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Status Concerns and Educational Attainment

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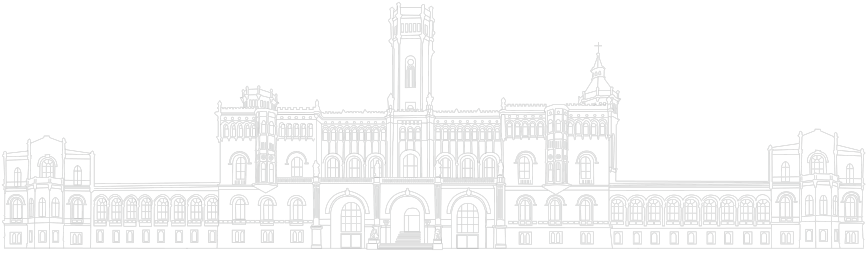

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Abstract Individuals' demand for levels of educational attainment that exceed a society's compulsory and standard level of education has been increasing in many countries in recent decades. While it is undoubtedly true that this increase is strongly driven by individuals' desire for economic security in terms of higher earnings or better job opportunities, the literature on status suggests that the desire for self-esteem and esteem from others plays an important role in educational attainment as well. This thesis aims to shed light on the role status concerns play in the educational attainment process and is also intended to draw attention to the fact that concerns about social status play an important role for policy design regarding education, since there may be implications for the labor market and individual well-being.

The thesis consists of three chapters, which are intended to be stand-alone papers. Nevertheless, they are closely linked to each other due to their consideration of the relationship between concerns about social status and educational attainment. Chapter 2 starts with an introduction to the concepts of identity and self, paying special attention to self-esteem and social status. It continues with a framing of theoretical and empirical studies on how education and status concerns are related to each other. Chapter 3 presents an article which is published in the journal *Social Indicators Research*. The article investigates whether education has a positional character for the German population. Chapter 4 contains a theoretical model in which higher education is associated with high social esteem. The model considers concerns about social status as a factor influencing individuals' decision-making regarding education and aims at exploring the effects of status concerns on labor markets.

Keywords: Educational Attainment, Status Concerns, Higher Education, Identity, Labor Markets

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Chapter 1

Introduction

1.1 Motivation

Homo economicus as a rational, self-interested and optimizing individual has dominated economic models for some decades now. The focus has been on humans' economic motivation, on economic goods and services. However, as Bourdieu (1986) critiqued, these economic aspects are not sufficient to explain the social world and must be supplemented by further components such as networks, relationships, and recognition.

The standard economic theory has now been complemented by findings from other research strands which consider that individuals do not behave in a consistently rational manner, including behavioral economics. Moreover, the matter of an individual's identity has found its way into economic analysis, resulting in the research strand of identity economics. In several works, Akerlof and Kranton have included sociological concepts and argue that the consideration of central sociological and psychological concepts is necessary in order to answer key questions in economics (Akerlof and Kranton, 2010; see also Akerlof and Kranton, 2005, 2002, for instance). In their opinion "*choice of identity [...] may be the most important 'economic' decision a person ever makes*" (Akerlof and Kranton, 2010, p. 15).

As the psychological and sociological literature suggests, identity and individuals' desire for self-esteem and esteem from others are highly interlinked, and the idea of the importance of esteem, recognition, and respect for oneself and from others is not new, even in the economics literature. An individual's social status is usually considered as depending on position and ranking. Weiss and Fershtman (1998), for example, define social status as "*a ranking of individuals*

(or groups of individuals) in a given society, based on their traits, assets and actions" (p. 802). Individuals have been found to value social status even when it does not result in material gain. Instead, they are willing to trade off economic benefits to obtain social status (Huberman et al., 2004). There is also biological evidence that individuals care about their social position, experimentally shown by increasing blood pressure when talking to an individual of higher perceived status (Long et al., 1982).

One of the most popular works on social status in economics is probably that of Veblen (1899). He postulates that the possession of property is an individual's basis of esteem and self-respect. Leisure activities and expenditures on expensive goods and services are the means by which individuals can display their wealth. What both kinds of activities have in common is that they are associated with wastefulness, a behavior which only the rich of a society can afford. However, he also argues that information on leisure activities is less easy to obtain in an increasingly mobile society, making the display of wealth in the form of *conspicuous consumption* more important. No less popular is the work of Duesenberry (1952), who criticizes the assumption of aggregate demand theory that an individual's consumption behavior is independent of the consumption behavior of that of other individuals. He argues that individuals' desire for high social status is converted into a high consumption standard to avoid unfavorable comparisons with significant others. Thus, "keeping up with the Joneses" seems to be a manifest driver of individuals' consumption behavior. An important issue regarding consumption is that goods, services, or occupations may have a positional character due to their scarcity and relative consumption as stated by Hirsch (1977) and Frank (1985a, 1985b). An advanced society, whose need for basic material goods is satisfied, increases the demand for goods that are limited in availability. Utility derived from these goods, however, decreases in the extensiveness of use by others. Thus, satisfaction from the consumption of a good is derived from its scarcity and social exclusiveness. However, as Trigg (2001) notes, individuals' search for status through their consumption is never ending. Things that confer status on the consumer at one time may later be acquired by so many individuals that they no longer confer status on the consumer. Thus, individuals keep on looking for new goods whose consumption distinguishes themselves from the rest of society.

This thesis considers higher education – and also levels of educational attainment that are higher than the standard level of education of a society – as one of these "new goods." Even though higher education has already been associated with high social status in the past – as an investment (e.g. to earn money and consume exclusive goods), to display leisure, or to verify competence – the number of individuals having attained it was small and higher education was not the standard educational path. In recent decades, however, demand for higher educational qualifications has been increasing in many countries. Since higher education is associated with higher earnings and better job opportunities, the demand for higher education may be partly driven by individuals' desire for economic security. There is also the necessity to remain competitive: if all other individuals obtain higher educational qualifications, one must keep up with their level of education in order to not lag behind. However, individuals seem to have a natural desire for positive self-evaluation (e.g. James, 1890; Maslow, 1970; Burke and Stets, 2009), and a high level of education which distinguishes one from the rest of society may fulfill this desire as well.

The symbolic power of educational qualifications has been mentioned by Bourdieu (1984, 1985, 1986, 2000) who considers them as a legitimization of one's competence. They are institutionalized cultural capital and, recognized as legitimate by others, they are a form of objectified symbolic capital, providing the holder with prestige and recognition from others. Studies on identity, status, and education suggest that there is a relationship that may drive individuals to obtain higher educational qualifications. For example, van Noord et al. (2019) discovered that individuals with higher educational attainment have a higher subjective social status than individuals with a moderate or lower level of education. Stubager's (2009) results suggest that individuals form an education-based group identity, which is strongest for the high education group. This group, in turn, is assumed to be the high status group. These findings are in line with the assumptions of social identity theory (Tajfel and Turner, 1979), which deals with individuals' motivation for self-esteem and for a positive social identity. This positive social identity can be obtained by group membership, given that the group one belongs to compares favorably to other groups.

The fact that individuals' educational attainment is not only driven by economic factors, but also by concerns for social status, is an important aspect for policy design regarding education since there may be implications for the labor

market and individual well-being. For this reason, this thesis aims to shed light on the relationship between status concerns and educational attainment. The desire for positive evaluation by oneself and others is closely related to an individual's sense of self and identity, and depends on interpersonal relationships, so that research findings from other disciplines than economics such as psychology and sociology will find their way into this thesis. The thesis is therefore mainly related to the field of economic sociology, which has a strong focus on the role of social relations in an economy (Swedberg, 2003).

1.2 Organization of the Thesis and Research Contribution

This thesis consists of three chapters, which are intended to be stand-alone papers. The first two papers are single-authored and are presented in Chapter 2 and 3. The third paper is presented in Chapter 4 and is coauthored with Christian Siemering. Chapter 5 concludes the thesis.

Chapter 2 aims at highlighting the relationship between individuals' concerns about social standing and the demand for education. Most individuals have a natural desire to seek knowledge concerning their nature and origins, who they are, and who they want to be. Several research disciplines have considered these issues, resulting in a large body of work on the concepts of self and identity. Another desire considered to be natural and closely related to an individual's sense of self (or identity) is the desire for positive evaluation by oneself and others (e.g. James, 1890; Burke and Stets, 2009). Given that education can provide an individual with social status, such a concern regarding positive evaluation may explain the increase in educational attainment, and particularly the increase in individuals' demand for higher education degrees. The chapter starts with an introduction to the concepts of identity and self, paying special attention to self-esteem and social status. It continues with a framing of theoretical and empirical studies on how education and status concerns are related to each other. Four aspects which recur in the related literature are used to subdivide the section on education and status concerns. The first subsection considers an individual's position or movement in the social hierarchy based on education, i.e. the social mobility which is related to the individual's educational qualification. The second subsection regards education as having the character of a

positional good. A positional good is characterized by its declining value: the more individuals possess the good, the lower the associated value. Education can be considered as a positional good in itself, but also plays an important role for the job market since employers intensify their screening process when more people fulfill the educational requirements for a superior job position (Hirsch, 1977). The section continues with a subsection on occupational prestige. An educational qualification is often the "entrance ticket" for particular jobs, and occupying a particular job position provides the holder with social esteem (Veblen, 1899; Weber, 1968). The last subsection regards education as a signal. The signaling approach considers education as an investment. Employees invest in their education to signal productivity to the employer and, consequently, to get a high salary job (Spence, 1973). However, individuals may also acquire high levels of education to signal their smartness (Piketty, 1998). To do so they may consume conspicuously or seek positional jobs, for instance.

The contribution of this article to the economics literature is twofold. First, it outlines the concepts of self and identity with special attention to self-esteem and social status and thus gives the reader insights into the relevant (i.e. mainly psychological and sociological) literature. Second, the article presents a systematic conceptual analysis that provides an interdisciplinary framing for studies on the link between status concerns and educational attainment. It also offers ideas and suggestions for future socioeconomic research on educational attainment that seeks to consider transdisciplinary perspectives on social identity and status concerns in depth. The chapter also provides a general discussion on the consequences of status-driven demand for education for the labor market, society, and individual well-being.

Chapter 3 presents an article which is published in the journal *Social Indicators Research*.[1] This paper investigates whether education has a positional character for the German population. The presented study is motivated by the fact that individuals care about their relative standing in society and therefore compare themselves to relevant others. Empirical findings suggest that there are concerns for relative standing for different goods and life domains such as income (e.g. Carlsson et al., 2007; Clark et al., 2008; Luttmer, 2005), cars (Carlsson et al., 2007), attractiveness, and supervisor's praise (Solnick and

[1]Durst, A.K. (2021). Education as a positional good? Evidence from the German Socio-Economic Panel. *Social Indicators Research*, 155 (2), pp. 745-767. DOI: https://doi.org/10.1007/s11205-021-02619-5

Hemenway, 1998). Even though education has been mentioned as having a (partially) positional character as well (e.g. Hirsch, 1977), there has thus far been little consideration in the empirical literature of education as a positional good. The article therefore enriches the economics literature by providing further insights into the positionality of education. I use German panel data to investigate the relationship between education and life satisfaction, above and beyond the effect education might have through other variables such as income, health, or occupational prestige. Additionally, I consider the possibility that the consumption of education is subject to positional concerns. I find a positive relationship between education and life satisfaction, indicating that education has a consumption component. Moreover, the relationship depends on the distribution of particular levels of education, suggesting that education has a positional character among the German population. The results support the findings of two other studies which indicate that education is subject to positional concerns when using data for OECD countries (Salinas-Jiménez et al., 2011) and South Africa (Botha, 2014). An additional way in which this article's contribution goes beyond that of Salinas-Jiménez et al. (2011) and Botha (2014) is its introduction of a variable to measure the level of education - one which divides the participants of the survey in having vocational or university education. To make my results internationally comparable and to ensure that they do not depend on the choice of variable, however, I also use a classification based on the International Standard Classification of Education (ISCED-97) defined by the Organisation for Economic Co-operation and Development (OECD) (OECD, 1999), and education in years. A further novel contribution that augments the existing literature is the consideration of the question of whether education comparisons are asymmetric – as is the case for income comparisons in West Germany (Ferrer-i-Carbonell, 2005) – or whether they are symmetric. I find that education comparisons for Germany appear to be symmetric, i.e. having a higher level of education than the majority of (relevant) others significantly increases life satisfaction, while individuals having less education are less satisfied.

Chapter 4 contains a theoretical model in which higher education is associated with high social esteem. The model considers concerns about social status as a factor influencing individuals' decision-making regarding education and aims at exploring the effects of status concerns on the labor markets for

two types of workers. According to the empirical evidence (Salinas-Jiménez et al., 2011; Botha, 2014; Durst, 2021), education is assumed to have the characteristics of a positional good, i.e. the social status associated with academic education decreases with the number of workers who belong to the academically educated group (Hirsch, 1977; Frank, 1985a, 1985b). The model indicates that more workers acquire academic education if academic education is associated with high social status. In the case of academically educated workers, increasing labor supply drives down wages in equilibrium. The wage for non-academically educated workers increases with the importance of social status. There is a unique level of status concerns maximizing the product market's output. Whether production increases or decreases with status concerns depends on whether this level is exceeded or not.

Even though the three contributions are intended to be stand-alone papers, they are closely linked to each other due to their consideration of the relationship between concerns about social status and educational attainment. The paper presented in Chapter 2 introduces the reader to the concepts of self and identity which are related to an individual's desire for self-esteem and esteem from others. It continues with a framing of theoretical and empirical studies on how this desire and an individual's demand for education are related. It considers the concepts of social mobility, occupational prestige, positional goods, and signaling, which recur in the subsequent two papers so that the chapter provides the reader with the knowledge necessary to enhance his or her understanding: Chapter 3 considers education as a positional good and uses a variable for occupational prestige to explore the positionality of education. The model introduced in Chapter 4 explores the effects of status concerns on labor markets by consideration of the findings presented in Chapter 3. The thesis as a whole aims to shed light on the role status concerns play in the educational attainment process and enriches the economics literature by means of a literature-based, an empirical, and a theoretical contribution. It is also intended to draw attention to the fact that concerns about social status play an important role for policy design regarding education, since there may be implications for the labor market and individual well-being; these implications are also outlined in the following chapters.

Chapter 2

Identity, Status Concerns, and Educational Attainment: An Overview

Alessa K. Durst

2.1 Introduction

> *"He understood that identity was a subconscious quest of all male mammals, mankind included, and inherent to a lesser degree in the females as well. How one was rated among one's peers had a bearing on self-esteem, and the confidence that brought peace of mind. 'Mammals require three essentials in life,' he said, 'identity, stimulation, and security, and by far the most important of these psychological cornerstones is identity.' "*
>
> Daphne Sheldrick citing her husband, David Sheldrick,
> in *An African Love Story: Love, Life and Elephants, 2013*, p. 138

The introductory quote goes back to David Sheldrick and his work with the African elephant. If animals such as elephants are said to care about their identity and how they are rated among their peers, why should this be different for human beings, the most highly developed animals on earth? Actually, what David Sheldrick observed in his work as the founding Warden of Tsavo East National Park, Kenya has been a widely discussed theme in several research disciplines over a period of centuries. Humans, also considered as social animals (see e.g. Fershtman et al., 1996), care about what others think of them and how others view them. Thus, as McCall and Simmons (1968) put it, "*Man, both as animal and as dreamer, is highly dependent upon interaction with his fellows*" (p. 125). Interaction with other (relevant) people influences an individual's

behavior, emotional state, and philosophy of life and, therefore, the question of who one is and who one wants to be. In sum, it influences an individual's identity.

Individuals usually strive for a positive identity, i.e. a positive sense of self. Thus, humans are not only social animals which are dependent upon interaction with their peers, as considered by McCall and Simmons (1968), but also "*evaluative animal[s], holding some objects, ideas, and attributes to be more worthy than others*" (Treiman, 1977, p. 19). In other words, individuals seek esteem for themselves and from others. Self-esteem and esteem from others can be obtained in various ways. We can distinguish between status which is obtained by affiliation with a certain group such as an occupational group, social class[1], or an exclusive club, and status which is obtained through an individual's behavior or particular individual attributes. Another possibility is that individuals are simply born into a high status family or class.

One component involved in obtaining social status is an individual's level of education, which is relevant both directly and indirectly. Individuals' demand for education, particularly for levels of educational attainment that exceed a society's compulsory and standard level of education, has been increasing in many countries in recent decades. While it is undoubtedly true that this increase is strongly driven by individuals' desire for economic security in terms of higher earnings or better job opportunities, the literature on status suggests that the desire for self-esteem and esteem from others plays an important role in educational attainment as well. For this reason, this paper aims at investigating the relationship between status-seeking and educational attainment.

As Akerlof and Kranton (2010) state, many economists may consider identity a "fuzzy" concept, and Weiss and Fershtman (1998) remark that social status is a complex phenomenon. Therefore, Section 2.2 gives the reader a brief overview of the self, identity, and status concerns. The relationship between status concerns and education is investigated in Section 2.3. It is important to note that this paper is not intended to give an exhaustive review of the literature on the relationship between education and social status. Rather, its aim is to highlight the role of status concerns in the process of educational attainment. When examining the related literature, it becomes apparent that particular

[1]This article considers the term social class as a formal category, defined by objective (economic) determinants. Based on a determinant such as occupation, education, or income, a society can be stratified into several classes.

aspects recur, such as an individual's occupation, the individual's position or movement in the social hierarchy, or the educational qualification obtained. For this reason, Section 2.3 is subdivided with reference to four concepts. These concepts address these recurring aspects and, in consequence, I have singled them out as being the most important in explaining how social status and education are related: social mobility, positional goods, occupational prestige, and signaling. These concepts will be discussed from an identity perspective, paying special attention to self-esteem and social status. The consequences of status-driven demand for education in terms of the labor market, society, and individual well-being are discussed more generally in Section 2.4. Section 2.5 concludes.

