Returning to Work
Geographies of Employment in Turbulent Times

Emelie Hane-Weijman

Department of Geography and Economic History
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1 INTRODUCTION

Labour markets have dramatically changed in the last decades, as actors have adjusted production of goods and services in response to a changed economic landscape and global competition. Contemporary times are characterized by high employment turnover deriving from single job separations, major downsizing or even plant and firm exits (Essletzbichler, 2004; Essletzbichler, 2007), and new employment contracts have shifted from permanent to temporary and more flexible ones (Holmlund & Storrie, 2002). The everyday life of workers and firms is uncertain and changeable, as strategies of being responsive and flexible are perceived as necessary in order to survive (Bryson et al., 1999:12). Although people in capitalist economies have always faced the possibility of losing their job and having to look for possibilities of getting (re)hired, economic actors today have pushed themselves so hard to become more efficient and responsive that the time frame one can allow oneself to look into the future and predict something with certainty has shortened dramatically. What qualities will be needed in the region, institutions and workers in a decade or even next year?

Workers of the future will need to be highly adaptable and juggle three or more different roles at a time [---] There will be constant new areas of work people will need to stay on top of. In 2050 people will continually need to update their skills for jobs of the moment, but I have an optimistic view that there will continue to be employment if these skills are honed.

Chopra-McGowan head of enterprise new markets for General Assembly (2016)

Daunting as this may sound, it does not seem like an impossible future scenario considering the developments of the past decades. This means that, to a much greater degree than previously, strategies at the regional and individual level need to be more responsive to the dynamics of the economy. Thus, an adolescence mastering the traits of his/her parents or a region further investing in the specialization it historically had a comparative advantage in could suddenly mean out-dated skills and economic lock-in. The strategies of workers, regions and nations cannot be set up with only the present economy in mind, but need to consider the fact that very little is known about the future.

Neo-liberal policies of deregulation have increasingly allocated responsibility for development to the regions. This has meant that regional actors have had to find ways of making the region and economy attractive and of competing with other places for global investment (Harvey, 1989). The position in a regional hierarchy within a nation as well as the capacity of a place to take advantage of positive global linkages, becomes crucial in shaping the opportunities of workers. Where one happens to live effects the employment prospects, shaped by activities within the region, nation as well as from international processes (Dicken, 2016; Rodriguez-Pose & Crescenzi, 2008). During the period studied, 1990-2010, the economy has gone through major structural changes, where old core activities of low-skilled and manufacturing jobs have been outcompeted.
by more knowledge-intensive and/or service-orientated activities (Essletzbichler, 2007; Lundquist & Olander, 2010). This process has had a clear spatiality to it, where the creation of jobs in services are primarily located in bigger cities – resulting in an increased regional divergence (Andersson et al., forthcoming). In addition, European economies have been disrupted by major economic shocks, which regions have managed to resist and recover from to various degrees and at different paces (Sensier et al., 2016). These developments – of new geographies of production, flexible capital accumulation and neoliberal policies of deregulation – have resulted in an uncertainty about economic life (Bryson et al., 1999). These uncertainties have generated discontent in societies all over the world, where the very identity of the region and that of workers have been labelled as old or ‘lagging behind’. Political populism related to a region or territory has blossomed up, questioning both the lack of place sensitivity in policies and how people-based policies assume individual flexibility for the benefit of the system. Hence, there is a need to combine a place-based and people-based focus in policy as well as in research (Rodríguez-Pose, 2018; Storper, 1997), by acknowledging that people are linked to places, both on material and immaterial levels, and that the ability to successfully move and compete in new spaces is restricted to certain groups of people.

With these major changes in what kind of jobs exist and where they are located, in relation to spatial differences in where value is created and captured (Andersson et al., 2016; Dicken, 2016), it is important that employment changes per se be studied, not only economic growth or productivity, as these are separate phenomena (Massey & Meegan, 1982). Moreover, when analysing employment growth, most studies have used net figures to evaluate the labour market situation over time. However, net figures typically mask high numbers of job creation and destruction and fail to understand the micro-level processes at work and the labour matching that is needed. Given the economic developments mentioned above, it is not surprising that interest in the notion of regional resilience – the ability to resist, recover and reorganize the economy (Martin & Sunley, 2014) – in economic geography has increased. Evolutionary work has begun to acknowledge the dynamics of resilience (Sensier et al., 2016), yet very little is known about the different phases and how they are related to one another. Or as stated by Diodato and Weterings (2015:723), “To date, theoretical and empirical insights in the determinants of regional resilience are still limited”. Martin (2012) argues that adaptability depends on the diversity of, among other things, economic structures, but there is very little econometric evidence to indicate how and when these structures actually matter (Holm & Østergaard, 2015). As stated by Diodato and Weterings (2015:723): “Most studies do mention the possible factors which may affect a region’s resilience to economic shocks, but only few thoroughly discuss or empirically examine how these factors matter”.

Scholars and policymakers have tried to understand how we can facilitate redundant workers’ way back to employment by focusing on their employability, where the main focus has been on individual responsibility and flexibility (Shuttleworth et al., 2005; Sunley et al., 2001). Hence, much of the focus has been on the supply side of the labour
market, but less is known about the demand side. The regional absorptive capacity, that is, a region’s capacity to allocate workers into new employment, is crucial, as the employability of redundant workers cannot be separated from the labour market context in which they are positioned (Sunley et al., 2001). A major area of research within economic geography, spanning from the seminal work of Marshall (1920) to more recent studies by Frenken et al. (2007), has stressed the importance of the regional industry structure in understanding a region’s absorptive capacity. However, the empirical studies to date have largely focused on aggregated figures on employment and unemployment growth, missing the actual re-employment opportunities for the workers made redundant. There is a large body of literature on workers facing redundancy as well as on their way back to work and the qualitative aspects of the new employment. These are largely case studies addressing how workers experience the skill mismatch and distance they had to move in industry space to become re-employed. Few, if any, quantitative studies have thoroughly studied these trajectories in terms of industry and regional mobility. In addition, very little is known about the effects of these mobilities – both in terms of employment stability and skill matching (Holm et al., 2017). As argued by Nedelkoska et al. (2015:1), “we need to move beyond the recently proposed symmetric occupational distance measures towards characterizing occupational switches as having both a distance and a direction”. These micro-processes of mobility are pivotal in understanding how workers and regions can be made adaptable. This is because it is the diversity of micro-processes over time and space that is the force underlying changes in the economic landscape (Metcalfe et al., 2006).

1.2 CONTRIBUTION AND AIM

Based on the research gap presented above, this thesis focuses on major employment layoffs to address the resilience and adaptability of regions and workers in times of turbulence. While the literature on redundancies has placed the worker and her characteristics at the centre, evolutionary economic geography has largely viewed workers as homogenous and instead focused on the diversity of regional industries as facilitating regional employment growth. This thesis places the workers at the focal point and addresses the characteristics of both regions and workers to explain regional employment changes and the diverse mobilities of redundant workers who are re-employed. The core idea is that people do not simply re-appear in a new job, but that returning to employment entails mobility that gives rise to frictions\(^1\) that have an effect on the outcome for both the worker and the region. More specifically, this thesis addresses the frictions of the regional industry composition and those that arise with mobilities in industrial and regional space. The contribution made is primarily the generation of systematic empirical evidence of regional resilience and worker adaptability.

Most similar studies have used productivity as the main variable, but in this thesis the main emphasis is on employment changes. This is because the creation and destruction

\(^1\) ‘Frictions’ is used here and throughout the thesis to denote obstacles to mobilities that entails different ‘costs’
of jobs are phenomena that directly affect the people in a society, and are strongly linked to the idea of economic well-being (Sensier et al., 2016). Moreover, employment tends to recover much slower from recessions than output does, and it is a more critical variable with profound consequences for the regional economy (Martin, 2012). Therefore, it is an important and suitable indicator of change in a region. Moreover, most work on the effects of industrial composition has been on aggregated employment figures, employment and unemployment growth. Using micro-data, it is possible to address resilience and adaptability by studying gross employment changes as well as the actual mobilities of workers made redundant and their individual labour market trajectories.

The aim of this thesis is to situate the worker in a spatial and industrial context and to analyse how redundant workers move and how these mobilities, both geographical and industrial, shape their re-employment possibilities. The thesis uses a unique micro-database which makes it possible to analyse gross employment flows, job creation and destruction and to link employees to employers over time and space in Sweden, during the period 1990-2010. This means that it is possible to study not only the aggregated outcome, but also the underlying micro-changes that give rise to both continuity and change, thus enabling a more detailed account of the micro-dynamics of resilience and adaptability for both regions and workers. In order to address the study aim, the following research questions will be addressed:

- How are employment developments related to business dynamics and industry composition?
- How can regional industry composition facilitate re-employment?
- What regional and industrial mobilities do redundant workers perform when they return to work?
- What industrial and regional mobilities increase a worker’s chances of successful employment?

1.3 THEORETICAL INSPIRATION

This thesis is based in economic geography, but more precisely it adopts an Evolutionary Economic Geography approach (EEG). First and foremost, this means that it is not only geography that is important, but also time. To understand the development of the economic landscape, this development needs to be understood as a process involving both continuity and change. Regional development can be illustrated as trajectories that are always changing, but they inhibit dimensions of continuity, as they are always dependent on their history and geography. They are what is called ‘path dependent’. This means that, in contrast to neo-classical economics, there is no stable state, no equilibrium. This does not simply mean small changes in how economic models are set up, but a fundamental difference in the understanding of how the economy works. In line with

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2 A more elaborate discussion on EEG is presented in Section 2.1
3 EEG encompasses a broad variety of researchers with different understandings of what can and cannot be done within an evolutionary framework. This is one side of it, which the author agrees with.
complexity theory, EEG is informed by the notion that "the world is not a perfectly ordered system reducible in principle to mathematical equations, but is to a large extent organic and algorithmic – it proceeds by building on what is there already and it builds and changes step by step" (Arthur, 2015:x). There is no natural state of an economy, and no outcomes that can be seen as the one true natural result of a specific process. A process unfolds through complex mechanisms of self-organization based on interactions (Nelson, 1995). By introducing complexity it, in the words of Arthur (2015:2), “gives us a world closer to that of political economy than to neoclassical theory, a world that is organic, evolutionary, and historically contingent”. Change and disturbances are therefore seen as vital elements in understanding regional development, in contrast to classical economics. This is why recessions, structural change and resilience have been well-studied issues in EEG (Christopherson et al., 2010). While the EEG framework emphasizes the importance of the micro-behaviour of a diverse set of agents, in empirical work the focus has almost exclusively been on firms and plants, analysing output, innovations and patents to explain regional change. The spatial behaviour and constraints of individuals have been largely neglected. Similar to the question Hägerstrand (1970) posed in his title “What about people in regional science?”, one could ask: What about people in EEG? This gap in the literature has been addressed by several scholars (e.g., MacKinnon, 2017; Pike et al., 2009). So, while basing the research in an EEG framework, this thesis adds to the EEG literature by focusing on the workforce, and aims to draw from work on labour geographies and redundancies to expand the EEG literature and include the mobilities and constraints of people in times of turbulence.

This is a quantitative thesis that uses big data. I focus on the general rather than the particular. However, there are structural problems, and there are benefits associated with highlighting the more general trends individuals face due to sex or educational level – although not everyone would say they experience these effects themselves or would even categorize themselves in the same way. The re-employment possibilities and job opportunities of redundant workers are made up of complex processes that can be analysed from many angles and using many dimensions, all of which cannot be addressed within the scope of this thesis. For example, there are effects from other important agents in the restructuring process (e.g., Hallin, 1995), effects on and from workers’ families (e.g., Ahn & Ugidos-Olazabal, 1995; Berger, 1973), physical distance to jobs in relation to place of residency (e.g., Åslund et al., 2010), agency and identities (e.g., Gardiner et al., 2009; Leana & Feldman, 1995), reservation wage (e.g., Rogerson et al., 2005), short-term reactive unemployment policies in turbulent times (e.g., Chung & Thewissen, 2011), longer-run policies on unemployment (Calmfors et al., 2001) as well as the impact from global investment plans (Dawley, 2007). What this thesis sets out to do, on the other hand, is to situate the worker within a context and acknowledge that mobilities imply switching costs. Little is known about the mobilities of redundant workers, and their effects. People do not simply reappear in a new job or in a new region, but reappearance is the result of mobilities that take time, effort and money and can come at costs that are hard or impossible to measure. However, there are certain aspects of frictions of mobilities that
can be captured and that can help us to better understand potentials for minimizing the costs to individuals in times of economic turbulence.

Thus, as stated earlier, this thesis starts from an EEG perspective, and more specifically a special part of EEG that focuses on the labour-matching effects of agglomerations and frictions of mobility. It broadens the framework by incorporating important aspects from the literature on redundancy and labour geographies in an attempt to add people into our understanding of resilience and adaptability in times of turbulence. EEG has important contributions to make in analysing uneven development, and industry composition is one such contribution, as it positions economic actors within a network of other economic actors. It is important to analyse how regional characteristics shape redundant workers’ re-employment opportunities. In contrast to a neo-classical approach, this thesis does not align with the idea of individuals as free rational beings who optimize their own situation at every point in time. People’s actions are restricted and their mobilities come with costs. People are tied to places to different degrees, which is why people-based and place-based policies are needed. People are not able to calculate the effects of their actions, as there is no such thing as perfect information on the processes and relations that surround us.

1.4 OUTLINE

This thesis consists of an introductory part, and an appendix with four articles. The introductory part contains this introduction and a subsequent literature review. This section begins by laying out the theoretical framework of EEG, path dependency and resilience, followed by a review of the redundancy literature. The literature review ends with a sub-section on the frictions of mobility and the concepts of regional and labour branching, that is, how regions and workers diversify into new economic activities. The third section briefly discusses the data, variables and methods used in the papers, as well as the limitations and strengths connected to these. The fourth section aims at summarizing the main findings of the four papers, but to position these in time and space, it begins with a brief review of the political, geographical and industrial changes connected to this time period in Sweden. The fifth section contains the conclusions, and the final section a Swedish summary.
2 LITERATURE REVIEW

2.1 EVOLUTIONARY GEOGRAPHY

The term ‘evolutionary’ has been used by a broad range of people to define social change, from Adam Smith to Karl Marx, but it was in sociology that it first became popularized in the 19th century (according to Hodgson, 2009). In 1898, Veblen wrote a paper entitled “Why is economics not an evolutionary science?” Part of his critique was that while evolutionary thinkers studied mechanical sequences, the classical economists aspired to apprehend these as natural laws – “to give a spiritual stability and consistence to the causal relation at any given juncture” (Veblen, 1898:378). The seminal work of Nelson and Winter (1982) about a century later had a great impact on how one can understand economics as evolutionary. The main point is to understand the dynamic micro-processes of diversity that shape the economic landscape, which is formed by the markets and institutions (Metcalfe et al., 2006). At each point there are forces of change as well as continuity, random elements as well as inherited routines and institutions (Nelson, 1995).

This “evolutionary turn” (Martin, 2010:2) has influenced a wide variety of social science disciplines, including economic geography. Recent developments in economic geography have worked on adopting and developing a theoretical framework based on an evolutionary understanding of an economic landscape. Both the spatiality and the temporality of societal activities become crucial, and it is argued that if we are to comprehend an economic phenomenon, we must understand it as a process (Boschma & Martin, 2010). What then becomes crucial to an evolutionary approach is that outcomes emerge and are constrained by the history and context in which they are developing – they are ‘path-dependent’. The past is not determinative, but it affects the probability that different scenarios will occur (Boschma & Frenken, 2006). The economic landscape is produced through complex societal processes – unfolding processes that depend on a complex set of mechanisms, which are self-organizing through forces of both continuity, the inertia of institutions and habits, as well as the random elements creating change (Nelson, 1995). All outcomes and practices are, however, dependent on their position and context, their geography and history, creating spatial continuity over time (Martin, 2012).

