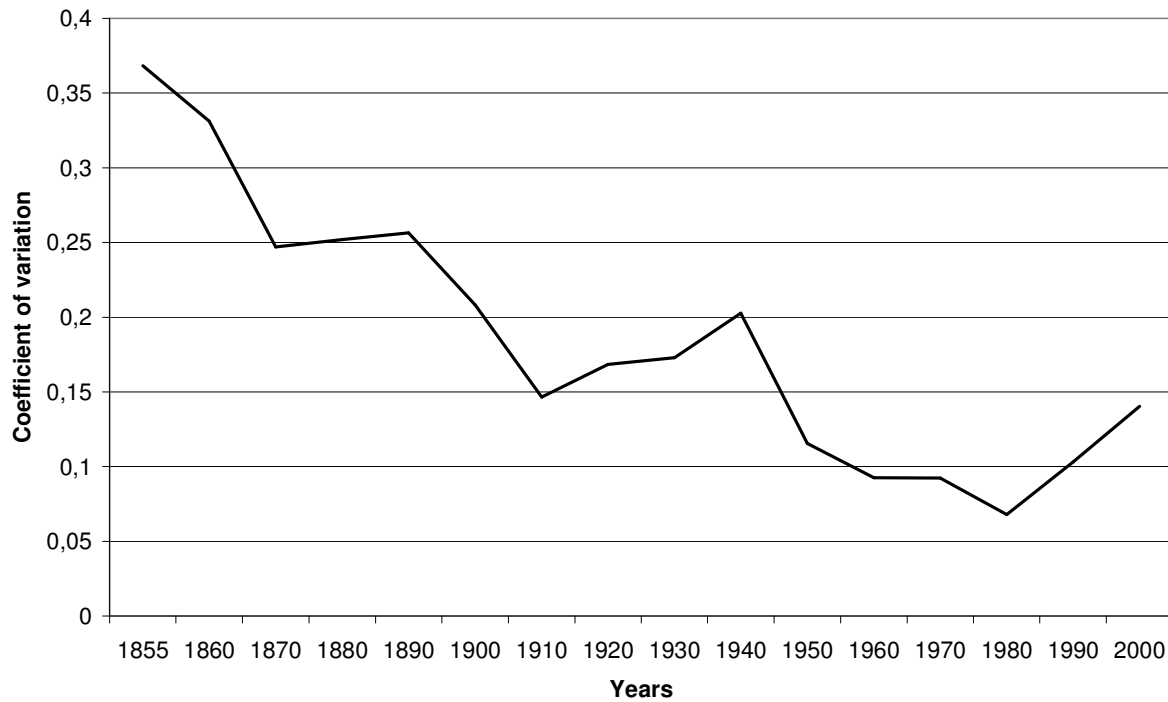
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<sup>17</sup> Enflo et. al. (2010) pp. 14-16.

<sup>18</sup> Enflo et. al. (2010) p. 18.

<sup>19</sup> Enflo et. al. (2010) p. 19.

**Figure 1. Coefficient of variation, GDP per capita in regions.**



Sources: Enflo et al (2010)

From the GRP series Enflo et. al. creates a regional taxonomy by studying which regions that have positive or negative differentials in terms of shares of regional GDP and population. They take two structural periods of growth as reference point namely pre-1910 and post 1910. For each province and year they calculate the difference indicator  $D_i$ :

$$D_i = ((GDP_i/GDP)-(POP_i/POP))*100$$

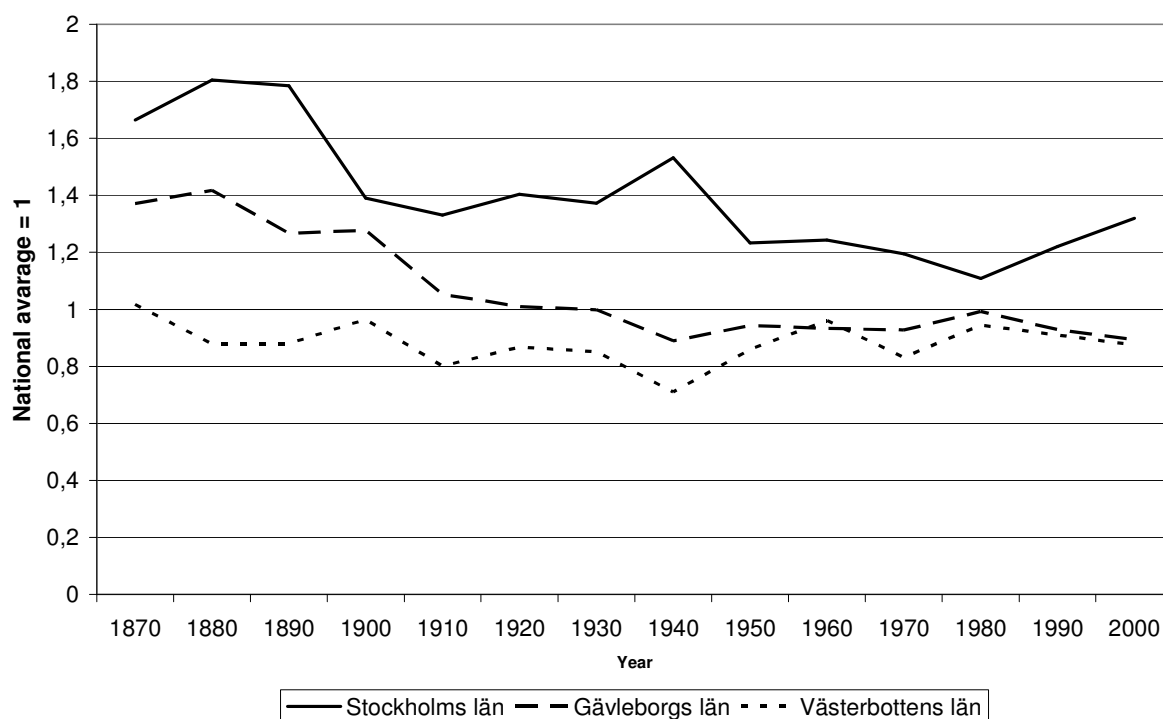
where  $GDP_i$  refers to GDP in a region and GDP is for the nation,  $POP_i$  and POP also refers to regional and the national population. This means that  $D_i$  for a specific year and province is the degree to which a region has an “excess” share of regional GDP compared to its share of population. This is the same as the relative regional GDP per capita. From this they defined a region as an average above grower if  $D_i$  is positive in both the pre 1910 and post-1910 period- If a region have a negative average  $D_i$  in both periods its defined as a below average performing region. Finally if a region had a positive  $D_i$  in the first period and negative  $D_i$  in the second period it labelled as an early grower and the opposite is called a late grower. Enflo et. al. points out that big city provinces are the only one that displays a general above average growth. Early growing provinces are primarily provinces along the northern coast of Sweden, The expansion of these provinces is manly due to the dependence on natural resources which



