A study on industrial towns’ development
– Ludvika’s challenges

Author: Valgerður Gréta Benediktsdóttir

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Abstract

Ludvika and Borlänge are municipalities located in the manufacturing belt of Sweden (Bergslagen); the two municipalities have had different development patterns since the beginning of the decline of the manufacturing belt. This thesis focuses on Ludvika which has experienced decrease in population for many decades, and compares Ludvika’s development to the development of Borlänge, which has experienced increase in population.

Now there are a lot of investments underway in Ludvika. Hence, the purpose of this thesis is to study the development paths of Ludvika and Borlänge and see how they differ and to discuss the future development of Ludvika, and the possibility to change the development pattern of Ludvika.

The theoretical perspective of the thesis is the literature on manufacturing belts and their decline and the concept of path dependence.

The results are that political priorities, after the decline in Bergslagen have encouraged the enlargement of the service sector in Borlänge, which in its turn has diversified the commercial and business life of Borlänge, breaking the path dependent development the municipality had, while Ludvika still has a path dependent development evolving around the industry at ABB, dependent on the strong manufacturing culture, with continuously increasing industrial sector and decreasing service sector. Other factors which have influenced the different development patterns of Ludvika and Borlänge are the geographic locations, the locations within the transport system and the size of the local labor markets. The planned investment can in certain scenarios change the development pattern of Ludvika.

Key words: Manufacturing belts, Path dependence, Steel crisis, Steel industry, Mining industry, Service sector, Industrial sector, Ludvika, Borlänge, Bergslagen, Regional development.

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Introduction

Manufacturing belts have historically played an important role in the development of many countries. In the mid-1970s many manufacturing belts in Europe and in the U.S. started to decline and many regions within these belts have continuously declined ever since. The fact that these regions had experienced a path dependent development for decades or even centuries and been locked-in certain industrial specializations, made these regions vulnerable to an international crisis and to the consequences of the structural changes made in the 1970s and onwards.

Ludvika is a municipality situated in Bergslagen, the manufacturing belt of Sweden. Ludvika has experienced continuous decrease in population, at least since the 1970s (see graph 1).

Borlänge, a town situated approximately 40 km from Ludvika, has on the other hand, experienced increase in population since 1974 (see graph 2), but both of the towns had similar economic structure in the 1970s, relying on its respective industries, and similar developments up to the 1970s, after that they follow two different tracks (see graph 1 and 2).

Graph 1. Source: SCB 2012a. Ludvika has experienced continued population decrease since the 1970s.

Graph 2. Source: SCB 2012a. Borlänge has increased its population since the mid-1970s.
This thesis focuses on Ludvika’s development, using Borlänge as a comparison source for understanding how a successful transformation looks like (at least in terms of population increase). Now there are substantial investments underway in Ludvika, were Spendrups and ABB are investing a lot and Nordic Iron Ore as well as Grängesberg Iron plan to re-open mines in the municipality.

Nowadays, the most common way of a towns commercial and business life development, in the Western world, is that the service sector increases while the industrial sector decreases. Since the late twentieth century the great bulk of the labor force in the Western world, makes services rather than goods (Krugman 1993: 65). The investments in Ludvika which are in the pipeline now, are all within the industrial sector. Therefore it is interesting to research how the development of Ludvika has been in the recent decades and if it differs from Borlänge and how these investments in industry possibly will affect the future development of Ludvika.

Both Ludvika and Borlänge have throughout history been characterized by industry. Ludvika by its power and automation technologies produced in ABB, which is the largest employer in Ludvika. Previously certain smaller communities in Ludvika were characterized by their mining industry, where the last mine closed in the early 1990s. Borlänge has been characterized by its steel industry, which still sets its marks on the municipality.

Ludvika and Borlänge are both situated in Bergslagen, the manufacturing belt of Sweden. Many regions in manufacturing belts all over the world have experienced path dependent development, where they have been locked-in certain specializations and experienced decline since the 1970s. Therefore it is interesting to study how the development patterns of these two municipalities look like and how they differ, whereas Ludvika has decreased its population while Borlänge has increased in population, since the beginning of the decline of the manufacturing belt Bergslagen.

**Purpose**

The purpose of this thesis is to study the development trajectories, i.e. the paths; of Ludvika and Borlänge and to discuss the future development of Ludvika and the possibilities of changing the trajectory of Ludvika.

**Method**

Theoretically the discussion is connected to the literature on manufacturing belts and their decline and path dependency. Empirically the development of Ludvika is compared to the development of Borlänge.
The research is conducted as a literature study, were the developments of Ludvika and Borlänge are analyzed, through available literature. Accessible statistics are also analyzed, and graphs made out of the statistics to make it easier to compare the two municipalities.

Numerous search engines were used to search for literature for this research (sondera, BTHs library, Falun city library, Regina, Dalarnas university library), and a few days spent in the Royal library in Stockholm, searching through many books, were a lot of material about Bergslagen and the steel crisis in Sweden where to be found. Literature was even borrowed from the supervisors at Falun-Borlänge regionen AB, where the author was situated doing the degree project, and useful hints about literature given from supervisor Jan-Evert at BTH and the supervisors at Falun-Borlänge regionen AB.

**Research questions**

The research questions are:

- How to understand the differences in the development patterns in Ludvika and Borlänge since the economic crisis in the mid-1970s?
- Represent the planned investments an opportunity to change the development pattern of Ludvika?

In the light of these questions the discussion will be in what way the expected investments possibly will affect the future development of Ludvika.

**Limitations**

The plan originally was to compare the developments of Ludvika and Borlänge, back to the year of the international oil crisis in 1973. Since that was one of the turning points were thereafter the declines of manufacturing belts started gaining momentum.

Because of difficulties in accessing data from this period, the author will try to make the most out of the statistic which she has been able to collect. The literature found, sometimes gives interesting details from earlier decades, which will be include in the thesis, because it is important for the further development. This means that in some cases stretching further than back to 1973 in the comparison of the two municipalities. In the historical background of the manufacturing belts and the introduction to Ludvika and Borlänge, the introduction will go further back in time to introduce the historical development of these areas and municipalities.
When Ludvika is mentioned, it refers to the whole municipality of Ludvika and when Borlänge is mentioned it also refers to the whole municipality of Borlänge.

**Theoretical Perspective**

The literature on manufacturing belts and their decline and the process of path dependence is the theoretical perspective of this thesis. Ludvika and Borlänge are both situated in the manufacturing belt of Sweden, Bergslagen, which has, as many other manufacturing belts, experienced decline since the 1970s. Krugman uses the case of the American manufacturing belt as an example where path dependence is unmistakable (Krugman 1991).

**Path dependence**

The concept *path dependence* was first used as an idea, that a small initial advantage or that few minor random shocks along the way could alter the course of history (David 1985 in Page 2006: 87). The notion of path dependent development refers to capturing the way in which minor, accidental events initiate self-reinforcing processes and mechanisms, which *lock-in* the development in certain development patterns and structures (Nilsson 2011: 19). The location of the first company or companies which establish themselves in a region, which lay the foundation for a regional path, is often the result of historical accidents. The establishments of these early company/companies, in its turn, attract other companies which benefit from establishing themselves close to the first established companies. A region’s path dependent development has in this way its origins in historical accidents. This does not mean that all company locations which have occurred through historical accidents lay the foundation for a path dependent development (Nilsson 2011: 20). The new clusters which emerge have in common, that they preferably consist of industries which find themselves in the beginning of their life cycles. Under other circumstances other regional specialties would have arisen, and the development taken another path. The historical accidents seem far more important than political priorities for the regional specialization to emerge (Nilsson 2011: 20). It is most likely very difficult to decide that a certain regional specialization is supposed to emerge in a certain place, where the historical accidents of the rise of a specialization are the most influential in the emergence of a path dependent development. Political priorities can though have great impact in the breaking of a path dependent development, as in the case of re-location of state agencies in Borlänge (see chapter on Borlänge).