2.2 Social Identity and Social Status

It is a natural desire of human beings to seek knowledge concerning their nature and origins. Human evolution has been studied by several scientific disciplines, the aim being to explain where we come from and when we became what we are. On the question of what we are, we would reply 'human' or, to make our answer sound rather more scientific, we would perhaps reply 'Homo sapiens'. Discussion concerning our nature go back as far as Plato and Aristotle and, thus, the philosophy of humankind has its roots in classical Greece. These early reflections on the nature of humankind go back to the fifth and fourth centuries BC (and probably even earlier), and show humans' deeply rooted desire for answers regarding their nature. However, the question as to what we are is accompanied by another question that goes far deeper and is much more difficult to answer: who are we?

The starting point in the scientific analysis of self and identity is said to be the work of James (1890) and his remarks on the self (Ashmore and Jussim, 1997). Since then, many different disciplines have studied the concepts of self and identity. Disciplines such as psychology, sociology, and anthropology cover different approaches, both complementary and contrasting. In concepts of self and identity, these words are often used to mean different things – or different words are employed for the same meaning. These concepts overlap with other psychological, sociological, and anthropological concepts and have been integrated into economics theory, for instance. The absence of a clear and single

definition of self and identity not only shows how complex the concepts are, but gives the impression that they are amorphous or fuzzy (Ashmore and Jussim, 1997; Stryker and Burke, 2000; Akerlof and Kranton, 2010). At the same time, it is possible to distinguish and compare different approaches with reference to interdisciplinary issues. One important issue mentioned in several works on self and identity is an individual's concern regarding what others think about him or her, i.e. individuals care about self-esteem and esteem from others. Subsection 2.2.1 gives the reader a brief introduction to the literature on self and identity. Subsection 2.2.2 relates the introduced concepts to status in greater detail.

2.2.1 Identity: About the "Me" and "We"

According to the approach of symbolic interactionism (Mead, 1934; Cooley, 1902), language is the ultimate starting point. Individuals communicate by means of an oral language or through the use of symbols whose meaning is known and adopted by the majority of one's social community. Let us consider a situation in which somebody shouts the word "Fire!". This exclamatory warning would probably evoke the same reaction and behavior for the majority of individuals. Another example is the word "mother", which is associated with a particular role involving societal expectations to be measured up to. A (kind of) view or image of a "good" mother can be said to exist: a woman who not only gives birth to her child, but brings up the child with care and affection. Shared meanings and names for objects, categories, and positions provide the basis for communication and, thus, both self and society are created and changed through symbolic communication (Thoits and Virshup, 1997). Therefore, our nature depends on our social environment and the society in which we live (Burke and Stets, 2009).

Harter (1997), too, states that personal selves emerge through social interactions and are thus social in origin. She differentiates between a true and a false self, which are developed through social interactions with significant others. While the false self is considered to be unauthentic in behavior and experiences (individuals behave in ways in which others want them to; they meet social standards), the true self "*is experienced as a self-defining core sense of who one really is*" (Harter, 1997, p. 88). In his self-discrepancy theory, Higgins also distinguishes different kinds of the self which differ depending on whether the standpoint is one's own or that of significant others. The three domains of the

self considered in his theory are the actual self, the ideal self, and the ought self. The actual self is defined as an individual's representation of those attributes which the individual or others believe that the individual actually possesses. By contrast, the ideal self is a representation of the attributes that the individual or significant others would like the individual to possess, i.e. it is based on the individual's own or others' wishes or aspirations for the individual. The ought self is a representation of the attributes an individual is expected to possess, i.e. it is defined by an individual's or significant others' beliefs concerning the individual's sense of duty or responsibilities (Higgins, 1987, pp. 320–321). A discrepancy may occur between these selves which may lead to negative emotions. For example, a discrepancy between (one the one hand) an individual's actual self from his or her own standpoint and (on the other) the ideal self from the standpoint of significant others, may lead to negative emotions due to the belief that reputation or esteem have been lost (Higgins, 1987).

Owing to the complexity of a society's structure and the large number of positions individuals occupy within it (including as members of many different groups), each individual is assumed to possess many smaller selves within his or her overall self. Each of these selves, considered as *multiple selves* by James (1890), is called an identity (Burke and Stets, 2009). Although the term *identity* has a wide range of usage, there are three popular conceptions. As a generalization, it refers to 1) individuals' culture, 2) individuals' behavioral roles in society as in identity theory, and 3) identification with social categories or groups as in social identity theory (Stryker and Burke, 2000).

Identity theory is often cited as having been originally developed by Stryker (1968), motivated by the perspective of structural symbolic interaction. Individuals form expectations of the behavior of those who occupy a particular position in the social structure, based on shared meanings (Burke and Stets, 2009). In addition to Stryker, the three authors McCall, Simmons and Burke should be mentioned as theorists who have made major contributions to identity theory, even though – in contrast to the work of Stryker and Burke – McCall and Simmon's work did not result in a clear program of research (Burke and Stets, 2009).

Identity theory has evolved in two major directions[2] with slightly different

[2]For a review of and a discussion on both approaches see Stryker and Burke (2000). See also Burke and Stets (2009) for a comprehensive account of identity theory.

emphases, but the general idea deals with individuals' role-related behavior and, in this, follows the work of Foote (1951), who suggests identification is a motivation of individuals to adopt a societally prescribed role. It is a microsociological theory (Hogg et al., 1995) and regards identity as a role expectation which is internalized by an individual (Stryker and Burke, 2000). Since individuals interact with more than one group, they hold different roles. Accordingly, identity theory states that individuals may have more than one identity and seeks to answer the question of why individuals choose to adopt one particular role if they have the option between two or more courses of action (Stryker and Burke, 2000). In the role-identity theory of McCall and Simmons, the importance of one of an individual's many role identities depends on support, commitment, and rewards. These factors determine the appearance and ranking of an individual's multiple role identities in what is known as a prominence hierarchy, or the *ideal self*. A second hierarchy of identities in their theory is the salience hierarchy, which reflects the situational self, i.e. the self which arises because of the requirements of a situation. In identity theory, salience describes the probability with which an identity will be invoked in a particular situation (Stryker and Burke, 2000). In Burke's approach, an identity contains a set of meanings, which is associated with the identity. An individual "learns" which meanings are associated with an identity by means of social interactions with others. The identity will be adjusted for particular situations through responses of others to the individual (Burke and Stets, 2009).

Although identity theory and social identity theory both consider the interconnection between individual social behavior and society, and regard the self as a construct that mediates the relationship between the two (Hogg et al., 1995), both theories have a different focus. Identity theory regards individuals as living in "*relatively small and specialized networks of social relationships*" (Stryker and Burke, 2000, p. 285), and focuses on role-based identities developed by counter-roles within these networks of social relationships (e.g. parent vs. child, teacher vs. student). In contrast, social identity theory considers those social attributes based on which different categories can be formed (e.g. nationality, sex, race) and, accordingly, focuses on category-based identities (e.g. black vs. white, Christian vs. Jew) (Stryker and Burke, 2000, p. 293). Thus, identity theory and social identity theory differ in what Thoits and Virshup (1997) call individual-level and collective-level identities, or the conceptions of

"me's" and "we's." While identity theory refers to the questions "Who am I," social identity theory claims to answer the questions "Who are we;" and if we want to be somewhat more accurate, we can say that verification of one's identity comes with being a group member in social identity theory, but role identity is verified by what one does and not who one is (Stets and Burke, 2000).

Originally, social identity theory deals with intergroup conflict and individuals' desire for a positive social identity, which they obtain by positively valued comparison of their own group (the ingroup) with other groups (the outgroups).[3] The idea of social identity theory is a social psychological approach and chiefly goes back to the work of Tajfel and Turner in the 1970s. Following Hogg and Abrams (1988), the social identity approach claims that "*society comprises social categories which stand in power and status relations to others*" (p. 14). By categorizing themselves and others, individuals produce stereotypic perceptions, i.e. the perception that individuals of the same social category or group share characteristics which distinguish their own social category or group from other social groups. The process is based on an individual's self-categorization which causes self-perception and self-definition. Identity can, therefore, be defined as an individual's "*sense of self*" or "*self-concept*" (Hogg and Abrams, 1988, p. 19). A group, then, can be defined as "*a collection of individuals who perceive themselves to be members of the same social category, share some emotional involvement in this common definition of themselves, and achieve some degree of social consensus about the evaluation of their group and of their membership of it*" (Tajfel and Turner, 1979, p. 40). The evaluation of a group is based on social comparisons. Individuals want to maximize the distinctiveness of their own group, motivated by positive self-evaluation. By positive comparison with significant outgroups, membership of the ingroup enhances individuals' self-concept, self-worth, and self-esteem (Hogg and Abrams, 1988). In particular, individuals' motivation for self-esteem is one of the general assumptions of social identity theory (Tajfel and Turner, 1979). Where the social identity derived from membership in a particular social group is unsatisfactory, individuals may try to leave their group and join a "higher" group which suits them better (*social mobility*), or they may try to make their social group more positively distinct with reference to dimensions of comparison that

[3] A more recent version is the self-categorization theory which considers depersonalization processes as a consequence of a shared social identity.

cast them in a more favorable light (*social change*). Another option is to make comparisons with other outgroups, i.e. with groups whose status is even lower than the status of an individual's own group (Tajfel and Turner, 1979; Hogg and Abrams, 1988). Interestingly, identification with a particular group is not limited to face-to-face interactions with other individuals. Group identification can be observed in what are called *minimal groups*, i.e. entirely cognitive groups. Minimal groups are characterized by absence of conflicts of interest or previous hostility between groups. Moreover, there is no social interaction between the individuals of the groups and no strategic ingroup favoritism due to economic self-interest (Tajfel and Turner, 1979). Simple group assignments such as the preference for a painting of Klee or Kandinsky can lead to group identification, expressed by ingroup favoritism (Tajfel et al., 1971).

Evolution theory suggests that human beings are adapted to living in groups or societies and, as Coon (1946) suggests, natural groups are characteristic of human beings. The adaptation of a role identity or the membership of a group would, therefore, appear to be a logical consequence of a natural desire, i.e. the desire to belong, which is considered a fundamental human motivation (Baumeister and Leary, 1995). Similarly, individuals not only have a desire for assimilation, but also for differentiation. An individual's social identity is a compromise between assimilation, i.e. belongingness to a group, and distinctiveness, i.e. comparisons between ingroup and outgroups (Brewer, 1991). Individuals need a sense of distinctiveness from who they are *not* to have a meaningful sense of who they are (Vignoles, 2009).

The introduced concepts of one's identity show how differently the term identity can be used. Nevertheless, all concepts play an important role in answering the question concerning who one is. Thus, identity could be conceptually summarized as "*the set of meanings that define who one is when one is an occupant of a particular role in society, a member of a particular group, or claims particular characteristics that identify him or her as a unique person*" (Burke and Stets, 2009, p. 3).

In principle, the conceptions of role identity ("me's") and collective identity ("we's") (Thoits and Virshup, 1997) are social identities as they evolve through the social structure of the society. Nevertheless, the term social identity has a clear meaning in the literature on social identity theory, namely as "*that part of an individual's self-concept which derives from his knowledge of his membership*

of a social group (or groups) together with the value and emotional significance attached to that membership" (Tajfel, 1981, p. 255). The personal self is considered to be affected by the society, too (Harter, 1997), what might become clear by a mother's role identity, which can become a social identity in the slogan "Mothers of the world, unite" (Burke and Stets, 2009, p. 122). Thus, we can summarize what has been mentioned before: society and individuals are two sides of the same coin (Cooley, 1902; Foote, 1951) – or an individual's identity.

2.2.2 Identity and Status Concerns

As can be ascertained from the previous subsection, society and individuals are closely related. Interactions with others play an important role in self and identity conceptions – be they the false self that arises if individuals behave according to how others want them to be (Harter, 1997), a particular role identity and its associated meanings, learned through social interactions (Burke and Stets, 2009), or a social identity derived from membership in a particular social group (Tajfel and Turner, 1979). The strong interrelationship between individual and society should not be surprising considering the evolutionary history of human beings. Evolutionary theory suggests that human beings are adapted to living in groups or societies and, as Coon (1946) suggests, natural groups are characteristic of human beings. The meeting of social standards, the adaptation of a role identity, or the membership of a group seem, therefore, to be a logical consequence of a natural desire, i.e. the desire to belong, which is considered to be a fundamental human motivation (Baumeister and Leary, 1995). However, the desire to belong and the resulting social interactions are usually accompanied by the requirement to measure up to others' expectations and evaluations. Doing so satisfies the desire for high self-evaluation, which is deeply ingrained in most individuals.[4] James (1890), for example, defines an individual's social self as "*(...) the recognition which he gets from his mates*" (p. 293). He mentions that "*we have an innate propensity to get ourselves noticed, and noticed favorably, by our kind*" (p. 293).

The want for recognition, preferably in a positive way, can be found in the formerly introduced conceptions of self and identity. Although these conceptions have a different base, they have in common the importance of our social

[4]See, for example, Heine et al. (1999) for a discussion on whether the desire for positive self-regard can be considered as universal.

environment on self-evaluation. Burke and Stets (2009) mention that individuals wish to verify their identities, and that a positive evaluation of ourselves is an outcome of this identity-verification process. They differentiate this positive self-evaluation, i.e. self-esteem, into three major bases: self-authenticity, self-efficacy, and self-worth.

Self-authenticity ("*the feeling that one is being one's true self*", Burke and Stets, 2009, p. 117) is related to the person identity. For example, Harter (1997) mentions the desire to please, impress or gain acceptance from others as a motivation for lack of authenticity. If an individual feels he or she has failed to obtain the ideal state of the self from the standpoint of significant others, the discrepancy between the actual self (from one's own standpoint) and the ideal self (from the standpoint of significant others) may lead to concern about loss of affection, standing, or esteem (Higgins, 1987).

Self-efficacy is related to an individual's role identity and its verification, i.e. fulfillment of the expectations associated with the role identity (Burke and Stets, 2009). The placement of individuals' identity in their prominence or salience hierarchy is influenced by the desire for positive self-evaluation. Individuals receive extrinsic rewards from their identity, including money, valued items, favors, and prestige (McCall and Simmons, 1968). From the performance of their role they may also obtain intrinsic rewards. The gratifications associated with the performance may be efficacy, i.e. "*a sense of competency*," (Burke and Stets, 2009, p. 117), and self-esteem (Hogg et al., 1995). Individuals with high self-efficacy are more likely to try things and to engage in difficult and untried behavior (Burke and Stets, 2009).

Self-worth is "*a general sense of being found worthy and valuable*" (Burke and Stets, 2009, p. 117). As a member of a particular group or category, an individual receives recognition, approval, and acceptance from the other group members (Burke and Stets, 2009). Moreover, individuals will derive a positive self-concept from their group membership if their ingroup is positively evaluated with reference to different dimensions of comparison with relevant outgroups (Tajfel and Turner, 1979; Hogg and Abrams, 1988). They also tend to identify more with high-status than with low-status groups, as shown by several experimental studies (e.g. Ellemers et al., 1988; Roccas, 2003).

In all three conceptions of self and identity, individuals are seen as having a

desire for both esteem from others and esteem for oneself.[5] Individuals wish to be valued, by themselves and others, and they will seek positive evaluation in different ways. It can be attained by appropriate behavior and adherence to the norms, and also by belongingness to a particular group. The important point regarding social status is that it is social: attained in the eyes of oneself and others. Status is conferred by society (Heffetz and Frank, 2011) or, as Marshall (1977) states: "*(...) social status rests on a collective judgement, or rather a consensus of opinion within a group. No one person can by himself confer status on another, and if a man's social position were assessed differently by everybody he met, he would have no social status at all*" (p. 198).

2.3 Status Concerns and Education

Individuals' demand for higher levels of educational attainment, and particularly for higher education degrees, has increased over time in most of the world's countries. One reason, undoubtedly, is the impact of education on economic outcomes. The positive correlation between education and higher earnings or better job opportunities, for instance, contributes to economic security and therefore fulfills an individual's safety needs, making the demand for education, particularly for educational qualifications from higher education institutions, individually rational. Another reason may be that education is associated with social status. For example, findings on subjective social status and education suggest that subjective social status is higher for more highly educated individuals (van Noord et al., 2019).[6] Actually, the increase in educational attainment can be observed particularly in the form of individuals' striving for educational credentials from higher education institutions.

An individual's ranking in society can be affected by education in a direct or indirect way. One possibility is that one's level of education leads to membership of a particular group. Shayo (2009), for example, defines the status of a group as "*the relative position of a group on valued dimensions of comparisons*" (p. 147) and mentions wealth, occupational status, and educational

[5] These two forms of esteem were considered as esteem needs by Maslow in his hierarchy of human needs (Maslow, 1970).

[6] Even though the authors discovered this relationship between subjective social status and higher education for all countries of their sample, they stated that the strength of the relationship varies.

achievement as examples of such dimensions. Bourdieu (1984), too, considered educational qualifications as signs of distinction which define an individual's social identity and therefore express class membership, and provide individuals with social status. The findings of Stubager (2009) support the idea that individuals identify with their educational groups and that this identification is stronger for the high education group – an outcome which is in line with the idea of social identity theory, i.e. individuals identify more with groups that provide them with self-esteem. Additionally, the occupational group an individual belongs to is related to the level of education. Individuals might also seek higher levels of education because (relevant) others do so and they do not want to be left behind, since lagging behind could be associated with being socially less important. Individuals may also try to signal how smart they are. For an individual's immediate social community, an educational qualification can function as a signal of smartness, and one may be more recognized as "having made it" for having a degree from Harvard University than for driving the most expensive and biggest car on the road. For a wider audience, however, such a qualification would not be enough since it is not easily visible to other individuals. Therefore, to signal their level of education or their superior knowledge, and thus their desired social status, individuals may go to the opera or theatre, or read and display books and particular magazines or newspapers, for instance. This is what Bourdieu describes using the term *cultural capital*, with which an individual is endowed in addition to *economic capital* (capital which is directly convertible into money) and *social capital* (capital which refers to an individual's network of connections and relationships – in other words, his or her membership of a group) (Bourdieu, 1986).