characterised the early stages industrialisation in Sweden. The rest of the provinces are categorised as below average growers.<sup>20</sup>

From this categorisation I have chosen to use three provinces to show how the Census of Enterprises might be used to shed light on the economic development for these regions. *Stockholm's län* is select because it's defined as an above grower and also since it's the capital city of Sweden. *Gävleborg's län* is chosen since it's an earlier grower and *Västerbotten's län* represents a below average grower. First some general trends concerning their relative performance and population development will be described.

Figure 2. Relative GDP per capita for three provinces in Sweden, 1855-2000.



Source: Own estimations based on Enflo et. al. (2010), Krantz & Schön (2007) and Statistical Yearbook of Sweden.

In figure 2 relative GDP per capita for the three provinces are shown. The provinces GDP per capita level are compared with the national average for every year. As discussed earlier *Stockholm's län* is above the national average for the whole period. They converges toward the national average at the end of the 19<sup>th</sup> century thereafter it grows at the same rates as the national average which leads to a stable gap until 1940. The gap between *Stockholm's län* and

<sup>20</sup> Enflo et. al. (2010) p. 20.

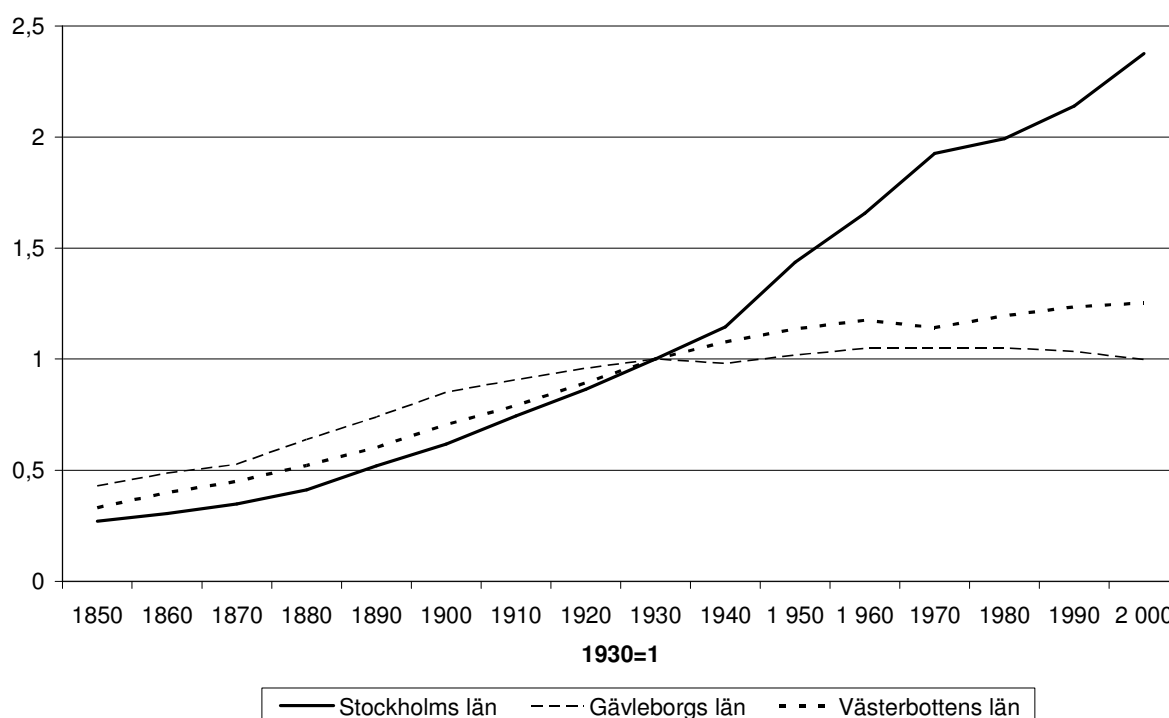
the national average decreases from 1940 until 1980 in other word this is a period of convergence and the gap is smallest 1980. Thereafter *Stockholm's läns* GDP per capita grows faster than the national average which also shows in figure 1.

*Gävleborg's* GDP per capita was 40% above the national average 1880 but since then the growth was slower than the national average *Gävleborg's* GDP per capita is the same as the national average by 1920. The slower growth continues and *Gävleborg's* län was below the national average after 1930. A small catch up towards the national average occurs during the 1970s but after 1980 GDP per capita again grows slower and *Gävleborg* diverges from the national average.