The development of a system is hence always dependent on the form and shape it used to have; this is not solely a local process, but one co-developed from/on different levels and scales (Martin & Sunley, 2014). One of the core ideas found in this body of this literature is that capitalism is in constant flux, the constant ‘creative destruction’ within a self-organizing system (Schumpeter, 1951). There is never a stable state, but the relationships and the landscapes are more or less continuously changing, with new formations and activities taking place and old structures having to be destroyed. The selection of what is destroyed and what is created is dependent on both random forces and existing structures and agencies. The selection process is dependent on adaptability to the present spatial and temporal context. However, there is no striving for equilibrium; the changes are not working towards a universal optimum. Neo-classical economists have based their
understanding of selection on the idea of the ‘survival of the fittest’ – a closed system in which there can be one optimum, where inefficiency and diversity are out-selected, leaving only the fittest: survival of the profit-maximizers. Instead, Essletzbichler (2007a) states that there is no divine optimum and emphasizes that survival is rather about being sufficiently fit in the short run and adaptable in the longer run. There can be trade-offs between optimization to suit the current situation – increased efficiency of individuals, technologies, organizations and institutions and removal of unnecessary features and activities – and adaptability – allowing for diversity that is less sensitive and opening up new paths for development. An important conviction that arises from these assumptions is that there is no equilibrium or steady state; regional paths or trajectories are open-ended processes through which industry setups, labour markets, institutions and technologies co-evolve (Martin & Sunley, 2014). This means that the use of path dependency does not imply a deterministic process, but rather that history and geography matter.

In the literature on path dependency, the concept of ‘lock-in’ is widely used, though its meaning is somewhat ambiguous (Martin, 2010). The concept is usually referred to as a dead end, emphasizing stability rather than change, which may resonate better with the idea of equilibrium than with an evolutionary framework. Instead, it could be thought of as implying: “problems of adjustment, or negative lock-in, are likely to occur when the needs of new technology (in terms of knowledge, inputs, etc.) are hard to match by the specialized structure of the region” (Boschma & Lambooy, 1999:416). This refers to rigid trajectories that have problems diversifying. In addition, some scholars argue that an exogenous force or shock is necessary to de-lock a path, which gives us very little insight into its mechanisms and the tools that can be used (Martin, 2010). It also gives us a somewhat strange notion of what is internal and external to the region – an impression that it is only at certain points in time that extra-regional processes impact the intra-regional structure. A region is never a closed system; it will always be exposed and produced through a broad range of actors (e.g., individuals, firms and governmental) and processes (e.g., institutions and networks) at different scales – the local, national as well as transnational. Because each place is unique, even when different regions are exposed to the same pressure or set of links, they nonetheless process these in different ways, ending up with different effects and outcomes. This means that even though the economy has become globalized, globalization can never make places homogenous (Castree et al., 2004). Hence, what is of importance is what different pressures a region is facing and how it reacts to them, that is, the region’s resilience and adaptability (Martin, 2010).

2.2 RESILIENCE
The concept of resilience has been used in a variety of disciplines and it has received growing interest in economic geography. The reason for this might be the developments seen around the world, with an increased sense of risk and uncertainty. But the growing literature using an evolutionary approach has also proposed shocks and disturbances as core mechanisms in understanding how the economic landscape changes over time
(Christopherson et al., 2010; Evenhuis, 2017; Martin, 2012) Even so, there is no consensus on how the concept of resilience should be used, which has been of great concern to many economic geographers (e.g. Hudson, 2009; Pike et al., 2010). One explanation for why it is so popular is this very lack of consensus on what it is, i.e., that it can be used to suit each person’s individual purpose (Christopherson et al., 2010). However, though it might complicate discussions, the looseness of the concept of resilience might not only be a problem, as it could be used as an umbrella under which diverse disciplines and strands can come together to discuss the issues of changing landscapes. This means, on the other hand, that how it is used in each case needs to be clearly defined.

Traditionally, in economics, the usage has concerned ‘engineering resilience’. This approach typically focuses on the national level, assuming a steady state. Resilience hence becomes a question of being able to stay as close to this pre-shock point as possible during the disturbance or quickly returning to this state of equilibrium afterwards (Pike et al., 2010; Simmie & Martin, 2010). As Pike et al. (2010) state, this approach has not been able to satisfactorily account for the diversity and persistently unequal developments seen in the geographies of resilience. It fails to problematize the scales of resilience: resilience for whom and where? Scholars working with ‘ecological resilience’ study the magnitude of the shock and how it can be absorbed by the economy before it changes its system and structures, switching to a new “regime of stability” (Simmie & Martin, 2010:4). This could be interpreted as simply using several points of equilibrium rather than one, as in the first case. An equilibrium understanding of resilience means a view on resilience as generic and on economies as closed systems. This fits poorly with an evolutionary understanding of regional development (Pike et al., 2010).

Scholars working with evolutionary terms in economic geography have tried to reframe it, arguing for the usefulness of the concept if it is understood as a more dynamic process (e.g., Boschma, 2015; Dawley et al., 2010; Martin, 2012; Sensier et al., 2016), as trajectories dependent on their histories as well as the socio-spatial relations that shape and are shaped by these trajectories. It is an open system (Pike et al., 2010). In order to address resilience, evolutionary approaches have been inspired by complex adaptive system theory (CAS). According to Martin (2012:10), the core of CAS is “self-organizing behaviour, driven by co-evolutionary interactions among their constituent components and elements, and an adaptive capacity that enables them to rearrange their internal structure spontaneously”. This means that all entities in a system interact continuously, respond to internal or external changes or disturbances, and form new structures, in a self-organizing manner. The conclusion he draws is that economic resilience can then be viewed as the ability of a system to change its structures to adapt to disturbances. Emphasizing change and response, he sketches out four dimensions to understand how regions react in times of turbulence, calling them the 4 r’s: ‘resistance’, ‘recovery’, ‘re-orientation’ and ‘renewal’. While ‘resistance’ refers to how much the regional economy is affected by the shock, ‘recovery’ is the ability to catch-up afterwards. These two are similar to traditional views on resilience. However, the recovery phase becomes much
more complex when ‘re-orientation’ and ‘renewal’ are added, going from a two-dimensional line that moves up and down to actually saying something about *what kind* of change regions are experiencing in the aftermath of the recession. ‘Re-orientation’ refers to the structural change a region is undergoing, and ‘renewal’ to the extent to which the region moves back onto the pre-shock growth path. Resilience is hence a combined process of resistance, recovery and restructuring in the face of economic disturbances. It is important to acknowledge the dynamics of this process, as the separate phases might depend on different structures and capacities (Sensier et al., 2016).

What is gained from this is a more dynamic view of resilience, but it also enables a more diverse understanding of how regions can be resilient and how change (sometimes in the form of destruction) can be productive (creative). To address the unevenness of resilience over space, these diverse processes following the recession are important. Pike et al. (2010) instead use the concepts ‘adaption’ and ‘adaptability’ and refer to them as dialectically related, where adaption refers to returning to the previous path in the short run, whereas adaptability refers to the ability to steer onto several new paths. One important contribution Pike et al. make is that adaption and adaptability can be found in the same place as complementary processes, explaining the actions and interactions of different actors and giving rise to a complex form of resilience in the same place. This makes the place and context very important to further understanding the mechanism underlying resilience. Moreover, resilience might mean different things for different regions. While some places might need protective structures that are able to preserve a system, others need to find new trajectories or paths (Hudson, 2009). This thesis aims at addressing these diverse trajectories following times of economic turbulence, but due to the complexity involved in differentiating between ‘adaption’ and ‘adaptability’, which overlap (Pike et al., 2010), this thesis will use a straightforward approach by addressing the whole process as ‘resilience’, while the initial stage is the capacity of ‘resistance’ and the later phase of recovery is referred to as ‘adaptability’. It is still possible to discuss the results as ‘adaption’ contra ‘adaptability’ (as framed by Pike et al.), but within the scope of this thesis this would mean adding too much complexity and would require another research setup.

Given the history of how the concept of ‘resilience’ has been used in economics and the new emphasis on terminology such as ‘adaptive’, there has been widespread concern about its potential usage. Scholars have pointed out how it can be used to push for neoclassical ideas of a steady state and policies framed within a neo-liberal ideology focusing on individualism and the efficiency of markets (see e.g., Cretney, 2014; Evenhuis, 2017). In line with these perspectives, what happens to the regions would be ‘natural’ and up to the mechanisms of the market to settle, leaving very little room for state intervention. This could be the way to use the term resilience, but it is not the sole understanding of how to use it, as has been shown and argued for in numerous papers (e.g., Martin, 2012; Sensier et al., 2016). On the contrary, the term resilience has been argued to have the potential to be a progressive tool to shift the focus away from a more short-run perspective on growth and efficiency towards longer-run and sustainable
development (Evenhuis, 2017). In order to do that, Hudson (2009) argues that the neoliberal discourse’s strong emphasis on upgrading a region’s position within global production networks has to be questioned. For example, more might be gained by focusing on intra-regional labour mobility than by attracting particular groups of high-skilled workers. Moreover, the dimensions of power, inequality and agency need to be addressed to a larger extent, and it is important to start asking questions concerning the resilience of what and for whom (Cretney, 2014), but also where. This is related to the next point, that it is important not to forget that adaptability is a normative concept. There have been concerns that an evolutionary framework may result in undermining the importance of agency, institutions and power relations. Actors and groups of actors, with different positions and interests, are negotiating the power to define development, strategies and adaptability (MacKinnon et al., 2009). There are clear political dimensions, both in assessing what is categorized as a positive development as well as in shaping the actual outcome, as policies facilitate and obstruct certain developments. This has to be related to larger discourses of ‘development’, such as those concerning growth, competition and attracting investors (Bristow, 2010). Resilience is also normative, because what is seen as a positive process or outcome at the individual level is shaped by the institutional and cultural context, hence affecting the choices that, e.g., workers make in times of turbulence. “This implies that regulative, normative and cognitive factors may all be present in particular contexts and work together to inhibit or facilitate adaptive capacities” (Bristow & Healy, 2013). This makes the question of power important, as different people will have different agendas, and certain elites – political, economic or social – will push for certain outcomes over others.

One major problem is using the hegemonic discourse of competition as the key to regional development, which creates problems for regional resilience (Bristow, 2010). This means it is even more important to ask questions concerning resilience for whom, where and in relation to what? Competition comes to concern “‘attractiveness’ or the capacity of the region to compete with other places for globally mobile capital and labour” (Bristow, 2010:159). If questions concerning resilience for whom, where and to what remain unasked, then resilience policies might end up simply being strategies that work on behalf of the system itself. In this case, resilience becomes capitalist antidotes for the destructiveness that is at capitalism’s core: “resilient spaces are precisely what capitalism needs – spaces that are periodically reinvented to meet the changing demands of capital accumulation in an increasingly globalized economy”(MacKinnon & Derickson, 2012:254)

Hence, problems arise when regional paths are dealt with as homogeneous, and the many diverse paths of workers, firms and other agents within a region are not acknowledged. As stated by Bristow and Healy (2013:927), “Without looking at the decisions, behavior and actions of agents one is left with only a partial understanding of how emergent performance outcomes are achieved”. This thesis aims to add workers to the literature on resilience and to acknowledge the diversity of labour market trajectories
in an attempt to better understand employment adaptability in the aftermath of redundancy.

2.3 ABSORPTIVE CAPACITY, LABOUR MATCHING AND RELATEDNESS

There is a need to better understand how regional characteristics can facilitate re-employment possibilities (Nyström, 2018), as there seems to be great differences in regions’ absorptive capacity (Nyström & Viklund Ros, 2014). Usually these differences are explained by regional size (Puga, 2010) or unemployment levels (Fallick, 1996). In addition to these, evolutionary work within economic geography has focused on the industrial structure in explaining regional variation in absorptive capacity. The idea behind this is that the different economic activities being carried out within a region are interlinked to various degrees, forming relations and networks that link different actors together. The outcome of a given firm is not solely dependent on its own characteristics and performance, but also on the features and behaviours of the aggregated whole (Asheim, 2009). Regional actors interact and form patterns and behavioural routines that effect what they do and how they do it. The characteristics of these activities and agents construct a base on which all economic processes are carried out – or rather which they are forged by and forge (Eriksson & Lindgren, 2011). Hence, microeconomic diversity shape economic structures (Metcalfe et al., 2006), but these structures in turn shape the micro-processes. Consequently, the economic resilience of a region is not simply dependent on the stability of a particular industry, but more on how the different components interact and on the resilience of the whole interdependent system (Conroy, 1975). Agglomerations are argued to generate positive externalities for firms due to shared costs, knowledge spill-over and labour sharing. The focus of this thesis is on how industry composition can facilitate labour sharing, not from the firms’ perspective but rather the region’s and workers’. This is accomplished by studying ‘absorptive capacity’ and ‘labour matching’, that is, respectively, the capacity of the regional economy to re-employ redundant workers, and the similarity between the redundant workers’ skills and competences and the supply of new jobs. These are of course interlinked. Agglomeration effects are generated through effects of size and the qualitative features of industry composition within a region. The debate around externalities from agglomerations has mainly focused on the differences between and strengths of the three main theories of dynamic externalities: Within the same industries (localization economies), between different industries (diversified economies), or due to size and density independent of the industrial characteristics (urbanization economies) (Frenken et al., 2007).

Beginning in the 1890s with Marshall’s seminal work on industrial districts and the importance of vertical and horizontal specialization to increasing productivity and knowledge spill-over (Eriksson & Lindgren, 2011), scholars have worked on understanding and providing evidence on how localization economies foster competitiveness. Marshall (1920) stated that having a large general labour pool is not enough for an employer, as specialized skills will always be needed. For an experienced
worker, a large supply of jobs might not mean good labour matching. Rather, a local economy that enjoys high supply and demand of the same set of skills will facilitate the mobility between workplaces for this group. Hence, firms in a region with a high concentration of economic activities in the same industry become interdependent due to mechanisms of sharing and matching workers. Moreover, Marshall integrated a sociocultural understanding of industrial production, showing how the social quality of the context, such as similar knowledge and trust, had a positive impact on production costs, knowledge diffusion and thereby also on growth and innovation (Asheim, 2009). These localization economies, the intra-industry spill-over effects of a common labour market pool and suppliers and knowledge diffusion came to be referred to, by Glaeser et al. (1992), as the Marshall-Arrow-Romer (MAR) externalities. These agglomerations are argued to have a high absorptive capacity, which should mean high adaptability when facing times of turbulence. On the other hand, when firms in a region are too similar – having similar economic activities and using similar resources such as labour – a sector-specific shock might have a major impact on the whole regional economy and redundant workers could face problems finding new employment, as there will be high competition for the smaller number of jobs available (Krugman, 1993).

Jacobs (1969) argued that cities are essential to economic development because they are locus of interaction between diverse economic activities. In her work, the creation and diffusion of new knowledge are crucial to economic development, and these require interaction between humans with different skills and competences, which is much more likely to occur in cities. While localization economies focus on intra-industry spill-over, Jacobs externalities (a term commonly used) focus on the externalities stemming from inter-industry spill-overs. The most vital knowledge inputs for a firm come from knowledge diffusion through labour mobility from firms in other industries, meaning that diversity and variety in a spatial proximity will enhance learning, innovation capabilities and growth. In the seminal works of Glaeser et al. (1992) and Henderson et al. (1995), they found very different effects of diversity and specialization on employment growth in the US. Glaeser et al. (1992) used a cross-section of city industries to analyse employment growth as a function of specialization, diversity and local competition. They found evidence supporting Jacobs’s argument of higher employment growth in industry cities where the industry was less dominant, and hence lower employment growth in industry cities where the industry was overrepresented within the city. Their conclusion is that inter-industry linkages are more important for employment growth. An important point to consider is that they only include the biggest industries, creating a bias against small and new dynamic firms. Henderson et al. (1995) study employment growth in manufacturing industries and find evidence of MAR externalities in mature industries, and both MAR and Jacobs externalities in new high-tech industries. They link these findings to the production cycle where new industries thrive in diverse agglomerations, while mature industries benefit less from urbanization and diversity. They claim that MAR externalities are more critical, because even though they found rapid growth in the high-tech sector, it is the diverse cities in particular that have managed to attract these
industries. It is also the localization economies that play an important role in the later stages of keeping the industry in the city. However, both of these studies focus on employment growth within industries. This is primarily important from the perspective of industries and to some degree regional policies, but for workers this might not be the most important aspect. Instead, from a regional and worker adaptability perspective, it might be more relevant to understand how regional employment and unemployment growth are affected, as these affect the supply of available jobs and how great the intra-regional competition for those jobs is. Moreover, when workers become redundant in a diverse economy, they might face problems if the skills and capabilities they have are very different from those on demand on the labour market. The jobs destroyed are not related to the jobs created. This could have an effect on the dynamics of the region’s absorptive capacity, time to re-employment, but also labour matching, where the supply and demand of labour do not correspond and workers might face skill mis-match.