Cultural capital can be devided into three forms: embodied cultural capital, which is acquired and accumulated by an individual over time and cannot be transmitted by gift, purchase, or exchange; objectified cultural capital, i.e. material objects which are transmissible, such as writings or paintings; and institutionalized cultural capital, in other words cultural capital objectified by academic qualifications. Perceived and recognized as legitimate by others, academic qualifications and credentials are in turn a form of objectified symbolic capital, commonly called prestige or reputation (Bourdieu, 2000). Educational credentials and qualifications, as a form of institutionalized cultural capital and symbolic capital, provide the holder with esteem and recognition from others.

According to Bourdieu, the acquisition of cultural and symbolic capital is therefore motivated by individuals' demand for high positions in the social hierarchy. Endowment with capital – both the overall amount and its composition, as well as how it changes over time – determines an individual's position in social space, i.e. his or her social status (Bourdieu, 1985).

An important role in Bourdieu's theory is occupied by individuals' values and tastes, which depend on particular combinations of cultural and economic capital. Differences in these combinations create different lifestyles, which may also form a class solidarity (as epitomized by the phrase "That's not for the likes of us"). It is cultural capital in particular which allows people to understand the value of certain paintings, or which motivates them to read certain books or magazines. Thus, taste and a high level of cultural capital ensures individuals a mark of distinction and recognition and enables them to secure their position in the social hierarchy (Bourdieu, 1984).

While Bourdieu considers both cultural and economic capital, Veblen only mentions the possession of property as the basis of esteem and, consequently, self-respect (since esteem and respect from others is the usual basis for self-respect). He argues that the possession of wealth or power must be demonstrated in order to achieve esteem from others. To show their pecuniary strength, individuals engage in consumption of luxury goods and services, referred to as *conspicuous consumption*. Contrary to the law of demand, it may even be the case that, the higher the price of a good, the more of this good individuals will buy. These luxury (or Veblen) goods function as status symbols since they demonstrate an individual's wealth and power (Veblen, 1899). Conspicuous consumption may, since it is visible to other individuals, in turn function as a signal of an individual's smartness, which is also associated with social status (Piketty, 1998).

As this selection from the literature indicates, a relationship exists between education and social status. When addressing this relationship, it becomes apparent that certain aspects are mentioned frequently, such as an individual's occupation, place within or movement in the social hierarchy, and how to be recognized for one's achievements. For this reason, I will focus on the relationship between the acquisition of education and the associated social status by reference to some well-known approaches that address these recurring aspects, i.e. social mobility, the concept of positional goods, occupational prestige, and

signaling.

2.3.1 Social Mobility

Social mobility describes an individual's change in economic or social status with respect to income or earnings, education, occupation, or health. Given that a society is stratified in respect of one of these components, social mobility may be upwards or downwards. The change can be measured between generations such as parents and children (*intergenerational mobility*) or within a generation (*intragenerational mobility*). In other words, intergenerational mobility examines the relationship between an individual's current class position and the class position in which the individual was brought up, while intragenerational mobility considers the change of class position in an individual's (working) life. Moreover, social mobility can be considered in absolute or relative terms. In absolute terms, for instance, most societies have experienced an improvement in economic and social conditions over the last few decades. Measured in relative terms, however, individuals or groups occupy different positions on the social ladder, even when society has improved in absolute terms (Breen, 2007; OECD, 2018).

To measure intergenerational social mobility or to even determine a socially optimal level of mobility, researchers – especially in the economics literature – commonly focus on intergenerational earnings elasticities or intergenerational earnings correlations. Another method is to consider intergenerational correlation in education, given that education is associated with higher earnings, better health status, and better job opportunities. Moreover, education is easier to measure than earnings since most individuals have most likely completed their education by the time they have reached their mid-twenties. Thus, an analysis using education can take place relatively early in an individual's life cycle, while an analysis based on lifetime earnings might be biased due to changes in earnings with increasing age (Black and Devereux, 2011).

The fact that education is associated with several other components such as higher earnings, better health, or better job opportunities reflects its importance in the mobility process. From the intergenerational perspective, parents' level of education correlates strongly with their children's educational attainment and success for different reasons. Black and Devereux (2011), for example,

state that the income of higher educated parents is usually higher than the average level, so that more income can be allocated to the child's education. More highly educated parents may also have more awareness of the importance of relevant activities in improving their child's development. Moreover, regarding access to higher education institutions, they have the necessary knowledge to support their children on their educational path (Black and Devereux, 2011). These aspects highlight why a child's family background and its effects on educational attainment are an important issue in the discussion on equality of opportunities. Furthermore, Bourdieu (1986) states that cultural capital, objectified in the form of academic qualifications, sets the owner apart from others and strongly depends on support from one's family. In order to acquire cultural capital and to delay entry into the labor market, individuals need time and economic assistance, which is provided by the family. Bourdieu also argues that cultural capital can be converted into economic capital by means of well-paid jobs. Since the amount of capital defines an individual's social status, individuals can achieve a higher social position through their investment in cultural capital (Bourdieu, 1985, 1986).

Since education is an important determinant of an individual's class position (Breen, 2007), individuals may strive for (higher) education in order to experience upward mobility or to at least maintain a particular social class position. In other words, social mobility and the associated demand for education may be driven not only by economic reasons such as higher earnings or better job opportunities, but also by status reasons. The goal of achieving higher earnings, or of having better access to highly paid or prestigious jobs, may also be driven by both economic and social reasons, since higher social status can be obtained by wealth and occupational prestige[7]. The prospect of moving up the social ladder, and recognition of this as a social goal, converts an individual's striving for self-esteem into a striving for high social status. Where social status is associated with a high standard of consumption, individuals will engage in consumption of high quality goods. This behavior results from unfavorable comparisons of the individual's standard of living with that of others (Duesenberry, 1952). All in all, the level of education plays an important role in achieving economic superiority and may also be acquired for status reasons in and of themselves, i.e. in cases where the level of education is associated with

[7]See Section 2.3.3 for an explanation and discussion of occupational prestige.

a higher position on the social ladder.[8] In both situations, the individual motivation for social mobility or social reproduction is the same, i.e. the inner desire to differentiate positively from others to achieve positive self-evaluation, or self-esteem.[9]

This motivation and the corresponding demand for education may be driven by oneself, based on comparisons with (relevant) others. Another reason may be pressure which is placed on individuals by people in their social environment, including parents or friends. Depending on whether the status reasons are driven by oneself or one's social environment, an individual's self-esteem may not only increase but also suffer from the choice to demand more education than potentially necessary to satisfy one's economic and social needs. This might be the case if individuals are confronted with a discrepancy in their self-concepts (Higgins, 1987). With regard to education, such a situation may occur if individuals pursue a level of education simply to meet social standards or others' aspirations for them rather than being guided by their own interest. For example, parents' expectations of their children may be that they will strive for an academic degree if they possess one themselves, even though the children would rather pursue a vocational track. In such a case, children may suffer in one of two ways: they may either fulfill the parent's expectations, but lose self-esteem for themselves because of the discrepancy between their actual and ideal self, or they may pursue their own interests, but lose respect and esteem from relevant others. The discrepancy between the way the parents (or others) want the individual to be and the individual's self-defining core sense of who he or she really is may cause a lack of self-authenticity, which is associated with low self-esteem (Harter, 1997).

Individuals may also choose a particular educational path merely because they think that others expect them to do so, perhaps because they possess the necessary requirements such as a higher education entrance qualification or the requisite ability. A different choice may be seen as a waste of potential.[10]

[8] This aspect is explained and discussed in more detail in Section 2.3.2.

[9] The desire to differentiate oneself from others and to preserve one's social identity may also induce individuals to refuse to integrate into the education system as shown by Willis (1977). He interviewed working-class boys who value manual labor – defined by its masculinity and toughness – more than mental labor, and who build their identity upon their work and knowledge about the 'real world'. Their opposition to knowledge and qualifications results in maintenance of their class position.

[10] A study conducted by the National Foundation of Educational Research in England and Wales (NFER), for instance, suggests that teachers have a higher valuation for university

This effect of expectations from others, or even expectations derived from social norms, may also go in the opposite direction. In particular, academic education used to be male-dominated, with women expected to fulfill their societally prescribed role as housewives and mothers, and partially prevented from pursuing (higher) education (Simon, 1992; Akerlof and Kranton, 2010). As Akerlof and Kranton (2010) argue, individual demand for education is largely determined by what students think who they are and also by whether they think they should be in school. For young individuals, Nieuwenhuis et al. (2019) provide evidence that socially advantaged students are more likely to enter high status institutions for tertiary education[11] than their fellow students with a background of low socioeconomic status, even if the academic ability is the same. Their results show that identity creates a psychological barrier to educational choice if, for example, young individuals feel that they do not fit in within particular groups. This may also explain differences in educational attainment between cultural groups such as black-white disparities. Belonging to a cultural group is usually associated with particular expectations on the group members so that they adopt a prescribed role and behave accordingly. This, in turn, may lead to self-discrepancy.

According to social identity theory, individuals will try to leave their group if it is of low status and join a group which has a more positive evaluation. For example, children will try to obtain a higher level of education than their parents, given that the level of education is associated with higher social status. The extent of an individual's social mobility depends on the permeability of the boundaries. In the case of education, boundaries could be access to school, parental support, and also the salience of the role identity in case of particular cultural groups, for instance. If the boundaries are difficult to overcome, individuals will try to make their own group distinct based on other, more favorable dimensions (social change), or they will compare themselves with groups that have a lower status than their own group (Tajfel and Turner, 1979; Hogg and Abrams, 1988). With regard to education, this would mean that individuals will try to make their own group distinct based on other dimensions than education, or they will compare their own group with another group in which

education given that their students fulfill the necessary requirements for university entry (McCrone, 2014).

[11] The authors consider those universities which are highly selective to be high status institutions.

the average level of education is lower. Regarding social boundaries, another important point is that many individuals regard these boundaries as means of keeping others out and do not consider that they themselves are also kept in (McCall and Simmons, 1968). An example may be children who are expected to go to university even though they themselves would rather pursue a vocational track, or individuals who belong to a group of high social status and try to fulfill the aspirations associated with the membership of this group, even though it does not correspond with what they want for – or their expectations for – themselves.

Social mobility may be driven by economic or status reasons, or indeed both. In both cases, education is an important determinant for climbing up the social ladder. Individuals care about what others think of them and seek positive differentiation from others. Thus, it is important to them which position they occupy on the social ladder. Considering education as a good with which to achieve positive differentiation – or at least avoid negative differentiation – leads us to the concept of the positional good.

2.3.2 Positional Goods

Probably the most prominent example of work exploring the relevance of relative standing is that of Easterlin (1974, 1995), who investigated the positional aspect of income. Referring to Duesenberry (1952), he states that relative income seems to serve as a better explanation for higher levels of happiness than does absolute income. His findings on the positionality of income have been followed up in further investigations by Luttmer (2005), Carlsson et al. (2007), and Clark et al. (2008), for instance. To cite further examples, the importance of relative standing has also been identified with regard to cars (Carlsson et al., 2007), and in respect of attractiveness and supervisor's praise (Solnick and Hemenway, 1998). Even talking to an individual of higher perceived status increases blood pressure (Long et al., 1982) and illustrates the important role of social distance.

These findings illustrate that individuals care about their relative position in society. Although the aspect of relative position had been considered before, the term *positional good* was introduced first by Fred Hirsch to describe goods and services whose value depends on how many other individuals own them (Hirsch, 1977). In his work, Hirsch also refers to the positional character of work positions. He argues that demand for jobs at the upper end of the job hierarchy

is based on the work satisfaction and status these jobs provide for the holder. An important determinant of getting a superior job is the level of education, which is the basis by which employers evaluate applicants in the screening process. The motivation to get a high position job, therefore, is one reason why individuals strive for high educational qualifications. The more individuals hold the same level of education, however, the more difficult access to the superior jobs will be. The job-related example illustrates the characteristics of a positional good very well: satisfaction from consumption of a good depends on the extensiveness of the use by other individuals, or, as Hirsch puts it, *"If everyone stands on tiptoe, no one sees better"* (Hirsch, 1977, p. 5). Thus, the value of a positional good depends on how it compares with things owned by other individuals (Frank, 1985b). In the case of jobs, the value of educational qualifications decreases with the number of individuals having the same qualification.

Schultz (1963) mentions that education has both an investment and a consumption component. He argues that demand for education to increase future earnings or future consumption accounts for the investment component. The consumption component is the satisfaction which individuals obtain from education.[12] In some cases, the components are difficult to separate, as in the case of the job-related example in which education could be considered as an investment to get a superior job, which in turn is associated with work satisfaction and status. It was over a century ago that the satisfaction aspect of relative position was mentioned by Karl Marx: *"A house may be large or small; as long as the surrounding houses are equally small it satisfies all social demands for a dwelling. But if a palace arises beside the little house, the little house shrinks into a hut"* (Marx and Engels, 1849, p. 411; translation cited by Lipset, 1960, p. 63). Thus, it is reasonable that life satisfaction and well-being have been widely used as measures in the question of whether goods have a positional character.

Empirical evidence on the positional character of education is mixed. Using data from eleven OECD countries, a study by Salinas-Jiménez et al. (2011) concludes that education has a consumption component and a positional character. This is also true of Durst (2021) who, in her investigations, finds that the same applies to the German population, and Botha (2014), who uses data for South

[12] Thus, the idea of the consumption component closely approximates Marx' concept of the use value.

Africa. Further studies that can be categorized as belonging to the literature on conspicuous consumption rather than on well-being, however, yield contrasting results. For example, the findings of Khamis et al. (2012) suggest that education is not positional in India. Their study concluded that disadvantaged caste groups spend more money on visible consumption than their high caste counterparts and divert spending on this visible consumption from education spending. In the United States, Blacks and Hispanics spend more money on conspicuous goods such as cars, jewelry, and clothing than comparable Whites, indicating that education is not positional for these groups either (Charles et al., 2009). However, the authors argue that spending on children's education is more visible for intimate groups such as friends and families, so that it might function as a status signal in an individual's immediate social environment.

Both the well-being approach and the consideration of conspicuous consumption with regard to education spending are associated with social status. According to Veblen (1899), the possession of property is the basis of esteem and, consequently, self-respect. If esteem is to be achieved from others, wealth must be demonstrated, and, as a result, individuals engage in consumption of luxury goods and services to show their pecuniary strength.[13] In contrast to income, however, it is less easy to show education by consumption. Education is not directly visible, so that individuals with a stronger desire for positive evaluation from others, including those individuals who do not belong to their immediate social community, do not consider education to be positional.[14] However, for individuals who want to enhance their self-esteem, educational attainment can be used to differentiate oneself from others positively.

The character of a positional good, i.e. its declining value as the number of individuals possessing the good increases, involves the possibility of a negative externality. This is also true for education: the more individuals fulfill the educational requirements for a (superior) job position, the more intensive will be the screening process of the employers (Hirsch, 1977). Considering education as a positional good itself, the satisfaction from holding a particular educational qualification depends on how many others possess the same level of education

[13] Goods which are suited for conspicuous consumption due to their impact on status differentiation and social rank are commonly referred to as positional goods (Friehe and Mechtel, 2014).

[14] However, it can be argued that conspicuous consumption is a signal of high ability. This is discussed in Subsection 2.3.4.

(Salinas-Jiménez et al., 2011; Durst, 2021). Having a lower level of education may even be negatively correlated with life satisfaction (Durst, 2021). This may lead individuals to strive for educational qualifications or jobs which are not a good fit for their personal interests. Two possible scenarios with negative effects on self-esteem may occur: individuals may try to obtain high educational qualifications and fail, or they will successfully obtain a qualification (and in turn get a job position) that does not match their interests, leading to a discrepancy in their self-concepts (Higgins, 1987). Another critical point is the possibility that individuals' aspirations associated with their qualification remain unfulfilled. An increase in those holding high educational qualifications may even result in stigmatization of those with lower educational attainment. Kuppens et al. (2018) discovered that highly educated individuals hold more negative attitudes towards less educated individuals than to equally educated individuals. Such a low evaluation of individuals with lower educational attainment may have negative impacts on their self-esteem, also involving the possibility of adverse effects on mental health. Thus, individuals may be driven to acquire education in order to belong to a group of high social status due to the positionality associated with education, be it the level of education itself or its impact on job position or consumption, with both positive and negative consequences for their self-esteem.

2.3.3 Occupational Prestige

To stratify a population, prestige ratings of individuals and socioeconomic status are the most common types of measure (Reiss, 1961). Socioeconomic status, in particular, has received widespread attention in the economics and sociological literature, and is usually measured by income, education, and occupation. These three measures are assumed to have a rank order so that a population can be ranked from low to high status or categorized on the basis of socioeconomic status, which is usually determined by a combination of all three measures.