A region which gets locked-in a specialization is more vulnerable than a region in which the specialization continuously changes, as the global economy changes. Many manufacturing belts
declined because of their specialization within the late 19th century dynamic industries (Nilsson 2011: 19). When structural problems emerge, a region locked-in a certain specialization is more vulnerable than a region where the commercial and business life is more diversified, this seems logic, as the saying “don’t put all your eggs in the same basket” implies, with a diversified commercial and business life, the chances of withstanding a crisis are larger.

Krugman emphasizes that path dependence is unmistakable, in the location of production in space. He takes the American manufacturing belt as an example; “where manufacturing was marked by few scale economies, and where transportation was costly, no strong geographical concentration could occur. As the country began its industrial transition, manufacturing arose in areas that contained most of the agricultural population outside the South. During the second half of the nineteenth century, however, manufacturing economies of scale increased, transportation costs fell, and the share of the population in nonagricultural occupations rose. The result was that the initial advantage of the manufacturing belt was locked in. Even though new land and new resources were exploited to the West and even though slavery ended, for three-quarters of a century the pull of the established manufactured areas was strong enough to keep the manufacturing core virtually intact.” (Krugman 1991: 82). The historical accident of the location of the production in space, caused the specialization to emerge, which in its turn caused a path dependent development were the path dependence on history caused the regions of the manufacturing belt to lock-in its specialization. This later led to the decline of the manufacturing belt, when the regions specialized industries, were hit by a global crisis.

Manufacturing belts

The term manufacturing belt was evidently first used by De Geer in 1927 (Krugman 1993:11). Sten De Geer investigated the development of manufacturing belts in the world, since the rise of mankind to his days, and among other defined the American manufacturing belt and a European manufacturing belt, an article on his research was published in Geografiska Annaler in Stockholm in 1927.

In his article, De Geer identifies a European manufacturing belt including large parts of Great Britain and Germany, Belgium, Switzerland, Holland, Northern Italy and Northern France, Western Czechoslovakia and small parts of Austria and Poland. He also mentions Bergslagen as being one of the isolated manufacturing districts, outside the European manufacturing belt (De Geer 1927: 233f). De Geer explains how the American manufacturing belt “has developed during a comparatively short and rather homogeneous historical period and may therefore be expected to have been influenced by geographical laws more manysidedly than has been the case in Europe with its complicated
system of states, and its very old traditions. For these reasons the American manufacturing belt is certainly a more suitable object to regional geographical study than the European belt” (De Geer 1927: 234).

The U.S. manufacturing belt

The U.S. manufacturing belt is a rather narrow stretch of territory within which the preponderance of manufacturing in the United States was concentrated, from around 1850 until the 1960s. The belt is situated in a rather small part of the Northeast and the eastern part of the Midwest of the U.S. In 1957 the belt still contained 64 percent of the U.S. manufacturing employment (Krugman 1993: 11f).

The manufacturing belt originally drew some of its critical raw materials from the nearby oil wells and coal mines, but by the mid-twentieth century, the main parts of the raw materials were imported from other regions. Nonetheless the manufacturing stayed within the belt, because of the advantages of each individual manufacturer of being near to other manufacturers. Since the belt had been established it was not in the interest of any individual producer to move away from it (Krugman 1993: 13f).

The U.S. manufacturing belt was characterized by a denser population and a better transport network, than any other part of the country, and therefore offered much better market access to the manufacturers (Krugman 1993: 25).

It is quite clear that part of the advantage of the manufacturing belt was the density of railroad network connecting the cities in the region; this density was itself a product of the region’s manufacturing dominance (Krugman 1993: 23f).

The Manufacturing belt becomes the Rust Belt

The industrial cities of the manufacturing belt, around the Great Lakes, had a positive image in 1969; they were seen by many as the heartland. The plant shutdowns in rubber, auto and steel industries during the coming 15 years brought about devastation to the region and the image it previously had. The hard times in the 1980s drew out the memories of the Great Depression of the 1930s and it was increasingly used as a reference point for explaining the industrial decline. One image of the economic crisis in the 1930s seemed to have a practical salience in the beginning of the 1980s, i.e. the Dust Bowl. The Dust Bowl referred to a certain area of the southwestern part of United Sates, devastated by depression and drought in the 1930s. The Dust Bowl influenced how the Americans perceived the industrial decline in the 1970s and 1980s. The Dust Bowl was a mental image of a certain geographic area in the southwest at first, until a governmental intervention and sustainable farming practices in the 1960s, made the phenomenon to a historical reference. The Dust Bowl then
became a popular imagination and whenever an agricultural crisis emerged, commentators quickly warned of another dust bowl. One of the factors in the creation of the denomination Rust Belt, was the persistence of the Dust Bowl region, even as its frontiers drifted across the imaginary landscape of North America, because it provided the play of words for one half of the name (High 2003: 21f). The depression talk in the United State escalated dramatically in 1982 when the economy fell deeper into recession. A lot of people lost their jobs in the industrial cities around the Great Lakes. In the fear of a new depression, the American media started to refer to the devastated Great Lakes states of the manufacturing belt, as the Rust Bowl. The Dust Bowl had symbolized abandoned farms and dust storms at first, while the Rust Bowl became associated with rusting abandoned factories, rusting machinery, locked factory gates and the demolition of mills etc. The feeling of abandonment is strong in both of those mental constructs (High 2003: 29).

The upturn in the economy of the United States in 1983, made comparisons to the Great Depression not seem relevant, and by the end of 1984 Rust Belt had replaced Rust Bowl. The new expression was more accurate representation of the spatial distribution of heavy industry in a belt stretching across the Great Lakes states and the Northeast, where the association with steel-production areas of the Great Lakes was the strongest (High 2003: 33).

Youngstown and Detroit are examples of cities in the U.S. manufacturing belt, which were hardly hit by the steel crisis in the mid-1970s. The steel industry was the specialization which Youngstown had been locked-in, while the automobile industry (which is strongly connected to the steel industry) was the specialization which Detroit had been locked-in. Both of these cities have lost three-fifth of their population since the population peak some years before the steel crisis (Morrison and Dewar 2012).

The U.S. manufacturing belt is strongly associated with the steel industry; therefore I see a strong connection between the crisis in the steel industry and the “rusting” of the manufacturing belt. The same is relevant for Bergslagen, i.e. the image of Bergslagen is also strongly associated with the steel industry.

The history of manufacturing location in the US has shown, that when a geographical concentration of manufacturing has emerged, “increasing returns and cumulative processes are pervasive and give and often decisive role to historical accident” (Krugman 1991: 82). The fact that a company locates in a certain place can have enormous effects on the future development of that place, the specialization which sometimes emerges can have unpredictable influence on the future development and in some cases, places get locked-in certain specializations, hence a regional path can emerge were the specialization keeps on going. The reason for why a certain company locates in
a certain place can in many cases not been seen as anything other than historical accident, which
than leads to an unpredictable path dependence development of that place.
The influence of history and accident over the location of production and its clear dependence on
history, can apparently been seen in the concentration of U.S. manufacture (Krugman 1993: 9).

European manufacturing belts and their decline

De Geer argued that because the large national manufacturing districts where situated so
geoographically close together, they formed a single European manufacturing belt (De Geer
1927:233). One can though speak of many individual manufacturing belts in Europe, divided
between countries and in some cases stretching between countries.

On the European mainland, heavy manufacturing belts emerged in several countries. In Belgium a
manufacturing belt emerged in Sambre/Meuserregionen in South East Belgium, the belt stretched to
the Aachen region in Germany, where the industry developed alongside the coal supplies available
there. Another manufacturing belt emerged in Nord-Pas de Calais and the surrounding Somme and
Aisne in North Western France. The manufacturing belt in the Ruhr region in Germany developed
relatively late but fast. In fifty years the region transformed fast, and in the early 1900s the region
was one of the most important manufacturing belts on the European continent. In the U.K. two
regions, Lancashire and Yorkshire and possibly South Staffordshire in the West Midlands, afforded its
position as a dynamic manufacturing belt in the early 1900s (Nilsson 1998: 36)

Historical accidents determined the location of the manufacturing belts, while the access to raw
materials also was an important variable. The succeeding economic and technological changes
contributed subsequently to cumulative processes were initiated, which led to the original
localization advantages strengthened in many of these regions. The development in the
manufacturing belts was characterized by the fast expansion within existing branches as well as the
successive enlargement of the industrial structure, this enlargement involved that new companies
emerged which were connected to the existing industrial life. These processes contributed to
strengthening the existing manufacturing belts as dynamic industrial centers (Nilsson 1998: 38).
In the 1970s many of the industries which had led to the expansion of the manufacturing belts,
where hit by structural problems, which led to decreased industrial sectors in the manufacturing
The development of the manufacturing belts follow a path dependent development where historical
accidents have influenced where the manufacturing belts emerged, and the specialization within the
regions of the manufacturing belts later led to the regions being locked-in their specializations, which
when structural problems emerged, these specializations within industry became the regions disability.