*Västerbotten's* län has a rather stable development below the national average. There are period's when the province catches up with the national average but this is followed by periods of divergence. Between 1940-1960 *Västerbottens* relative GDP grows faster than the national average and goes from around 75 percentage of the national average to almost 100 percentage. During the 1960s *Västerbotten* falls back again only to converge again 1970. As the case for *Gävleborg* the growth is slower than the national average after 1980.

Another variable of interest when studying a regions economic development is how the population develops. In figure 3 the population development for the three provinces is shown. Stockholm has as expected a fast and stable growth for of population for more or less the whole period. *Gävleborg's* län had a rather fast population growth until 1920 but since 1930 the population has been more or less stable. But since the population grows for the rest of the country this means that the regions relative size decreases. For *Västerbotten* the growth in population continues until 1960s thereafter the population growth slows down considerable.

**Figure 3. Population development for three provinces in Sweden, 1850-2000, 1930 =1.**



Source: Statistical yearbook for Sweden

The population growth could be linked to the regions relative economic performance that had been discussed earlier. The early grower *Gävleborg's* population stops growing when their income levels falls under the national average while Stockholm, the above grower, grows at a stable rate. *Gävleborg* also has the lowest growth rates during the pre 1910 period since it starts from a higher level 1850 than the other. This might correspond with *Gävleborg's* slower growth (relative the national average) during this period. *Västerbotten* experiences faster growth than the national average during the early Post-War decades. This also corresponds with the population increase. Focus will now be turned to the Census of enterprises and how they can be used to analyse economic development. I will continue to use these provinces as empirical examples.

### 3. Studying Regional Economic change by using Census of Enterprises.

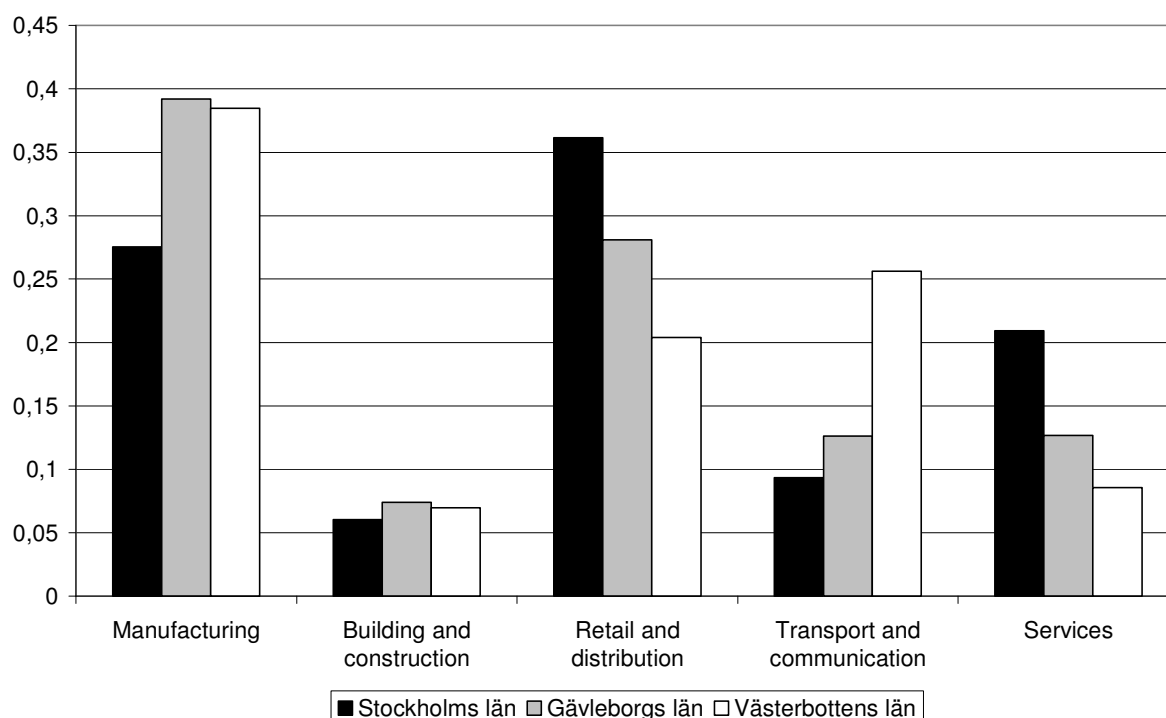
The census of enterprise for Sweden was conducted at three occasions namely; 1931, 1951 and 1972. These census are built on the total population of enterprises and self-employed. In the official publication one can find information concerning the number of enterprises by industry, by the number of employed, firm types and male and female self-employment etc. One can also find information concerning the number of firms at province level. These census are built on information that individual firms were obligated to send in to the Swedish Statistical Bureau and the primary sources for the Census are saved by the Swedish national archive.<sup>21</sup>

In figure 4 the distribution of firms after sectors in 1931 for the three provinces is shown. One can see that the dispersion is quite large between the provinces with the exception of the Building and Construction industry. *Gävleborg* has the largest share of firms in the manufacturing sector closely followed by *Västerbotten's län*. The share is significantly lower in *Stockholm's län*. In comparison with the other provinces *Västerbotten's län* had the highest share of firms in the Transport and Communication sector. *Västerbotten* ranges over a large area and is sparsely populated and is therefore dependent on transportation of both people and goods. *Stockholm's län* has, in comparison to the other provinces, the highest share of firms in both retail and distribution and in the service sector. Interesting to note that the shares of firms in both retail and distribution and in the service sector are corresponding with the income levels for the provinces.

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<sup>21</sup> In a research project called *In the shadow of the Swedish Welfare State: Gendered entrepreneurship 1950-2005* the primarily sources from these Censuses are being processed and a database is being constructed. Unfortunately only the 1972 Census is digitalised so the primary sources for the Censuses 1931 and 1951 must be processed manually into the database. For the case of 1972 the project has individual data for all firms. The project is conducted at the department of Economic History at Umeå University.