The three measures are correlated, since one's level of education is often the "entrance ticket" for particular occupations and income is derived from work for most individuals. Thus, both average education and average income can be considered to be the occupational characteristics determining the social status of an occupation (Reiss, 1961; Duncan, 1961). However, of these two determinants, education has been found to be more important (Stevens and

Featherman, 1981; Fershtman et al., 1996; Weiss and Fershtman, 1998; see also Collins, 1979).[15]

Veblen (1899) and Weber (1968) have already pointed out that belonging to occupational groups of relatively high prestige is a criterium for attainment of high social status. Reiss (1961) argues that the prestige status of an occupation depends on the number of individuals who fit its task requirements; in other words, the fewer individuals that bring the necessary requirements, the higher the occupation's prestige status. This brings us back to Hirsch (1977), who states that job hierarchies are usually pyramid shaped with a limited number of superior positions. The desire to get one of these limited superior jobs is one reason for individuals to acquire high levels of education. Hirsch argues that the demand for these jobs is based on the associated work satisfaction and status, and that individuals even prefer them if the costs for education and training exceed the financial remuneration. He illustrates his point with reference to the high status of university professors compared with that of businessmen, arguing that "*Money can be earned elsewhere; the attractions of the job can be gained only from doing it*" (p. 183). From his point of view, the salary of the job is a somewhat incidental benefit as long as the non-financial benefits from the job position are strong. According to Treiman (1977), the job position an individual occupies locates him or her in social space. When an individual is introduced to another individual, the conversation will sooner or later turn to the question of the work these individuals do, in turn leading to a first subjective categorization. The basis for such a categorization is the widely shared understanding of the relevant occupations, including, in particular, their associated prestige. Treiman also mentions the strong correlation between occupational hierarchies and status associated with education and income. This link also explains why occupational prestige scales and socioeconomic status scales are highly correlated, even though considered as two distinct concepts. There are many occupations with similar prestige and socioeconomic status, but some

[15]There are also views which consider education as a factor in an individual's social status and income as a factor in an individual's economic status. However, Duncan (1961) argues that individuals qualify for a particular occupation by virtue of their educational credentials and obtain income by pursuing this career path, so that one's occupation can be regarded as an intervening link between income and education. According to Weiss and Fershtman (1998), one's occupation is considered as a quantitative measure of an individual's social and economic status.

may show differences in the two scales (Treiman, 1977).[16]

The literature on occupational prestige emphasizes that occupations play an important role when evaluating one's relative social position. It also highlights the importance of income and education, and the possibility of using one of these two measures to rank a population from low to high status. The status associated with the job an individual does also affects his or her self-esteem from an identity perspective. Belonging to a particular occupational group may enhance an individual's self-esteem if the occupational group is associated with high social status, and vice versa, as suggested by social identity theory (e.g. Tajfel and Turner, 1979). The very desire to get a high-prestige job may affect the demand for education. Both aspects may be also driven by an individual's role identity and the attendant expectations from those in this individual's social environment. The child of a successful lawyer may be expected to follow in his or her footsteps, or at least the child may *think* that this is what they are expected to do. As Brown and Hesketh (2014) point out, it may be a natural progression and the "done thing" within the family. Depending on the child's own interests, however, he or she may be confronted with a discrepancy in their self-concept (Higgins, 1987). Entry into the labor market is closely linked to an individual's sense of what kind of person one is and wants to become (Brown and Hesketh, 2014).[17]

The job position one occupies may also be associated with an individual's ability since an occupation which is associated with high social status usually requires a high level of education (Treiman, 1977). An individual's occupation may therefore function as a kind of signal indicating his or her smartness. Signaling one's ability to employers by means of one's educational qualifications, in turn, is necessary in order to get access to the high-prestige jobs.

[16] Treiman (1977) mentions that occupations which are higher in prestige than educational rank are male-dominated. Furthermore, he argues that women and Blacks are paid less than their white and male counterparts in similar job positions. Thus, the socioeconomic structure of occupations may differ by sex and race. Moreover, there have been examined several determinants influencing the prestige rating of a job such as gender, race, or the moral component of a job (see e.g. Valentino, 2020) which may lead to differences in prestige and socioeconomic status scales.

[17] As Brown and Hesketh (2014) note, individuals derive much of their identity from their jobs, and an individual's status and personality is influenced by the work he or she does. The relationship between an individual's work and identity has resulted in the specific research strand that is professional identity.

2.3.4 Signaling

The basic idea of the signaling approach is decision-making under uncertainty. Applied to the labor market, this approach regards hiring as an investment decision subject to uncertainty for employers, since they cannot observe applicants' marginal productivity before hiring. An applicant's educational qualification then functions as a signal of productivity (Spence, 1973; see also Arrow, 1973 and Stiglitz, 1975).

Applicants can thus invest in education to send a signal to the employer regarding their productivity. It is assumed they will invest in education for as long as they will receive a sufficient return, as defined by the wage schedule. Spence (1973) also mentions the possibility that there are other returns to education. Education could be a consumption good or serve as a signal of status and not only of work potential. However, he does not expand on what he means by status. Spence notes that the other returns to education should be added to the offered wage schedule. Therefore, it remains questionable whether his definition of status can be considered as social status that is conferred (and acknowledged) by other individuals, since this sort of status cannot be simply "offered" by the employer.[18] Even respect on the part of the employer and coworkers cannot be offered and usually must be deserved by actions. In Specne's model, education is considered more as an investment with a view to getting a high salary job, as becomes clear in his definition of an equilibrium: the employer's expectations result in the offered wage schedule according to the different levels of education, which in turn leads the individual to invest in education (Spence, 1973, p. 368).

In Spence's signaling model, relative education is considered the "entrance ticket" to a job position: having more education than the other applicants is necessary to get the highly paid job. Since the motivation behind the demand for education is the high wage, education is an investment decision that, at first glance, distinguishes the signaling approach from those concepts in which education is acquired for status reasons. However, education indeed could function as a signal – of one's smartness, for example. As Piketty (1998) notes, individuals want to be viewed as smart by others, resulting in his definition of social

[18] See, for example, Heffetz and Frank (2011) and Marshall (1977) for the point that status is conferred by a society and rests on collective judgement.

status as "*the public beliefs about one's 'smartness'* " (p. 115). Thus, individuals may acquire educational qualifications to signal their intelligence. However, education is not directly observable, so that the signal functions only for the individual's immediate social circle or to increase the individual's self-esteem due to his or her knowing that they have the qualification. To obtain social status and recognition from others, the individual must undertake actions which are socially visible (Heffetz and Frank, 2011). One means of signaling ability level could be by consumption of particular commodities. As Veblen (1899) mentions, wealth must be demonstrated in order to achieve esteem from others, and individuals engage in conspicuous consumption for this reason. Ireland's (1994) model, in which consumption is used as a signal for one's income in order to gain social status, supports this view. Duesenberry (1952), too, states that income is correlated with success, and that prestige goes to those individuals who are successful. If the group of individuals with high income is recognized as a group with high or even superior social status, their level of consumption will become a criterion for judging success. And Spence (1974), referring to Richard Zeckhauser, considers consumption goods to be signals; he assumes that status depends on income and is signaled by individual consumption. The level of education or superior knowledge can also be demonstrated by a behavior which is associated with cultural capital, such as going to the opera or theatre, or reading and displaying books, particular magazines or newspapers (Bourdieu, 1984).

Frank (1985a, 1985b) brings together these assumptions: there is a strong correlation between individuals' abilities and income as well as between income and consumption. Thus, even though an individual's ability cannot be observed directly, consumption behavior gives information about the income and, therefore, about the level of ability.[19] Bearing in mind Piketty's (1998) definition of social status, these associations may also explain why individuals seek higher levels of education: they want to signal their ability in order to be viewed as smart. Conspicuous consumption, positional jobs, and educational qualifications such as a university degree can, therefore, all be used to signal

[19]This, however, may vary between cultures and societies. According to Khamis et al. (2012), disadvantaged caste groups in India spend more money on visible consumption than their high caste counterparts and divert spending on this visible consumption from education spending. In this case, individuals may associate high income with social status without a link to ability or education.

an individual's smartness. Belongingness to a particular occupational group, to the high-income group, or to a group holding a particular educational qualification, makes visible an individual's social identity. Being associated with what is usually considered a high status group brings with it the positive differentiation many individuals strive in order to achieve respect and recognition from others, and to enhance their own self-esteem. However, in a society within which the desire to be viewed as smart becomes very strong, individuals who do not signal high ability may be stigmatized, inducing negative effects on their well-being and self-esteem. The desire to keep up with a society's aspirations may result in demand for education, a job position, or a consumption behavior (or even all three of those) that does not correspond with the individual's interests and is at odds with his or her true self.

2.3.5 Brief Summary

Since the focus of this article is on the relationship between status-seeking and educational attainment, Section 2.2 is included to provide some fundamentals on the role that status concerns play in the identity-verification process. As Section 2.2 outlines, individuals are concerned about what others think of them, i.e. they care about self-esteem and esteem from others. This desire for positive evaluation by oneself and others is closely related to the individual's sense of self and identity.

The knowledge extracted from the literature review on which Section 2.2 is based makes it possible to discuss the relationship between status concerns and educational attainment, which is investigated in Section 2.3, from an identity perspective with special attention given to self-esteem and social status. It also helps in comprehension of the fact that individuals indeed have a concern for their social standing and what others think about them, that individuals' educational attainment may satisfy their desire for positive evaluation by themselves and others, and that status-driven demand for education may result in drastic consequences for individuals, such as a discrepancy in their self-concepts. There are different channels through which education can confer social status on an individual. In particular, ways of gaining social status that recur in the relevant literature are an individual's occupation, his or her position or movement in the social hierarchy, and the educational qualification obtained (either directly or as signaled through consumption behavior). Since the four concepts of social

mobility, positional goods, occupational prestige, and signaling cover these recurring aspects, they were chosen as the basis for subdividing Section 2.3. Each concept provides an explanation in its own right of individuals' increasing demand for (higher) education. This subdivision allows a structured overview of the role of status concerns in the process of educational attainment, and also helps to distinguish between these overlapping concepts.

While Section 2.3 discusses the relationship between status concerns and educational attainment – and the consequences thereof – more at an individual level, the subsequent Section 2.4 begins by briefly differentiating between the investment and consumption component of education before going on to consider the consequences of a status-driven demand for education from a general perspective. This subsection also discusses certain policy measures and challenges. Section 2.5 concludes with some ideas and suggestions for future economic research that considers in depth a transdisciplinary approach to work on social identity and status.

2.4 Discussion

Under the human capital approach, education has a positive impact on individual productivity and, as a result, on future earnings (Becker, 1964; Schultz, 1961; Mincer, 1974). This approach considers education as an investment, i.e. individuals' demand for education depends on the difference between the marginal benefit and cost of education. Its beneficial effect on an individual's economic situation, including employment status and access to better paying jobs, fulfills the desire for economic security and is one reason for individuals to acquire educational qualifications. In contrast to the human capital approach, educational qualifications are not assumed to necessarily increase an individual's productivity when considered as a signal in the application process for a job position. In fact, it is only if the applicant's educational qualification is higher than that of the competing candidates that the qualification functions solely as a signal of ability in the screening process and proves advantageous. One example of the importance of such signals in form of academic degrees is what is known as the *sheepskin effect*, which describes the difference in earnings between individuals who obtained a degree or diploma and those who did not,

even though the amount of studying involved is similar (see e.g. Jaeger and Page, 1996).

However, the demand for education can also be driven by non-monetary benefits (Schaafsma, 1976). Schultz (1963) states that education has a consumption component, considered as the returns to education that consist of satisfaction. Satisfaction can also be derived from an individual's relative position (Hirsch, 1977), which may, for instance, be directly affected by the level of education or by means of the occupational position. Individuals care about their social standing, so that a favorable relative position fulfills another desire as well: that for social status. Thus, another reason for individuals to seek educational qualifications is the social status these qualifications confer on the holder. In addition to economic reasons, status concerns may increase the demand for higher education and, in turn, the supply of highly qualified individuals on the labor market.

For countries that experience an economic structural change, resulting in stronger demand for a highly qualified labor force, such an additional labor supply can be desirable (Treiman, 1977). However, less favorable consequences for the labor market may also occur if it is not able to absorb the high number of qualified workers into traditional jobs, i.e. in employment for which the qualification is actually needed – a situation which has also been termed *credential inflation* by Collins (1979). Moreover, with an increasing number of highly qualified applicants, employers can intensify the screening process. If there are fewer jobs for which a high educational qualification is needed, individuals will be forced to accept jobs that only demand a lower level of education. This phenomenon and its consequences on the wage structure for graduates has been described in the literature as over-education (e.g. Dolton and Silles, 2008). The individual consequence would be that individuals overinvest in their education (Spence, 1973) and that there would be overconsumption of higher education from a societal perspective. Moreover, highly educated individuals would not only suffer from their underemployment, where they find themselves in jobs that do not reflect their educational qualification, but also from unfulfilled expectations (Brown and Hesketh, 2014).

Such overconsumption may be regarded as individually and societally critical since increasing demand for higher education may result in inefficiencies. Social competition has the characteristics of a zero-sum game as known from

game theory: no one can attain a better position without another individual becoming worse off. For example, the utility that individuals gain from education as a ticket to positional jobs will decline with the number of individuals who attain the same level of education, given no change in the supply of positional jobs (Hirsch, 1977).[20] Furthermore, satisfaction received from having a higher educational qualification than that of (relevant) others will be affected if the level of education becomes insufficient to distinguish oneself from others (Salinas-Jiménez et al., 2011; Durst, 2021). Where individuals engage in conspicuous consumption to signal their superior knowledge, overconsumption of expensive goods may occur (Frank, 1985a). Individuals who try to imitate such consumption behavior may encumber themselves with debt just to keep pace. Overconsumption of particular goods to signal ability may even have negative environmental consequences if, for example, individuals tend to buy expensive, status-enhancing cars with high exhaust emissions (Heffetz and Frank, 2011). As Weiss and Fershtman (1998) argue, competition for positional goods may also limit growth since the invested resources are socially wasted. With regard to education, investment in schooling can be socially beneficial because it can usually be considered as enhancing growth. However, if schooling is associated with high status regardless of someone's ability, then incompetent (but wealthy) individuals may be among those who acquire schooling, which may reduce the growth rate.

An increasing number of individuals holding educational degrees from higher education institutions may also decrease the value of the degree. The more individuals that hold the same degree, the less this degree differentiates the holder from others. In terms of job structure, this means that some jobs now demand higher degrees than before (e.g. Hirsch, 1977). Moreover, further information in addition to the degree itself may become more important, such as grades or the institution from which the qualification was obtained. Degrees offered by elite universities could be valued more highly (even more so than today). These institutions tend, however, to be expensive education providers,

[20] Frank (1985a) uses an example to illustrate the point that an individual's position on the labor market often depends more on relative than on absolute ability: *"The story is told of two campers who encounter a grizzly bear in the woods. At the sight of the bear, one camper hurriedly takes off his hiking boots and puts on his running shoes. 'Why are you bothering with those?' the second camper asks. 'Don't you know there's no way a man can outrun a bear?' The first camper responds, 'I don't have to outrun the bear. All I have to do is outrun you.' "* (pp. 174–175).

so that opportunities for individuals without the necessary economic resources would be restricted, resulting in a social reproduction of classes. Employers may also extend their recruitment criteria. When more individuals hold the same educational degree, it becomes more important which soft skills and experiences the individual has in addition to the educational degree itself, such as having done a semester abroad, interpersonal skills, or charisma (Brown and Hesketh, 2014)

At the same time, if more individuals obtain high educational qualifications who usually would not have had the knowledge or ability to do so but have the economic resources to attend a private institution offering a degree, education may even lose its function as a signal of ability. Employers who hold high expectations concerning their applicants' productivity may lower the wages for the subsequent cohort of applicants if their experience is that a degree is no longer a signal of productivity (Spence, 1973). Individuals are confronted with what is called an *opportunity trap* (Brown, 2003): if all individuals reach for the top nobody gets ahead, because there is no longer any differentiation. However, individuals cannot reach the top without entering the game.

As Marshall (1977) and Heffetz and Frank (2011) state, status is conferred by society. Thus, it depends on societal factors whether education is associated with high social status or whether less educated individuals are even stigmatized. As Kuppens et al. (2018) discovered in several experimental studies, highly educated individuals hold more negative attitudes towards less educated individuals than towards equally educated ones. The work of Spruyt and Kuppens (2015) suggests that individuals who identify with different categories of educational attainment seem to hold different stereotypes about individuals of other educational categories. Moreover, the National Foundation of Educational Research in England and Wales (NFER) discovered that many teachers accord a higher valuation to university education if students possess the necessary requirements for university entrance (e.g. McCrone, 2014). Additionally, according to Menon (2010) the ancient Greek civilization held theoretical knowledge in higher social esteem than knowledge of practical skills. This would appear to be true for German students as well, who expect higher social esteem from going to university than from choosing vocational education (Lörz et al., 2012). To avoid a situation where individuals seek higher education for status reasons (or because they want to avoid being stigmatized), educational paths must be

regarded equally with respect to societal appreciation. This is also an important issue when considering individuals' mental health. Low self-esteem as a consequence of low education and, accordingly, low social status, may result in mental health issues (e.g. Harter, 1997; Higgins, 1987).

A possible solution that addresses negative externalities and consequences induced by status-seeking could involve government measures. Ireland (1994, 2001), for instance, mentions taxation and redistribution as measures for responding to distortions caused by conspicuous consumption. Frank (2008) discusses a progressive income and consumption tax as an instrument for dealing with positional externalities. Regarding education, however, government measures would need to be carefully designed if the government did not want to undermine the aim of equality of opportunity. The "simplest" measure would be to equalize the appreciation for different educational paths. This, however, is not as simple as it seems since, once individuals have the feeling that they need to acquire higher education to gain social status or to avoid being stigmatized, it becomes difficult to overcome this societal mindset. The above mentioned study conducted by the NFER, which discovered that many teachers accord a higher valuation to university education if students possess the necessary requirements for university entrance (e.g. McCrone, 2014), underlines the problem: institutions such as schools are important for a process in which the appreciation for different educational paths converge. Teachers, in particular, would be needed to facilitate such a convergence. Parents, too, would play an important role in such a process. However, what parents especially want is what is best for their children and, as long as the higher education path is considered the best choice, parents will encourage their children to obtain the highest educational qualifications as possible. Such encouragement is, of course, rational and beneficial for the children as long as it is also in the interests of the children and does not lead to self-discrepancy.