**Bergslagen**

De Geer introduced Bergslagen in his article from 1927 as following;

Since the Middle Ages *Bergslagen* in Sweden has been a manufacturing district ... where during the earlier centuries the falls of the small tributaries were used for power, while during the last century the large falls have been taken into use giving rise to manufacturing agglomerations, which now even gather hydroelectric power by means of transmission lines from several power stations and besides import coal from other districts. (De Geer 1927: 246f)

De Geer chose to refer to Bergslagen as a manufacturing district outside the European manufacturing belt. In this thesis Bergslagen is perceived as one of the many European manufacturing belts. The quote above implies that Bergslagen became a manufacturing agglomeration because of the natural environment in Bergslagen. Similarly, the formation of the U.S. manufacturing belt was much more influenced by the geographical laws, than the formation of the European manufacturing belt De Geer mentions (De Geer 1927). Natural environment as falls and rivers etc. can have large influence on the location of a company, i.e. the fact that falls of the small tributaries were used for power in earlier centuries and later the large falls were taken into use, must have made the manufacturing easier which encourage the placement of manufacturing exercises in the area. But the fact that a company is located in exactly a certain place, instead of another place with exactly the same preconditions, is up to historical accidents.

Bergslagen is an area which stretches from the county of Värmland through the middle of Sweden up to the southern part of the county Gästrikland (see picture 1 and 2). Today Bergslagen consists of six counties and over twenty municipalities. Bergslagen is mostly characterized by extraction and processing of iron and wood. Historically ore mining and iron industry have been the common denominator of the area (Ekman ed. 1996: 21). Bergslagen have been seen as a problem area, prone to difficulties caused by the decline of the mine, iron- and steel industry. The area is socially and culturally shaped by its history, in a way which makes it difficult for the people living there to seize new opportunities which exist irregradless of the decline in the industry (Ekman ed. 1996: 42).

Hence, it is likely that the manufacturing culture is strong in the area, where the inhabitants have grown up with and been formed by the manufacturing culture for centuries. This makes path dependent development a common way of developing. As Ludvika and Borlänge are a part of the
Bergslagen area, it is interesting to see if these towns have been locked in a path dependent development or not.

*Picture 1 and Picture 2* are both roughly made after the delimitation of Bergslagen made by Ekman *(Ekman et al. 1996:22)*. The pushpins in picture 2, represent Borlänge (more northerly) and Ludvika.

Bergslagen is known for its mining- and steel industry. Bergslagen has also been perceived by many as the heartland of Sweden, as the US manufacturing belt, as Blomé puts it: “Within many nations, there is an inner heartland from which the forces which drive the country were originally drawn. In Sweden, this region is known as Bergslagen.” *(Blomé et al. 1992: 3)*. All of the European manufacturing belts mentioned above and even the U.S. manufacturing belt have in common that they, for a very long time, played an important role for the economic development of their respective countries *(Nilsson 1998: 37)*. These regions were characterized by industry which proved to be vulnerable to international crisis and structural changes, which could be seen when the steel crisis hit Sweden and the rest of the Western world.

**Steel crisis hits Sweden and Bergslagen**

The manufacturing of steel has been important for Bergslagen, were the first link in the manufacturing is the extraction of ore from the mines, which took place in Ludvika until 1991. The plan is now to re-open mines in Ludvika and Borlänge still has a steel work as a large employer in the municipality. Therefore the development of the steel industry in Sweden is of great interest for this research.
Swedish steel industry started to show weak profitability figures already in the 1960s. A numerous investigations were done in the 1960s to find the cause for this decline. The conclusions of these investigations were that the increased foreign competition and an apparent overcapacity of the Swedish steel works had caused this situation. The economic situation changed to a positive direction in 1968 and in the following years the structural changes necessary to cope with the overcapacity which was noted in the early 1960s were implemented. In 1973-1974 there was an international steel boom, were the economic boom brought about large investments in the steel works which increased the capacity of numerous steel works. In 1975 the good years were over and a steel crisis hit a surprised west world, including Sweden and Bergslagen. According to the prognoses which had been made, several good years had been expected. The steel industry was just one of the many branches hit by the backwashes of the oil crisis. Because of the crises an investigation of the crude steel (handelsstålsutredning) and an investigation of the alloy steel (specialstålsutredning ) were made. The conclusions of these investigations were that both arms of the steel industry were hit, and that several of the underlying causes were the same; The first cause mentioned is that the foreign competition had toughen since new producers had been established in Latin America and Asia. The second cause mentioned is that the availability of raw materials in Sweden did no longer give competitive advantages against the foreign producers. The third cause mentioned is that the cost wages in Sweden were much higher in comparison to the foreign competitors, for example the Japanese. The fourth and last underlying cause mentioned was that in Western Europe there was a huge capacity excess because of the considerable expansion in the good years in the beginning of the 1970’s. (Karlsson 2006: 182f). The toughened foreign competition was one of the reasons for why the mines were closed in Ludvika. Borlänge was also severely hit by the crisis and the consequences of the capacity excess could be seen in Borlänge, where large investments had been made in Domnarvets Jernverk (later SSAB) under the flourishing years before the crisis. These investments in Domnarvet were supposed to meet the increased demand which had been expected to be both high and long lasting (Domnarvet 1978: 68), which did not become the reality.

When the growth decreased in the mid-1970’s, to what could be seen historically as normal volume, the rapid productivity enhancement i.e. the technical development and substitution of workforce with capital, brought about decrease in employment. Bergslagen was hit extra hard, because the area was characterized by capital-intensive production in among others iron, mine and steel industry (Bergström 1997: 99)
The recovery of the steel industry, after the steel crisis, was slow. The lowest point for profitability and production in Sweden was reached in 1977. In 1983 the situation seemed to be brightening, but the production of trade finished steel was still only 20 percent of the production in the historically prosperous year of 1974. 1983 was the first year in which the industry was profitable since 1974. The situation improved further in 1984, although the profitability was far from being satisfactory. (Pettersson 1988: 121)

Between 1975 and 1985, the number of persons employed within industry in Bergslagen decreased by 20,000 (Prop. 1987: 4). Within this period all of the mines were closed in Ludvika, Håksberget mine and Blötberget mine were closed in 1979 (Ljung 1998) and Grängesberg mine was closed in 1991, only the closing of mines meant over thousand persons losing their jobs. In 1978 ASEA (which later became ABB) in Ludvika had 3,350 employees and in 1992 (Blomé et al. 1992: 16) the number of employees had decreased to around 2,600 workers (the same as today). In Borlänge there were 6,300 persons working in Domnarvets Jernverk (which later became SSAB) in 1973 (ABB 2012). From 1979 to 1983 the number of employees in Borlänge (Domnarvet) decreased by 23 percent, from being 5,757 in 1979 to 4,434 in 1983 (Pettersson. 1988. P. 256).

Borlänge and Ludvika were the municipalities hardest hit by the steel crisis in Bergslagen, the both municipalities showed to be vulnerable to the global crisis which emerged within the steel industry. They both had been locked-in specializations where, ABB was far about the largest employer in Ludvika and SSAB the far about largest private employer in Borlänge. In the years following the steel crisis the employers at ABB were decreased by 28 percent, between the late 1970s and early 1990s. The employers at SSAB were decreased by 42 percent between the early 1970s and the 1980s. The steel crisis even meant the end of mining in Ludvika, which had been a specialization which few of the smaller communities in Ludvika (Grängesberg, Blötberget, Håksberg) had been locked-in and had shaped these communities for centuries.