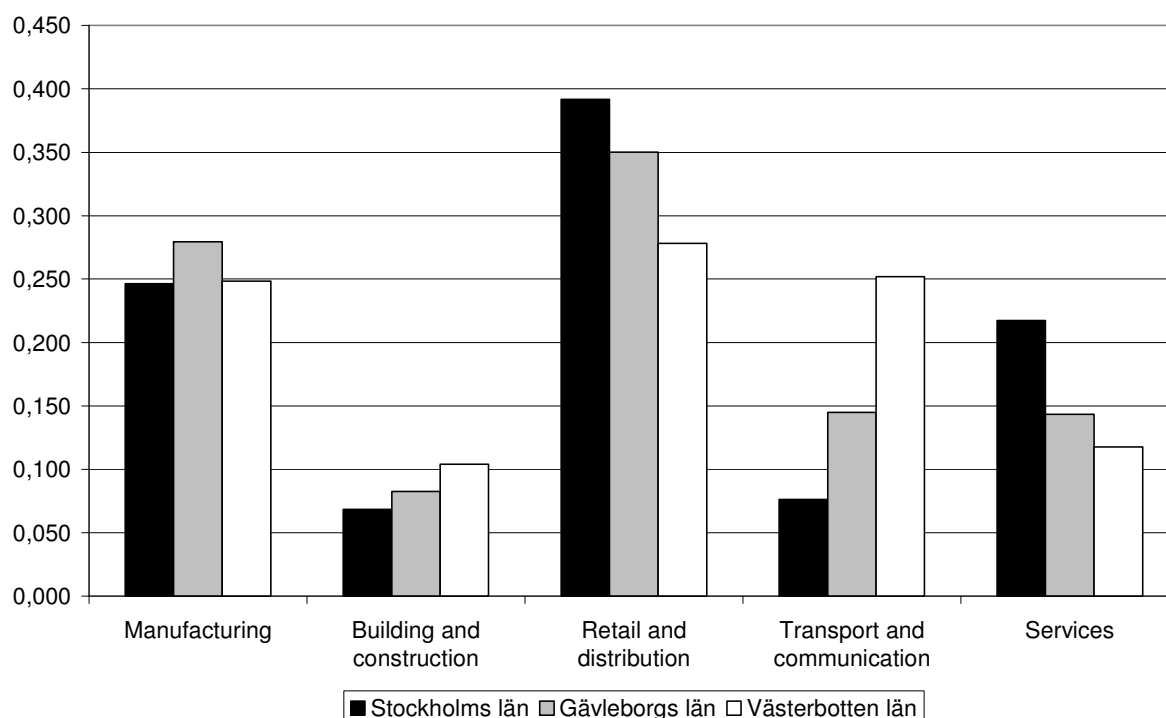
**Figure 4. Distribution of firms after sectors in three provinces 1931.**



Source: Own estimations based on the Census of enterprises 1931.

If one compare figure 4 and 5 one can see that it has been a trend of convergence in the distribution of firms between 1931 and 1951. This corresponds with the convergence of income levels that is been described in figure 2. The share of firms in the Manufacturing sector has decreased in both *Gävleborg's* and *Västerbotten's län* from around 40 percentage to around 25 percentage. *Stockholm's län* also had a small decrease in its share of firms in that sector during this period. For the case of *Västerbotten* the share of firms in the Transport and Communication sector fell from 30 percentage 1931 to around 25 percentage two decades later. In comparison with the two other provinces *Västerbotten* still has the highest share of firms in the Transport and Communication sector.

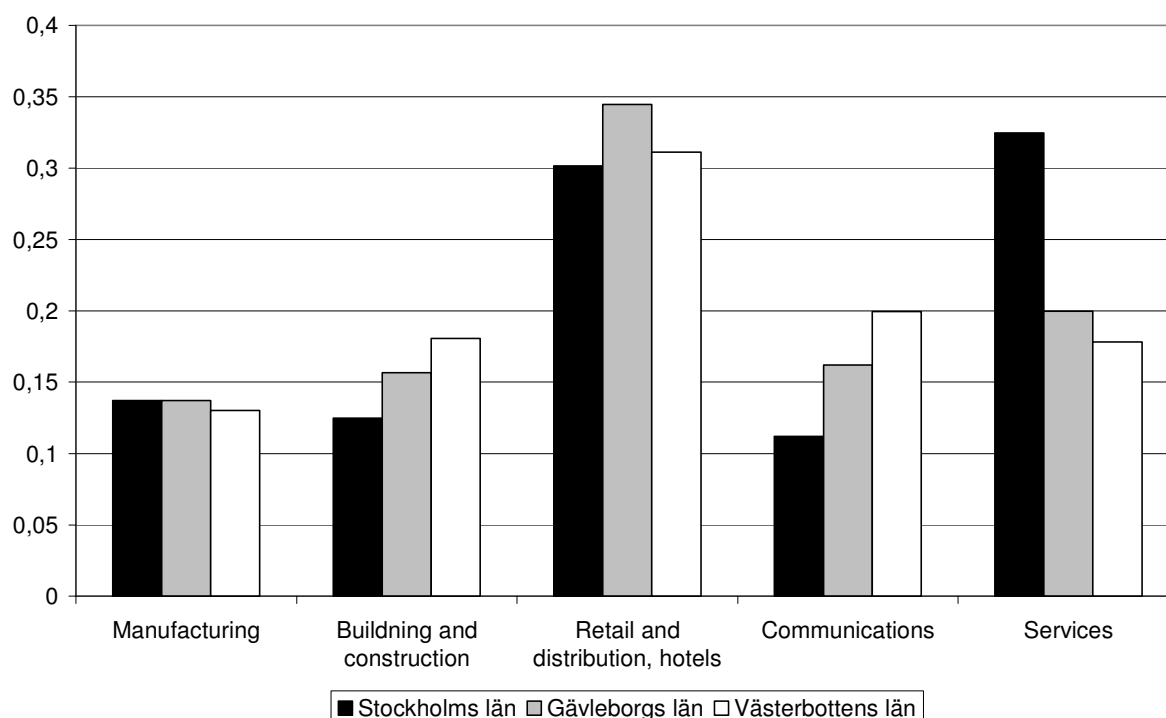
**Figure 5 Distribution of firms after sectors in three provinces 1951.**