Another measure would be to increase the costs of attending higher education institutions. However, this may be at odds with the aim of equality of opportunity. Since an individual's family background still affects educational attainment, individuals from families without an academic background or with low economic resources might be left behind. If cultural capital became more and more expensive, the gap between social classes would increase – both in a cultural and economic sense. Findings that disadvantaged students are less

likely to enter high-status universities than their socially advantaged fellow students, even though they have the requisite academic ability, are another aspect that merits consideration in the context of the impact of family background on demand for education. The feeling of not fitting in at a high-status institution for tertiary education due to one's family background can be regarded as leading to a waste of potential. Nieuwenhuis et al. (2019) mention role models for young individuals of low socioeconomic status as a possible solution by which this problem could be overcome.

Of course, economic and status-oriented reasons are not the only motivation to acquire education. With an increasing number of highly educated individuals, individuals may fear that others have an information advantage and try to imitate them by acquiring the same level of education, or they just follow the crowd to "fit in."[21] Individuals may also simply be motivated to pursue knowledge because they enjoy education for its own sake, playing an important part in lifelong learning. Nevertheless, status concerns do play a key role when considering individuals' demand for (higher) education and, therefore, should be kept in mind so as to avoid or reduce inefficiencies – on the labor market, for example – and personal consequences. In particular, institutions with a major impact on an individual's educational path – such as schools, but also government and the media – could treat different learning pathways equally and encourage individuals to pursue their interests. In doing so, individuals could categorize themselves into social categories defined by their education without losing self-esteem due to stigmatization of groups, and avoid the danger of self-discrepancy.

2.5 Conclusion

Individuals' demand for (higher) education is driven by several factors. Economic reasons, in particular, have been investigated extensively in the literature. Findings from psychology and sociology, however, suggest that individuals' desire for a positive image of the self and high social standing in society can

[21] The desire not to be left behind motivates individuals to follow the crowd. Such behavior (herding) is particularly known from finance markets. A similar behavior is called the "bandwagon effect", which describes an increase in the demand for a commodity just because other individuals also consume the commodity (Leibenstein, 1950).

also be fulfilled by educational attainment. This paper sheds light on the relationship between status concerns and individuals' demand for higher levels of educational attainment, and focuses on four concepts: social mobility, positional goods, occupational prestige, and signaling. These concepts consider the status effect of education in a direct and indirect way, and serve as an explanation for the increase in demand for higher education seen in many countries over the last few decades. Even though such an increase in the number of highly educated individuals might be desirable in light of ongoing industrialization and digitalization, the negative consequences should not be ignored. The outcome of this paper suggests that further research is required to bring clarity to the consequences of individuals' status-driven demand for higher education degrees so that an appropriate political response can be made.

Assuming that individuals strive for a higher level of educational attainment in order to move up the social ladder, an interesting research question might be whether individuals who have managed to improve their social position experience higher levels of life satisfaction. Such an analysis could also involve an individual's self-authenticity and its impact on life satisfaction since the individual's status-seeking process may be driven by his or her social environment, involving pressure being put on the individual by parents or friends. The literature on the positionality of education could be augmented by research on the value of educational degrees for the labor market, given the fact that the number of individuals with degrees from higher education institutions is increasing. The effect of over-education and occupational mismatches on individuals' well-being may also constitute a promising field for future research.

Even though specialization in single disciplines may be reasonable and efficient, the consideration of concepts and findings from other disciplines allows for deeper insights and a broader perspective. This may be particularly true for the research area of economics whose focus has been on the *Homo economicus*, characterized as a rational, optimizing, and self-interested economic agent. These characteristics have been criticized as being insufficient to explain the social world (Bourdieu, 1986), so that the role of *Homo economicus* in economics is one example of why the consideration of psychological and social factors, emotions, and culture may be advisable for research activities. A long time ago, Schumpeter remarked jocularly that, due to the lack of communication during the twentieth century, economists and sociologists have each preferred

to use their "*primitive economics*" and "*primitive sociology*" (Schumpeter, 1954, p. 24; Swedberg, 2003, p. 118). This paper serves as an example to illustrate the importance of not limiting one's scope to a single research discipline. It will enable economists who are interested in incorporating the concepts of self and identity into economic models, or who are interested in the relationship between status concerns and educational attainment, to gain some initial insights into the relevant literature, as well as ideas and suggestions for future research that considers transdisciplinary work on social identity and status in depth. It may also encourage researchers to empirically examine the consequences of status-driven educational attainment for the labor market, society, and the individual. Interdisciplinary approaches enable a broader perspective on economic issues, thus allowing policymakers to make more targeted decisions that take into account social and psychological issues.

Chapter 3

Education as a Positional Good? Evidence from the German Socio-Economic Panel

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3.1 Introduction

"If everyone stands on tiptoe, no one sees better."

Fred Hirsch (1977), Social Limits to Growth, p. 5

As indicated by the psychology and sociology of identity, people care about how they are evaluated by themselves and others. As a consequence, they compare themselves to relevant others and even adjust their consumption behavior

so that they – hopefully – end up with a high relative position in society.[1] Thus, consumption has both an individual and a social aspect, and the satisfaction people derive from consumption of goods and services depends not only on their own consumption, but also on consumption by others (Hirsch, 1977). It is by *conspicuous consumption*, for example, that people demonstrate their own wealth and power (Veblen, 1899). Duesenberry (1952) wrote that people emulate the consumption behavior of those above themselves in the income hierarchy for demonstration purposes. According to Leibenstein (1950), demand for particular goods may be driven by what he calls the *bandwagon* and *snob effect*. The bandwagon effect describes an increased demand for a good which can be attributed to the fact that many other people possess this "fashionable" good (also termed conformism; see e.g. Bernheim, 1994). The snob effect describes consumption behavior which is driven by the desire to dissociate oneself from others and signals a sort of exclusiveness (Leibenstein, 1950). Even Karl Marx stated the idea of relative position over a century ago: "*A house may be large or small; as long as the surrounding houses are equally small it satisfies all social demands for a dwelling. But if a palace arises beside the little house, the little house shrinks into a hut*" (Marx and Engels, 1849, p. 411; translation cited by Lipset, 1960, p. 63). Hence, a person whose level of consumption is unchanged may feel inferior, even though there has been no objective change in his or her consumption level. People, therefore, do not only care about their absolute levels of consumption, but about having more – or at least not having less – than (relevant) others.

One of the most famous studies on the importance of relative standing is the work of Easterlin (1974, 1995). He found that, on average, people with higher income reported themselves to be happier than their poorer counterparts, but economic growth (and thereby an increase in objective well-being) does not increase the happiness level of a country over time. To explain this paradox, he refers to the work of Duesenberry (1952) and argues that relative income serves as a better explanation for higher levels of happiness than absolute income. Evidence that income has a positional aspect has also been identified and discussed by Carlsson et al. (2007), Clark et al. (2008), and Luttmer (2005), for

[1] As Maslow states, "*we want money so that we may have an automobile. In turn we want an automobile because the neighbors have one and we do not wish to feel inferior to them, so that we can retain our own self-respect and so that we can be loved and respected by others*" (Maslow, 1970, p. 21).

instance. In addition to income, individuals also seem to be concerned about their relative standing in terms of other goods and life domains, such as cars (Carlsson et al., 2007), or attractiveness and supervisor's praise (Solnick and Hemenway, 1998). Furthermore, goods are more positional than bads (Solnick and Hemenway, 1998, 2005). Long et al. (1982) discovered that people's blood pressure increases when speaking to persons of higher perceived status – we thus even exhibit biological reactions to social distance.

Although relative consumption had been considered in the literature previously, it was Fred Hirsch who first described the term *positional good* (Hirsch, 1977). By this, he refers to goods, services, and even work positions whose value depends on how many other people own them. His idea was adopted by Frank (1985a, 1985b), who uses a familiar metaphor to describe the characteristics of a positional good: "*(...) all spectators in a sports arena leap to their feet to get a better view of an exciting play, but in the end everyone's view is no better than if all had remained seated*" (Frank, 1985a, p. 10). Thus, the value attributed to the good decreases with the number of other people who also consume it.

Both Hirsch and Frank also mention the partially positional character of education. People may seek education to gain social status, provided that their level of education is higher than that of others. As with many countries in the world, Germany has been facing an increasing number of people entering the tertiary education system, and this trend gives rise to the question of whether an individual's concern about one's high relative standing is one reason for this phenomenon.

Even though education has been considered as a status signal and positional good in the literature, the empirical findings are not clear cut. There is empirical literature on conspicuous consumption that indicates spending on education is not positional (e.g. Khamis et al., 2012; Charles et al., 2009). Evidence from the well-being literature, in contrast, suggests that demand for education is subject to positional concerns (Salinas-Jiménez et al., 2011; Botha, 2014).

Based on the literature about positional concerns and the role of education in relative position, this paper investigates the following questions. First, I examine whether there is, in Germany, a relationship between education and life satisfaction above and beyond the effect education might have through other variables such as income, health, or occupational prestige. Thus, I consider both the indirect and direct effect of education on life satisfaction. Second,

I investigate the possibility that the consumption of education is subject to positional concerns. In doing so, I am adopting Frank's (1985b) definition of positional goods as those things whose value depends greatly on how they compare with things owned by others.

Using representative data of the German population from 2003 to 2015, I find a positive relationship between education and life satisfaction – even where I control for variables which are known to be affected by education as well, such as absolute and relative income, health, joblessness, and occupational prestige. This indicates that education has a consumption component in Germany. Additionally, the results suggest that the relationship between education and life satisfaction depends on the distribution of different levels of education within society and particular groups. Thus, education would appear to be positional for Germany.

This chapter is organized as follows. Section 3.2 gives a brief review of the existing literature on the relationship between education and well-being, and the positional character of education. Section 3.3 introduces the data and some descriptive statistics. In Section 3.4, I present and discuss the results. Section 3.5 concludes.

3.2 Related Literature

The positive impact of education on an individual's productivity and, hence, on future earnings, has been considered by the human capital approach (e.g. Becker, 1964; Schultz, 1961; Mincer, 1974) and indicates education as an investment. In line with the idea that education has an investment component, people demand education as long as the difference between the marginal benefit and the marginal cost of education is positive. Its positive impact on employment status and on access to better-paying jobs has also been examined.

According to signaling theory, education functions as a signal of ability (Spence, 1973). Employers cannot observe an applicant's marginal productivity and thus use the applicant's level of education as an information source in the hiring process. In the screening process, it is not only the applicant's own level of education which is important for a successful application, but also the education level of the other applicants, indicating that labor market outcomes are also based on relative levels of education.

However, it might not only be the investment component of education that motivates people to acquire education, but also non-monetary benefits (Schaafsma, 1976). According to Hirsch (1977), people derive satisfaction from their relative position. Satisfaction from the consumption of the good is influenced by the extensiveness of use by others, i.e. the more people possess the good, the lower the perceived "quality" of the good – and thus the lower the perceived utility achieved from consumption of the good (p. 29). Jobs at the upper end of the job hierarchy are one example of what he calls a positional good. Limited in availability, since job hierarchies are usually pyramid shaped, they produce high status and are valued in themselves. To get one of these higher jobs, people need to succeed in the screening process, and therefore invest in the necessary resources of which one is their level of education. However, access to the high status jobs depends not only on one's own education level, but on how much education the other applicants have. With an increasing number of people fulfilling the educational requirements for these jobs, employers will respond by intensifying the screening process, so that an individual's education will impose a negative externality on the rest of society (Hirsch, 1977). In contrast to the signaling approach, people are assumed to seek positional jobs not only because they offer relatively high pay, but also high status. This status might be linked to relatively high wages, but also to the nature of the job. By way of example, Hirsch (1977) refers to the high status of university professors compared with businessmen: "*As long as the nonfinancial attractions of positional jobs are strong, the salaries attached to them can be regarded as incidental benefits. Money can be earned elsewhere; the attractions of the job can be gained only from doing it*" (p. 183). Actually, sociologists established two occupational characteristics determining the social status of an occupation: average schooling and average wages (e.g. Duncan, 1961). However, studies have found education to be the more important determinant (Stevens and Featherman, 1981; Fershtman et al., 1996).

In addition to the investment component of education, Schultz (1963) refers to the consumption component of education, i.e. the returns that consist of satisfaction. People may also consider education as a way to gain social status (Collins, 1979; Checchi, 2006). Piketty (1998), for instance, notes that people care about being viewed as smart and defines social status as public beliefs concerning one's smartness, a characteristic that is often associated with

(higher) education. However, the empirical findings on the relationship between education and status or positional concerns are not clear cut. Khamis et al. (2012), for example, find that disadvantaged caste groups in India spend more on visible consumption than high caste groups do, and that spending on visible consumption is diverted from education spending.[2] These findings indicate that education does not have a positional character in India. Charles et al. (2009) discover that Blacks and Hispanics spend less money on education than comparable Whites in the United States. Instead, they spend more money on conspicuous goods such as cars or clothing, also indicating education to be non-positional for these groups. However, Charles et al. (2009) also state that expenditures on children's education might function as a status signal among intimate groups which are more likely to observe the expenditures, such as friends and family. Using a life satisfaction approach and data for eleven OECD countries[3], Salinas-Jiménez et al. (2011) identify the demand for education as being subject to positional concerns. Furthermore, Botha (2014) discovers that having a higher level of education than the average has a positive impact on subjective well-being in South Africa.

The positional character of particular things, such as relative income, has often been considered by investigating its relationship to subjective well-being (see e.g. Clark et al., 2008; Luttmer, 2005; Easterlin 1974, 1995). Regarding education, however, the empirical findings indicate that there is no clear relationship between education and life satisfaction or happiness. Empirical studies have discovered significant positive and negative relationships as well as no significant relationships (see e.g. Salinas-Jiménez et al., 2011 and Cuñado and Gracia, 2012 for a brief review of the relevant literature). For Germany, this relationship is not clear cut either. Ferrer-i-Carbonell (2005) found the role of education to be important in determining subjective well-being only for East Germany. However, Dittmann and Goebel (2010) found that life satisfaction increases with the level of education and Frey and Stutzer (2000) discovered that people with higher education are happier than their lower educated counterparts in Germany and Switzerland.

[2]There is empirical evidence that groups of lower income or status tend to spend more money on conspicuous goods than comparatively high status or income groups do (see e.g. Charles et al., 2009).

[3]Australia, Britain, France, Germany, Italy, Japan, the Netherlands, Spain, Sweden, Switzerland and the United States.

3.3 Data and Descriptive Statistics

3.3.1 Data

I use data from the German Socio-Economic Panel (SOEP) for the years 2003 to 2015.[4] The SOEP is a representative annual panel survey of private households in Germany, and provides information on the household as a whole as well as on every individual living there (Goebel et al., 2019).

The dependent variable, namely satisfaction with life in general, is measured by the question *"How satisfied are you with your life, all things considered?"*. Respondents can choose from an 11-point scale ranging from 0 (*completely dissatisfied*) to 10 (*completely satisfied*). Education is considered by three variables. The first variable groups all respondents without a vocational degree. The second variable incorporates those respondents who have a vocational degree, and the third variable includes all persons who have obtained a university degree. I do not consider respondents who reported that they are still in school or in training. This is also true for those persons who have already obtained a first vocational degree, but are seeking another level of educational attainment such as retraining or a higher education degree. Additionally, I consider only those respondents aged between 25 and 64. This is to ensure that I include only those respondents who have most likely completed their education and have entered the labor market. In this regard I am adopting the Organisation for Economic Co-operation and Development's (OECD) definition of individuals aged 15 to 24 as those *"entering the labour market following education"* and only consider those who are in their *"prime working lives"* (aged 25 to 54) and those who are *"passing the peak of their career and approaching retirement"* (aged 55 to 64) (OECD, 2020).

The education variables will be used to investigate whether there is a consumption component to education. Moreover, I am interested in the possibility that the consumption of education is subject to positional concerns. Therefore, I generate variables indicating whether a respondent has a higher or lower education level than the majority of his or her reference group. Additionally, I run regressions by subgroups whose members have different levels of education, but comparable socioeconomic status. The reference groups and subgroups, as

[4]Socio-Economic Panel (SOEP), data for years 1984-2017, version 34, SOEP, 2019, doi: 10.5684/soep.v34.

well as the relative education variables, are explained in more detail in Section 3.3.2.

To make sure that the results do not depend on the choice of education variables, I run regressions with other education variables as well, namely education in years and variables derived from the International Standard Classification of Education (ISCED-97) defined by the OECD (OECD, 1999). I use education in years to incorporate the consumption component of education, and the ISCED classification for both aspects, namely the consumption component and positionality. The ISCED variable is grouped as follows: respondents without an education degree and general elementary education form the reference category. This corresponds with the ISCED-97 Levels 1 and 2. Further categories are secondary education (Level 3 and 4) and higher education (Level 5 and 6). Due to a lack of more detailed information on tertiary degrees in earlier SOEP waves, all persons with a university degree are summarized in Level 6 so that Level 5 and 6 differ from the original OECD categorization. Level 5 in the SOEP data thus includes only those persons with higher vocational degrees. Even though this is categorized by the OECD as the first stage of tertiary education, I run a regression for another categorization as well and summarize Level 3, 4 and 5 for the secondary and vocational education group and Level 6 for the higher education group. This categorization is more similar to my baseline education variable (no vocational degree, vocational degree, university degree). As can often be observed for education variables, the categorization of participants by their level of education differs slightly owing to deviating definitions. Table 3.1 shows the ISCED categories compared to the baseline education variables (no vocational degree, vocational degree, university degree).