**Efforts to counteract the decline in Bergslagen**

In 1978, SSAB (Svenskt Stål (Swedish steel) AB) was established with state aid, to try and mild the effect of the steel crisis. (Bengtsson 1997: 5). This led to a wave of investments in the steel industry in 1980 and 1981 (Pettersson 1988: 129).

The structural changes within the steel industry which took place after the steel crisis, still progressed in Bergslagen into the economically more favorable 1980s. This called for attention from the state. In 1984 the government adopted a specific Berglagsprogram (program for Bergslagen).

With this program the state’s industrial board (Statens Industrialverk) and the board for technical
development (STU), got the assignment to reinforce development efforts in Bergslagen. A certain delegation (Berglagsdelegationen) was established to initiate development projects in Bergslagen (Prop. 1988: 5).

In 1986 the parliament accepted a proposal for a three year development program for Bergslagen. 425 million SEK were dedicated to this project. The purpose of this project was to strengthen certain key areas as research, education, development of companies, R&D and to improve the infrastructure (Prop.1987: 5f).

In 1987 the Government proposed a bill, on special regional political actions in Bergslagen (and the inland of northern Sweden). In this bill it is mentioned that the growth rate in Sweden in the 1980s, was lowest in Bergslagen (and the inland of northern Sweden), and that the condition for the service sector was worse in these areas than in the rest of the country. This bill was meant to improve the development opportunities for the long-term. The main content of the bill were suggestions which were needed to counteract the negative effect, i.e. of decreased need for employees in the steel work in Borlänge and the end of the mining industry in Ludvika (and to improve the conditions for the development in the inland of northern Sweden) (Prop. 1987: 1). In this proposal the state took on the responsibility to take over running the mine in Grängesberg, Ludvika, from when SSAB decided to close or sell the mine in 1987, and to run it until 1991/92. To do this the state put 200 million SEK in the operating of the mine to enable the mine to be run, in spite of loss (Bengtsson 1997: 6). The state was concerned with the development in Borlänge, because of the extensive structural change within SSAB (closing of one of the steelworks (skrotbaserade elektrostålverket)), which meant that in the year 1989, 845 jobs would be lost in Borlänge. The rationalization of the steel work in Borlänge would even lead to 500 persons losing their jobs in Borlänge before 1990 (Prop. 1987: 6). ASEA which later became ABB had intentions of creating 500 new jobs in Ludvika, with 200 million SEK aid from the State, those intentions were not fulfilled, since 10 years later the number of employees had decreased in ABB Ludvika since 1987. Parts of Vattenfall and states tax offices where relocated to Ludvika, this was planned to give 200 jobs but neither of them employed nearly as many as the hopes were. A large sum of state money was used to support the education in Borlänge and the development of competence, which among others meant a large founding for Teknikdalen in Borlänge. (Prop. 1987). Teknikdalen in Borlänge still operates today and has from its beginning participated in, initiated and driven over fifty international, national and regional development projects (Teknikdalen 2012). Hence, the state actions made in Borlänge seem to have had much more long term effect, since the actions in Ludvika were much more short term, winding down the mine industry in Ludvika.

The fact that Bergslagen is an area with no official administration, makes cooperation within the area more difficult, were the municipalities have all the power separately. After experiencing difficult
decades the town councils in Bergslagen supposedly realized that something needed to be done to try to resist the continuing decline.

The Interest group Bergslaget (Intresseföreningen Bergslaget) was formed in 1995, by twenty mayors (kommunalråd) of municipalities in Bergslagen, five enterprise secretaries (näringslivssekreterare) and fifteen additional municipal officials. The purpose of the group was and still is to work with the long-term development of the area, by driving awareness issues, engage in advocacy for the area in companies, institutions and agencies. The purpose is even to initiate, run and participate or coordinate development projects which are common to all or several of the members. The commissioning body consists of participating municipalities, regions and county councils. The reason for forming this group was because a common voice was needed on a regional level which could represent the municipalities together in important regional political matters, especially in the dialogue with the state. The Interest group Bergslagen’s role is to function border-crossing, as a bridge over the administrative borders and a motor which drives the development of Bergslagen forward. (Intresseföreningen Bergslaget 2011: 5)

In 2005 an investigation was made, to find out if there was something left of the ore in Bergslagen. The conclusion was that there was plenty of ore left; this made that one dared to market Bergslagen with the potential that there were large amounts of ore which could be extracted there. Today there are around 30 companies with around 360 exploration permits in Bergslagen (Intresseföreningen Bergslaget 2011: 21).

From what is written above, it is obvious that the steel crisis had a great impact on the development of Bergslagen. Like the opinion of many of the authors referred to in this thesis (Bergström, Bengtsson etc), in this thesis the steel crisis is perceived as the main reason for the closing of mines in Ludvika. It was even a steel company which owned the mine in Grängesberg and decided to close it down in 1987, so these two are very connected. Ore extracted from mines is vital in the production of steel. Therefore the mines are a part of the manufacturing of steel.

Even though the whole area of Bergslagen had been declining for several years, in prop. 1987 mentioned above, Ludvika and Borlänge are the only municipalities in Bergslagen, which were thought to be in need of support.
Two towns in Bergslagen

Ludvika

The smaller communities in Ludvika have in the past been shaped by the mining industry. Ludvika started to form around a mill, placed there in 1550. In the following of the industrialization, the Electric Limited Magnet (Elektriska Aktiebolaget Magnet) was established in Ludvika in the year 1900. The company later got the name ASEA. The technical development in the 20th century was fast and ASEA became ABB and its activity in Ludvika, became more high technologic and internationally known (Nordic Iron Ore 2012).

ABB is the far about largest employer in Ludvika with around 2 600 employees. The municipality has since the establishment of Elektriska Aktiebolaget Magnet had a path dependent development where it has been locked-in a specialization which emerged around the industry at ABB.

After the Great Depression in the early 1930s and in the three following decades, Ludvika and Borlänge were two of the three most expansive municipalities in the county of Dalarna. After experiencing large population increase in the 1940s and 1950s, were the number of inhabitants increased from 27 000 to nearly 36 000, the population in Ludvika started decreasing in the 1960s, and has been decreasing ever since. In the end of the year 1987 the population was 29 400 (Isacson 1988: 2) and in 2011 the number of inhabitants was only 25 586 (Graph 1).

During and after the World War II, a shortage of construction material in Ludvika, resulted in that only fabric buildings and dwellings were allowed to be built, i.e. that was seen as absolutely necessary to build in Ludvika. Schools, service facilities and shops were postponed, thus the inhabitants of Ludvika went to Borlänge to shop (the things they could not shop in Ludvika) (Burman 1978: 38). This probably stimulated the regional, path dependent development in Ludvika, where industrial buildings were built instead of building service facilities and shops etc. which could have increased the diversification of the commercial and business life in Ludvika.

A numerous service and whole sale companies in Ludvika, closed down their business or reduced their number of employees in the late 1960s and early 70s. Many of these companies concentrated their activities to Borlänge instead (Isacson 1988: 5f).

Borlänge

Borlänge has from its origin, been colored by its industry. The foundation of Domnarvets järnverk (iron work which later became SSAB) in the 1870s and the arrival of railroad to the area were the two
most influential causes of the birth of Borlänge (Båtefalk 2003:12). Still today the first thing one sees driving into Borlänge, is SSAB’s hulking steel work by the river Dalälven.

Borlänge was at first rapidly resided train and commercial town, which had the purpose of serving the ironwork and its employees (Dahlqvist 1999: 20). Borlänge established itself as a trade center early on, the fact that it is situated near to Dalarna County’s administrative center, Falun, and the fact that Ludvika is situated a bit peripheral in Dalarna, probably stimulated the movement of whole sale companies to Borlänge from Ludvika. Today Borlänge has among other the largest mall in Dalarna and is a natural marketplace for people traveling through Dalarna.