Source: Own estimation based on Census of enterprise 1951

The share of firms in the Retail- and Distribution sector increased in all provinces but the growth was much faster in *Gävleborg* and *Västerbotten*. For the case of *Stockholm* the share increased from 36 percentage 1931 to 39 percentage 1951. The share increased from 28% to 35% in *Gävleborg* and from 20% to 28% in *Västerbotten*. Both *Gävleborg* and *Västerbotten* increased its share of firms in the service sector as well while it was rather constant in *Stockholm*. So both *Gävleborg* and *Västerbotten* experience a catch-up with *Stockholm* regarding Retail and Distribution and Services but the share of firms in these sectors are still correlated to the relative income levels between the three provinces.

**Figure 6. Distribution of firms after sectors in three provinces 1972.**



Source: Own estimation from the primary sources for Census of enterprises 1972.

The share of firms in the Manufacturing industry fell in all three provinces between 1951 and 1972 which lead to that the share of firms in that sector was almost identical.<sup>22</sup> The share of firm in the Building and Construction sector increased substantially in all three province. In *Stockholm's län* the share of firms in the Retail and Distribution sector decreased from 40 percentages to 30 percentages while a small increase occurred in *Västerbotten* and the share was constant between 1951 and 1972 in *Gävleborg*.

As for the case of the two earlier censuses *Västerbotten* has, in comparison with the other two provinces, the highest share of firms in Transport and Communication. But the share has continued to decline from 25 percentages to 20 percentages 1972. In contrast the share of firms in that sector increased in the other provinces especially in Stockholm when the share increased from 7 to 11 percentages.

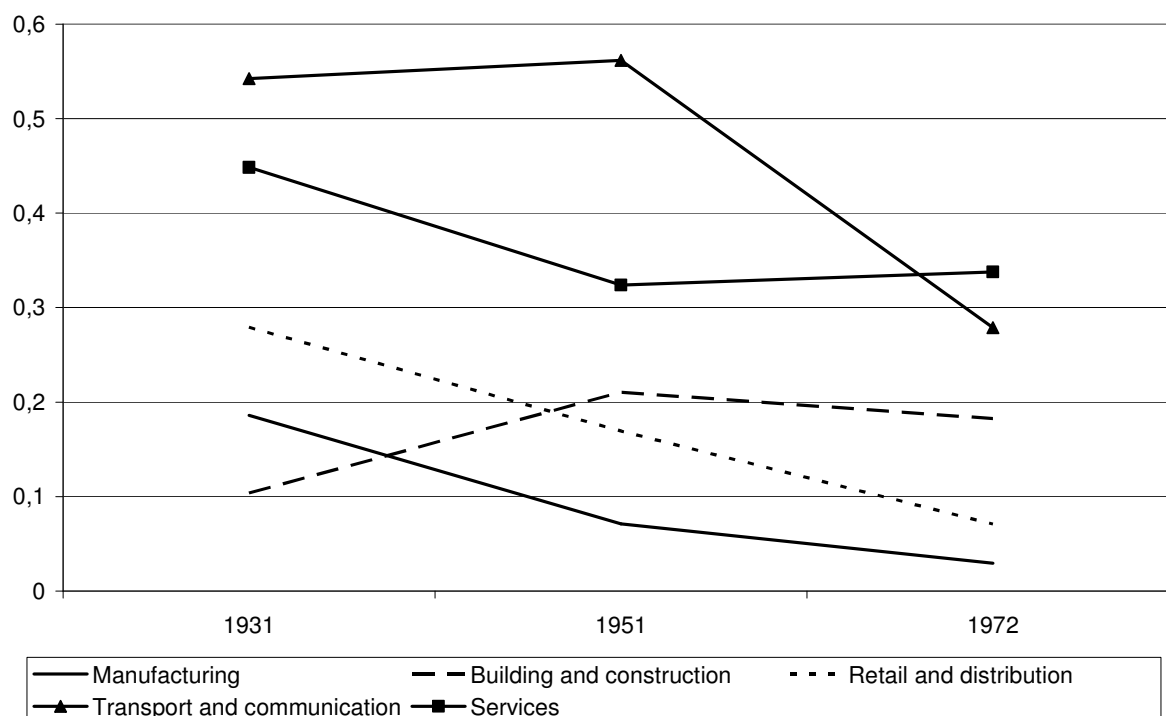
<sup>22</sup> One must point out that the fast decline in the manufacturing industry to some extent might be explained by differences in classifications between the two censuses concerning the manufacturing industry. In earlier censuses the manufacturing includes handicrafts, for example reparation and some textile work which in later industry classification are included in service industry. This can partly explain the fast decrease in the manufacturing sector.