Agglomeration externalities are largely based on the idea of labour and knowledge flowing within a region. Based on the French School of Proximity Dynamics (e.g Kirat & Lung, 1999; Torre & Gilly, 2000), Boschma (2005) states that geographical proximity is not enough to explain knowledge diffusion, but that it does fortify the other dimensions of proximity by helping learning to take place. Rather, knowledge is mediated through and between workers. For a firm to be able to recognize, value and absorb new knowledge, there needs to be related knowledge within the firm (Cohen & Levinthal, 1990). In the seminal work by Frenken et al. (2007), they address the regional growth of employment and unemployment by studying not only variety but a so-called ‘related variety’. Frenken et al. state that Jacobs was misunderstood and argue that Jacobs externalities can be equated with related variety. Diversity is a continuous scale from related to unrelated variety, which has very different effects on the transformation of the economic landscape. They measure related variety as intra-industry variety – meaning variety of 5-digit sectors within 2-digit sectors – while unrelated variety is measured as inter-industry variety – as the regional entropy of the 2-digit distribution. What they found using Dutch data on NUTS 3-level was that related variety increased regional employment growth. In addition, they argue that even though urban areas are positively associated with related variety, employment growth was not an effect of urbanization, but the related variety within a region. Hence, it is important, both theoretically and empirically, to distinguish between the direct and indirect effects of urbanization. Unrelated variety did not increase employment growth, but it did, on the other hand, decrease unemployment growth. This is explained as being similar to the risk-minimizing strategies of firms, where unrelated variety can act as a portfolio. The regional composition of industries and activities is so diverse that it should be able to evade or at least hamper the negative effects of frequent fluctuations and the increased volatility of the global economy. Bishop and Gripaios (2010) study on sub-regions in Great Britain shows that unrelated variety does not seem to increase employment growth, but did not reveal any consistent result on the impact from industry-specific related variety. On the
other hand, using data on Swedish municipalities, Wixe and Andersson (2017) did find that related variety increased employment growth, while it decreased productivity growth.

Using related variety and unrelated variety assumes that there is higher cognitive proximity the closer industries are in the industry classification system. Still, learning takes place between individuals, meaning that even though knowledge spill-over is usually thought to occur between firms and industries, it consists largely of interactions between people. Mobility is hence important to the transference of knowledge between people and plants (Boschma et al., 2009). This supports the idea of framing cognitive relatedness between industries in relation to people’s skills and competences rather than the industry classification system (Wixe & Andersson, 2017). In line with this argument, a different attempt to address relatedness between industries was made by Neffke and Henning (2013), who studied labour flows between industries in Sweden. The idea follows the arguments above, i.e., that there are cognitive distances and proximities between knowledge and skill sets that will have an effect on workers’ willingness to move into certain industries. This measure has been termed skill-relatedness. They show how firms diversify into new industries that are skill-related, but other scholars have also been able to show how relatedness can be used to explain regional absorptive capacity and labour matching in times of turbulence – in resilience terms, regarding both being less sensitive and being more adaptable. Studying the declining German and Swedish shipbuilding industry, Eriksson et al. (2016) found evidence that redundant workers in a specialized region faced a higher risk of staying outside the labour market for a longer time, while there seemed to be indications that regions with a high degree of related industries experienced the opposite effect. Similar results were found by Diodato and Weterings (2015) for the Dutch economy. Simulating regions exposed to a shock revealed that time to re-employment would decrease in regions with a large number of skill-related industries. Boschma et al. (2014) found that intensive inter-industry labour flows between skill-related industries have a positive impact on productivity, which indicates that there seems to be positive labour matching between these industries. However, they found that it was mobility between unrelated industries that decreased the levels of unemployment.

A third approach to defining relatedness is to look at the occupations that make up these industries. While industries show where people work, occupations tell us what they do (King et al., 2009). Wixe and Andersson (2017) therefore argue that occupation is regarded as a good proxy for the skills and capabilities used. Moreover, they state that regions tend to specialize in skills and functions rather than in industries, which would mean that there is a more prominent spatial division of occupations than of industries. In line with these arguments, Farjoun (1994) uses the similarities of occupational structures between industries to classify industries as resource related. He argues that the mix of occupations is able to say something about the types of human skills that are used, but also to what extent they are used. He found that a large proportion of the diversification of firms in the US was to these resource-related industry groups. Looking at Sweden, Andersson et al. (forthcoming) found that when industries experienced employment decline, occupationally related industries grew. Hence, occupationally related industries
seem to have a productive exchange of workers, which means that workers will be less likely to face skill mis-match.

Thus, there would seem to be a large number of studies indicating that industrial composition can increase regional absorptive capacity and labour matching. An economy that is changing is facing destruction (Schumpeter, 1951) and needs to face the costs of re-allocating workers from declining industries to growing ones. The ability to re-use and build upon the skills accumulated in the region is then a necessity when addressing regional resilience as well as worker adaptability. As outlined in this chapter, while a region that has a large share of workers in one specific sector might be able to offer smooth transitions for redundant workers into new employment, these economies might run the risk of being more sensitive (Diodato & Weterings, 2015; Eriksson et al., 2016). A diverse economy, on the other hand, might be less sensitive in crises but have problems of labour matching in the aftermath of crises, thus causing problems of adaptability – perhaps not concerning job creation but the skill mis-match between new jobs created and old jobs destroyed. A region with diverse economic activities that are still related is less exposed to sector-specific shocks and can absorb laid-off workers due to the relatedness of their human capital resources (Frenken et al., 2007). However, relatedness and unrelatedness have been measured in several ways and seem to have somewhat different effects. For this reason, when analysing the effects of agglomeration externalities, the choice of process of interest is of the essence, as is the time span studied.

2.4 REDUNDANCY AND RE-EMPLOYMENT

There is a vast body of literature on redundancy that has studied workers’ situation after plant closures and major lay-offs, as well as how individual characteristics affect re-employment possibilities, both in general (e.g., Eliason & Storrie, 2006; Frederiksen & Westergaard-Nielsen, 2007; Jacobson et al., 1993) and more specifically, e.g., in mature sectors (e.g., Bailey et al., 2012; Eriksson et al., 2016; Oesch & Baumann, 2014). In general, it seems as though workers who have been made redundant in plant closures exit unemployment during the first couple of years (e.g., Eliason & Storrie, 2006; Gripaios & Gripaios, 1994; Huttunen et al., 2011; Oesch & Baumann, 2014; Tomaney et al., 1999). However, even if time to new employment is not particularly long for most workers who have been made redundant, these transitions come at a high cost and there are different experienced negative effects on workers’ post-redundancy employment. There seem to be issues with the quality of the new jobs in relation to the old ones, where workers end up in temporary positions to a larger extent (Tomaney et al., 1999), in lower occupational levels (Bailey et al., 2012) and need to accept a lower standard and wage than they had in their previous position (Gripaios & Gripaios, 1994; Jacobson et al., 1993; Tomaney et al., 1999). They also face adjustment costs due to unemployment or labour market training programmes before becoming re-employed (Ohlsson & Storrie, 2012). Even if there seems to be a general tendency towards a high re-employment rate in the short run, plant closures and major lay-offs still increase the chance of workers exiting the labour market
entirely (Huttunen et al., 2011), and this is even more likely for women (OECD, 2013). This could be explained by still prevailing gender roles in the family and household (Hanson & Pratt, 1991). For workers who did become re-employed, there still seems to be a higher sensitivity in future crises, meaning that they have a higher risk of once again facing redundancy (Eliason & Storrie, 2006).

Individual characteristics have been found to have a significant effect on redundant workers’ chances of becoming re-employed. While higher age and longer tenure are an advantage regarding selection of who will have to leave the workplace based on seniority rules (Eriksson et al., 2016; Pierse & McHale, 2015), when they do face redundancy this is a vulnerable group that might need to endure longer spells of unemployment (Oesch & Baumann, 2014). Gonäs (1974) studied the shipyard crises in Oskarshamn during the 1960s and found that workers with a higher education usually acquired stable and durable employment, while the younger workers moved between several different workplaces with small intermediate spells of unemployment. Older workers, on the other hand, usually had to wait a longer period of time to become re-employed after the plant closure, and ended up in long periods of retraining or public relief work. Employment offered by the employment agency generally only lasted a short period of time and did not generate a more permanent employment solution. Redundant workers who were offered retraining and ‘channelled’ to the open labour market did not find satisfactory employment, while workers who had found new employment through other channels and outside the region perceived their economic situation to be much more satisfactory. Education increases chances of finding a new job (Fallick, 1996), which could be explained by greater demand and/or because it can be used as a tool for rapid screening to find productive workers (Wooden, 1988). Following these studies, it seems that although some redundant workers face re-employment issues and risk getting stuck outside the labour market altogether, the greatest problems for redundant workers are the qualitative aspects of these new employments. The challenge redundant workers and regions experiencing major lay-offs and plant closures are facing is that of labour matching. First of all, there is a problem with only studying the ‘quality’ of workers – the supply part of the labour market. More emphasis needs to be put on what economic activities and possible employment positions there are in the region – the demand for what kind of labour. Secondly, there is a need to acknowledge that people do not only reappear in new positions, workplaces, regions or industries. These changes imply mobilities, and as with all mobility, frictions arise and with them come switching costs for the worker. In addition to the frictions that arise in a region due to industry composition, there are two other dimensions of proximity and distance that have been used in the evolutionary literature of economic geography when addressing the issue of labour mobility: the frictions that arise due to movement in geographical space and movement between industries.
2.5 Labour Mobility: Frictions and Matching

The work on redundancies has shown that there is generally a large variety of negative effects on workers’ future labour market trajectory. For example, Jacobson et al. (1993) found that displaced workers who had been through a major lay-off experienced larger wage reductions in general than the control group did. There was however a great variation within the group of dispatched workers. Those who found new employment within the same industry, which did not necessarily mean within the same 4-digit sector, experienced a smaller wage decrease than did those who moved from manufacturing to service industries, and from service to manufacturing industries. A similar result was found by Huttunen et al. (2011), where workers who moved into new firms and industries experienced a significantly greater reduction in salary than did those who stayed within the same firm or industry. This indicates that there seems to be a switching cost involved in the movement to new firms and industries. In terms of cognitive proximity, this means that human capital is not plant specific, but rather industry or firm specific. This suggests that the outcome of redundancy is diverse, and that the mobilities workers embark on can have a significant effect on the possibility of avoiding underemployment. A movement between two positions comes with a cost: a switching cost. The size of this cost depends on the ‘distance’ between these two points. Because geographical space has dimensions of proximity and distance, so does industrial space. When moving in an industry space, the distance depends on the cognitive proximity between two industries, that is, on how different the types of human capital employed in the two are. This becomes a distance that the worker needs to travel. On the one hand, the worker’s skills and capabilities may be directly in line with that of the new workplace, and she is then assumed to be able to perform the tasks of the new job right away. On the other extreme, the worker’s previous knowledge is seen as so dramatically different that none of her accumulated knowledge is seen as relevant at the new job (Neffke & Henning, 2013). The fact that, generally speaking, most redundant workers seem to return to the same industry when re-employed is then not particularly unexpected. However, what has been found is that with longer time to re-employment, an increasingly large share of redundant workers are ‘pushed’ into unrelated industries (Huttunen et al., 2011). This could be a sign of a strategy of diversification, but might simply mean that, after a long period of unemployment, very few jobs in the same industry exist and the individual feels she needs to take any available job on the labour market.

While certain groups of people have been found to be able to be more flexible without suffering from these transitions, such as e.g. managers and executives (Fallick, 1993), the knowledge of other groups of workers is seen as more specialized and experiences more frictions with these mobilities. In the event of redundancy, workers face greater adaptability challenges and are more likely to need to engage in more radical mobilities.

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4 Underemployed, while usually associated with income, means a decrease in standard/status in a broad sense (Clogg & Sullivan, 1983:118)
(MacKinnon, 2017). Interviewing workers 3 years after they had been made redundant at the plant closure of MG Rover Birmingham (UK), Bailey et al. (2012) found that 60% of respondents experienced that their new work entailed a completely new skill set compared to their previous work. Following the plant closure of Swan Hunter shipyard in Tyneside (UK), Tomaney et al. (1999) found the same high rate of workers finding themselves working with unrelated tasks. In addition, 40% of these stated that they felt bitter about it. Hence, high switching costs are paid by workers who need to perform mobilities with high frictions, both rendering skills idle at the new work and resulting in wage loss (Eriksson et al., 2016; Holm et al., 2017). There seem to be costs of regional diversification into unrelated industries that are being paid by a certain group of workers, out of necessity due to a shifting labour demand rather than their being ‘flexible’. Pissarides (2010:397) adress the issue of job search frictions by stating that “The idea is that the job search underlying unemployment in the official definitions is not about looking for a good wage, but about looking for a good job match”. Hence, if we wish to address the issue of labour matching, it would seem to be important to focus on skill-matching. This has been addressed by the European Commission (2010), where skill-matching is considered one of the major challenges facing European labour markets. What is important, then, is to acknowledge the skills and capabilities that are embedded in people and to try to understand how these can be built on, instead of trying to create something new from scratch. Previously in this section, the mobility between industries was addressed as a dichotomous space, as moving to the same or an unrelated industry. However, as elaborated in the previous section on agglomerations (2.3), this is now seen more as a continuous scale of proximity and distance, where industries can be related (Boschma et al., 2009; Neffke & Henning, 2013). Mobility to a related industry would then mean that even though the worker’s skills are not the same, the cognitive distance is so small that it is easily bridged to the new workplace, decreasing the switching cost. Analysing the effects of inflows of different workers to plants in the whole Swedish economy, Boschma et al. (2009) and Eriksson (2011) show that a new worker’s related knowledge can even be seen as a valuable asset, where the new knowledge can be absorbed and used, contributing to the workplace’s resources.

In general people in Sweden rarely move longer distances, for a variety of reasons. Lundholm (2007) compared inter-regional mobility between 2001 and 1970, and found that it has come to be comprised more of younger people, for example, moving for studies. The adult population that typically already has a position on the labour market comprises a smaller part of these mobilities. Adults with children are even less inclined to move, which might be explained by the predominance of dual-earner households in Sweden. Fischer and Malmberg (2001) also found that people rarely move as far as to another labour market. They explain this with reference to time. People develop relations, professional and social, that increase the switching cost of moving greater distances. Networks are formed and knowledge about informal and formal routines and institutions is acquired. These are not only emotional, but become resources and advantages that could be used professionally, giving a so-called ‘insider advantage’ (Fischer et al., 1998).
These informal channels have been found to be crucial for re-employment possibilities (Bailey et al., 2012), and this makes moving to another region even more challenging for a dual-income household, as there are two people who lose their ‘insider advantage’. Berger (1973) found extensive mobility after the plant closure of the pulp factory, Jössefors Bruk, which had 208 people employed at the time of closure. One year after the closure, 65% of the group studied was employed, with 45% of them remaining in the home district. The younger workforce as well as office workers and supervisors were more inclined to move to other regions, especially more densely populated areas. Strategies on the part of officials had encouraged spatial mobility to a high degree, and Berger states that the employment agency was criticized for offering migration to metropolitan regions to too high a degree. Gonäs (1974) found similar mobility patterns after the shipyard crises in Oskarshamn. Moreover, she found that once a worker had decided to move, the distance generally did not matter, but what did matter were employment possibilities in the same line of work. In addition, regional institutions do not only shape social interactions and networks, they also affect routines at workplaces and industries – there are region-specific ways of carrying out a job. Within the same industry, Rigby and Essletzbichler (2006) found intra-regional similarities and inter-regional differences in production technique. This means that there is not only a cognitive distance involved in moving to a new industry, but there are also frictions when moving within the same industry but to another region to match their specific routines. Hence, there is not only a potential brain drain for the region when workers move, but also a risk of switching costs for the individual (Diodato & Weterings, 2015).