Control variables are age, gender, marital status, subjective health status, a dummy variable indicating whether there are children under 18 living in the household, a dummy variable indicating whether a respondent works, a dummy variable for living in East or West Germany, the logarithm of a household's monthly equivalent disposable income (using the modified OECD equivalent scale), the mean of the income of the reference group, and occupational prestige. Occupational prestige is measured by the Magnitude Prestige Scale which was developed by Wegener for use in the Federal Republic of Germany (see Frietsch and Wirth, 2001, for the procedure).

	No Vocational Degree	Vocational Degree	University Degree	Total
Lower than Secondary (Level 1,2)	15,839	0	0	15,839
Secondary (Level 3,4)	5,066	101,229	0	106,295
Higher (Level 5,6)	44	15,458	49,602	65,104
Missing	724	0	0	724
Total	21,673	116,687	49,602	187,962

	No Vocational Degree	Vocational Degree	University Degree	Total
Lower than Secondary (Level 1,2)	15,839	0	0	15,839
Secondary and Vocational (Level 3,4,5)	5,110	116,687	0	121,797
Higher (University) (Level 6)	0	0	49,602	49,602
Missing	724	0	0	724
Total	21,673	116,687	49,602	187,962

Data source: Socio-Economic Panel (SOEP), version 34, years 2003 to 2015. Own calculations.

TABLE 3.1: ISCED-97 Categories Compared to Baseline Education Variable

The summary statistics for the variables used in the analyses are shown in Table 3.2.

3.3.2 Reference Groups

Both for the mean of reference income and reference education I need to define the respondent's reference group. This raises the question of to whom people compare themselves when judging their relative position.

For her analysis on income comparisons in Germany, Ferrer-i-Carbonell (2005) used reference groups that contain those individuals with a similar level of education, who are in the same age bracket, and who live in the same region, i.e. West or East Germany. Caporale et al. (2009) and McBride (2001) considered people in the same age range (own age +/− five years) as reference groups. Salinas-Jiménez et al. (2011), who investigated education as a positional good, follow the assumption that individuals interact mainly with individuals of similar socioeconomic status. However, one's socioeconomic status is usually defined by level of education, income, and occupational prestige. Due to the fact that education and occupational prestige are used to examine whether there is a positional character of education, they define the reference groups by income only.

Variable	Obs.	Mean	SD	Min	Max
Life Satisfaction	187,962	7.111	1.728	0	10
Age	187,962	44.667	10.213	25	64
Children in Household	187,962	0.470	0.499	0	1
Marital Status					
Married	187,962	0.667	0.471	0	1
Single	187,962	0.186	0.389	0	1
Widowed	187,962	0.018	0.131	0	1
Divorced	187,962	0.100	0.300	0	1
Separated	187,962	0.029	0.167	0	1
Gender (Male)	187,962	0.489	0.500	0	1
Region (East Germany)	187,962	0.224	0.417	0	1
Health Status					
Very good	187,962	0.098	0.297	0	1
Good	187,962	0.452	0.498	0	1
Satisfactory	187,962	0.315	0.464	0	1
Poor	187,962	0.113	0.316	0	1
Bad	187,962	0.023	0.149	0	1
Non-Working	187,962	0.144	0.351	0	1
Household's Monthly Equivalent Disposable Income	187,962	7.316	0.501	3.689	11.107
Mean of Reference Group's Income	187,962	7.405	0.126	7.133	7.607
Education					
No Vocational Degree	187,962	0.115	0.319	0	1
Vocational Degree	187,962	0.621	0.485	0	1
University Degree	187,962	0.264	0.441	0	1
Education in Years	185,530	12.700	2.774	7	18
Lower than Secondary (ISCED Level 1,2)	187,238	0.085	0.278	0	1
Secondary (ISCED Level 3,4)	187,238	0.568	0.495	0	1
Secondary and Vocational (ISCED Level 3,4,5)	187,238	0.650	0.477	0	1
Higher (ISCED Level 5,6)	187,238	0.348	0.476	0	1
Higher (University) (ISCED Level 6)	187,238	0.265	0.441	0	1
Occupational Prestige	187,962	64.708	30.286	30	216

Data source: Socio-Economic Panel (SOEP), version 34, years 2003 to 2015. Own calculations.

TABLE 3.2: Summary Statistics

Botha (2014) adopts this approach and additionally considers different ethnic groups (Black, Coloured, Asian, White) and gender. The choice of hypothetical reference groups, as has been made in the above-mentioned selection of studies, is rather common in empirical work due to missing data on the true reference groups of individuals (Ferrer-i-Carbonell, 2005).

However, some data contain more explicit information on a respondent's "true" reference group. For example, Goerke and Pannenberg (2013) use data from three pretest modules of the SOEP for the years 2008 to 2010, which

include information on participants' perceived relative income position and the comparison intensity for nine reference groups (neighbors, friends, workplace colleagues, other people in the respondent's occupation, people of the same age, parents when they were of the respondent's age, partner, other women, other men). A theoretical approach in which the reference group is endogenous is given by Falk and Knell (2000).

Since my data do not contain information on the individuals' true reference groups, I will follow the relevant standard in the empirical literature and define hypothetical reference groups. In line with several studies (e.g. Caporale et al., 2009; Ferrer-i-Carbonell, 2005; McBride, 2001), I assume that people compare themselves with people of the same age group and allow for regional variation reflecting economic differences between East and West Germany. These specifications generate eight different reference groups, which are presented in Table 3.3.

Group	Region	Age Group	N†
1	West Germany	25-34	27,190
2	East Germany	25-34	8,399
3	West Germany	35-44	46,585
4	East Germany	35-44	11,453
5	West Germany	45-54	43,803
6	East Germany	45-54	12,717
7	West Germany	55-64	28,265
8	East Germany	55-64	9,550

† Education variables: no vocational degree, vocational degree and university degree.
Data source: Socio-Economic Panel (SOEP), version 34, years 2003 to 2015. Own calculations.

TABLE 3.3: Reference Groups based on Region and Age Group

Across all reference groups, the majority of people hold a vocational degree. Thus, having a vocational degree forms the mode for all groups. I use this mode to generate two dummy variables, which are used in the regressions to examine the possibility of education having a positional character. One variable indicates if a person has a higher level of education than the mode of the reference group. For all groups, this means that the variable takes a value of one if the person has a university degree and zero otherwise. The other variable takes a value of one if a person has a lower education level than the majority of the reference group, i.e. no vocational degree.

The choice of reference group used by Ferrer-i-Carbonell (2005) or Salinas-Jiménez et al. (2011), for instance, is a reasonable approach as well. They assume that people compare themselves mainly with individuals of similar socioeconomic status, which usually consists of level of education, income, and occupational prestige. Due to the fact that education and occupational prestige are used to examine whether there is a positional character of education, Salinas-Jiménez et al. (2011) define the reference groups by income and Ferrer-i-Carbonell (2005) considers education, in addition to age and region, in examining the importance of income comparisons on life satisfaction. To compare my results to the work of Salinas-Jiménez et al. (2011), I test their approach and run the regressions by income groups as well.

I categorize participants into three income groups, defined by the share of the median of the equivalized disposable net income. According to the German Institute for Economic Research (DIW Berlin), the low-income group is defined as having less than 70% of the median of the households' monthly equivalent disposable income, the middle-income group as having between 70% and 150% of the median, and the high-income group by having more than 150% of the median (Vaughan-Whitehead et al., 2016). To calculate the equivalent disposable income, I use the modified OECD equivalence scale. Table 3.4 shows how many people in the income groups possess a vocational or university degree or neither of the two. While most people in the low- and middle-income group have a vocational degree, having a university degree forms the mode in the high-income group. Regarding the ISCED variables, the distribution is comparable (Table 3.4).

	Low Income	Middle Income	High Income	Total
No Vocational Degree	8,361	11,591	1,721	21,673
Vocational Degree	23,661	74,942	18,084	116,687
University Degree	3,880	23,606	22,116	49,602
Total	35,902	110,139	41,921	187,962
Lower than Secondary (Level 1,2)	6,507	8,433	899	15,839
Secondary and Vocational (Level 3,4)	23,019	67,797	15,479	106,295
Higher (Level 5,6)	6,097	33,539	25,468	65,104
Total	35,623	109,769	41,846	187,238

Data source: Socio-Economic Panel (SOEP), version 34, years 2003 to 2015. Own calculations.

TABLE 3.4: Education by Income Groups (in Total)

3.4 Results and Discussion

3.4.1 Vocational vs. University Education

To estimate the relationship between education and life satisfaction, I used ordered probit models with individual random effects and year dummies. I started with a baseline regression including controls and income only. Table 3.5 presents the results. The coefficients of the control variables show the expected signs. Life satisfaction has a U-shaped relationship to age, men are less satisfied with their life in general than women and respondents living in East Germany indicate lower satisfaction levels than their counterparts living in West Germany. Being single, widowed, divorced or separated decreases life satisfaction compared to being married, while the presence of children under 18 in the household increases life satisfaction. A subjective health status lower than *very good* is associated with lower life satisfaction. Non-working persons are less satisfied, an increase in the household's monthly equivalent disposable income is associated with higher life satisfaction, and the mean of the income of the reference group decreases life satisfaction. When education variables were included, I found a positive and significant relationship with life satisfaction, both for having a vocational degree and for having a university degree (compared to having no vocational degree). These results suggest that education has an effect on life satisfaction beyond its indirect effect through income or health. In a further estimation I also controlled for occupational prestige, since a person's education level might be associated with higher occupational prestige and could thus increase life satisfaction. Even when occupational prestige is included as a control, the education variables remain significant, suggesting a consumption component to education.

Alongside the direct and indirect effect of education on life satisfaction, I am interested in the question of whether education has a positional character. Adopting Frank's (1985b) definition of a positional good, I consider positional goods to be those things whose value depends greatly on how they compare with things owned by others. Additionally, I take into account that comparisons might be upward or downward. Table 3.5 shows that having a higher level of education than the majority of one's peers increases life satisfaction significantly. Having a lower education level decreases life satisfaction. Thus, in contrast to income comparisons (Ferrer-i-Carbonell, 2005), education comparisons for

Dependent Variable: Satisfaction with Life in General				
Variable	(1)	(2)	(3)	(4)
Age	-0.0656***	-0.0671***	-0.0670***	-0.0670***
	(0.0044)	(0.0044)	(0.0044)	(0.0044)
Age^2	0.0007***	0.0007***	0.0007***	0.0007***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Children Living in Household	0.1539***	0.1504***	0.1486***	0.1486***
	(0.0112)	(0.0112)	(0.0112)	(0.0112)
Marital Status (ref.: Married)				
Single	-0.2911***	-0.2968***	-0.2985***	-0.2985***
	(0.0157)	(0.0157)	(0.0157)	(0.0157)
Widowed	-0.3255***	-0.3188***	-0.3175***	-0.3175***
	(0.0503)	(0.0503)	(0.0503)	(0.0503)
Divorced	-0.2128***	-0.2107***	-0.2108***	-0.2108***
	(0.0185)	(0.0185)	(0.0185)	(0.0185)
Separated	-0.4277***	-0.4284***	-0.4293***	-0.4293***
	(0.0267)	(0.0267)	(0.0267)	(0.0267)
Male	-0.0977***	-0.1001***	-0.0971***	-0.0971***
	(0.0121)	(0.0121)	(0.0121)	(0.0121)
East Germany	-0.3511***	-0.3595***	-0.3576***	-0.3576***
	(0.0269)	(0.0269)	(0.0269)	(0.0269)
Health				
Good	-0.4978***	-0.4944***	-0.4940***	-0.4940***
	(0.0127)	(0.0127)	(0.0127)	(0.0127)
Satisfactory	-0.9997***	-0.9941***	-0.9930***	-0.9930***
	(0.0144)	(0.0144)	(0.0144)	(0.0144)
Poor	-1.5079***	-1.5011***	-1.4998***	-1.4998***
	(0.0174)	(0.0174)	(0.0174)	(0.0174)
Bad	-2.1913***	-2.1841***	-2.1827***	-2.1827***
	(0.0303)	(0.0303)	(0.0303)	(0.0303)
Non-Working	-0.2164***	-0.2156***	-0.2158***	-0.2158***
	(0.0122)	(0.0122)	(0.0122)	(0.0122)
Income	0.3951***	0.3725***	0.3639***	0.3639***
	(0.0104)	(0.0108)	(0.0110)	(0.0110)
Mean of Reference Income	-0.2544**	-0.2374**	-0.2403**	-0.2403**
	(0.1058)	(0.1059)	(0.1059)	(0.1059)
Education, Ref.: No Voc. Degree				
Vocational		0.0661***	0.0576***	
		(0.0196)	(0.0196)	
University		0.1748***	0.1271***	
		(0.0220)	(0.0237)	
Positionality of Education				
Higher				0.0695***
				(0.0156)
Lower				-0.0576***
				(0.0196)
Occupational Prestige			0.0011***	0.0011***
			(0.0002)	(0.0002)
Year Dummies	Yes	Yes	Yes	Yes
N	187,962	187,962	187,962	187,962

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Clustered standard errors in parentheses.
Data source: Socio-Economic Panel (SOEP), version 34, years 2003 to 2015. Own calculations.

TABLE 3.5: Results for Whole Sample (Vocational vs. University Education)

Germany appear to be symmetric.[5]

In their study on education as a positional good for several countries, Salinas-Jiménez et al. (2011) divided their sample into three groups by income (low, middle, or high) to take into consideration that people mainly compare themselves to others with a similar socioeconomic status. For comparative purposes, I ran the regressions by income groups as well. Table 3.6 presents the results.

The coefficients of the control variables still show the expected signs and are significant for all income groups, except of the coefficients of the variables for non-working and occupational prestige which are insignificant for the high-income group. The coefficients of the education variables differ by income group. In the low-income group, 23% of the respondents do not have a vocational degree, so that a vocational degree may differentiate an individual from this group, even though it is the mode in this particular group. A university degree, which only 11% of the participants possess, increases life satisfaction significantly. This coefficient could have expected to be negative or insignificant as well, due to two contradicting effects. With a university degree people may form aspirations regarding, for example, their income or employment status. For highly educated people in the low-income group, such aspirations may be unfulfilled, leading to dissatisfaction (see e.g. Ferrante, 2009). However, the results indicate that even if there may be contradictory effects, the positive relationship attributable to status-seeking predominates. For the middle-income group, only having a university degree is positively and significantly correlated with life satisfaction. Since almost 70% of the respondents in this group possess a vocational degree, a university degree – which has been obtained by 21% of them – seems to be the only means of standing out from the crowd, as it were. For the high-income group, both coefficients are insignificant. Compared to the entire high-income group (in which more than 50% of respondents went to university), having a university degree no longer serves as a means of differentiation, which may explain why I do not find a relationship between life satisfaction and university education for this group. The results suggest that the relationship between education and life satisfaction depends on the distribution of levels of educational attainment among groups.

[5] I obtain the same results if I define the relative education variables for the whole sample. Thus, in contrast to relative income, education comparisons would seem in my analysis to be independent of reference groups defined by age and region of living.

TABLE 3.6: Results for Income Groups (Vocational vs. University Education)

Dependent Variable: Satisfaction with Life in General									
Variable	Low-Income Group			Middle-Income Group			High-Income Group		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Age	-0.0774***	-0.0788***	-0.0786***	-0.0750***	-0.0762***	-0.0761***	-0.0672***	-0.0667***	-0.0665***
	(0.0080)	(0.0080)	(0.0080)	(0.0054)	(0.0054)	(0.0054)	(0.0097)	(0.0097)	(0.0097)
Age^2	0.0009***	0.0009***	0.0009***	0.0008***	0.0008***	0.0008***	0.0007***	0.0007***	0.0007***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Children Living in Household	0.1737***	0.1752***	0.1757***	0.1731***	0.1686***	0.1661***	0.2237***	0.2125***	0.2104***
	(0.0217)	(0.0217)	(0.0217)	(0.0143)	(0.0143)	(0.0143)	(0.0252)	(0.0254)	(0.0255)
Marital Status (ref.: Married)									
Single	-0.2667***	-0.2731***	-0.2763***	-0.3298***	-0.3351***	-0.3372***	-0.2771***	-0.2816***	-0.2820***
	(0.0304)	(0.0305)	(0.0305)	(0.0197)	(0.0197)	(0.0197)	(0.0319)	(0.0320)	(0.0320)
Widowed	-0.2036***	-0.1997**	-0.1982**	-0.3706***	-0.3654***	-0.3643***	-0.4441***	-0.4375***	-0.4372***
	(0.0701)	(0.0700)	(0.0700)	(0.0618)	(0.0618)	(0.0618)	(0.1206)	(0.1204)	(0.1204)
Divorced	-0.2873***	-0.2879***	-0.2888***	-0.2221***	-0.2201***	-0.2205***	-0.1410***	-0.1371***	-0.1371***
	(0.0292)	(0.0293)	(0.0293)	(0.0232)	(0.0232)	(0.0232)	(0.0415)	(0.0415)	(0.0415)
Separated	-0.4256***	-0.4268***	-0.4283***	-0.4393***	-0.4404***	-0.4413***	-0.5626***	-0.5617***	0.5620***
	(0.0437)	(0.0437)	(0.0437)	(0.0361)	(0.0361)	(0.0361)	(0.0664)	(0.0663)	(0.0663)
Male	-0.1075***	-0.1072***	-0.1009***	-0.1083***	-0.1094***	-0.1053***	-0.0987***	-0.1045***	-0.1043***
	(0.0211)	(0.0211)	(0.0212)	(0.0144)	(0.0144)	(0.0145)	(0.0241)	(0.0242)	(0.0241)
East Germany	-0.2967***	-0.3085***	-0.3067***	-0.2872***	-0.2985***	-0.2964***	-0.2043***	-0.2164***	-0.2159***
	(0.0223)	(0.0227)	(0.0227)	(0.0171)	(0.0173)	(0.0173)	(0.0338)	(0.0340)	(0.0340)
Health									
Good	-0.4819***	-0.4793***	-0.4782***	-0.5487***	-0.5453***	-0.5446***	-0.5836***	-0.5798***	-0.5797***
	(0.0311)	(0.0311)	(0.0311)	(0.0165)	(0.0165)	(0.0165)	(0.0254)	(0.0254)	(0.0254)
Satisfactory	-0.9884***	-0.9846***	-0.9824***	-1.0836***	-1.0782***	-1.0770***	-1.1728***	-1.1663***	-1.1659***
	(0.0337)	(0.0337)	(0.0337)	(0.0185)	(0.0185)	(0.0185)	(0.0296)	(0.0297)	(0.0297)
Poor	-1.4500***	-1.4449***	-1.4423***	-1.6349***	-1.6285***	-1.6268***	-1.7460***	-1.7390***	-1.7387***
	(0.0377)	(0.0378)	(0.0378)	(0.0226)	(0.0227)	(0.0227)	(0.0378)	(0.0378)	(0.0378)
Bad	-2.0465***	-2.0404***	-2.0375***	-2.3984***	-2.3917***	-2.3901***	-2.5945***	-2.5892***	-2.5888***
	(0.0527)	(0.0527)	(0.0527)	(0.0414)	(0.0415)	(0.0415)	(0.0846)	(0.0846)	(0.0846)
Non-Working	-0.3289***	-0.3267***	-0.3262***	-0.1563***	-0.1560***	-0.1566***	-0.0137	-0.0097	-0.0090
	(0.0189)	(0.0189)	(0.0189)	(0.0170)	(0.0170)	(0.0170)	(0.0369)	(0.0369)	(0.0370)
Income	0.2703***	0.2665***	0.2662***	0.4165***	0.3946***	0.3828***	0.3152***	0.2991***	0.2967***
	(0.0291)	(0.0292)	(0.0292)	(0.0242)	(0.0245)	(0.0247)	(0.0335)	(0.0339)	(0.0339)
Education (ref.: No Voc. Degree)									
Vocational		0.0595**	0.0492*		0.0331	0.0234		-0.0317	-0.0327
		(0.0259)	(0.0261)		(0.0243)	(0.0244)		(0.0635)	(0.0635)
University		0.1317***	0.0828**		0.1327***	0.0842***		0.0667	0.0524
		(0.0368)	(0.0400)		(0.0272)	(0.0294)		(0.0640)	(0.0657)
Occupational Prestige			0.0015***			0.0012***			0.0003
			(0.0005)			(0.0003)			(0.0004)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	35,902	35,902	35,902	110,139	110,139	110,139	41,921	41,921	41,921