In comparison to figure 5 there seems to have been a divergence between the provinces if one looks at the share of firms in the Service sector. For *Stockholm* the share has risen from 21,7 to 32 percentage. There was also a substantial growth in the share of firms in the service sector in both *Västerbotten* (from 12 to almost 18 percentages) and in *Gävleborg* (from 14 to 20 percentages). The significant higher share in *Stockholm's län* can more or less be explained by the firms in the Finance sector. If one exclude these from the rest of the service sector the share of firms actually become more or less the same in all provinces (around 15 percentage). If we compare the share of firms in the finance sector the share is 16 percentages in *Stockholm* compared to 5 percentage in the other two provinces. So in the beginning of the 1970's the share of services, (with exception of finance) have become equalised between the provinces. This also corresponds with the income convergence that's been described earlier.

In order to draw more reliably conclusion regarding the convergence of the firm distribution beside the more "eye-ball econometric method" by comparing the different figures the Coefficient of Variation for every sector and by year is shown in figure 7. If the Coefficient of Variation becomes smaller than previous year it means that the dispersion of the shares has become more equal in that sector and that convergence of the firm distribution has occurred.



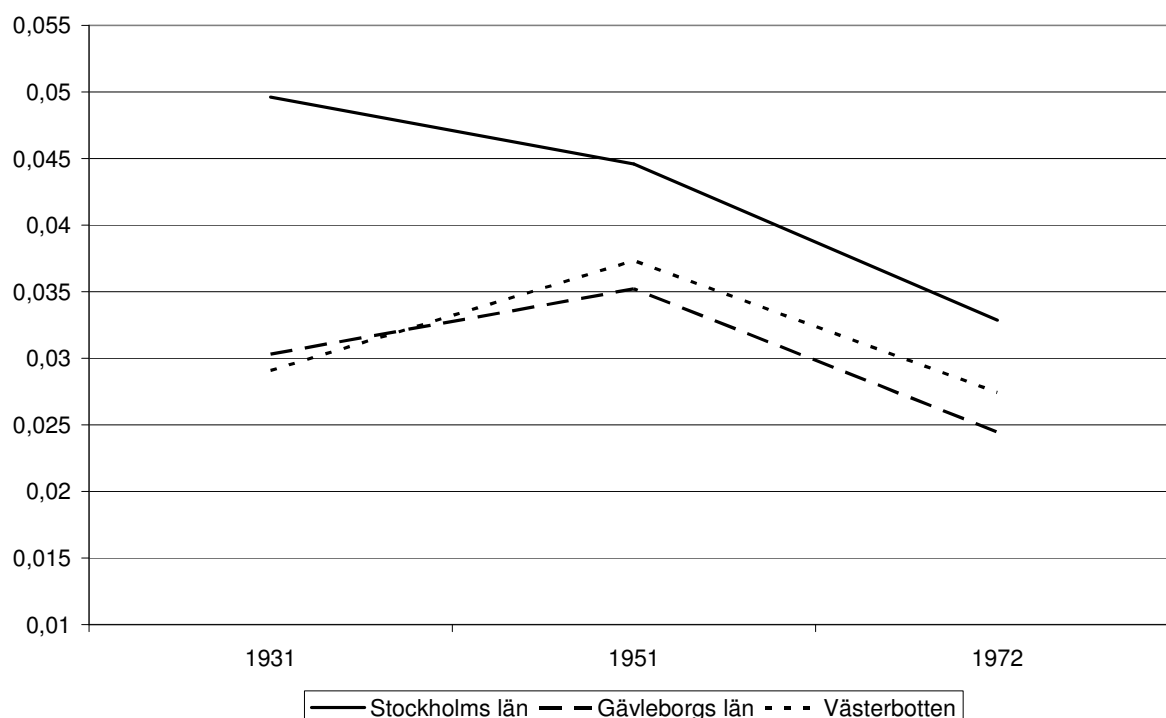
**Figure 7. Coefficient of variation of the share of firms after sectors between three Swedish provinces, 1931, 1951 and 1972.**



Source: Own estimations based on the Census of enterprise 1931, 1951 and the primarily sources for the Census of enterprises 1972.

In three of the sectors one can see a clear trend of convergence. One can see the clearest trends of convergence in Retail and Distribution and Manufacturing where the Coefficient of Variation becomes smaller for every sample. There is a small increase of dispersion in the Transport and Communication sector between 1931 and 1951. But the dispersion becomes much smaller in the 1972 sample which means that for the period as a whole the share has become more evenly distributed. The share of firms in the service sector becomes much more evenly distributed between the provinces from 1931 to 1951. Thereafter a small increase in the Coefficient of Variation occurs. But as discussed earlier if one exclude the Finance sector the trend towards convergence continues. One sector stands out and that is the building and construction sector where the dispersion increases between 1931 and 1951. It falls back a bit but the dispersion is much higher 1972 than 1931.