Although rapid re-employment might be desirable for the region as regards keeping unemployment figures down, it might not be the most desirable outcome for the worker if it means high switching costs. Thus, in line with the arguments put forth by Nedelkoska et al. (2015), researchers need to expand their approach from only acknowledging distances a worker moves, to including the direction in which the worker’s trajectory is heading.

### 2.6 Regional and Labour Branching

In 2009, the Knowledge for Growth Expert Group suggested that one of the problems the EU was facing was that their industries had difficulty adopting new innovations developed in other industries. Their argument was that new policy needed to focus on how industries and firms could absorb new ideas and technologies, not only from other places, but within their own region. An agenda termed ‘smart specialization’ was outlined, where the key was to focus on “domains where regions had both existing strengths and also the potential for diversification into related sectors, activities, or technologies” (McCann & Ortega-Argiles, 2013:416). Smart specialization is now a major part of the EU’s regional growth programmes and is an important part of their Cohesion Policy, as well as a key for regions wishing to acquire Structural Funds. The idea is that the policy should foster place-based development that draws on each region’s
own strengths (Nathan & Overman, 2013). The aim is that this approach will address market failures, while avoiding one-size-fits-all strategies and the problems associated with targeted industry policies that attempt to ‘pick the winner’. While some claim that this is an example of “policy running ahead of theory” (Foray et al., 2011:1), many of the underlying ideas could be said to be related to the theories and literature of evolutionary economic geography and institutional economic geography (Moodysson et al., 2017), not least the literature of relatedness previously outlined in Section 2.3 (e.g., Frenken et al., 2007) as well as the literature on regional branching.

To understand regional evolution, Neffke et al. (2011) suggest that we need to study the qualitative rather than the quantitative changes. Building on the ‘creative destruction’ discussed by Schumpeter, they argue that regions need to constantly attract new and more lucrative economic activities as mature and inefficient ones become out-dated – because this is how growth paths develop and re-orientate. Using technological relatedness, they argue that regional branching is not a random process. Rather, using Swedish data, they show that regions diversify into new industries (still not present in the region) that are related to the existing industries. In addition, industries that leave the region are more likely to be the ones that are less related to the regional industry composition. They develop a framework in which industries are connected and similar to different degrees within a region – an industry space with a core and a periphery in terms of relatedness. These findings are in line with findings from studies on firm diversification (Farjoun, 1994; Neffke & Henning, 2013). This process has an important spatial and temporal dimension, making it a highly path-dependent process. Hence, the conditions in the region (though not exclusively) have a great effect on the possibilities of facing a lock-in, having a rigid industry structure or trajectory that makes it harder to diversify into new industries. However, it also provides opportunities for potential path re-orientation – branching into new economic activities (Kogler, 2015), and diversifying into new industries will always be important for adaptability in a capitalist economy. Industrial diversification can be seen as a way to minimize volatility or instability (Conroy, 1975). Boschma et al. (2013) studied Spanish regions, and in addition to confirming the results of Neffke et al. (2011), they found that the industry structure at the regional level is more important in explaining regional diversification than is the national industry structure.

Neffke et al. (2011) envision regional branching as nodes that appear and disappear. In real life, these are economic activities engaged in by workers. The appearance (disappearance) of nodes is actually jobs being created (destroyed), where the existence of a new job entails that someone moved to a job in that industry – mobilities that entail frictions that have largely been overlooked in the literature. Moreover, based on the framework laid out by Neffke et al. (2011), it is more likely that structural changes will result in major lay-offs in the periphery of the industrial space, and that job creation will occur in industries that are relatively more related to the regional industrial portfolio. Consequently, workers need to travel great distances within this industrial space if they are to be reallocated from the periphery and into these new industries. The appearance of a new industry is based on some kind of labour mobility into that industry, which makes
these micro-processes vital if we wish to understand the development of the industrial space and regional paths. As is the case with much of the work within EEG, very little attention has been paid to how workers shape the evolution of regions. MacKinnon (2017) argues that it is necessary to investigate more thoroughly how workers move within and between different economic activities. Labour branching – both voluntary and involuntary mobilities shaped by agency and structures – is vital if we wish to understand change and continuity in the economic landscape. One reason why this issue has been underrepresented in EEG is that much of the evolutionary resilience literature has focused on the region, and adaptability has been addressed by focusing on the time dimension of job creation. While time to re-employment is of course an important issue, reading the redundancy literature it seems like time might not be the chief problem facing these workers, but rather the quality and stability of the new employment. Further, workers themselves are agents who shape the evolution of regions, as their mobilities condition the adaptability and path creation of regions: “People themselves are able to shape the trajectory of change and play a key role in the degree and type of impact caused by that change” (Bristow & Healy, 2013:928). Hence, it is important to try to understand how individuals behave following shocks or times of turbulence.

While the regional branching literature use workers as an input into the process of industry diversification, continuously using labour as a passive resource of production (Herod, 2001), the actual evolution of regions is addressed from the point of view of the firm, technologies and knowledge (MacKinnon, 2017). Instead, MacKinnon conceptualizes labour branching as the outcome of two broader processes within capitalism: i) competition and market-based selection, and ii) the pressure on workers to acquire a paid job for both material welfare and the social reproduction of labour. Labour branching is part of a regional adaptation that is different from industrial branching – how do workers move between old and new employment? The skills and capabilities a worker has can be compared with how the regional branching literature uses the firm’s resources (e.g., routines and skills), where adaptability is framed from the perspective that the firm wants to be able to build on the resources they have in order to be adaptive. The concept of relatedness can be applied in a similar way as for workers, where two jobs can have different degrees of similarity. Hence, just as regional industry diversification can be into both related and unrelated industries, so can labour branching be into related or unrelated economic activities, where Mackinnon defines these as being able or unable to use existing skills and capabilities. Nedelkoska et al. (2015) and Holm et al. (2017) address the issue of skill matching for a redundant worker by using change in wage as an indicator of how the new employer, compared to the old employer, values the worker’s skills. Nedelkoska et al. (2015) show that wage losses associated with redundancy are not due to mobility per se, but are primarily driven by unused human capital at the new employment. Displaced workers are more inclined to change occupation, ending up in new positions where parts of their skill set are not used. They are overqualified for the work they are to carry out at the new employment. When workers are able to find new employment that uses the same skills or is even more skill-demanding, then there does
not seem to be a wage penalty in relation to redundancy. In addition, Holm et al. (2017) find that mobility to related industries is associated with less wage decrease and hence better skill matching between the old and new job. Therefore, these mobilities are part of a process that comes from destruction, while avoiding skill mismatch, and could be classified as a process of creative destruction.

Adaptability means adapting to the surrounding environment, hence there is a context that the worker needs to consider. The branching process might be more radical when job switching is the outcome of redundancy, as workers might need to go more to the extreme to find new employment. This literature review has attempted to summarize some of the main ideas and empirical findings on regional branching, labour branching and absorptive capacity and redundancy. Based on this review, the conclusion is that, theoretically, a region with a large share of related industries should be able to absorb redundant labour, while minimizing unrelated labour branching and avoiding skill mis-match upon returning to work. Moreover, for the worker, a move to a related industry should minimize the skill mismatch and result in a more successful re-employment.
An EEG approach creates possibilities but also challenges, many of which can be traced back to the claim that the framework must allow for a system to be dynamic and complex. Therein lies its potential as well as the difficulty, as there are few precise tools showing exactly how to go about conducting an evolutionary study. I understand EEG as an ‘open’ approach both in terms of framing and analysis, in line with critical realism. The world is “complex, differentiated, structured, systemic, open, ever-changing and radically uncertain” (Castellacci, 2006:862). According to critical realism, causal structures are constantly (re)producing societies at particular points in time-space. These structures are plural and diverse with different degrees of power to affect the society (Hudson, 2006). Thus, because the realization is within a particular time-space, one productive approach to understanding change is to focus on paths or trajectories, which has been at the very core of EEG (Pike et al., 2016). A methodology of a critical realist aims at investigating causal structures to understand in what particular contexts and circumstances they might be enabled (Yeung, 1997). By using quantitative methods and big data, the empirical papers in this thesis aim to single out some of the factors that have a significant impact on the outcome. Informed by critical realism, using quantitative methods does not mean a positivistic ontological and analytical approach (Yeung, 1997); there are no claims that this thesis will provide any universal answers or truths. The aim is to investigate the potential of different outcomes, to be able to generalize from patterns found in a specific context. Hence, these patterns are open-ended and not deterministic, but emerge probabilistically (Arthur, 2015). Truth is then conditional, and needs to be constantly re-evaluated. Hence it is crucial to have a theoretical framework to work from, because that allows us to differentiate between accidental relationships and actual correlations (Bhaskar, 2011).

While acknowledging the complexity of redundancy and labour market dynamics, important aspects such as employer-employee and capital-labour relations as well as other power, institutional and policy dimensions are not included in the empirical papers. There are limitations to what can be contained within a thesis. I have instead decided to focus on broadening the EEG framework by placing the workforce at the centre, by including redundant workers’ re-employment possibilities and mobilities. In addition, this thesis adds to the EEG literature systematic empirical evidence on how industry structures affect regional resilience and worker adaptability. Moreover, most of the empirical work in this thesis has used measures of resource relatedness between industries, ‘occupational relatedness’, showing how a relatedness defined from workers’ skills can be used in relation to the question of resilience and branching. By doing this, the thesis sets out to add to the problematization of relatedness and resilience for whom and when. As the concept of trajectories has been stated to be a productive way to approach ‘change’, regional and worker trajectories have been constructed following a specific point of economic turbulence. By following the trajectories of people, I can know the strategies
carried out, in terms of the mobilities they have performed. I do not know whether these have been pursued by the individual or forced upon her by external structures. Determining this would require a more qualitative approach using, e.g., interviews. Moreover, adaptability is framed as a positive outcome. I have categorized it based on previous research, both quantitative and qualitative studies, but the actual valuation of an outcome is different from person to person and is impossible to know from the data used in these empirical papers.

3.1 DATA

To construct trajectories of regions and workers, longitudinal geo-coded data are needed. Fortunately, that type of data is available from the ASTRID database at the Department of Geography and Economic History, Umeå University. This database contains several different kinds of register data from Statistics Sweden (SCB), with a unique id for each individual, family, plant (workplace) and firm, making it possible to link the different datasets together. The data have been collected on an annual basis from 1960 onwards, on various geographical scales from coordinates up to the municipality level. This makes it possible to follow different economic actors over both time and space and to connect them to one another, creating a dynamic, geographical and relational dataset. This means that because both individuals and plants have a unique id, it is possible to follow plants over time and see how many new employees start as well as how many quit. It is also possible to follow those individuals over time and space, and collect information on their characteristics and how these change over time. On the plant level, the database contains annual information on where plants are located, the id of the people working there, the industry (4-digit sector) and the id of the firm they are operating under, as well as their starting year and whether they are exits or subjected to a merger. Data on net sales, operating income, value added, wage costs and type of ownership are only available on the firm level. Some of the individual characteristics available are date of birth, sex, country of birth, education, occupation, annual income as well as other monetary transfers from, e.g. student loan, retirement, unemployment benefits.

The ASTRID database does have minor and major limitations when making these kind of micro-level analyses. One of the major limitations is that the data are collected on an annual basis. There is no information on how long they have been working there or whether the work is full-time or part-time. There are data on wage, but these are annual data, which helps us very little in determining working hours. This means that there is a potential problem of underestimating and overestimating the number of full-time jobs there are at a plant. Another issue is that some of the variables are not available for all years, and/or are being recoded between years, where different levels of work are needed to make them compatible. Moreover, these data make it possible to discern patterns of behaviour, but they cannot say anything about the underlying mechanisms behind these changes or derive any causal conclusions regarding what drives different societal processes. Moreover, the individuals have no say in how the categories are defined; they
have been defined by me, other scholars prior to me or Statistics Sweden. Individuals who are categorized as, e.g., zero on the dummy of having a higher education might not identify with the result or analysis that is drawn for that group. However, these data make it possible to analyse micro-processes and the relationship between the unfolding of different events in space, not only the aggregated outcome, but the processes leading up to both change and continuity.

3.2 JOBS DESTROYED AND CREATED

Only looking at the unemployment figures is not enough if we wish to understand the processes shaping the economic landscape. This excludes the power relations between different kinds of jobs (Massey, 1984). Important questions concerning what jobs were destroyed and what jobs are created in a particular region are neglected, and hence what kinds of mobilities were necessary for, e.g., unemployment figures to stay low. Due to this rich dataset, it is not only possible to know the net employment figures of a specific workplace at the end of the year, but it is stated which individuals were employed at that plant that year, and whether they were employed there the year prior as well as after. This means that these data offer a unique opportunity to use the gross employment changes to analyse the actual turnover, created and destroyed links between individuals and plants each year. The creation and destruction of jobs is a good indicator of change in a region because, in contrast to net changes, it exposes the spatial and temporal processes of creative destruction (Martin, 2012). While net employment figures usually illustrate a labour market mobility towards the growing industries and regions from the declining ones, studies conducted on gross employment changes show that the inter-regional and inter-sectorial flows are much more important (Essletzbichler, 2007b).

In this thesis, one link between a plant and a worker is categorized as one job. Hence, the appearance and disappearance of these links between individuals and plants have been the main focus of the empirical papers. In Paper I, the net of links or jobs created and destroyed in a plant each year have been summed up and then aggregated as gross employment changes on both the regional and industrial level. Adaptability for the region is defined here not as the initial ability to resist job destruction in crises, but the ability to create jobs in the aftermath. In Paper II, III and IV, the disappearance of an individual-plant link between time t-1 and t0 means job destruction or separation, while the establishment of a link between an individual and a new plant identity code is categorized as a new employment. Because plant level data are gathered on an annual basis, it is not possible to know when during that year the link was broken. Due to this lack of insight, each worker is categorized as being unemployed for all of year t0. Moreover, it is not possible to know what kind of employment these links represent; they could be temporary or part-time employments. Hence, individuals are not categorized as re-employed until they also have an annual salary that exceeds the subsistence level indicated by the National Board of Health and Welfare, Socialstyrelsen (2009). The decision was made to avoid including workers who were not committed to the workplace and, thus, might not
be experiencing the major layoff as a time of turbulence. On the other hand, this might instead exclude a group of workers who are particularly vulnerable and are relying on part-time work for their economic income. However, the pros were judged to outweigh the cons, as it is too complicated to try to understand the background details concerning a specific individual’s low income connected to one plant.

3.3 Industry Relatedness

As discussed in the previous review of agglomeration externalities, studies keep showing mixed results from different externalities. This may be due to the varied definitions of diverse, related, similar, and/or the different ways of measuring these compositions (output, labour flows, input, sector codes), but also because they have been used to measure the effect on different forms of development (e.g., growth, innovation, productivity, creation of jobs or net employment changes). The main focus in this thesis as well as in the empirical papers is on the workforce, meaning that the intention behind using relatedness is to capture how people are subjected to frictions due to cognitive proximities between different employments and the effects these have on re-employment possibilities. Based on this, a relatedness that is based on people’s mobility and skills would seem to be a suitable measure (Wixe & Andersson, 2017). In Paper I, the skill-relatedness (SR) measure defined by labour flows developed by Neffke and Henning (2013) has been used. SR is based on the rate of labour flows between two industries as an indicator of inter-industry cognitive proximity – to what extent two sectors use similar human capital or at least transferable knowledge. The idea is that workers are more likely to move to a new industry where they can re-use their accumulated skills and competencies. The sum of all these inter-industry linkages (number of related plants) within a region is then used as a measure of the region’s cohesion, reflecting the overall degree of related variety in the region. In Paper II, III and IV, where labour flows are studied, using SR would entail a risk of circular reasoning, meaning that the phenomenon under study could partly involve the same process that is used to explain it. Instead, a resource or occupational relatedness developed by Farjoun (1994) is used. The idea is that while industries show where people work, it is actually occupations that show what people are working with (King et al., 2009). Thus, the mix of tasks (occupations) being carried out in each industry is compared to all other industries. Industries are then categorized as related when they use a similar mix of occupations. In the end there are 2812 links between related 4-digit industries in the whole economy, where about half are between manufacturing industries, the other half are between different service industries and about 5% link manufacturing to service industries.