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Clustered standard errors in parentheses.
Data source: Socio-Economic Panel (SOEP), version 34, years 2003 to 2015. Own calculations.

3.4.2 Robustness

In order to look more closely at the relationship between life satisfaction and education, and to investigate the possibility of education having a positional character, I consider other education variables. I used education in years to consider the consumption component of education, and the International Standard Classification of Education (ISCED-97) defined by the OECD (OECD, 1999) for both the consumption component and positionality.

I first ran the ordered probit regression for the whole sample (see Table 3.7 for the results). For education in years, I obtain the same qualitative results as before, i.e. the coefficients of the controls remain significant and show the expected signs. The education (in years) variable is positively and significantly correlated with life satisfaction, even where I control for occupational prestige. The same is true for the ISCED variables. In addition, the coefficients of the dummy variables for having a higher or lower education level affirm the former results, i.e. having a higher level of education increases life satisfaction and vice versa. The mode is having secondary education (and having secondary and vocational education, respectively) for all eight reference groups.[6]

Running the regressions by income groups (Table 3.8) reveals that, when I also control for occupational prestige, education in years is positively correlated with life satisfaction for the low-income group and the middle-income group. As before, the coefficients for the education and occupational prestige variables are not significant for the high-income group.

Using the ISCED variables, only the higher education variable (Level 5, 6) is positively and significantly related to life satisfaction for the low-income group. The coefficient of the secondary education variable (Level 3, 4) is statistically not significant. One possible explanation could be that the proportion of those having secondary education is too large compared to the reference category (Level 1, 2) (see Table 3.4). In this case, having the education level which also forms the mode for this group is not sufficient for positive differentiation. Only higher education, i.e. higher vocational and university education, increases life satisfaction when also controlling for occupational prestige. The same is true for the middle-income group, in which 30% possess a higher education degree

[6] Again, this is also true for the whole sample, i.e. having secondary education (and having secondary and vocational education, respectively) forms the mode for the whole sample. Thus, defining the relative education variables for the whole sample yields the same results.

and 62% a secondary education degree. For this group, therefore, only higher education seems to be a way to positively differentiate themselves from the rest of the group. The coefficients of the education variables and the occupational prestige variable are not significant for the high-income group. Since 61% have obtained higher education in this group, there is no means of differentiating positively from the group on the basis of education. When using the second specification of ISCED variables, in which higher education is defined by Level 6 only, I obtain the same qualitative results.

As before, the results indicate that education has a positional character for the German population and may be consumed for status reasons. The relationship between education and life satisfaction depends on how levels of educational attainment are distributed among the groups.

3.4.3 Discussion

People compare themselves to (relevant) others due to their inner desire to be evaluated positively by those in their surrounding environment and themselves. Where favorable comparisons are made with others or evaluations are positive, a person's self-esteem will be enhanced – or otherwise damaged (Hewitt, 2009). I investigate the role of education in such comparison strategies, examining whether education has a consumption component and a positional character for the German population. Using data from the SOEP, I use satisfaction with life in general as a measure for subjective well-being, which is also associated with the satisfaction of needs (Diener et al., 2009).[7] First, I can identify a positive relationship between education and life satisfaction. This relationship still obtains if I consider other variables through which education might affect life satisfaction, such as income, health, or occupational prestige. Second, the results indicate that education is subject to positional concerns, as has also been discovered by Salinas-Jiménez et al. (2011) and Botha (2014), for instance. To measure the positionality of education, I employ dummy variables indicating a higher or lower education level than the majority of the reference group has attained, and use hypothetical reference groups defined by region of living (East or West Germany) and age groups for comparison of relative education level (see Table 3.3). The findings suggest that having more education than (relevant)

[7] A prominent example of what are known as need and goal satisfaction theories is Maslow's model of hierarchical needs (Diener et al., 2009; see also Maslow, 1970).

Dependent Variable: Satisfaction with Life in General			
Variable	(1)	(2)	(3)
Age	-0.0679***	-0.0682***	-0.0682***
	(0.0044)	(0.0044)	(0.0044)
Age^2	0.0007***	0.0007***	0.0007***
	(0.0000)	(0.0000)	(0.0000)
Children Living in Household	0.1454***	0.1488***	0.1488***
	(0.0113)	(0.0112)	(0.0112)
Marital Status (ref.: Married)			
Single	-0.3016***	-0.2978***	-0.2978***
	(0.0159)	(0.0158)	(0.0158)
Widowed	-0.3178***	-0.3183***	-0.3183***
	(0.0505)	(0.0505)	(0.0505)
Divorced	-0.2100***	-0.2092***	-0.2092***
	(0.0186)	(0.0185)	(0.0185)
Separated	-0.4297***	-0.4279***	-0.4279***
	(0.0269)	(0.0267)	(0.0267)
Male	-0.0942***	-0.0975***	-0.0975***
	(0.0122)	(0.0121)	(0.0121)
East Germany	-0.3619***	-0.3560***	-0.3560***
	(0.0271)	(0.0270)	(0.0270)
Health			
Good	-0.4918***	-0.4929***	-0.4929***
	(0.0128)	(0.0127)	(0.0127)
Satisfactory	-0.9887***	-0.9920***	-0.9920***
	(0.0145)	(0.0144)	(0.0144)
Poor	-1.4963***	-1.4984***	-1.4984***
	(0.0176)	(0.0175)	(0.0175)
Bad	-2.1804***	-2.1825***	-2.1825***
	(0.0306)	(0.0304)	0.0304)
Non-Working	-0.2156***	-0.2157***	-0.2157***
	(0.0123)	(0.0122)	(0.0122)
Income	0.3611***	0.3647***	0.3647***
	(0.0112)	(0.0110)	(0.0110)
Mean of Reference Income	-0.2413**	-0.2263**	-0.2263**
	(0.1064)	(0.1061)	(0.1061)
Education			
Education in Years	0.0152***		
	(0.0027)		
Education (ISCED Classification)†			
Secondary (ISCED Level 3,4)		0.0633**	
		(0.0231)	
Higher (ISCED Level 5,6)		0.1178***	
		(0.0256)	
Positionality of Education (ISCED)			
Higher			0.0545***
			(0.0141)
Lower			-0.0633***
			(0.0231)
Occupational Prestige	0.0010***	0.0012***	0.0012***
	(0.0002)	(0.0002)	(0.0002)
Year Dummies	Yes	Yes	Yes
N	185,530	187,238	187,238

† Reference category: Lower than Secondary (ISCED Level 1,2)
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Clustered standard errors in parentheses.
Data source: Socio-Economic Panel (SOEP), version 34, years 2003 to 2015.
Own calculations.

TABLE 3.7: Results for Whole Sample (Education in Years and ISCED)

Dependent Variable: Satisfaction with Life in General						
Variable	Low-Income Group		Middle-Income Group		High-Income Group	
	(1)	(2)	(1)	(2)	(1)	(2)
Age	-0.0795***	-0.0799***	-0.0774***	-0.0771***	-0.0672***	-0.0679***
	(0.0081)	(0.0080)	(0.0055)	(0.0054)	(0.0099)	(0.0098)
Age^2	0.0009***	0.0009***	0.0008***	0.0008***	0.0007***	0.0007***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Children Living in Household	0.1736***	0.1772***	0.1613***	0.1645***	0.2115***	0.2134***
	(0.0219)	(0.0218)	(0.0144)	(0.0143)	(0.0257)	(0.0255)
Marital Status (ref.: Married)						
Single	-0.2795***	-0.2756***	-0.3419***	-0.3375***	-0.2723***	-0.2784***
	(0.0309)	(0.0306)	(0.0200)	(0.0197)	(0.0322)	(0.0320)
Widowed	-0.1999***	-0.1970***	-0.3654***	-0.3668***	-0.4383***	-0.4403***
	(0.0707)	(0.0706)	(0.0620)	(0.0620)	(0.1206)	(0.1206)
Divorced	-0.2887***	-0.2881***	-0.2208***	-0.2186***	-0.1379***	-0.1373***
	(0.0295)	(0.0294)	(0.0233)	(0.0232)	(0.0417)	(0.0416)
Separated	-0.4349***	-0.4276***	-0.4414***	-0.4403***	-0.5544***	-0.5574***
	(0.0442)	(0.0439)	(0.0363)	(0.0361)	(0.0668)	(0.0665)
Male	-0.0996***	-0.1004***	-0.1031***	-0.1055***	-0.0993***	-0.1030***
	(0.0215)	(0.0213)	(0.0146)	(0.0145)	(0.0244)	(0.0243)
East Germany	-0.3114***	-0.3078***	-0.3008***	-0.2965***	-0.2200***	-0.2132***
	(0.0228)	(0.0229)	(0.0173)	(0.0173)	(0.0342)	(0.0341)
Health						
Good	-0.4740***	-0.4726***	-0.5443***	-0.5447***	-0.5749***	-0.5789***
	(0.0315)	(0.0312)	(0.0167)	(0.0165)	(0.0256)	(0.0254)
Satisfactory	-0.9781***	-0.9789***	-1.0748***	-1.0768***	-1.1588***	-1.1654***
	(0.0342)	(0.0339)	(0.0187)	(0.0186)	(0.0298)	(0.0297)
Poor	-1.4374***	-1.4362***	-1.6257***	-1.6274***	-1.7326***	-1.7356***
	(0.0383)	(0.0380)	(0.0228)	(0.0227)	(0.0380)	(0.0379)
Bad	-2.0348***	-2.0359***	-2.3893***	-2.3907***	-2.5753***	-2.5821***
	(0.0533)	(0.0530)	(0.0418)	(0.0416)	(0.0846)	(0.0845)
Non-Working	-0.3243***	-0.3239***	-0.1591***	-0.1597***	-0.0025	-0.0036
	(0.0191)	(0.0190)	(0.0171)	(0.0170)	(0.0371)	(0.0369)
Income	0.2698***	0.2682***	0.3854***	0.3833***	0.2917***	0.3003***
	(0.0295)	(0.0294)	(0.0249)	(0.0247)	(0.0342)	(0.0339)
Education						
Education in Years	0.0118**		0.0100***		0.0077	
	(0.0053)		(0.0034)		(0.0051)	
Education (ISCED Classification)†						
Secondary (ISCED Level 3,4)		0.0416		0.0161		-0.0139
		(0.0296)		(0.0287)		(0.0855)
Higher (ISCED Level 5,6)		0.0732*		0.0555*		0.0361
		(0.0378)		(0.0316)		(0.0871)
Occupational Prestige	0.0013***	0.0015***	0.0012***	0.0013***	0.0005	0.0006
	(0.0005)	(0.0005)	(0.0003)	(0.0003)	(0.0004)	(0.0003)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	35,276	35,623	108,739	109,769	41,515	41,846

† Reference category: Lower than Secondary (ISCED Level 1,2). * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Clustered standard errors in parentheses. Data source: Socio-Economic Panel (SOEP), version 34, years 2003 to 2015. Own calculations.

TABLE 3.8: Results for Income Groups (Education in Years and ISCED)

others increases life satisfaction and vice versa, so that education comparisons seem to be symmetric. However, since holding a vocational degree is the mode for all reference groups, the results are the same as when considering the whole sample. The definition of reference groups for the relative education variables by age and region, therefore, does not make a difference in this estimation. However, when I follow the approach used by Salinas-Jiménez et al. (2011) and run the regression by income groups to factor in that people compare themselves to others of similar socioeconomic status, it indeed matters how many people in the reference group have a particular level of education.

At first, the findings that education comparisons are symmetric seem to conflict with the concept of self-improvement. Social psychologists argue that people seek positive evaluations, i.e. they engage in downward comparisons for *self-enhancement*. The *self-improvement* approach argues that people make upward comparisons, i.e. they compare themselves to people who perform better. In doing so, they motivate themselves to improve and to adapt to higher standards (Falk and Knell, 2000). The negative relationship between life satisfaction and having less education than the majority is not, at first glance, consistent with this line of reasoning. Instead, one might initially think that less satisfied people are less motivated. However, the increase in demand for higher levels of education in Germany over the last few decades may be a consequence of the motivation for self-improvement. For a long time, vocational education represented a sort of standard education level in Germany. Even though this level of education is still the one most frequently attained, there has been a shift in the demand for education towards the next higher levels of educational attainment at school level and above. Taking a look at the secondary education level, the number of people who have obtained the lowest level of secondary education (*Hauptschule*) has decreased and the number of school leavers with a higher education entrance qualification (*Abitur*) has increased. Similarly, the amount of university graduates has increased and the number of people doing vocational training has decreased (Autorengruppe Bildungsberichterstattung, 2020).

Given this phenomenon, the question arises as to whether the German labor market will have the capacity to absorb the increasing number of higher educated people in traditional graduate occupations. If not, a consequence might be that employers intensify their screening process and recruit employees who

are actually over-educated for a given position, leading to a change in the structure of jobs. Increasing demand for higher education may also involve the risk of devaluation of higher levels of educational attainment, since the chief characteristic of a positional good is that its value depends on how many other people own the good, or, as the introductory quote by Fred Hirsch states: "*If everyone stands on tiptoe, no one sees better*" (Hirsch, 1977, p. 5). In the long run, it might also be possible that education leads to dissatisfaction due to unfulfilled aspirations with regard to income, employment, or professional success.

The results suggest that individuals' desire for positive evaluation and self-esteem affects the demand for education, and that demand for education is not only driven by the positive indirect effects that education entails, such as higher income, better job opportunities, or occupational prestige. The positive relationship between education and subjective well-being which has been found for Germany by authors such as Frey and Stutzer (2000), Dittmann and Goebel (2010) and (partially) Ferrer-i-Carbonell (2005) is somewhat subject to positional concerns. Thus, the results support the findings of Salinas-Jiménez et al. (2011) and Botha (2014) on the positional character of education.

One questions remains unanswered, namely whether the relationship between education and status concerns is desirable for the labor market and the population as a whole. A low appreciation for particular educational paths such as vocational training may keep people from pursuing their own goals and desires relating to education and occupation. For the labor market, an increase in the number of highly educated people might lead to a negative externality being imposed on those holding higher education degrees. Additionally, demand for vocational education could conceivably decrease, eventually leading to a vocational skills shortage. Furthermore, low evaluation of less educated people may affect their self-esteem negatively, even resulting in mental health issues. In several experimental studies, Kuppens et al. (2018) showed that highly educated people hold more negative attitudes toward their less educated counterparts than to their own education group, and evaluate people of lower educational attainment more negatively than they do groups of low socioeconomic status such as the poor or the working class. Their results highlight that people use education levels for comparison strategies and that education plays an important role in gauging someone's social position. Kuppens et al.'s (2018) findings also bring to mind that social status associated with levels of educational attainment

and occupation is conferred by society. Since people care about how they are evaluated by themselves and others, such comparison and gauging strategies have a reinforcing effect on people such that they adjust their behavior and consumption to enhance or maintain their self-esteem and social standing. This raises the question as to whether political efforts should be made to retain or increase the societal appreciation of particular educational paths, so that people do not strive for a certain level of education due to status concerns, but to pursue the education and occupation that fit their interests. This would also reduce the risk that people experience unfavorable evaluation due to their level of education, which may adversely affect their personal well-being.