**Figure 8. Numbers of firms per capita.**



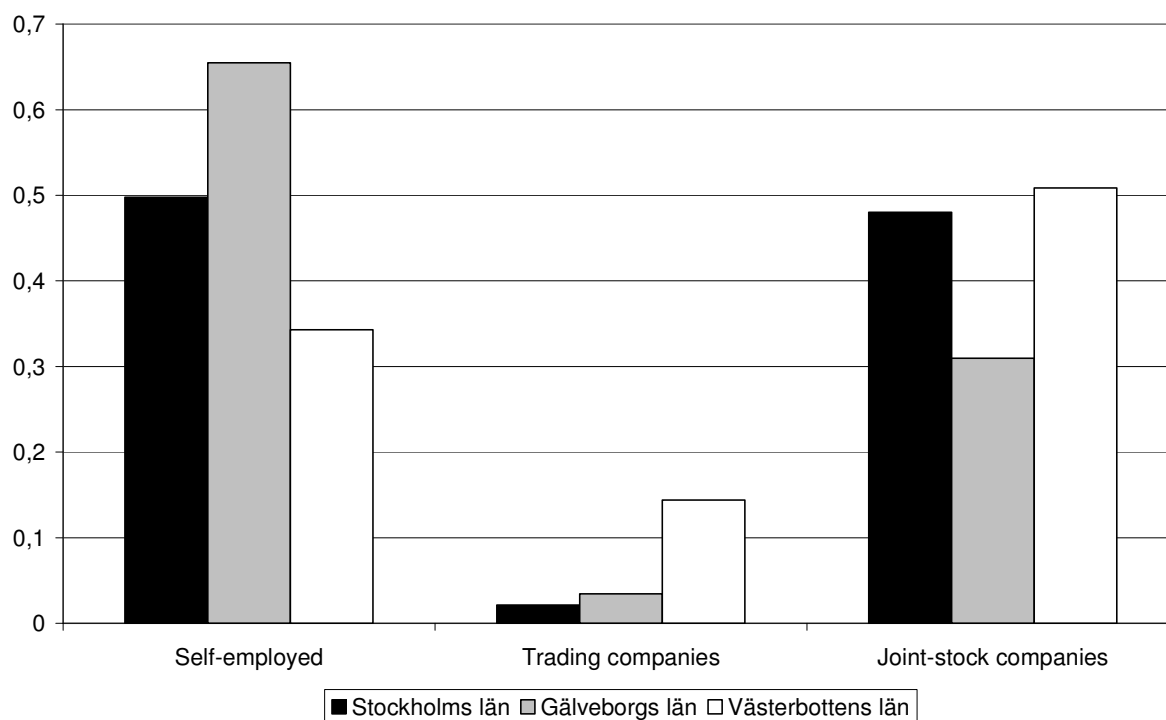
Source: Own estimation based on the Census of enterprises 1931 and 1952 and the primary sources for the 1972 Census of enterprise, Statistical yearbook.

Another variable that one can compare is the number of firms per capita. This might be seen as an indicator of level of entrepreneurship. One must point out that a high level of firms per capita doesn't automatically lead to higher economic growth. This might also be an indicator of small scale production and a high degree of self-employment. The share of firms per capita is higher in Stockholm than in the other two provinces and there is a decline in firms per capita between 1931 and 1972 for all three provinces. The trend of falling share of firms in relation to the labour force happens on the national level as well. Interesting to note is that the share actually increases both in *Västerbotten* and *Gävleborg* between 1931 and 1951. This is in opposite in comparison to the national trend. One can also see that there is a trend towards convergence here as well where the share fell mostly in Stockholm.

One must be careful to draw any general conclusion from this short empirical study since it only includes three provinces. But if we look at the conditions regarding income level for these provinces one can say that there seems to be a trend towards convergence regarding the distribution of firms that is corresponding with the GRP convergence. Interesting to note is that the share of firms in the service sector correlates with the relative income levels and that as the incomes become more similar the share of firms becomes more equal.

From the primary sources one can also study the distribution of firms after types of companies and firm size. Since only 1972 Census of enterprise has been digitalised these variables will only be studied for that particular year.

**Figure 9. Types of companies 1972.**



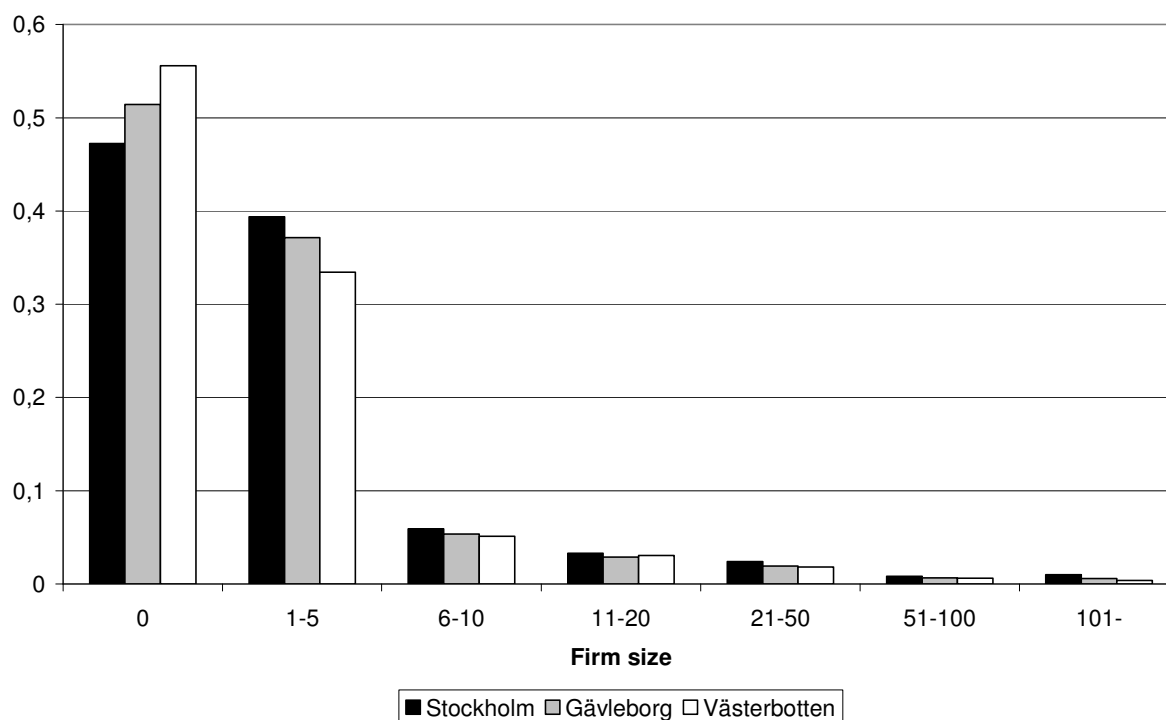
Source: Own estimations based on the primary sources for the Census of enterprise 1972