In Paper II, the measures of unrelated variety and related variety in line with Frenken et al. (2007) are also included. This is done to test the argument of (Wixe & Andersson, 2017), which is that relatedness is versatile and complex. As the focus of the empirical papers is on how the regional presence of related and unrelated industries – in the region in relation to the industry the worker was previously employed in – affects time to re-
employment, a regional-industry-specific measure of relatedness is preferable. Hence, related variety is not summed up to the regional level in line with (Frenken et al., 2007), but is kept industry-specific, in line with Bishop and Gripaios (2010).

3.4 REGIONAL DIVISION

As mentioned earlier in the literature review, these mobilities are both spatial and industrial, and combining the two gives rise to different frictions. These could be viewed as mobilities on two axes that can be combined, resulting in a vector that is positioned at a certain distance from the initial starting point. To simplify these spaces, spatial mobility is categorized as staying or moving away from the labour market that the worker was previously employed in. Thus far, regions have been referred to generically as any kind of place or subnational space. However, in the empirical papers in this thesis, the regional unit used is the functional analytical regions – FA regions – created by the Swedish Agency for Economic and Regional Growth (2011).

Figure 1. Map of Sweden with the FA regions and its locality in Europe
These 72 FA regions (see Figure 1 above) are constructed from actual labour commuting patterns between municipalities, but consider commuting development trends and are hence supposed to be somewhat persistent over time. They are used because they comprise what seem to be ‘natural’ (as defined by empirical findings) commuting patterns over municipality borders, with likely intra-regional mobility and highly unlikely inter-regional mobility. The aim of using these regions is to minimize the mix-up between commuters and workers who move to another region. Moreover, a scale helps make sense of the landscape (Herod, 2001). By producing regions, it is possible to capture some of the dynamics, relations and institutions that produce a place, instead of using the coordinates of a person or a plant. These ‘untraded interdependencies’ (Storper, 1997) operating within a region are better captured if we delimit a region by studying the actual interactions of people rather than using administrative borders, which renders functional regions more appropriate for this kind of economic analysis. In addition to the FA regions, a larger spatial unit has been used in Paper I to enable visualization of broader spatial patterns. The regions referred to as NUTS 8, because there are 8 of them, are based on the European Union’s administrative units NUTS 2 regions (Eurostat, 2012). Some minor changes have been made so that they are coherent with the FA regions, while a major modification has been made in the northern part of Sweden to reflect the coast-inland divide. This divide is based on a major difference in primarily population developments, as the inland is sparsely populated and faces further population decline, while the coastal areas contain all regional centres and are experiencing a more positive population and employment development as well as higher rates of people with a higher education (e.g., Holm et al., 2013).

3.5 OCCUPATIONAL STATUS CHANGE

While skill mis-match has primarily been approached using wage changes between two jobs (Holm et al., 2017; Nedelkoska et al., 2015), Paper IV instead uses difference in occupational status as a measure of how workers’ old, accumulated skills are appreciated at the new employment. There are two reasons why occupational status has been used to capture adaptability instead of income. First, as previously mentioned, the data do not reveal whether the person is working full-time or part-time, or when she was employed. Therefore, as the data are collected on an annual basis, it is not possible to know whether an income increase/decrease is due to more/fewer hours worked that year or an actual higher/lower salary. Second, occupations are directly linked to the tasks an employee is supposed to carry out, and it is actually the matching and mis-matching of these undertakings that is of interest in Paper IV. Moreover, occupations are related to wage, but also to a person’s social position (Hansen & Bihagen, 2003:47) and feeling of reward connected to an employment (Goyder, 2009). The correlation between income and occupational status is significant at the 1% level at least, but a correlation of about 50
indicates that they are related but not fully exchangeable. Using occupational status allows us to capture something else.

The international measure SIOPS, created by Treiman, is used in Paper IV. It is constructed using respondents from 60 countries all over the world, which is then linked to the international occupational classification (ISCO-88) developed by Ganzeboom and Treiman (1996). The conversion between ISCO-88 and the Swedish occupational code (SSYK96) has been done using the work of Bihagen (2007), who concludes that the SIOPS measure seems to be quite stable over both time and space. Both these occupational codes are however on a 4-digit level, and the Swedish occupational code is only available at the ASTRID database on a 3-digit level for the year 2003, which is the starting year for Paper IV. Hence, occupational data on the 4-digit level from 2006 were used to weight each 4-digit SIOPS to each 3-digit occupational code, creating a mean SIOPS measure that could be used for the whole period under study.

3.6 ADAPTABILITY

Using these data and an EEG approach, this thesis tries to address the adaptability of regions and workers in turbulent times by studying employment growth, time to re-employment and the direction and distance of redundant workers’ mobilities. While agency and intentions are not observable in the data, it is possible to link the worker to different plants, enrolment in training or studies and occupational status change – all over time and space. Whether or not a move a worker has made is successful for her personally is impossible to determine within the scope of this thesis. Becoming re-employed, not experiencing a long unemployment spell, acquiring a similar job or a higher occupational status might not be what the individual worker is pursuing. However, given the restrictions of the data, but also backed up by a large body of qualitative studies, it is not farfetched to generalize and categorize these shifts as something positive rather than negative for individuals experiencing redundancy. Moreover, a workforce and employment perspective is used to acknowledge the importance of asking resilience for whom, where and to what. While regional employment levels before, in and after crises are studied in Paper I, time to re-employment is used to model adaptability in times of turbulence in Paper II, while the characteristics of the new employment in relation to the old employment before becoming redundant are used to capture workers’ adaptability in Paper III and IV. Hence, each paper tries to address different aspects of adaptability for different actors in different contexts – which might mean that they are not only not the same in all cases, but that they may even be contradictory in some respects.

3.7 ETHICAL CONSIDERATIONS

It is critical that a researcher who conducts any kind of research consider the possible ethical implications of the study. When using micro-data such as those available at the ASTRID database, it is not only vital to protect individuals’ identity from readers, but also from the researchers. This means that precautions must be taken to protect the data,
as well as the confidentiality of the people, plants and firms encompassed within the data. This needs to be done for each part of the research process: when sketching out the study design, working with the empirics, as well as presenting the results. There are typical institutional strategies for protecting the data as well as the confidentiality of the people whose information is used (Gutmann & Stern, 2007). The Department of Geography and Economic History, Umeå University, has a broad range of security measures in place. First of all, all access to the data is restricted and subject to approval based on an application. When approval is obtained, it is strictly limited to a very specific set of variables that are deemed necessary for that particular research project. Moreover, the data are deidentified, meaning that firms, plants and people have been given unique numbers that cannot be linked to their actual identities. Finally, when a researcher has the data, they are still only accessible from internet-free computers in a locked computer lab.

From the researcher’s perspective, some important strategies are needed to complement the institutional approach to confidentiality of people in the data. First, the study design is considered from an ethical point of view, that is, whether it is possible to carry it out while still ensuring the confidentiality of the people within the data. The confidentiality becomes crucial, as the data encompass geo-coded micro-data, which is why “Confidentiality may well be the single most encountered ethical consideration in research involving geographic information systems.” (Griffith, 2008:247). Second, for each paper I/we assessed what variables were seen as critical to addressing the research questions, the goal being to minimize the number of attributes made accessible. Third, the results were always framed in such a way that it was impossible to identify single individuals during data management as well as in the output published. Finally, none of the studies deal with sensitive personal data.
4 TURBULENCE AND EMPLOYMENT ADAPTABILITY IN SWEDEN

Because adaptability is a normative concept, it needs to be viewed in a national political-economic context. Furthermore, this is also essential as the processes of creation and destruction are reinforced by the policies and agendas of different actors – reflecting their values about what is and is not needed. Therefore, before an overview of the findings from the papers is presented, a brief contextualization of the major institutional, economic and political processes at work during the period studied in Sweden is needed, as well as of some seemingly significant changes that led up to these structures.

During the First Industrial Revolution, Sweden experienced high growth primarily in the regions that had access to natural resources, and a large proportion of the population was employed in the agricultural sector. The Second Industrial Revolution had a widespread and relatively equally distributed positive effect on growth, with regional inequalities in worker productivity steadily decreasing from the 1860s onwards, for about a century (Henning et al., 2011). The period after the Second World War up until the early 1970s was one of extraordinary growth for Sweden, where the population, in general, experienced a shift in the standard of living as well as income, and consumption levels rose considerably. Swedish policies focused on strategies of inclusive welfare, low unemployment figures and large investments in social reforms. This strategy, in combination with the strong unions and the solidaristic wage system, has later been referred to as the ‘Swedish model’ (Movitz & Sandberg, 2013).

Similar to many other countries in the world, Sweden experienced severe economic problems during the mid-1970s due to the oil crisis of 1973-1974. In Sweden, the dominating traditional industries of steel and shipbuilding, but also mining and forestry, suffered greatly and a choice was made at the time that the Swedish government would take action to save firms and sometimes whole industries from bankruptcy (Carlsson, 1983). The fairly even growth that Sweden had experienced slowed down during the 1970s, in favour of rapid growth in the metropolitan regions. Starting in the 1980s, Sweden experienced a growing divergence between its various regional economies (Henning et al., 2011). This was a period of new political strategies, shifting the focus from welfare to workfarism (Peck & Theodore, 2001), where firm performance and profit were seen as the important tools to boost the economy. Sweden experienced a major, all-encompassing crisis in 1990, resulting in high unemployment as well as rapid shifts from a strong manufacturing base towards a demand for both ‘knowledge intensive’ jobs and low-skilled service workers (Andersson et al., forthcoming). During the period under study, Sweden experienced intense deindustrialization accompanied by growth in the service sector, both knowledge-intensive and low-skill services. For example, while employment in Knowledge Intensive Business Sectors (KIBS) increased by almost 250 percentage points between 1990 and 2010, low-technology industries experienced a 25-
percentage-point decrease during the same period (own calculations from Statistics Sweden). While the destruction of manufacturing activities has been relatively evenly spread spatially, the creation of jobs has primarily been a metropolitan phenomenon (Andersson et al., forthcoming).

Sweden joining the European Union in 1995 meant a strengthening of the regional focus, with attention on, e.g., small business start-ups and maintaining services in more sparsely populated areas. In the 2000s, government agencies such as Vinnova and Nutek were established based on the policy focus on innovation and growth. The focus shifted to business dynamics, the aim being that, in the end, it would benefit the region as a whole. The type of support that has been given is of course also very much shaped by European Union policies (The Swedish Agency for Growth Policy Analysis, 2015). While the European Union at large is permeated by a neoliberal conviction concerning how to understand growth and development, it still considers government intervention and regulation an important tool (Nyberg, 2017). This might be because of its focus not only on nations but also on regions, and because there has not been any satisfactory convergence between different regions in the EU, but instead increasing regional divergence (Farole et al., 2011), some government intervention has been found to be necessary. However, the market forces and competition should be affected as little as possible and therefore intervention is very selective. The support should be aimed at development within lagging regions, and not used to promote advancement along a global production network, which would generate unfair competition advantages over producers in other regions (The Swedish Agency for Growth Policy Analysis, 2015).

During the time period studied in this thesis (1990-2010), the level of education increased drastically among Swedish workers, but with a clear geographical difference. Among adult workers in the metropolitan regions, the percentage of people with at least a Bachelor’s degree increased from 27% to 43%, while outside the metropolitan regions the same increase was smaller, from 16% to 28% (Andersson et al., forthcoming). The labour market programmes during the 1990s in Sweden were all-encompassing rather than aimed at one particular group. A large share of the people who lost their jobs participated in one or several programmes. The labour market policies have included active participation in finding a new job, issued public training programmes and aided in generating jobs by subsidizing firm start-up or the initial phase of new employment (Agell et al., 2000). Fredriksson (1999) shows that offering encompassing active labour market programmes does not entail the undermining of incentives for redundant workers to return to the labour market. In a European comparison, regional adjustment is shown to be fast in Sweden in the short run, where Swedish redundant workers are quickly re-employed and have a comparatively low probability of staying unemployed.
4.1 **How have the Swedish regions managed in the crises occurring from 1990 to 2010?**

While the aggregated national figures in Sweden show growth in employment, production as well as productivity, this is not the overall trend at the disaggregated level. The catch-up effect of the lagging regions has been less and less successful, and each new national transformation phase benefits the leading regions at the expense of the already lagging (Lundquist et al., 2008). Divergence within countries is not exceptional for Sweden, and as more responsibility to develop and grow has been laid on the sub-national levels, it is not surprising that regional resilience has been a popular concept in policy circles as well as in economic geography. Evolutionary literature on economic regional resilience has argued that it is important to study the dynamics of resilience – resistance and adaptability – separately, as these are two different processes (Sensier et al., 2016). Moreover, it is important to not only look at net employment changes, but also analyse the diversity of the micro-processes shaping these changes and continuities (Metcalfe et al., 2006). It is in the process that the mechanisms underlying creative destruction can be understood. However, regional resilience cannot be understood solely from a micro-perspective, but depends on the structures reproduced within a region (Conroy, 1975). The industry structures have been found to be important in explaining employment growth (Frenken et al., 2007), but there is less known about how it can be understood in the different phases of shocks. Moreover, path dependency is essential in an evolutionary understanding of economic change, but very little is known about how the dynamics of resilience at one point in time is related to how they managed to recover and adapt during previous shocks. Industrial and regional policies have emphasized the importance of specialization and cluster building in gaining regional competitiveness (Malmberg & Maskell, 2002), by taking advantage of the positive externalities that come from engaging in similar economic activities (Marshall, 1920) and boosting local competition, which will foster productivity and adoption of innovations (Porter, 2000). However, although specialization might be a valuable part of a national portfolio, it comes at the expense of regional diversity (Essletzbichler, 2007a), and too much homogeneity and inflexible industrial structures might eventually lead to regional lock-in and decline (Grabher, 1993).

4.1.1 **Paper I: Regional resilience and gross employment changes**

Hence, the aim of *Paper I* is to contribute to our understanding of how regions are affected in times of crises, by using gross employment changes. This is done by focusing on similarities and differences in regional firm dynamics and regional industrial composition to say something about the resilience, both resistance in the crisis and adaptability in the aftermath. This allows us to analyse the driving forces behind job creation and destruction over time and space (e.g., Essletzbichler, 2007). It is then also possible to link the micro-processes of gross employment changes to the outcome at the macro-level and the dynamics and spatiality of resilience.
During the 1990s crisis, the Swedish labour markets experienced unemployment figures going from 1.5% to 8.2% in 1993 (Magnusson, 2002), a shock that – according to the empirical results from Paper I – took a long time for the Swedish economy to recoup from. From a more disaggregated level the regional trajectories of employment growth clearly show that it is only the NUTS 8 regions containing metropolitan areas (Stockholm, Gothenburg and Malmö) that managed to fully recover and turn the negative trend to employment levels higher than or in line with that of 1990. The Northern Inland, for example, continued on a negative employment development even after the recession, ending in 2010 at levels lower than those seen at the national recession bottom of 1993. These net figures, however, conceal high levels of job creation and destruction, in both expanding and declining regions (FA) as well as sectors. The results of Paper I are in this regard similar to findings from the UK (Essletzbichler, 2007b) and US (Davis & Haltiwanger, 1999; Essletzbichler, 2004), despite very different institutional frameworks and a labour market that is much more regulated. Furthermore, net and gross employment changes are found to be only weakly correlated in the empirical results, which means that a high turnover is not the primary factor for understanding net employment growth. While high levels of job creation from entries and micro-plants are found, the levels of job destruction from these greatly exceed their positive contribution to employment growth. Rather, the main source of employment growth can be located to incumbent firms and small and medium-sized enterprises (SME). Hence, perhaps the problem is not a ‘red tape’ issue, that is, obstacles to becoming an entrepreneur or starting a company, but rather the problem is small companies’ ability to survive and grow. A policy focusing on entrepreneurs and small start-ups in order to boost regional employment growth does not seem to be very efficient in general, even though there might be other positive effects. In light of these results, it is clear that a high employment turnover does not mean employment growth, and regional demand of labour cannot be sufficiently explained by looking at net changes.