Borlänge previously has had a path dependent development, where the municipality was locked-in a specialization, but today Borlänge seems to have broken the path dependent development, with the diversification of the municipality’s commercial and business life.

**The steel crisis and its consequences**

Since the 1960s and at least until the mid-1980s Ludvika was one of the municipalities in Kopparbergs County (which later became Dalarna County), hardest hit by industrial life’s structural change (Isacson 1988: 2).

Isacson points out that it is easy to find the reason for the population decrease in Ludvika, where he mentions the mining industry winding-up, as the single most important factor, for the population decrease, especially after the steel crisis in the mid-1970s (Isacson 1988: 4). In the whole municipality of Ludvika there were 2 265 persons employed in the mining industry in the beginning of the 1960s and in the mid-1970s the number of employees had decreased to around 1 800 and in 1988 the mining industry in Ludvika had around 750 employees. In Grängesberg (a community in the municipality of Ludvika) the number of employees in the mining industry decreased from being around 1 500 in the 1960s to 600 after 1975. (Isacson 1988: 4f).

In 1973, slightly before the steel crisis, there were 6 300 persons working at the steel work in Borlänge (ABB. 2012). The steel work previously known as Domnarvets Jernverk, became a part of SSAB in 1978. After the formation of SSAB, billions were transferred into SSAB for investments in new continuous casting machines, rolling mills etc., simultaneously the company cut down its workforce by thousands of people in all of Sweden. From 1979 to 1983 the number of employees in Borlänge was decreased by 23 percent, from being 5 757 in 1979 to 4 434 in 1983 (Pettersson. 1988. P. 256). Today SSAB in Borlänge has 2.200 employees (SSAB 2012), i.e. between 1973 and today the number of employees has decreased by 4 100.
When SSAB was established to try to mild the effect of the steel crisis, the company took over the management of the mine in the Grängesberg fields, among other mines. SSAB achieved growth for the mines in the early 1980s and gain was reported. In the end of the 1980s the situation got worse and the mines again became unprofitable. SSAB took the decision to close down or sell the mine in Grängesberg in 1987. The state then overtook the management of the mine and decided to continue to run the mine until 1991. The reason for the state postponing the closing of the mine until 1991 was so that replacement work could be found for the mines nearly 700 employees. This would be very difficult since the mine was far about the largest employer in Grängesberg. The second largest employer in Grängesberg was Spendrups. The economic crisis which started in 1991 made the opportunities for work replacement even more difficult (Bengtsson 1997: 5f).


As graph 3 clearly shows, the impact of the closing of the mine in Grängesberg was enormous. The number of employed persons took a steep dive downwards after 1989, in the closing time which the state had secured from SSABs decision to close in 1987 until the final closing of the mine in 1991.

The steel crisis had large effect on the development of Ludvika, since it caused the shutting of mines in Ludvika in the late 1970s and early 1990s. This was because the steel industry is the direct extension of the mining industry in the production chain of steel (Bergstöm 1997: 96). The raw materials (ore) which are collected from the mines are used in the production of steel.
Regions which have high share of the total employed people, working at large work places are vulnerable to structural changes and economic downturns. Were a downsizing, closure or relocation outside the region, can have huge consequences for the whole commercial and business life of the region, i.e. not just through the direct effects of jobs disappearing, but also because of the resulting effects on e.g. the service sector (NUTEK 2002. P. 11). In Ludvika the effect of the closing of one of the largest workplace in the municipality, the mines, could be seen in other sectors of the commercial and business life, between 1989 in the closing period of the last mine and 1993, the number of employed persons decreased by 3 191 persons (same numbers as in graph 3). This was not only the industrial sector which was hit but also the service sector as can be seen in graph 5, the service sector in Ludvika decreased enormously, at least since 1990 (could not access older statistics) and until 1998. In Borlänge, the service sector also took a downturn after the steel crisis, where the number of employed persons decreased significantly after the downsizing of the steel work in Borlänge in 1989, when one department (metallurgi) of SSABs steel work was closed, the number of employed persons decreased significantly in and after 1989. The number of employed persons decreased between 1989 and 1993 by 3 633 persons (see graph 4). The industrial sector in Borlänge has almost continuously decreased since the steel crisis, while the service sector decreased until 1994 and since then the service sector in Borlänge has had steady increase (graph 6). It is interesting to note that the service sector in Ludvika never has recovered since the downturn after the closing of the mines. The industrial sector has though recovered in Ludvika since its lowest point in 1994 (graph 5).

Employed persons 16 years + with workplace in Ludvika

Graph 5. Source: SCB 2012c. Employed persons 16 year old and older, with workplace in Ludvika, these jobs divided by sectors i.e. industrial, service and healthcare.

Employed persons 16 years + with workplace in Borlänge

Graph 6. Source: SCB 2012c. Employed persons 16 year old and older, with workplace in Borlänge, these jobs divided by sectors i.e. industrial, service and healthcare.

Policy efforts

The difficulties of Ludvika and Borlänge resulted in governmental actions. One of the efforts to try and fight the problems connected to the shutdowns in industry (caused by the steel crisis), were the relocations of state agencies. Dahlqvist explains how by using his political influence (contacts) Börje Andersson, who was chairman for the municipality board in Borlänge, was able to convince the
government in the late 1970s, that Borlänge was in need of support, which led to the relocation of Trafiksäkerhetsverket (Traffic safety agency) and Vägverket (Road agency) to Borlänge. With these agencies 800 employees followed to Borlänge. Few years later Banverket (Railway administration) was also placed in Borlänge (Dahlqvist 1999: 26). The establishment of these agencies in Borlänge, had a great impact on the development of the municipality. The effect of this has been, that a lot of service companies which have these agencies as customers have relocated to Borlänge (Borlänge 2012). In Ludvika the governmental actions led to few additional years for the mining industry in Ludvika (1987-1991). The politicians in Borlänge seem to have been eager to try and change the situation, by convincing the government to relocate certain agencies to Borlänge. The fact that these agencies were located in Borlänge is very important for the development of the service sector, where over a thousand jobs within the service sector were established.

Burman blames the relocation of state agencies, to Borlänge (and Falun) for a lot of job loss in Ludvika, also that Ludvika lost its important train node, to Borlänge, when a new railway yard was built in Borlänge (1960/70) (Burman 1978: 42).

The placement of a university college ¹ in Borlänge in 1977 was the consequence of the government wishes of increasing the number of university colleges in Sweden. The geographical location of Borlänge did presumably influence the relocation of the university college, which was shared with Falun (the administrative city of Dalarna), which is situated approx. 20 km away, while Ludvika can been seen as rather peripheral to the Falun/Borlänge city region.

Teknikdalen in Borlänge was another initiative to try to improve the situation in Borlänge after the decrease in industry. Teknikdalen was established to help high technological companies to establish in the municipality. The foundation Teknikdalen was founded in 1987, by the initiative of Swedbank, SSAB, Stora Enso, Vägverket and Borlänge municipality. Their roll today is to initiate, operate and participate in regional, national and international projects, and to facilitate for new innovations and business concepts from idea to the market. Since its establishment Teknikdalen has been a part of initiating, participating and running around fifty regional, national and international development projects (Teknikdalen 2012). Teknikdalen is operated with the support of EU’s structural funds.

High Voltage Valley (HVV) was established in Ludvika in 2005, by the initiative of the regional development company Samarknad2015 in cooperation with, KTH, Uppsala University, ABB, STRI and Chalmers. The activities were focused on establishing a research village in Ludvika, to secure the regions world-leading position with in electric power engineering. The purpose with HVV was to

¹ Högskolan Falun/Borlänge which later became Högskolan Dalarna
create more growth and development to the region. HVV is meant to be a neutral platform for cooperation between universities, companies and public actors. The activities involve common research projects, development projects etc. (HVV 2012).

In Ludvika the actions to try and improve the situation in the municipality, seem to have started a lot later than in Borlänge, for example with the High Voltage Valley initiative, which started in 2005, almost twenty years later than Teknikdalen was started. Both organizations have the purpose to promote regional growth and development (HVV 2012a and Teknikdalen 2012).