In figure 9 the distribution of the three most commonly types of companies; Self-Employment (Egen-företagare), Trading companies (Handelsbolag) and Joint-Stock companies (Aktiebolag) for the three provinces is shown. If one compares the three provinces with each other one can see *Gävleborg* stands out as with over 60 percentages of the firms as self-employed while they have a rather low rate of companies as Joint-Stock companies. *Västerbotten* had a higher share of Trading companies which might compensate for the rather low rate of self-employed. *Stockholm* and *Västerbotten* has more or less the same share of Joint-stock companies while the share is significant lower for *Gävleborg's län*. One hypothesis that could be raised from this is how the low share of joint-stock companies has effected *Gävleborg's* long term growth performance. In growth theory labour productivity is seen as a function of capital intensity and that at technology is embedded in capital. If one sees share of joint-stock companies as an indication of more capital intensive production this might pose as an indication of the productivity of the regional economy. If one could compare

the shares of joint stock companies with earlier census on might see if this correlates with relative economic performances.

**Figure 10. Distribution of firms after the numbers of employed in three provinces.**

Source



Source: Own estimations based on the primary source for the Census of enterprise 1972.

If one compare the distribution of firms after the number of employed the distribution is rather similar in all three provinces. The main part of the firms is those with no or a few employed. Some differences appear if we compare share of firms within the different employment classes. *Västerbotten* has, in comparison with the two other provinces, the highest share of firms with no employed. *Stockholm's län* has the highest share in all other size classes while *Västerbotten* has the lowest share in more or less all the other size classes. This means that *Stockholm's län* has relative larger firms than the other two provinces. A question that arises from this and that can be linked to the convergence discussion earlier is if one could find convergence regarding firm distribution as well.

#### 4. Conclusion and further research challenges

In this paper questions regarding how macro oriented regional economic history and micro oriented studies can be linked together in order to describe and analyse regional economic development over time has been discussed. A major issue has been to show how the Census of Enterprises can be used in studying regional economic change. In the paper a new research field in Swedish economic history namely the creation of Gross Regional Products (GRP) was described. GRP can be representing the more macro oriented regional economic history. By creating GRP one can find new information regarding the aggregated economic development for different regions over time. A major question is convergence and divergence within the nation. It is shown that these questions can be analysed from another angel by using the data from the census of enterprises.

By using the classification that Enflo et al uses to describe a regions relative economic performance over time I identified three regions/Provinces. One above average growing region namely *Stockholm's län* while *Gävleborg's län* was used as an early growing region and *Västerbotten* represented a below average grower. These were used as empirical cases in order to show how both GRP and data from the Census can be used to analyse regional economic development.

One could see that the process of convergence that has been identified in the GRP studies also was found in the distribution of firms. The share of firms in the service sector in these regions were also correlated with their income levels. One could also see a "Catch-up" regarding the share of firms in Services when the income differences decreased. There was also a trend of convergence regarding the share of firms per capita in the three regions. By using data from the Census of enterprises one can also be used describe differences between regions concerning distribution of firm after employments sizes and types of companies.

There are several future challenges for studies of regional economic history both methodological and theoretical. One major achievement in recent years has been made thought the work of historical Gross Regional Products. More research has to be made in in the field of Regional National Accounts. One way to incorporate the Census of Enterprises in that research is trying to calculate labour productivity at firm levels and compare these between regions. At least for the 1972 census one can to some extent find value added at firm level and working hours/numbers of employed. By using micro data to calculate labour

productivity at firm level more sensitivity tests can be made to test some of the assumptions that is being made in the estimation of GRP. For example the assumptions regarding similar productivity or that productivity differences are shown in wage differentials.

Increased collaboration within the research field both nationally and international must be made in order to establish common guidelines concerning methods and sources in order to create consistent and comparable series. By doing that the possibilities to conduct comparative studies on regional economic development would increase. This can also lead to new in questions about similarity and differences in regional economic.

As been shown in the paper several interesting questions regarding regional economic development can be raised from the Census data so continuation of data collection and building up databases from these primary sources would gives us new sources to understand regional economic development. This data can also improve our understanding about differences in male and female entrepreneurship in different regions and thereby link gender and business history into the fields of regional economic history. By trying to build a bridge between macro and micro oriented regional economic history our understanding about the driving forces behind regional growth and structural change would increase. This is as I see it a future challenge in regional economic history.

## Literature and Sources.

*1931 års företagsräkning (Census of enterprise 1931)*, Kommerskollegium.

*1951 års företagsräkning (Census of enterprise 1951.)*, Kommerskollegium.

Enflo, K. Henning, M & Schön, L. (2010), *Swedish regional GDP 1855-2000. Estimations and general Trends in the Swedish regional system*. Working Papers in Economic History.

*Företagsräkningen 1972 (Census of Enterprise 1972)*, SCB.

Geary, F. & Stark, T. (2002), "Examining Ireland's Post-Famine Economic Growth Performance", *The Economic Journal*, 112 (482), pp. 919-935.

Krantz, O. & Scön, L. *Swedish Historical national Accounts 1800-2000*, Lund Studies in Economic History, No. 41.

Olsson-Spjut, F. (2010a), *Beräkning av historisk BRP. Beräkning av bruttoregionprodukter 1968-1992: beräkningsmetod och data*. CERUM report No. 20.

Olsson-Spjut, F (2010b), *BRP i Norr- utveckling och trender*. CERUM report No. 21

Olsson, F. (2007) *Järnhanteringens dynamik. Produktion, lokalisering, och agglomerationer i Bergslagen och Mellansverige 1368-1910*. Umeå Studies in Economic History. No. 35.

*Statistisk årsbok för Sverige (Statistical yearbook for Sweden)*, SCB.