By treating ‘resilience’ as a process involving different phases, Paper I shows that the initial resistance does not reveal how regions manage to recover – their so-called adaptability. The results show large differences in the regions’ responses to crises, where regions can be found in all combinations of being or not being resistant and adaptable. From this, the conclusion is drawn that these two phases need to be analysed separately, as they depend on different factors. This enables us to show dynamics, such as being hit hard in the initial phase but managing to have one of the highest employment growth rates in the aftermath. What is interesting is that there seems to be a path dependency to resilience, where for example resistance to the crisis in 2008 is related to how the regions managed to be resistant in both the crisis of 1990 and of 2000. The result does not reveal one true way to be resilient, but the empirics do point to the importance of regions being cohesive (i.e., with many skill-related industries) and diverse (i.e., with a high degree of unrelated variety) to their being both resistant during the crisis and adaptable in the aftermath. Specialization does not automatically mean that a region is not resilient, but generally has a negative effect on both resistance and adaptability. Strategies of regional
specialization are therefore risky and might, as with too much emphasis on entrepreneurs, benefit some regions at the expense of others. These are important findings, in line with previous studies on relatedness and diversity (e.g., Frenken et al., 2007), but Paper I manages to link industrial composition to the dynamics of resilience.

Based on these findings, the conclusion supports the arguments made by Martin (2012) and Sensier et al. (2016), that it is important to consider the different phases of resilience, as these are two separate processes with very different characteristics that are dependent on different factors. This differentiation is essential if to understand what makes processes in times of economic turbulence creative rather than just destructive. Moreover, rather than aiming for a higher rate of start-ups, policies should foster institutions and support systems to increase their survival rates. In addition, related diversification should be fostered in order to decrease regional specialization, especially in smaller regions. Finally, it is pivotal that more emphasis be put on how to understand the process and mechanisms underlying path re-orientation, because these uneven regional developments run the risk of being further reinforced with each new phase of economic restructuring, as resilience is found to be a path-dependent process.

4.2 HOW CAN REGIONAL CHARACTERISTICS FACILITATE RE-EMPLOYMENT IN TIMES OF TURBULENCE?

The results from Paper I showed high levels of turnover each year, not only from lagging parts of the economy, but also from expanding regions and sectors. Part of this turnover is due to a major change in the labour markets, where permanent employment has been exchanged for fixed-term contracts – a 50% increase between 1990-2000 (Holmlund & Storrie, 2002). Hence, high rates of job separation (and job creation) have become part of the hiring strategies of firms. This implies increased pressure on the regional labour matching process. For regions to experience a positive development, workers need to be successfully re-employed within the region, hence there needs to be suitable jobs available in the regional labour market. In labour market policies, there has been great emphasis on employability, where individual responsibility and flexibility have been argued to be essential to understanding re-employment opportunities (Shuttleworth et al., 2005; Sunley et al., 2001). Hence, it is not surprising that considerable attention has been paid to how individual characteristics can facilitate re-employment possibilities. Very little is known, however, about the demand side of the regional labour markets (Bluestone, 1984), as policymakers “leave the demand side ‘to the market’” (Sunley et al., 2001). As stated by Shuttleworth et al. (2005:1653), “if one increases the human capital endowment of some workers in the absence of sufficient labour demand, one merely promotes some workers to the front of the queue at the expense of others”. Hence, the success of policies in boosting employability depends “crucially on the local labour market context” (Sunley et al., 2001:501). Redundancy and re-employment opportunities need to be addressed from the perspective of both individuals and regional structures, by
situating the worker within a regional context. Adaptability for the region then becomes a question of the region’s absorptive capacity.

Scholars (e.g., Shuttleworth et al., 2005) have argued that more emphasis needs to be placed on the industry structures of regional economies in order to address the diverse geographies of absorptive capacity. Work on industry mix has primarily studied aggregated figures on industry or regional employment or unemployment growth (Frenken et al., 2007; Wixe & Andersson, 2017). Only considering the creation and destruction of jobs without considering the mobility and re-employment possibilities of the workers who have been made redundant reveals very little about adaptability and the changes in the economic landscape. Hence, the mechanisms underlying regional absorptive capacity in times of economic turbulence and how they are related to the redundant workers’ re-employment possibilities are issues that need to be studied more in detail (Diodato & Weterings, 2015; Eriksson et al., 2016; Shuttleworth et al., 2005; Sunley et al., 2001).

4.2.1 Paper II: Regional absorptive capacity

*Paper II* aims to help fill the research gap presented above, by contributing to the understanding of how the regional structures can facilitate redundant workers’ way back to employment. In order to accomplish this, micro-data on all workers made redundant following large plant closures or major downsizing in Sweden between 1990 and 2005 are chosen. Then each of these workers is tracked up until she is re-employed, but excluding all who are not re-employed within 5 years after the lay-off. The industry structure intended to facilitate regional absorptive capacity is the share of the same, related and unrelated industries in the region, in relation to the industry where the redundant worker used to work. This is the occupation-based relatedness measure developed in line with Farjoun (1994). First of all, the data show that a large proportion of redundant workers, about 79%, are already employed in the year following job separation, which is a high figure compared to other countries (OECD, 2013). However, there are great spatial differences in the absorptive capacity of regions, ranging from only 21% up to levels as high as 95%. Mapping these absorptive capacities does not show any clear geography to these outcomes in terms of core-periphery or urban-rural patterns. It has been shown in previous studies that workers rarely move as far as to another labour market (e.g., Eriksson et al., 2008). Even though the workers in *Paper II* are facing redundancy in a major lay-off, it is only on average about 16% of them who move to a new region for new work during the first year. Based on this, it is possible to deduce that the region’s absorptive capacity in the initial year is of great importance. After that initial year, those who remain unemployed have a much harder time being re-employed. Only about 23% of all redundant workers who are not re-employed in the previous year find a job in the next year (t+2 until t+5).

A discrete-time survival analysis using a logistic regression for the probability of being re-employed was performed. The results show that a region where a large share of economic activities is in the same industry the person worked in prior to lay-off means
faster re-employment, which is in line with expectations based on effects from localization economies. What is more interesting is that a similar effect is found when there is a high share of related activities, while a region that comprises many unrelated industries decreases the chances of being re-employed. Hence, there does not seem to be a portfolio effect from diversity in this case. The most important factor for absorptive capacity in the short run seems to be an economy that offers better labour matching. The empirical results also show that relatedness is especially important in regions facing high unemployment. Hence, related diversification opportunities are especially crucial in regions where there is high competition for the jobs available. It has been argued in the literature that different relatedness measures have different effects (Wixe & Andersson, 2017). Introducing the traditional measures of related variety used by Frenken et al. (2007) does not add any explanatory power in the first year. Unrelated variety generally decreases the chances of being re-employed even more than the initial occupation-based unrelated measure, but it does have a positive effect in regions with low unemployment. In already affluent economies, where the demand for a diversity of skills is high, competition for jobs is lower. The empirical results show a very interesting time dimension in relation to the absorptive capacity from these industry compositions. The positive effect from occupation-based relatedness actually diminishes over time, while related variety becomes significantly important in aiding redundant workers who have remained unemployed for a longer period of time. The argument could be that, the longer redundant workers stay unemployed, the more likely they are to be pushed out to employment far away from their initial skill base (MacKinnon, 2017), in which case it is important to have a more diverse (but not too diverse) regional composition of industries.

In light of the results from Paper II, it is evident that the demand side is of great importance when addressing the employability of redundant workers, and looking at industry composition is one productive way to do that. In contrast to previous studies, the present results do not provide convincing evidence that having a highly diverse regional portfolio of industries facilitates redundant workers’ way back to employment – independent of how unrelatedness is measured: using occupations or sector codes. Moreover, the results show that it is not only that different relatedness measures matter for different kinds of developments, but they are dependent on the time frame studied as well as the economic context. This means that it is necessary to take a more contextualized approach to resilience. Finally, it is clear that an occupation-based relatedness measure is useful in addressing the frictions of labour mobility, and could and should be used when addressing issues of employment adaptability.

4.3 HOW DO REDUNDANT WORKERS MOVE IN SPACE TO BE RE-EMPLOYED?

Paper II found that the share of the same and related industries decreases time to re-employment for redundant workers, while a region in which a large proportion of economic activity is in unrelated industries increases time to re-employment. These patterns are explained by the frictions that arise when workers move in industry space to
acquire a new job, the idea being that workers want to minimize the costs of returning to work. However, major downsizing or plant closures often put great pressure on regional labour markets, and workers might need to take on unplanned mobilities. In 2011, when the small town of Trollhättan was facing the redundancy of 3064 workers (Trygghetsrådet, 2014), the unemployment level rose to 20% in a time when the Swedish average was about 8%. The Swedish Public Employment Service urged the redundant workers to decide on a strategy that involved trying to remain within the region or the industry (Nils Gustafsson, 2011). Hence, some kind of mobility was seen as necessary. However, the same kind of mobility might not mean that the same frictions arise for all workers. Some workers’ skills are seen as more flexible and applicable to a greater variety of jobs and industries, and they may be able to move into unrelated industries without facing skill mis-match and high costs. Other workers’ competences are seen as more specialized and less easily bridged into new economic activities. There are also frictions that arise with spatial mobility, where region-specific networks and routines are lost, which gives incentives for the worker to stay in the region (Fischer et al., 1998). Workers have agency and intentions, willingness to stay in the region or stay in the industry, and these also shape and condition the evolution of regions (MacKinnon, 2017). Thus, in order to understand how times of turbulence shape workers’ labour market trajectories and the region’s ability to create new productive paths, it is crucial to understand the micro-processes of change – the mobilities of redundant workers and their effects.

4.3.1 Paper III: Labour market trajectories after redundancy

*Paper II* showed that a large proportion of workers, in general, are re-employed relatively rapidly after becoming redundant. What is less well understood is how workers move in regional and industrial spaces when they are re-employed, and more specifically who carries out what type of mobility. The aim of *Paper III* is to study the spatial and industrial mobilities after a job separation following a major plant lay-off or plant closure, and the long-run effects of these mobilities on employment stability.

The results confirm the findings of, e.g., Huttunen et al. (2011), showing that the most popular move is to return to the same industry in the same region the worker became redundant in. This is not surprising, as theories suggest that this move means the fewest frictions for the worker – a ‘natural’ strategy when returning to the labour market. However, *Paper III* does not only label industries as the same or different, but also looks at occupational relatedness, and the results show that 13% are re-employed in an industry that is occupationally related. The relatively small size of these related moves depends on the threshold for categorizing an industry as related, but also on the fact that these are redundant workers and forced mobilities tend to be more extreme because these workers have fewer options (MacKinnon, 2017). What is interesting is that the pattern over time for related moves is the same as the moves back to the same industry, and the pattern is that such moves become less and less likely the longer it takes for a worker to be re-employed. Either they are voluntarily branching into unrelated industries, or with longer time in unemployment they find that they need to take any job available. They also expand
their geographical searching area with time outside the labour market, where about a third who find their first job 5 years after the redundancy move to a new labour market. The workers previously employed in Other Services, such as retail, restaurants and low-skilled personal services, have one of the lowest re-employment rates of all industry groups, lower than that of, e.g., low-technology manufacturing. Instead, the workers made redundant in the other sectors branch into Other Service. Two years after the redundancy, Other Services is the second largest employer for people returning to work – with the exception of former workers in high-technology manufacturing.

It has been argued that workers of higher age generally have more time invested in the region in terms of networks, relations, knowledge about formal and informal routines and institutions, and for them the cost of moving is thought to be higher. The same is said about changing industry, as years within an industry could be viewed as investment in specialization. By studying the average marginal effects on their mobilities based on multinomial logit models, this seems to be true for this population. Older workers are more likely to employ a same-region-same-industry mobility when returning to work. Moreover, the youngest group of workers seems to be mobile, more likely to end up in another region and far away from the pre-redundancy industry. This mobility could be because this group is flexible and can easily adapt to new circumstances. It could also mean that older workers have the upper hand, due to their experiences and long investment in networks, and that younger workers are pushed out, far from their original position. Workers with a higher education are more flexible and are more likely to find new employment immediately after the redundancy. This is in line with the argument that highly educated people’s skills and knowledge are seen as less specialized, and that it costs less to bridge their skills to the workplace’s knowledge and routines. The same effect of being more ‘flexible’ is found for workers who have been involved in labour market training programmes. This is in line with previous research, arguing for the importance of training and education in understanding workers’ and regions’ ability to adapt and be resilient. Migration studies of the ‘dual labour approach’ (Gordon, 1995) have shown that while low-skilled jobs are usually filled with local workers, employees applying for more high-skilled vacancies are found within a wider geographical area. Workers with a higher income, on the other hand, are less flexible and more likely to stay close to their original position, where they have enjoyed those benefits.

While previous studies (e.g., Eliason & Storrie, 2006) have found that redundant workers are more sensitive in future crises, this paper showed that this might be related to the mobilities these workers embark on. The average marginal effects on the risk of being associated with another redundancy 10 years after the first redundancy are obtained from logistic regressions. These show that the popular move of returning to the same industry, independent of staying or moving to another region, is associated with a higher risk of once again facing redundancy. Workers with a higher education should move even further away from their initial skill profile, into unrelated industries, if they are to increase their chances of stable employment.
The results show that regional policy needs to work very differently with different groups of workers in times of redundancy. There is no need for incentives for highly educated people to diversify, nor is there for the younger portion of the population. There are, however, groups of workers who have invested in both the region and in the industry, and it is more challenging to convince them to branch into new industries. Hence, there need to be resources for re-training and schooling that can add complementary skills and competences that make these moves more attractive. The same applies to workers who are not re-employed immediately after the redundancy. These workers are pushed further and further away from their initial position, industry and region, as the absorptive capacity of the regional labour market becomes exhausted. Moreover, as workers are pushed out of their old industries, they are increasingly re-employed in Other Service, while the people who used to work in that sector have a very hard time finding new employment. There seems to be an industry hierarchy in which those who are pushed out from the bottom are replaced by people in more ‘attractive’ industries, ending up with no easy refuge. It is of the outmost importance and a major challenge to include in the regional development process groups of workers who are more vulnerable.

4.4 RE-EMPLOYED AND UNDEREMPLOYED?

During recent decades, Europe has been dealing with a vulnerable manufacturing sector, where especially low-skilled jobs have been destroyed while new technologies have been introduced, and globalization has made it possible to move certain parts of the supply chain to low-wage countries (Autor et al., 2003; Dicken, 2016; Lundquist & Olander, 2010). These economic changes have had a highly spatial dimension, as a strong manufacturing economy is transforming into a more service-oriented one, resulting in stronger regional divergence, as the service jobs created are primarily an urban phenomenon (Andersson et al., forthcoming; Combes, 2000; Desmet & Fafchamps, 2005). Hence, the developments have resulted in a geographical and competence-related labour matching problem. King et al. (2009) found that Sweden is comparatively good (in contrast to the US and Canada) at shifting to more creative occupations within the manufacturing sector. This means that the jobs created are very different from the jobs destroyed. Hence, the low-skilled manufacturing workers in Sweden have been subjected to an intensive period of job destruction, and job searching (at least in the short run) needs to be in new industries. High mobility is often argued to be a crucial aspect of generating growth, however the effects of these mobilities need to be understood if they are to be promoted (Hedberg, 2005). Paper III concludes that some groups of people are more flexible in this regard, and there are long-run incentives for the region as well as for the individual to diversify into new industries. ‘Flexibility’ is usually part of a discourse of employability, arguing for the advantage of decreasing time to re-employment for the individual. However, the literature on skill matching argues that redundant workers are more likely to end up changing occupations, moving to less skill-demanding jobs, which results in negative salary effects (Nedelkoska et al., 2015). The same effect of wage...
penalty is found for redundant workers branching into unrelated industries (Holm et al., 2017). Even if ‘flexibility’ might be beneficial to the worker in a longer-run perspective in terms of stability of new employment, the frictions that might arise in these moves could have other negative consequences for the worker. The result might be ending up underemployed in a job where old skills and knowledge are left idle. Hence, for the worker adaptability might mean something other than it does for the region. This means that it is crucial to study not only the distance a worker moves in industrial and spatial space, but also the direction in which the labour trajectory is heading (Nedelkoska et al., 2015).