With the establishment of High voltage valley, Ludvika seem to be focusing on research which increases the number of educated persons. Ludvika already has a large number of employed persons with post-secondary education in technology and natural science (Partnerskap Bergslagsbanan 2011: 20). HVV conducts research within the industry at ABB, i.e. within the regional path already established.

With the fact that ABB is an international company, with branches all over the world, follows a constant threat of re-location. Even though the industry at ABB has formed Ludvika for more than a century, this might not have any impact if the headquarters in Switzerland decide that it would be more favorable to locate the activities elsewhere.

Since Ludvika has one private employer which employs many people, ABB, the municipality is very vulnerable to structural changes. The development of Ludvika has shown this since when Grängesberg mine was closed, which was the second largest employer in Ludvika closed for business, it had severe consequences for the municipality, especially in the smaller mining communities, where the regional path dependency of the mining industry was ended with the death of the mining industry in these communities. ABB has also decreased its number of employees since the 1970s. In 1978 Asea (ABB) had 3,350 employees (Burman 1978: 50) and in 2005 ABB had ca. 2,400 employees. If ABB would be hit by a crisis, it would have devastating effects on Ludvika.

The manufacturing culture has been strong in Ludvika and still is strong today. Ludvika has a path dependent development dependent on the manufacturing culture. Until the late 20th century, Ludvika had two paths, where the specialization with in power transmissions at ABB and the mining industry in the smaller communities of Ludvika, i.e. Grängesberg, Blötberget and Hälsberg etc. were the mining industry was the specialization the communities had been locked-in, until the path died out with the closing of the mines. These paths were though connected, i.e. while the mines had prosperous times in the first and Second World War, the electric industry at Elektriska Magnet (ABB) profited since the company built up the modern mining industry, which helped the technology at Elektriska Magnet to evolve. Nowadays these former mining communities mostly function as sleeping suburbs, where most of the inhabitants work in Ludvika town and many inhabitants have
moved away. Although, Grängesberg has Spendrups, which still was the second largest private employer in Ludvika in 1996, with 350 employees in their factory in Grängesberg (Bengtsson 1997: 13). The fact that the mining industry died in the 1990s did not mean that the manufacturing culture was affected, it lived on and the specialization at ABB kept the municipality locked-in a path dependent development with roots in the manufacturing culture.

The consequences of the steel crisis were rather similar in Ludvika and Borlänge, while the way in which they were met differs. The difference in the continuing developments of the two municipalities, after the steel crisis, can though not only be explained by the policy efforts and governmental actions. The situation in Borlänge is also different from the situation in Ludvika, in terms of the geographic location, the size of the local labor market and the placement in the transport system. Since Borlänge is situated relatively close to Falun (the administrative city of Dalarna) with a population of 56 000 (Falun 2011), where Falun and Borlänge function as one labor market, where over 5 700 persons commuted between the municipalities in 2010 (Appendix 1 (SCB 2012e)). Bergslagsbanan, railroad stretching from Gothenburg on the west coast of Sweden to Gävle on the east coast, passes through both Borlänge and Ludvika, but Borlänge is even a stop in another railway, Dalabanan, a railway stretching from Uppsala in the south to Mora in the north, this is railway also reaches Stockholm.

The recent development and the situation today

Kupolen, the largest mall in Dalarna’s county, is situated in Borlänge. It was originally built as an exhibition hall, with few shops on the bottom floor, but in 1995 it was entirely converted to a mall. Kupolen opened in 1990 and in 1995 it was enlarged with a new floor and the number of stores redoubled, in 2005 another floor was added and today there are around eighty shops, cafés and restaurants situated in Kupolen. Kupolen is one of the largest employers in Borlänge with 800 employees (Kupolen 2012). The establishment and enlargement of Kupolen has most definitely had positive impacts on the development of the service sector in Borlänge.

In Bergslagen - The heart of Sweden, Ludvika is described as a town with great future prospects. – A town of the future. Where “the heart of the ABB Group’s operations within the field of power transmission...” is situated (Blomé et al. 1992: 103), and that the town is characterized by high technology and that the municipality has a dynamic industry all thanks to ABB’s numerous companies (ibid). In the early 1990s, the municipality decided to start up a project named Lyvicom – Town of the future, where the intension was to build a completely new area with offices, industries and
homes at Lyviksberget, which is situated a couple kilometers outside the center of Ludvika town in the direction to Grängesberg. The idea was that Lyvicom was supposed to be a model community of the future with an integrated work and housing environment created around a core with a Business Center for hotels, corporate services, restaurants and conference premises. Technical standards were supposed to be high “with the potential for picture-phones, advanced telecommunications services, high definition telefaxes, computer terminal connections etc.” (Blomé et al. 1992: 104). The detailed plan for the workplace zone comprised of a total of 14 hectares, which included areas for green spaces, commercial services and access. (Blomé et al. 1992: 103f). These plans never became reality. If the Lyvicom plan would have succeeded, then Ludvika would most definitely have a larger service sector. The plan was to create 1 800 jobs in the area which most of would have been a part of the service sector. Nothing happened in the Lyvikberget for many years after the plans were proposed. In 2006 there was awakening in the area, when RUSTA (home- and leisure products), Elgiganten (consumer electronics), Jysk (home products), Coop Bygg (hardware store) and Coop extra (food store) decided to become tenants in the area. 2007 the first shovelful was made and the stores were able to open in 2008 (DT 2008).

The service sector in Ludvika started to increase in 2007/2008 (see graph 3) these stores have probably been the main cause of this increase. The glorious plans of the high tech model community of the Lyvicom plan did not become reality, but now a start of a trade center in the area has begun and there are possibilities that more stores will follow.

The development in Ludvika has been and still is path dependent, where the specialization within the field of power transmissions at ABB is evident. The establishment of HVV seems to consolidate the regional, historical path, the industry at ABB (Elektriska magnet) established. The fact that ABB is located in Ludvika occurred as a historical accident, while the path dependence has caused Ludvika to continue with its specialization. When Elektriska magnet was established in Ludvika, this industry was in the beginning of its life cycle, as most of the industries which result in a path dependent development. Ludvika has a high percentage of employees, with post-secondary education within technology and natural sciences. The manufacturing culture seems to be strong in Ludvika, this can have effected and made the expansion of the service sector more difficult.

The development of Borlänge was also path dependent where the steel industry had been the specialization the municipality had been locked-in. The town even has the steel industry to thank for the formation of the town, since the town of Borlänge emerged around the iron work established there in the 19th century. The regional path has now been broken, with the diversification of commercial and business life. Even though the steel industry still is rather evident in Borlänge, it is
not nearly as prominent as it was up till the 1970s, and the commercial and industrial life of Borlänge has become much more diversified. The political priorities which led to the re-location of state agencies to Borlänge, most definitely had impact on breaking the regional path, the specialization in steel industry had established. These re-locations led to many jobs within the service sector which in its turn led to the diversification of the commercial and industrial life in Borlänge.

The number of employed persons was 5 percent less in Borlänge in 2010 than what it was in 1985, while the number of inhabitants in Borlänge is 7 percent more in 2010 than what it was in 1985. The number of employed persons in Ludvika was 19 percent less in 2010 than in 1985, while the number of inhabitants was 14 percent less (Graphs 3 and 5). The population in Borlänge has increased more than the number of employed persons. Whereas the university college is situated in Borlänge this might imply that a part of the population increase are students. Since the number of employed persons has not increased in line with the population increase.

In a way, Ludvika and Borlänge seem to have been competing for companies and people throughout the last decades, where Borlänge seems to have had the upper hand, which can most obviously be seen in the population increase.

Even though industry has been very noticeable in Borlänge for all of its existence, the development of the town has brought about a steady increase in the service sector since the mid-1990s, while the employment with in the industrial sector has decreased slightly (see graph 6). While the service sector in Borlänge has increased a lot during the recent decades, the service sector has decreased in Ludvika, the re-location of state agencies and the appearance and enlargement of Kupolen mall, most definitely has had great impact on this development. The diversification of the working life which has taken place in Borlänge, with the enlargement of the retail sector, re-located public agencies to Borlänge and the placement of the university college in Borlänge, has made Borlänge able to break the path dependent development it had up till the early 1990s. Ludvika still follows a path dependent development, with one far about largest employer, which makes the municipality vulnerable to structural changes.

The investments which are in the pipeline in Ludvika

Now there is high expansion expected in Ludvika, because of investments made by ABB and Spendrups as well as the re-opening of three mines.

The opportunities with these investments are that the region around Ludvika can strengthen with more jobs for the inhabitants of the region.
Ludvika is expected to receive 2 000 – 2 500 new jobs, which is very much for a municipality of 25,000 inhabitants (DT 2011).

Variation of business portfolio (i.e. diversification of sectors) contributes to reduce regions vulnerability to external shocks. The discussion of regions structural vulnerability in Sweden has focused on the size of industry in different regions, what is today seen as a source for vulnerability was in the 1960s considered a solution to regional problems. In the 1960s the location politics, aspired to promote growth within industry (Nilsson 2011: 15). The larger the industrial sector is in a region, the more vulnerable the region is perceived. These investments which are in the pipeline in Ludvika are all within industry, this is an interesting fact, since the industrial sector in Ludvika already is the largest sector, these investments will therefore enlarge the industrial sector even more.

**Spendrups**

Spendrups is a brewery established in Grängesberg in 1897. The company has four breweries, located in Grängesberg, Vårby (outside of Stockholm), Hällefors and Visby (Spendrups 2012).

In 1996 Spendrups was the second largest private employer in Ludvika, with 350 employees in their factory in Grängesberg (Bengtsson 1997: 13).

Spendrups now plans to concentrate all production to Grängesberg. The plan for the following three years (from 2011), withholds investments of approx. one billion SEK. This will lead to Grängesberg being one of the most modern breweries in Europe (Spendrups 2012a). These investments are expected to bring about 58 new jobs to Grängesberg (Dalademokraten 2011).

**ABB**

ABB has for a long period been the largest private employer in Ludvika, the number of ABB´s employees in Ludvika was around the same in the year 2010 (ABB. 2011) as it was in 1992 (Blomé et al. 1992: 16) i.e. around 2 600 workers. ABB which first had the name Elektriska Aktieboleget magnet, then ASEA and finally ABB, has formed a path dependent development in Ludvika which is ongoing.

In December 2010, ABB made a press release about their planned investments in Ludvika. Were they announced that they had decided to build new premises for the HVDC-unit (high voltage direct-current), these plans were accounted to cost 250 million SEK and be ready for use in the summer of 2012 (ABB 2010).
The re-opening of mines in Ludvika - Grängesberg Iron and Nordic Iron ore

The mining industry has through the years had many up and downs. After having a difficult period in the late 1970’s and early 1980’s there seems to have been an optimist attitude within the mining industry in the mid 1980’s. In a conference held in 1985 in Borlänge, the Swedish minister of industry Thage G Peterson spoke about how in the resent years (before 1985) the number of employees in the iron ore mines had increased and how the newspapers shared the optimistic attitude with headlines like “Increased production and continuing investments in the Grängesberg mine”. (Peterson, Thage 1985: 51). The ups and downs obviously change fast; even though the industry seemed to be doing well in 1985, already in 1987 the decision was made to close down the last operating mine in Ludvika.

The reasons for the closing of mines in Sweden in the 1970s and 1980s were that the mines were no longer profitable. Sweden and other countries in the Western world had difficulties with competing with Asia and Latin America; where among others the wage cost was much lower. But “...the commodity price boom that emerged around 2004 fuelled a renewed interest in mineral exploration in Sweden...” (Ejdemo 2011: 15). This price boom meant that the mines in Sweden might become profitable again.

Grängesberg Iron AB started a profitability study in 2009, to examine if the re-opening of Grängesberg mine would be profitable. This was started because of an independent report, previously done, which showed that there were plenty of mineral resources to be found in the mine. Grängesberg Iron now plans to re-open the mine in Grängesberg. (Grängesberg Iron 2009). The Grängesberg mine closed for business in 1991, after having been unprofitably run by the state since 1987.

Nordic Iron Ore is a mining- and exploration company formed in 2008, with the main aim of re-opening the mines in Blötberget and Håksberg in Ludvika, and to conduct explorations and research on the expansion potential in the Väsmanfält (i.e. the area between Håksberg and Blötberget, underneath the lake Väsman in Ludvika). The mines in Håksberget and Blötberget were both closed in 1979 (Ljung 1998). The establishment of Nordic Iron Ore was motivated by the demand for iron ore, the favorable prices and economies of scale which the integration of the mining fields in Ludvika would withhold (Nordic Iron Ore 2012).

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2 Thage G. Peterson was one of the leading authors of Prop. 1988/nr. 64, which dealt with the difficult situation in Ludvika and Borlänge
Possible scenarios

In what way can these investments possibly effect Ludvika’s development? The future is difficult to foresee but I will illustrate three scenarios of possible future developments of Ludvika.

- **A continued decline.** If this is to be the case, Ludvika would have a continued decline, i.e. the population would continue to decrease.

  While promoting growth within industry was seen as the solution to regional problems in Sweden in the 1960s, today the structural vulnerability of regions is measured by the size of industry in the regions, the larger the industrial sector, the more vulnerable the region is.

  Ludvika would continue to be vulnerable to structural changes and if ABB would decide to re-locate outside Ludvika it would have severe consequences for the municipality, this is though not an actual problem for the moment, but the fact that ABB is an international corporation makes the question vibrant.

  There would be a risk to loose competent people from the region, and the new jobs created with these investments could then be hard to fill. The mines are in need of skilled people to work in the mines, the question is where these persons are to be found? If the labor need cannot be met the mines will face large problems. The employees needed for these new jobs, could also choose to live in e.g Falun or Borlänge, this would mean that the industry could be doing well but the new employees would not choose to live in Ludvika, this would lead to decreased tax income for the municipality which could cause poorer service and availability to healthcare, daycare, schools etc., which in its turn could encourage more inhabitants of Ludvika to move to other neighbor municipalities, even though they would keep on working in Ludvika.

  In this scenario the path dependent development would continue and Ludvika would continue to be locked-in its specialization. Ludvika could be a factor in increasing the growth of its surrounding region, were Ludvika itself would not experience the growth, at least not in terms of population increase.

- **A re-born manufacturing city.** In this scenario the opening of the mines would become prosperous and the increased investments in ABB and Spendrups would throw wood on the fire for the development of the industry in Ludvika. The industrial sector would increase even more and possibly transmit into other
sectors. “Globalization may reduce the number of manufacturing jobs, but those that remain may be highwage, high-skilled jobs that are not exposed to the same level of foreign competition. Job losses through globalization tend to be restricted to the low-skilled positions ... Although technological change reduces the number of manufacturing jobs, those that remain may be of higher quality. Technological advances increase the demand for higher skilled workers and reduce low-skilled jobs.” (Green and Sanchez 2007: 531). The global crisis which led to the steel crisis had enormous effect on Ludvika in the 1970s. The situation is different to day since higher skills are needed, with increased technological evolution, for example at ABB in Ludvika and in the mines. In this scenario ABB and the mines would inspire each other as it did in the early 20th century, were the mines would gain from the closeness to ABB and ABB be inspired to evolve their power and automation technologies which would benefit the mines. The path dependent development of Ludvika would not be broken, but the town could attract highly skilled workers to its region.

- **A more diversified town in the periphery of a larger local labour market.**

“Manufacturing often provides the economic base of a locality and creates additional jobs through the purchase of local goods and services” (Green. 2007: 531). Thus, creating jobs in other sector as for example the service sector. If these planned investments are able to transmit onto other sectors of the commercial and business life of Ludvika, it would mean that the commercial and business life of Ludvika would become more diversified. “Manufacturing employment also has constituted the base for many regional and local economies, thanks to its multiplier effects on other sectors and its influence on labor market standards. Baker and Lee (1993) estimate that the average manufacturing job generates 4.2 additional jobs in the economy.” (Green and Sanchez 2007: 530). Ludvika is situated in the periphery of the local labor market Falun-Borlänge, the commuting to and from Falun/Borlänge and Ludvika has increased enormously between 1993 and 2010, where the commuting between Borlänge → Ludvika has increased by 47 per cent and the commuting between Falun → Ludvika has increased by 45 per cent. The commuting from Ludvika → Falun has increased by 55 per cent and Ludvika → Borlänge by 27 per cent (see appendix 1). This enormous increase in commuting
between the Falun-Borlänge local labor market and Ludvika in both directions makes it relevant that this could be the same functional region in near future.