4.4.1 Paper IV: Distance and direction of labour mobility
Regarding the research gap presented above, the aim of Paper IV is to analyse how the distances and directions of redundant workers’ mobilities are related. Moreover, the focus of this paper is on a group of workers who are seen as particularly vulnerable in today’s economy: manufacturing workers in their prime working age (30-45 years old) made redundant due to major cutbacks or plant closures in 2003. This paper investigates how their mobility (as in Paper III) or distance 5 years after the job separation is related to the direction: occupational status change. This is explained by skill matching and mismatching between the old job and the new job, due to the frictions that arise.

First of all, the results show that these lay-offs triggered a period of high job switching, higher than the Swedish average during this period. Similar to the findings in Paper III, even though this concerns a different population and time span, the ‘same-industry-same-region’ strategy is the most frequent move when returning to the labour market in the year following the redundancy. However, in Paper IV all workers’ 5-year trajectories are included; it is not only the single point of returning to the labour market that is being studied. Still, the same pattern of industry and regional mobility is found. Not only are workers who take several years to come back to employment being pushed out to industries that are unrelated, but this is the overall trend for all workers in the population. At the end of the period studied, 5 years after the lay-off, 43% of all workers are employed in unrelated industries in the home region, and 19% are in unrelated industries in a new region. There is one notable difference between only observing the re-employment patterns of Paper III and the continued mobilities studied in Paper IV, and that is that the mobility to related industries increases with time. As fewer and fewer people are employed in the same industry as before the lay-off, workers move into unrelated as well as related industries. These are the distances workers are moving in the aftermath of facing redundancy. Because the distances workers move are increasing with time, the directions of these labour market trajectories are diverging, with an increasingly large share facing downward as well as upward mobility. As it is not the non-linearity of the relationship that is of interest but the average effect and its significance, a linear regression (OLS) has been used to estimate the probabilities of remaining stable, making a career or facing underemployment. The results show that some mobility is positive for upward mobility, especially moving to a related industry in the same region or moving to
a new region, but to the same industry as previously employed in. Moving to unrelated industries in general, but also to related industries in new regions, is associated with a higher risk of facing underemployment in the medium run. This means that while moving to unrelated industries decreases the chances of facing another redundancy (Paper III), it also increases the risk of being underemployed – independent of moving to another region or not. Moving to a related industry is a much more stable employment and is also related to upward status mobility, i.e., making a career move. Hence, policies should give incentives for branching into new related industries, but not into unrelated ones. This would mean adaptability for the worker, as well as the region. From a worker’s perspective, when trying to avoid underemployment, it is better to move to another region than to stay in the home region and be pushed out to unrelated activities. Because these mobilities seem to mean frictions that have significant effects on the possibilities of upward and downward mobility, people should be careful when returning to the labour market after facing redundancy. Even though the region might consider rapid re-employment to be a successful outcome and a desirable one, the worker might be stuck in undesirable labour trajectories. This is in line with the study by Holm et al. (2017), who show greater effects on wage from making a related move than from rapid re-employment. A more strategic choice might be to wait and find new employment that means better skill matching.

In light of these results, the conclusion is that time is not the most crucial aspect of adaptability after redundancy for workers, but being able to branch into related industries to enable skill-matching and worker adaptability. In addition, this is not only crucial for the worker but for conditioning regional diversification without leaving skills idle, building on the competences workers already have. This is at the core of the theory of smart specialization. Finally, two important theoretical contributions have been made for future research on labour branching. First, the results from this empirical paper are similar to the findings of Holm et al. (2017), who studied the closure of four companies and the redundant workers’ wage penalties from different mobilities. Based on these findings, we can conclude that occupational status change is an important measure, as it enables studies of skill matching and mis-matching using big data, where wage data are not accessible. Secondly, using an occupation-based relatedness measure makes it possible to address both related industry and labour branching, which is pivotal if we wish to understand how to address smart specialization policies.
5 DISCUSSION AND CONCLUSION

5.1 SUMMARY

The main aim of this thesis was to apply an employment perspective to the dynamics of resilience, and to illustrate that workers do not simply reappear in new employment but instead that mobilities have a distance and direction that are associated with frictions. This was accomplished using Swedish data from 1990-2010 on gross employment changes and contextualizing employer-employee links that disappear and appear. The empirical findings indicate that there are large regional differences in resilience, absorptive capacity and employment growth. Moreover, industry proximity is an important factor when analysing both regional absorptive capacity and labour matching, thus significantly affecting worker adaptability in times of turbulence. This is explained by the frictions and skill (mis)matching that arise in the labour market and in new employment positions due to these proximities.

What was found in the papers was that a cohesive and diverse region is more resistant to shocks as well as adaptable in the aftermath of crises, while a specialized region is more sensitive and less resilient in general. The trajectories of regional net employment growth are diverging – an unequal spatial development that might be reinforced with time, as the empirical results show that resilience is a path-dependent phenomenon. In addition, a worker facing redundancy in a region where there is a large share of industries that are the same or related to the industry she was made redundant should experience decreased time to re-employment. A large share of unrelated industries, on the other hand, will prolong the time to find a new job. The argument in the papers is that workers are more reluctant to start working in an industry where their skills cannot be re-used, and employers are more reluctant to hire them. This explains why the results show that most workers returned to the same industry, within the same region, they were previously employed in. With longer time to re-employment, though, more and more people are pushed into unrelated industries, and into new regions. There are, however, significant differences in the mobilities of redundant workers, where some groups are more inclined to diversify into new regions and industries, while others are more invested in the industry and region. Moreover, staying in the same industry that experienced the major lay-off means less stable employment, but moving into unrelated industries increases the worker’s chances of experiencing skill mismatch and being underemployed. Finding new employment in related industries means more stable employment and increases the chances of upward mobility, diversifying but still avoiding skill mismatch. Finally, based on these findings, regional branching into related industries seems like a good resilience strategy. However, such a strategy needs to be combined with policies aimed at related labour branching as well, in order to reallocate skills to new parts of the economy while avoiding skill mismatch. This provides a good base for regional diversification that can result in path re-orientation and renewal.
5.2 DISCUSSION OF FINDINGS

The findings in the empirical papers can be summarized into three larger topics of interest, which should be discussed and further researched from both theoretical and policy perspectives. First of all, industry composition is a pivotal factor in explaining regional differences in resilience, and resilience has a major effect on the possibility of regional path renewal and re-orientation. The findings from Paper I indicate that regional trajectories of employment growth are diverging rather than converging. Between 1990 and 2010, Swedish labour markets have experienced both trends of growth and recess, but it is only the regions containing one of the three metropolises (Stockholm, Malmö and Gothenburg) that manage to reach levels of employment in 2010 in line with those before the 1990s crisis. This has a profound impact not only on the local working population’s possibility of finding new employment in the near vicinity, but also has a significant impact on the region’s chances of generating new productive paths. The aggregated income in the region has an impact on both the gross and net employment growth, and as that growth decreases so might the potential for job creation. Moreover, there is path dependency between levels of job creation, where high levels of historical job creation have a positive impact on future job creation due to forces deriving from expectations (Andersson et al., forthcoming). Hence, there are strong cumulative causations that reinforce the regional trajectories of employment growth. Regional size and the dynamics of employment growth are important factors to consider if we wish to understand regional growth paths (Polèse, 2010). This could imply that larger regions are by definition more resilient, but a very important finding in Paper I is that industry composition is a more important factor than size when analysing regional resilience.

First of all, as with net employment growth, the resistance and adaptability of regions are highly spatially uneven processes. While certain regions managed to be both resistant and adaptable in the crises, others were hit hard but experienced high employment growth in the aftermath. Some regions did not manage to be either resistant or adaptable. Hence, I argue in line with Martin (2012) and Sensier et al. (2016), that it is crucial to study time when analysing resilience, and that resistance to a shock is not the same as recovery or adaptability. These uneven regional developments run the risk of being further fortified with each new phase of economic restructuring, as resilience is found to be a path-dependent process. These spatial differences can partly be explained by the industry composition of these regions. Building on the findings of Frenken et al. (2007) and Neffke et al. (2011), but introducing the dynamics of resilience, the empirical results from Paper I show that industry composition is an important factor both at the initial stage of resistance to crises and in the adaptability phase in the aftermath. A region that is cohesive (high degree of related links between industries) and diverse is less affected in times of crisis, but is also more capable of creating new jobs when the economic turbulence settles. Thus, as stated by Frenken et al. (2007), even though diversity is usually found in bigger cities, it is important to differentiate between the actual effect of size and industry composition. Specialization, on the other hand, decreases the region’s potential to be
resilient. These results are troubling, as many small regions are specialized in terms of both manufacturing and/or service (e.g., tourism).

These developments and regional trajectories are closely linked to the spatial division of labour and are further fortified by the policy focus on competition, which is based on neo-liberal logics of development (Nyberg, 2017). When regions are allocated more responsibility to find ways to develop, actors need to find national and international investment and capital, which has resulted in policies focusing on knowledge-intensive services, and a shift in importance towards professional and white-collar workers (Massey, 1984). Specializing can be used as a way brand a region, the goal being to attract investments and skilled workers. However, policy efforts to boost specialization in combination with a small population size can have profound effects on regions’ ability to be resilient. The regional branching literature argues that industries relatively unrelated to the regional industrial space are more likely to exit, which increases cohesiveness (average relatedness) in the region. New industries entering, on the other hand, diversifies the region by bringing in novelty, but related novelty (Neffke et al., 2011). Thus, if regions tend to lose economic activities in the periphery of their industrial space, a region that experiences job destruction and very little new generation of jobs might be subjected to increased specialization. Thus, specialization might be pushed on regions as side effects of employment stagnation and (re)producing rigid structures and regional paths. I therefore argue that, in order to avoid lock-ins, it is important to actively encourage related diversification.

The creation of new jobs seems to be associated with a rise in the destruction of jobs, or it could be that the destruction of jobs creates opportunities to generate new jobs. In either event, gross employment changes have a weak relationship with net employment growth. Studying the whole economy, not only manufacturing, and a very different institutional setting than the UK (Essletzbichler, 2007) and the US (Davis & Haltiwanger, 1999; Essletzbichler, 2004), the results from Paper 1 show that there is still a high turnover in both declining and expanding regions and sectors. Hence, intensive labour market mobility based on high job turnover is argued to be part of a process of creative destruction, and might just be destructive as well as creative – in terms of regional employment growth. If we are to understand a changing spatial division of labour and path creations, it is crucial that we more closely study the mobilities of workers who are pushed into unemployment, as forces of destruction are reshaping regional economies. In light of these results, more emphasis has to be put on the adaptability of redundant workers if we are to understand how processes of destruction could be creative. This is because focusing on job creation and destruction separately tells us very little about the qualitative changes, and net employment growth says very little about the underlying micro-processes. While a region with high industry diversity is more resistant and adaptable when facing economic shocks, a high level of unrelated industries (occupational-relatedness measure) in a region where a worker is facing redundancy will significantly decreases her chances of finding permanent re-employment. This means that scale is important when assessing adaptability. For the worker, it is much easier to find a
new job if there are a lot of jobs in the same industry as she was previously employed in, or a high share of related ones. Related industries are especially important in regions with high unemployment, but the effect diminishes with time. When people need to find employment further away from their original industry, related variety becomes more important. This might be an indication of the original idea that the relationship, or proximity, between industries is fluid and made up of several different dimensions, which makes it hard to capture using a categorical variable. By categorizing industries as ‘related’ or ‘unrelated’ some insights might be lost concerning the relationship between different industries. When workers try to avoid skill mismatch, there are several different dimensions to consider. The results indicate that a stronger force than returning to the same industry seems to be that of returning to the same occupation (Paper IV), which is captured in occupation-based relatedness. If the worker is able to perform the same task, fewer frictions arise in the mobility between the two workplaces. However, with time people are less able to move to the same occupation and new proximities are pursued, which involve not working with the same tasks but with similar economic activities. Hence, it may be that related variety does not capture skill or task relatedness, which is in line with findings showing that it does not increase productivity growth (Wixe & Andersson, 2017). Related variety rather captures other links in the economy between industries that reduce frictions. These links do not capture the most desirable inter-industry mobilities for workers, but are important in minimizing skill mismatch when the initial absorptive capacity decreases within a region. Occupation-based relatedness signals something about the possibility of workers being able to perform the same kinds of tasks, which is important to workers and the region on the brink of facing economic turbulence. Related variety might be more important for regions that need to go through greater structural changes in their economy in order to generate new paths – situations in which workers need to branch further away from their initial point of departure, but where the region has managed to address issues of regional re-orientation in a way that still addresses the skill matching of workers.

Second, the results show a high turnover of workers and diverse labour trajectories following these redundancies, where good regional absorptive capacity does not necessarily mean satisfactory labour matching. Only focusing on the process of being or not being employed gives very little insights into the micro-processes that are changing the economic landscape. While the re-employment figures are high already in the first year following the redundancy, these mobilities still entail mobilities that were performed by the workers. Hence, it is pivotal to study the distance and direction that redundant workers travelled in order to become re-employed. By combining the insights from regional routines (Rigby & Essletzbichler, 2006) with studies of relatedness between industries (Frenken et al., 2007), Paper III and IV show how these two distances interact and create dimensions of proximities and frictions for workers when moving between jobs. In line with Huttunen et al. (2011) and Magnergård (2013), the empirical results suggest that most redundant workers who are re-employed immediately after the lay-off return to the same industry in the same region, indicating a small move in the regional-
industry space presented in Figure 2 below (A). However, in addition to earlier studies, Paper III does not only acknowledge intra- and inter-industry mobilities, but differentiates between related and unrelated moves (B, C, D, E). As with mobilities to the same industry, a related move (B, E) becomes less likely with longer time to re-employment. In general, with longer time to re-employment, workers begin moving further away from their original position, into new regions (F), and unrelated industries (C) and even unrelated industries in new regions (F).

![Figure 2. Outcome space for redundant individuals and different mobilities (source: Eriksson et al., 2018 in this thesis)](image)

Already two years after the redundancy, a majority of the workers who find new employment do so in unrelated industries. The rate of related moves is much lower in these studies than in previous studies on voluntarily job moves (Boschma et al., 2014), which seems to confirm the idea proposed by MacKinnon (2017), that related moves are less likely to occur when workers are forced into job switching. This gives some important insights into the problem identified in case studies of redundant workers who find themselves working with new unrelated tasks and skills at the new employment (Bailey et al., 2012; Tomaney et al., 1999), which is that it might not be a problem caused by the redundancy per se. Rather, based on the findings of both Paper III and IV, it might instead be an indirect effect that can partly be explained by the higher risk of redundant workers being pushed out into unrelated industries and that these moves are typically associated with skill mismatch. The redundant workers who managed to branch into related industries did not face the same risk of skill mismatch, and were even likely to experience upward mobility. These findings are in line with those of Nedelkoska et al. (2015), who show earning losses due to the increased risk of redundant workers being overqualified at the new employment. In addition, they show that workers who managed to reuse their skills were not subjected to a wage penalty. The industry mobility patterns are similar in Paper III and IV, even though they encompass different parts of the population and time frames. There is one notable change, though, when the scope is broadened beyond looking only at the single point of return (Paper IV), instead of a decreasing rate of people in related industries it increases with time. Thus, some workers who manage to return to the
labour market within the same industry might be able to use that as a stepping-stone to branch out into new employment that is related. However, in both Paper III and IV, most workers are ‘stuck’ in unrelated industries at the end of the period (C and D).

There are two important parts of this outcome space that have different effects on adaptability from the perspective of the workers. On the one hand, the safe same-region-same-industry strategy (A) means less skill mis-match and a stable occupational status in the medium run. However, these workers are more likely to end up facing another redundancy in the longer run. Even staying in the industry but moving to another region does not increase one’s chances of stable employment. Perhaps the higher vulnerability found among redundant workers in the redundancy literature (Eliason & Storrie, 2006) could be partly explained by a tendency to return to the same industry – an industry that might be facing restructuring and where the plant closure was not only due to firm-specific issues but to broader changes affecting the industry as a whole. The right-hand side of the outcome space, on the other hand, will be seen as offering more stable employment opportunities. While some people with skills that are seen as more ‘flexible’, such as workers with a higher education, might be able to perform these without having to face skill mismatch, others face higher probabilities of downward mobility, independent of whether or not they stay in the home region. However, the middle way (E and B in Figure 2), which involves moving into related industries, seems to increase employment stability and increase the chances of making a career (upward status mobility).