A report made in 2011 on patterns and development tendencies in Swedish municipalities, showed that the majority of new businesses are started within the service sector and that there is a clear connection between population growth and new businesses (Lexén et al 2011:28). This makes the enlargement of the service sector an important factor for population growth.

In this scenario, Ludvika could have great impact on the regional development of this enlarged labor market region. The diversification of the commercial and business life of Ludvika would lead to the path dependent development of Ludvika to be broken and possibly an increase in population with enlarged service sector. Ludvika would no longer be as vulnerable to structural changes as it is today, and more equipped to cope with international crisis and extern chocks.

**Summarizing discussion**

Ludvika and Borlänge both flourished in the 1950s and early 1960s and Borlänge continued flourishing until the early 1970s. The industries in the municipalities flourished which brought about structural changes which resulted in people flocking to regions where work was to be found. In the prosperous years before the steel crisis large investments were made in the steel work in Borlänge to meet the increase demand expected, but never became reality. Ludvika’s and Borlänge’s industries were vulnerable to the steel crisis, which hit Sweden in the 1970s.

When the steel crisis hit Ludvika and Borlänge, both of the municipalities were as poorly equipped to cope with the crisis, as both regions had been locked-in path dependent developments. In Ludvika certain communities had been locked-in a specialization evolving around the mines, these communities had been shaped by the mines for centuries but this regional path was put to an end, resulting in thousands of persons losing their jobs. The specialization which still is evident in Ludvika is the specialization which emerged around the industry at ABB. ABB also experienced a downturn after the steel crisis, where the employees decreased a lot in the decades following the steel crisis. The steel work in Borlänge was severally hit by the steel crisis and thousands of employees lost their jobs.

The state actions to counteract the decline in Ludvika and Borlänge, resulted in the state taking over the running of the mine in Grängesberg in 1987 – 1991 and re-location of a part of Vattenfall and a small part of the State’s tax offices to Ludvika (which did not give as many jobs as the hopes were).
In Borlänge the state actions resulted in a large sum of money was used to support the education in Borlänge and to the development of competence, which meant founding for Teknikdalén in Borlänge. Hence, the state actions were spent on ending the regional path already dyeing in Ludvika’s smaller communities (the mining industry) and either consciously or unconsciously, stimulating the diversification the commercial and business of Borlänge, by supporting new initiatives within the municipality.

The governmental actions made in Bergslagen after the steel crises, seem to have been much more short term in Ludvika than in Borlänge. The 200 million SEK used to make running of the mine in Grängesberg possible for few more year, was not effective in the long run. The relocation of state agencies in Borlänge has had much more effect on Borlänge and secured jobs for over thousand persons and helped diversifying the commercial and industrial life of Borlänge.

The geographical location of Borlänge and the location of the railroad through Borlänge, probably effected the decision to re-locate the important state agencies to Borlänge, where Ludvika lies rather peripheral in the county of Dalarna, while Borlänge lies only 20 km from the administration center of Dalarna, Falun.

The political priorities which led to the re-location of state agencies to Borlänge, most definitely had impact on breaking the regional path, the specialization in steel industry had established. These re-locations led to many jobs within the service sector which in its turn led to the diversification of the commercial and business life in Borlänge.

The consequences of the steel crisis were rather similar in Ludvika and Borlänge, while the way in which they were met differs. The difference in the continuing developments of the two municipalities, after the steel crisis, can though not only be explained by the policy efforts and governmental action. The situation in Borlänge is also different from the situation in Ludvika, in terms of the geographic location, the size of the local labor market and the placement in the transport system.

The diversification of the working life which has taken place in Borlänge, with the enlargement of the retail sector, re-located public agencies to Borlänge and the placement of the university college in Borlänge, has made Borlänge able to break the path dependent development it had up till the early 1990s. While Ludvika still follows a path dependent development, with one far about largest employer, which makes the municipality vulnerable to structural changes.

The service sector in Ludvika has never recovered since the downturn after the closing of the mines. The industrial sector has though recovered in Ludvika since its lowest point in 1994. Hence, the
manufacturing culture seems to be strong in Ludvika, this strong manufacturing culture is one factor which probably has made the expansion of the service sector difficult. In a way, Ludvika and Borlänge seem to have been competing for companies and people throughout the last decades, where Borlänge seems to have had the upper hand, which can most obviously be seen in the population increase.

The investments which are in the pipeline in Ludvika are all within the industrial sector. An investment in industry does not necessarily mean, increase in employment. This could for example clearly be seen after the formation of SSAB in 1978, when billions were invested in the steel industry. This brought about rationalization and effectiveness, were a lot of people lost their jobs. Investing in industry can result in improved technology and technological development.

**Conclusions**

The differences in the development patterns of Ludvika and Borlänge, since the economic crisis in the mid-1970s, can be understood to large extend, by the policy efforts made in the municipality after the steel crisis. The consequences of the steel crisis were similar and hit both municipalities hard, but the ways in which the consequences were met differs between the two municipalities. Were the governmental actions had much more long term effect in Borlänge, than what it did in Ludvika. But even though the governmental action after the steel crisis had a great impact on the development of especially Borlänge, there are more factors which influenced the development, i.e. the geographic location, the location within the transport system (where Borlänge is much more central), the strong manufacturing culture in Ludvika and the size of the local labor market (were Borlänge’s labor market is much larger than Ludvika’s (where Borlänge and Falun (the administrative city of Dalarna) make a common local labor market)).

Ludvika and Borlänge both had a rather typical development of manufacturing belts regions, after the steel crisis, but Borlänge’s development then took a turn for the better, in terms of population increase, where the population has increased a lot since the steel crisis. Ludvika continues to be locked-in a specialization and follows a path dependent development, depending on the strong manufacturing culture, where ABB is far about the largest employer in the municipality still today. Borlänge has been able to break its path dependent development with the diversification of the commercial and business life of the municipality, the governmental actions after the steel crisis had large effect on this. Were the geographical location, the location in the transport system and the closeness to Falun most definitely also influenced.
The planned investment in Ludvika can represent an opportunity to change the development pattern of Ludvika, as the third scenario, a more diversified town in the periphery of a larger local labour market demonstrates, i.e. if these planned investments are able to generate jobs in other sectors, such as the service sector, the commercial and business life of Ludvika will become more diversified. That would mean that the path dependent development of Ludvika would be broken, the municipality would not be as vulnerable to structural changes and most likely the population would increase. The other two mentioned scenarios do on the other hand not represent a change in the path dependent development of Ludvika, but the a reborn manufacturing city scenario could possibly involve that the population decrease would be reversed. The first mentioned scenario a continued decline would involve the development pattern not to be broken and the municipality would continue its decline in population and the path dependent development it has followed for more than a century. One can plan with decline, instead of against decline, as well as for growth.

As mentioned before the investments which are in the pipeline in Ludvika are all within the industrial sector. The fact that the enlarged service sector and increased population seem to go hand in hand in Borlänge, and that most new businesses are started within the service sector which has clear positive effects on population growth, makes the enlargement of the service sector seem an important factor for increasing the population, hence if the new jobs expected in Ludvika will create additional jobs in other sectors as the service sector, it could encourage population growth in Ludvika and the path dependent development could be broken.
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Pictures on the front page:

The first one shows the Grängesberg mine field, the picture is taken in 1969, taken from http://www.lansstyrelsen.se/dalarna/Sv/samhallsplanering-och-kulturmiljo/byggnadsvard/maskinhuset-grangesberg/Pages/default.aspx in May 2012.

Appendices

Appendix 1

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