Even though the economy in general is facing high levels of employment turnover, the redundant workers are pushed into new unsecure jobs, which entails having to face a higher-than-average job turnover rate. Even though as many as 87% of the redundant workers are re-employed one year after the lay-off (Paper IV), only 30% of them keep that employment for a 5-year period, and 28% of them have changed both plant and firm already one year after being re-employed. This means that these workers will face an insecure economic situation, with trajectories that diverge further and further away from their initial position. With labour branching more and more into unrelated industries, Paper IV shows that these trajectories are likely to also mean branching into unrelated tasks. One group could be said to be more flexible, as they are able to move into new industries while experiencing upward mobility. Another group is being pushed out to unrelated industries, facing the risk of being underemployed. Hence, if only the single point of returning to the labour market is studied, a major part of the diverging labour trajectories that with time lead to underemployment will be neglected.

In light of these results, I argue that it is vital that both the distance (industry and spatial mobility) and the direction of redundant workers’ labour trajectories be studied, if we are to understand worker adaptability and how to build capacities for regional path renewal and reorientation. Moreover, a relatedness measure based on individuals

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5 The workers with a higher education have skills that are seen as more flexible, and should move one or two steps further away from their point of departure (C, D, E in Figure 2) in order to avoid another redundancy. However, they are already more likely to make these long jumps.
occupations in this case) is a good measure for addressing the frictions that arise for workers when they move in industrial space.

Third, if adaptable worker and regional trajectories are to be pursued, related branching of both industries and workers need to be addressed. It is evident that relatedness is an important factor when considering frictions of mobility and efficient industry compositions. Smart specialization has gathered considerable interest in both policy and academic circles in recent years. Strategies offering one-size-fits-all solutions have been widely criticized, not least by geographers, as well as regional specialization and policies aimed at ‘picking the winners’ and supporting industries that are vulnerable for different reasons (Boschma & Gianelle, 2014). The ‘new’ initiative has co-developed along with studies on the evolution of the regional industry space and related variety (Frenken et al., 2007), showing how industries in the periphery – relatively unrelated to the regional industry portfolio – are more likely to exit, while new industries that are related to the existing industry space are more likely to be introduced (Neffke et al., 2011). When studying the mobilities of redundant workers, the opposite is happening – a large share of workers actually end up in unrelated industries rather than related. These mobilities might be more radical than the average job switcher, as stated by Mackinnon (2017), as these are redundant workers who might have less scope to make strategic decisions about choosing what industry to move into. However, as shocks and structural changes are an important part of the evolutionary economic approach on how to understand the evolution of regions and the creation of new regional paths (Christopherson et al., 2010; Evenhuis, 2017), redundant workers’ mobilities need to be incorporated as an important factor shaping these regional trajectories.

Researchers aiming to address both regional and labour branching need to understand the industry space from both a regional and a worker perspective. When industries disappear in the periphery of the industry space, and new industries enter that are more related to the overall regional industry portfolio, it is highly likely that there will be a mismatch between the jobs created and the jobs destroyed. Smart specialization is defined as a process where old capabilities are re-used in new economic activities (Boschma & Gianelle, 2014). Hence, if the region is pursuing smart diversification, then the workers being laid-off in the old activities should be re-allocated to the new parts of the economy in a successful way, meaning that skill mismatch should be avoided. Hence, more work in line with that of Paper IV, as well as Nedelkoska et al. (2015) and Holm et al. (2017), needs to be done, alongside the more common regional focus. Otherwise, regional developments will involve an increasing divergence between the workers, where the price of diversification is being paid by a group of people who are already vulnerable in today’s economy, as only parts of the workers who have the luxury to be ‘flexible’ without facing skill mismatch will be included in this so-called ‘smart’ related branching. I therefore argue that the literature on industry composition needs to take the effects of different kinds of relatedness seriously, and that policymakers need to clearly state what kind of smart diversification they are aiming for: for what, whom and where.
5.3 CONCLUDING REMARKS AND FUTURE RESEARCH

While Sweden has been relatively ‘successful’ in the transformation from a manufacturing-based economy towards a more knowledge-intensive and service-orientated economy (King et al., 2009), the transformation very much depends on what spatial scale is analysed. The dismantling of the manufacturing sector is taking place in the whole country, but is accompanied by increased regional inequality in employment growth driven by the creation of jobs in services, primarily located in larger cities (Andersson et al., forthcoming). This thesis has shown that adaptability is related to how regions have managed to keep up with this shift from manufacturing towards a more knowledge-intense economy, and that these shifts have an impact not only on the longer regional employment trajectories of regions, but also on resilience in times of shocks. Hence, the great spatial differences in regional resilience and the absorptive capacity of redundant workers found in the thesis are worrying, but not surprising. Resilience is path dependent, as is the creation of jobs. Hence, these spatial differences do not seem to converge, but are instead likely to diverge even more. Part of what is neglected is the power relations accumulated through history that facilitate or hinder different regional trajectories, and where one region’s gain is another region’s loss (Massey & Meegan, 1982). With competition as the keyword in development policy (Nyberg, 2017), it is not surprising that the results show large spatial disparities in net employment growth as well. When responsibility for development is deregulated to the regional level and when governments refuse to assume responsibility for the spatial distribution of jobs, adaptability becomes a question of the geography of jobs as much as the geography of power (Massey & Meegan, 1982). From the workers’ position, this means a shift in not only where jobs are located, but also what kinds of jobs are available. As a traditionally stable and union-strong industry declines, and the labour market shifts towards more unsecure, low-skilled service jobs, on the one hand, and highly trained, white-collar workers, on the other, it is not surprising that laid-off manufacturing workers’ trajectories are diverging. While one group is experiencing upward mobility, another is facing underemployment. What ‘necessary’ mobilities have the workers performed in order to stay employed? To minimize time to re-employment and skill mismatch for redundant workers, returning to work becomes crucial if regions are to mobilize and make use of their accumulated human capital in the region. This is critical, as these micro-processes of labour branching lay the foundation for a region’s potential of path renewal and re-orientation – being able to diversify the economic base of the region in order to avoid lock-ins.

It is evident that the proximity and distance between industries is an important factor in explaining how regions can be resilient and workers can be adaptable in times of economic turbulence. Policy has a crucial role to play in shaping industrial restructuring and renewal (Rodrik, 2004), and relatedness is one of the keys to formulating adaptable regional development strategies. In line with the ‘smart specialization’ initiative, policies need to encourage branching into related industries still not present in the region. This is done by mapping the industrial portfolios of regions and locating potential bottle-necks
(Boschma & Gianelle, 2014). However, new paths need to be discovered through interactions between many different actors, which puts a great deal of pressure on good private-public relationships and communication. This has been argued to be a highly experimental approach, with very little hard evidence (Moodysson et al., 2017). What becomes interesting with this kind of policy approach is that policy itself needs to constantly evolve and be innovative; it needs to be part of an evolutionary understanding of how policy itself is understood.

What becomes critical in relation to a ‘smart specialization’ strategy is that for it to be smart, it needs to consider diversification that is related from both a regional and worker perspective. Being flexible is dependent on the resources available for a region and an individual. Specialization might mean rigidity not only for regions, but also for individuals, and generic education and training might make workers more flexible. However, talking about flexibility needs to be accompanied with a discussion about the direction of workers’ mobilities, not only the distance. Certain groups of workers are able to deal with these lay-offs fairly well and are not displaced in that sense. Hence, perhaps unemployment agencies do not need to be all-encompassing, but rather target certain groups, even during major lay-offs and plant closures. Time to re-employment is important, but may not be the main concern; the main concern may be the quality of the new job. Perhaps forcing workers back into jobs that are far away from their skill portfolio is not a very good idea. Employment agencies should not only focus on helping unemployed individuals find a job, but they should employ a longer time frame, helping to build a more sustainable career trajectory to find skill-related new employment, or advise skill-building training that is related to workers’ present competences. Education has been found to aid in career building, but the investment that it entails might be too high a transaction cost for a middle-aged worker, with a family, who has no experience of university studies.

This is the reason why I argue that it is pivotal to combine the notion of both related regional and labour branching, as well the different kinds of relatedness and their effects. That is, we need to consider what type of relatedness for what kind of process? This thesis has shown that an occupation-based measure is able to capture industry relatedness, which has an important impact on re-employment possibilities in the face of redundancy, but which is also able to capture related labour branching. It is an important step, both theoretically and policy-wise, to address a diversification strategy that is productive for both the region and individuals. This thesis has contributed to our understanding of industry relatedness that is close to the workers and the functions that make up industries; occupation is a good proxy for what people do – and occupational relatedness could therefore be argued to be a good proxy for cognitive proximity between industries. By using occupation-based relatedness, the spatial sorting of skills is indirectly addressed. Moreover, regions are more inclined to specialize in functions rather than in industries (Wixe & Andersson, 2017), meaning occupations are more subject to spatial sorting. Hence, the occupation that a worker has in combination with where the worker lives might have a great effect on her adaptability, but also the regional potential of path renewal and
reorientation. In other words, the regional structure of occupations might help in explaining how regions manage larger structural changes, such as the shifts from manufacturing towards service industries that have been seen during recent decades. If the spatial division of functions is more pronounced than the industry distribution over space, then this might result in one industry having very different occupational set-ups, depending on where it is geographically located (Massey, 1984; Massey & Meegan, 1982). This would mean that occupations should not only be incorporated as tools in order to measure relatedness between industries. There is potential to use occupational data to generate a space of workers that could be used to address issues of regional adaptability. Perhaps the complex regional portfolio of functions (occupations) generates a bottle-neck in regions’ capacity to change, more so than in their industry portfolio. An important next step would be to consider both where people are working and what they are working with, as the industry might say something about the demand for goods and services, while the occupational space says something about the potential to adapt to a changed national and international demand.

As with relatedness, policymakers need to clearly define resilience for what, whom and where. Regional resilience in employment does not mean that the region is resilient in GDP, and vice versa. Being resilient does not automatically mean a strong economy in traditional terms, such as growth and a region can be resilient without being progressive (Sensier et al., 2016). This indicates that what constitutes a desirable outcome needs to be defined for each region, as some will need stability and others will need to find new trajectories, which might require creative destruction (Hudson, 2009). While it is important to address regional particularities, it is also crucial to understand that it is not enough to only analyse development from a regional perspective. Uneven development must be analysed from a national political-economic perspective, where the outcome of the region cannot be seen as a solely regional phenomenon, but one situated in a broader network of power relations accumulated through history that hinder and facilitate certain kinds of developments (Massey, 1984). Power can be found in the everyday actions of workers, which means that this thesis indirectly says something about power relations. However, capital-labour relations need to be addressed more explicitly in relation to redundant workers’ mobilities – distance as well as direction. Moreover, it is important to also analyse power in terms of who has the agency to affect agendas and define development, resilience and adaptability (MacKinnon et al., 2009).

Based on the findings presented here, I argue that there is also a need to address the broader question of how development is understood primarily through a neo-liberal discourse of competition. Policies both in Sweden (Nyberg, 2017) and the EU (Bristow, 2005) state that boosting regional competitiveness will in the end benefit everyone. Development policies based only in a competitive framework lead to disregard for a potential zero-sum game: one region’s gain tends to result in another region’s loss (Massey & Meegan, 1982). This will not erase unequal regional developments, but depends on and reproduces them. Investment in education and training has been used as a tool to make workers more productive. However, without a sufficient demand for
labour, this remains just a zero-sum game, with some people being pushed forward in the labour market queue at the expense of others (Sunley et al., 2001). A problematization of competitiveness is needed – competition defined for whom and what – where both the positive and negative effects need to be considered. As Bristow (2005:300) argues, “they have assumed that what applies to firms can simply be read across to those other entities called ‘regions’, and that this is a concrete reality rather than simply a belief or opinion”. A restricted view of competition has negative effects on resilience. Hence, more contextualized policies on competition, development and resilience are needed (Bristow, 2010).

One step in addressing these issues, in line with the focus of this thesis, is realizing that the primary aim should not be on growth or the inter-regional flow of high-skilled workers. Rather, more research needs to examine how regions can facilitate adaptability for their regional workers while generating conditions for regional path creations. Policies should then focus on ways to use the skills available and build on these, and aid in the transition to related industries without pushing people back into the labour market at any cost. Industry relatedness is thought to be one productive tool in going about this, but where questions of relatedness and resilience for whom, where and to what need to be central. For example, in addition to the findings of this thesis showing that the effects of industry composition vary depending on time and regional context, they might differ for different groups of workers as well. Hence, future studies should study different groups of workers, and how they are pushed in different directions and need to move different distances to secure employment. For example, this thesis has not addressed the gender aspect of these redundancies. The Swedish economy is segregated in terms of where women and men are employed and the job opportunities they have after job separation. There are indications that the women from the manufacturing population in Paper IV are experiencing downward mobility to a larger extent than the men are, where many women who were working as machine operators and assemblers have transitioned into, e.g., retail and housekeeping. Moreover, the aim has been to contribute with analyses on the general trends from the whole economy, as a big part of the literature has been concerned with manufacturing. This has on the other hand meant that the industry specifies has not been prioritized. There are for example indications that workers in Other Services in Paper III are stuck outside the labour market to a larger extent than those who were made redundant from low-technology manufacturing industries. Moreover, the empirical papers in this thesis have aimed at excluding part-time workers, but this might be a group that is especially vulnerable in times of turbulence. Hence, more research needs to address the diversity of trajectories and how these are shaped by particular time-space contexts. This might help us in further understanding how processes of destruction can become creative, addressing important issues of regional branching as well as worker adaptability, framed from the perspective of a functioning region rather than based on competitiveness.
6 Sammanfattning (Swedish Summary)


Artikel 1 utgår från de studier som visar på en stor skillnad i regioners förmåga att vara resilienta, där dynamiken och geografin i dessa processer har fått ett större utrymme. Studien analyserar den regionala motståndskraften och återhämtningen av sysselsättningen i kriserna mellan 1990 och 2010 i Sverige, och bekräftar tidigare studier som visar på att dynamiken i regioners resilens är viktig att ta fasta på för att förstå de underliggande mekanismerna. Att dela in processen i två faser, motståndskraften och återhämtningen, visar att dessa varken är densamma eller utesluter varandra. En region kan vara motståndskraftig och/eller diversifierad i sysselsättningen i krisen, och samtidigt genomgå processer av stort jobbskapande i den efterföljande fasen. Denna process är ”stigberoende” (eng. path dependent), det vill säga att en regions förmåga att lyckas hantera tidigare kriser är en indikator på hur de kommer att hantera framtid kriser. Det empiriska resultatet visar att en region med en hög grad av relaterade och diversifierade ekonomiska aktiviteter...


positivt, speciellt till relaterade industrier, och ökar chanserna för att göra en karriär. Dock innebär för stora distanser, framförallt till orelaterade industrier, en ökad risk för undersysselsättning. Detta innebär att tiden till återanställning kanske inte är det största problemet som arbetarna står inför i samband med nedläggningar och stora friställningar, utan snarare kvaliteten och den dåliga kompetensmatchningen vid de nya anställningarna.

Slutligen så visar de empiriska resultaten att det finns stora skillnader i regional resiliens, absorptionsförmåga och sysselsättningstillväxt. De regionala trajektorerna för sysselsättningstillväxt är divergerande, en ojämnn rumslig utveckling som kan förstärkas med tiden, eftersom de empiriska resultaten visar att motståndskraften är ett stigberoende (eng. 'path dependent') fenomen. Baserat på de empiriska resultaten i de fyra artiklarna verkar regional diversifiering till relaterade industrier som en bra resiliensstrategi. Den måste emellertid kombineras med politik som syftar till att underlätta för arbetare att hitta ny anställning där individens kompetens kan användas och byggas på, till relaterade jobb (eng. 'related labour branching’). En region som lyckas kombinera en regional industriell diversifiering med en arbetskraftsrörlighet till relaterad sysselsättning kan bygga upp en bas som lättare kan bidra till en lyckad omställning vid ekonomisk turbulens, där den regionala ekonomin kan omorienteras och förnyas, och undvika negativ inläsning.
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