3.5 Conclusion

The results suggest that education is positively related to life satisfaction above and beyond its effect through other variables such as income, health, or occupational prestige. This consumption component of education seems to be subject to positional concerns. I conclude from my studies that having more education than the majority (of an individual's reference group) increases life satisfaction significantly and vice versa. Additionally, I run regressions by income groups to take into account that individuals compare themselves to people of similar socioeconomic status but have different levels of education. For the low-income group, which is the group with the largest proportion of people without a vocational degree, both vocational and university education are positively correlated with life satisfaction. However, using an education variable whose definition results in a lower proportion of those having no vocational degree, only university education remains positively related to life satisfaction. This can also be observed for the middle-income group. The group of those persons with a vocational degree is the largest, and the proportion of those without a degree is comparatively low. Within this income group, only a university degree appears to function as a means of setting oneself apart from the crowd. I find that, for the high-income group, education does not contribute to life satisfaction. Since a university degree is the most represented level of educational attainment in this group, it no longer serves as a way of dissociating someone from the rest of the group.

It remains an open issue whether the positionality of education is socially desirable, since it might have consequences for the labor market and individual well-being. In the long-term, policy implications should be considered which motivate people to seek a level of educational attainment appropriate to their educational and occupational interests – by means, for example, of strategies equalizing societal appreciation for all education levels and occupations.

Chapter 4

The Effects of Status Concerns on Labor Markets

Alessa K. Durst and Christian Siemering

Previous versions of this paper are available online as conference papers co-authored by Alessa K. Schottke and Christian Siemering. One has the title "The Effects of Status Concerns on Labor Markets for Different Types of Workers" (presented at the 2018 Annual Conference of the German Economic Association [Verein für Socialpolitik]: Digital Economy – Session: Labor and Unemployment II, ZBW – Leibniz Information Centre for Economics). The other is entitled "Status Concerns and the Schooling Decision" (presented at the 2016 Annual Conference of the German Economic Association [Verein für Socialpolitik]: Demographic Change – Session: Labor Economics: Theory, ZBW – Leibniz Information Centre for Economics).

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2019 SSES Annual Congress, Swiss Society of Economics and Statistics, Geneva, Switzerland
Workshop on Labour Economics, IAAEU, Trier, Germany
2018 Annual Conference, Verein für Socialpolitik (German Economic Association), Freiburg, Germany
2017 SSES Annual Congress, Swiss Society of Economics and Statistics, Lausanne, Switzerland
Workshop on Labour Economics, IAAEU, Trier, Germany (Poster Session)

2016 Finanzwissenschaftlicher Workshop, Leibniz University Hannover, Hannover, Germany
Annual Conference, Verein für Socialpolitik (German Economic Association), Augsburg, Germany

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2018 SSES Annual Congress, Swiss Society of Economics and Statistics, St. Gallen, Switzerland (Poster Session)
EARIE Annual Conference, European Association for Research in Industrial Economics, Athens, Greece

4.1 Introduction

Over recent decades, the average length of schooling in years has increased all over the world. In accordance with the International Standard Classification of Education (ISCED 2011), Barro and Lee (2013) discovered that, in advanced countries, the increase in the average number of years of schooling is accounted for by higher secondary and tertiary completion and enrollment rates. Furthermore, data published by the Organisation for Economic Co-operation and Development (OECD) showed that the share of 25- to 34-year-olds who have attained a tertiary degree, increased from 26% in 2000 to 43% in 2016 (OECD, 2017).

The increase in educational attainment raises the question as to why people strive for (higher) educational qualifications. On the one hand, people have a need for economic security. Since education is usually associated with higher earnings and better job opportunities, a high educational qualification is a helpful (and perhaps also necessary) component in fulfilling this need. Education, therefore, can be considered an investment: people consider the marginal costs and benefits of education and acquire education as long as the difference between marginal costs and benefits is positive (e.g. Becker, 1964; Schultz, 1961; Mincer, 1974). An educational qualification can also be regarded as a signal

of ability (Spence, 1973; Arrow, 1973; Stiglitz, 1975). For employers who cannot observe the applicant's marginal productivity, the educational qualification functions as an information source in the hiring process.

On the other hand, Schultz (1963) mentioned the consumption component of education by which he means the returns which consist of satisfaction. Education may also be associated with social status (Collins, 1979; Checchi, 2006). Actually, people have a desire for positive self-evaluation, for self-esteem and esteem from others. The motivation for self-esteem is one of the general assumptions of the social identity approach, which mainly goes back to Tajfel and Turner (1979). Social identity theory focuses on category-based identities, i.e. people assign themselves and others to social categories or groups based on particular characteristics. By comparing their own group with other groups using favorable dimensions of comparison, they derive a positive image of the self. Studies addressing the idea of social identity theory provide evidence that people prefer to be identified with high status groups to achieve high personal prestige (e.g. Ellemers et al., 1988; Roccas, 2003).

The dimensions of comparisons can be manifold. People may identify with groups based on nationality, sex, race (Stryker and Burke, 2000), wealth, occupational status, or educational achievement (Shayo, 2009), for instance. Wealth, in particular, has been considered in the economics literature as a way to gain social status. Veblen (1899) argues that possession of property is the basis of esteem. To demonstrate their wealth or power, people demand luxury goods and thereby attain social status, also known in the literature as *conspicuous consumption* (e.g. Ireland, 1994; Corneo and Jeanne, 1997; Leibenstein, 1950). In addition, belonging to particular occupational groups has been considered as providing social status (e.g. Veblen, 1899; Hirsch, 1977). The two occupational characteristics which determine the status of someone's work are average education and average income, since education is usually the "entrance ticket" for specific occupational positions and income is usually derived from one's job (Reiss, 1961; Duncan, 1961). However, the level of education itself can also form the basis for a person's social identity. The findings presented by van Noord et al. (2019) indicate that subjective social status is higher for higher educated individuals. Furthermore, Stubager (2009) argued that, when comparing groups by their level of education, the high education group can be regarded

as the high status group. He discovered that people identify with their education groups, and that the level of identification is higher for the high education group, which corresponds with the assumptions of social identity theory. The assumption that higher education goes along with high status also concurs with Piketty's definition of social status. He noted that people care about being viewed as intelligent and defines social status as the public beliefs concerning one's 'smartness' (Piketty, 1998, p. 115). An academic qualification may then be considered as an objectification of cultural competence which differentiates its holders from autodidacts and provides the holder with material and symbolic benefits, depending on its scarcity (Bourdieu 1985, 1986, 2000).

As well as economic reasons, the findings on social status and social identity may be an explanation for the increase in demand for higher education. Academic and vocational tracks, in particular, seem to be associated with different levels of social esteem. Menon (2010), for example, referred to the ancient Greek civilization as holding theoretical knowledge in higher social esteem than the knowledge of practical skills. She remarked that, in Cyprus, vocational education is still generally chosen by students of lower ability and unfavorable social background. A report based on data from a survey on German school leavers with a higher education entrance qualification, carried out by the German Centre for Higher Education Research and Science Studies (DZHW), discovered that young people care about social esteem associated with their educational path. Persons who left upper secondary school in 2010 with a higher education entrance qualification were asked to evaluate benefits associated with vocational training[1] and degree studies six months after graduating from upper secondary school. Social esteem expected from studies was stated to be higher than social esteem expected from vocational training (42% vs. 4%) (Lörz et al., 2012; for more details see Figure A.1 in Appendix A.1).

A status-driven increase in the demand for higher educational qualifications may have implications for the labor market. Therefore, the purpose of this paper is to consider concerns for social status as a factor influencing the educational decision, and to examine its consequences for the labor market. In our model we incorporate the findings on social status and social identity into

[1]The German vocational education system, which is also known as the dual system, combines theory offered by a vocational school and on-the-job training in the workplace. Within all industries in Germany, training, testing, and certification are standardized so that all apprentices receive the same quality of training.

people's educational decision-making and aim to explore the effects of status concerns on the labor markets for two types of workers. We assume that workers differ in their ability level. Those workers choosing the academic path obtain the wage for academics and incur an education cost which decreases with their ability. Additionally, the academic path is associated with non-monetary utility derived from social status. Social status decreases with the number of workers choosing the academic path. In this assumption, we are adopting the concept of the positional good, which postulates that the value of goods, services, and work positions depends on how many other people own them (Hirsch, 1977; Frank, 1985a, 1985b). There are also empirical findings indicating that education has the character of a positional good (Salinas-Jiménez et al., 2011; Botha, 2014; Durst, 2021). Choosing the non-academic path is associated with the wage for non-academics only. Labor supply for (non-)academics is given by the share of workers choosing the (non-)academic path. Labor demand is the profit-maximizing production plan of a representative firm. We show that, when the wage variable is kept constant, the individual labor supply decision leads to an inefficient labor market allocation. Due to the fact that social status decreases with the number of academics, a lower number of individuals allocated to the labor market for academics would be a Pareto improvement compared to the laissez-faire allocation. Moreover, we investigate a more general framework where wages and the product market's output adjust so that the labor markets clear and the firm maximizes its profits. Comparative statics exercises are conducted with respect to changes in status concerns, which are captured by changes in an intensity parameter. Around equilibrium, it can be shown that an increase in the importance of social status decreases both the wage for academics and the number of non-academics, and increases both the wage for non-academics and the number of academics. Furthermore, for low levels of status concerns, production increases with status concerns. This is the case as long as the wage for academics exceeds that for non-academics. If the reverse is true, i.e. the wage for non-academics exceeds that for academics, then production decreases with status concerns.

Our results indicate that there is a unique level of status concerns that maximizes the product market's output. At this level, the equilibrium wages for academic and non-academic workers are equal. Whether status concerns decrease or increase the product market's output depends on whether this level

is exceeded or not.

The rest of this paper is organized as follows: Section 4.2 presents the model. Section 4.3 presents the equilibrium analysis. We discuss our results in Section 4.4. Section 4.5 concludes.

4.2 Model Setup

We consider an economy populated by many workers with mass normalized to one. Workers differ in their ability a which is distributed according to the cumulative distribution function $F(a)$, $F'(a) = f(a) > 0$. Each worker chooses between two educational paths: the academic and the non-academic path. Let H_S (L_S) be the total number of workers that join the (non-)academic labor market, i.e. the labor supply on the respective market. Let w_h (w_l) denote the wage for (non-)academics, $w_h, w_l > 0$. Then workers derive the consumption utility $u(w)$, $w \in (w_h, w_l)$, where $u'(w) > 0$. Choosing academic education is associated with an education cost $C(a)$, $C'(a) < 0$. Thus, academic education is assumed to be acquired more easily by workers with higher ability. Additionally, workers choosing the academic education obtain the extra utility $\sigma S(H_S)$, which is interpreted as utility from social status. If the workers value education, the academic group characterized by higher levels of education is associated with higher social status than the non-academic group characterized by a comparatively lower level of education. We assume that status gains decrease with the number of academic workers, i.e. $S'(H_S) < 0$. Our assumption follows the concept of the positional good, which claims that satisfaction from consumption is influenced by the extent of consumption by others (Hirsch, 1977; Frank, 1985a, 1985b). Extensive use by others reduces the perceived value of the consumer. The intensity parameter $\sigma \geq 0$ is used to measure the importance of social status. Total utility from choosing non-academic education, therefore, is $u(w_l)$, whereas the total utility from choosing academic education is given by

$$u(w_h) - C(a) + \sigma S(H_S). \tag{4.1}$$

There is a representative firm that hires academic and non-academic workers. This firm's objective is to maximize its profit. The firm produces X units of a single good by using the following Cobb-Douglas production function (with

constant returns to scale):

$$X = H^{\alpha} L^{1-\alpha}, \quad \alpha \in (0,1)\,, \tag{4.2}$$

where H (L) is the number of (non-)academic workers employed. We assume that the firm is a price taker on the product market and let the single good's price be exogenously given by p. The factor-demand functions for academic and non-academic workers, H_D and L_D, represent the profit-maximizing production plan.

4.3 Equilibrium Analysis

4.3.1 Labor Supply

First, we investigate the labor supply decision and its efficiency. For this purpose we let the wages w_h, w_l be given exogenously. A plausible labor supply is a Nash equilibrium in which each worker plays a best response to the decisions of all other workers. That is, each worker with ability a maximizes his or her utility by choosing either academic or non-academic education while taking the choices of all other agents as given. Suppose there exists a threshold ability $\tilde{a}(w_h, w_l, \sigma)$ such that each worker with ability $a \geq \tilde{a}$ becomes an academic. Labor supply is then given by $H_S = 1 - F(\tilde{a})$ and $L_S = F(\tilde{a})$. Note that a single worker is atomistic and has to take $\tilde{a}$ as given. Hence, the worker's payoff is maximized by choosing the academic path if and only if

$$u(w_h) - C(a) + \sigma S(1 - F(\tilde{a})) \geq u(w_l). \tag{4.3}$$

The worker is indifferent between both educational paths if he or she has ability $\tilde{a}$. In this case (4.3) holds with equality and we have

$$\begin{aligned} & u(w_h) - C(\tilde{a}) + \sigma S(1 - F(\tilde{a})) = u(w_l), \\ \Leftrightarrow \quad & \tilde{a} = C^{-1}(u(w_h) - u(w_l) + \sigma S(1 - F(\tilde{a}))). \end{aligned} \tag{4.4}$$

Note that $\tilde{a}$ is only implicitly defined by (4.4). In what follows, the analysis is restricted to cases in which $\tilde{a}(w_h, w_l, \sigma)$ is unique. We show the following proposition:

Proposition 1. *Each threshold ability* $\tilde{a}(w_h, w_l, \sigma)$ *that solves (4.4) has the following characteristics:*

$$\frac{\partial \tilde{a}}{\partial w_h} < 0, \quad \frac{\partial \tilde{a}}{\partial w_l} > 0, \quad \frac{\partial \tilde{a}}{\partial \sigma} < 0.$$

A sufficient condition for $\tilde{a}(w_h, w_l, \sigma)$ *to be unique is* $\sigma f(a) S'(1-F(a))/C'(a) < 1$ *for each* a.
For the proof: see Appendix A.2.

We now turn to the efficiency analysis of labor supply.

Suppose workers with ability a choose the academic path if and only if $a \geq b$. Then the total utility of all workers is given by

$$\begin{aligned} U =& \int_{-\infty}^{b} u(w_l)\mathrm{d}a + \int_{b}^{\infty} [u(w_h) - C(a) + \sigma S(1 - F(b))] f(a)\mathrm{d}a \\ =& u(w_l)F(b) + [1 - F(b)][u(w_h) + \sigma S(1 - F(b))] - \int_{b}^{\infty} C(a) f(a)\mathrm{d}a. \end{aligned}$$

Differentiation with respect to b leads to:

$$\frac{\mathrm{d}U}{\mathrm{d}b} = [u(w_l) - u(w_h) - \sigma S(1-F(b)) - \sigma[1-F(b)]S'(1-F(b)) + C(b)]f(b). \quad (4.5)$$

Denote as b^* the threshold ability that maximizes U. Then b^* must solve the first order condition

$$\frac{\mathrm{d}U}{\mathrm{d}b}|_{b=b^*} = 0,$$

which is equivalent to

$$u(w_h) + \sigma S(1 - F(b^*)) - C(b^*) = -\sigma[1 - F(b^*)]S'(1 - F(b^*)) + u(w_l) \quad (4.6)$$

by (4.5) and $f(b) > 0$. The optimal threshold rule equates the marginal benefit associated with a slightly higher labor supply for academics (left-hand side of (4.6)) with the marginal cost (right-hand side of (4.6)). The marginal benefit is given by the utility obtained by the last worker who switches from the non-academic to the academic path. The marginal cost is given by the utility from the non-academic wage that the switching worker forgoes plus the total utility loss suffered by all academic workers from the decreasing social status associated with an increasing labor supply for academics. By comparison of

(4.6) with (4.4) it follows that $\tilde{a} \leq b^*$, with equality only if $\sigma = 0$. Accordingly, we can state the following proposition:

Proposition 2. *Suppose that $\sigma > 0$, i.e. workers are concerned about social status. Then the labor supply decision does not maximize the workers' total utility.*

The reason is that a single worker who decides to become an academic does not consider the negative externality his or her decision imposes on all other workers who also choose the academic path, namely, the status decrease associated with a higher number of academics, which reduces the exclusiveness of that group.

4.3.2 Labor Demand

The labor demand for academics and non-academics is determined by the profit-maximizing firm. Profit maximization requires that each output is produced with factors of production that minimize the costs. Taking the wages as given, the firm faces the following cost-minimization problem:

$$\min_{L,H} \; w_l L + w_h H \quad \text{s.t.} \quad X = H^{\alpha} L^{1-\alpha}. \tag{4.7}$$

By using the method of Lagrange multipliers, it can be shown that the solution to problem (4.7) is given by the following labor demand functions for academics, H_D, and non-academics, L_D:

$$H_D = \left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} X, \tag{4.8}$$

$$L_D = \left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} X. \tag{4.9}$$

It follows that the firm's cost function is given by

$$w_l L_D + w_h H_D = \left[w_l \left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} + w_h \left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha}\right] X. \tag{4.10}$$

Recall that the price on the product is given by p. Therefore, a profit-maximizing firm produces the quantity X such that

$$p = w_l \left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} + w_h \left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha}, \tag{4.11}$$

i.e. the price equals the marginal cost.

4.3.3 Equilibrium on Interdependent Labor Markets

We now turn to the equilibrium analysis. An equilibrium in our model is a tuple $(w_h, w_l, X, \tilde{a}) = (w_h^*, w_l^*, X^*, \tilde{a}^*)$ if and only if it solves

$$1 - F(\tilde{a}) - \left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} X = 0, \tag{4.12}$$

$$F(\tilde{a}) - \left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} X = 0, \tag{4.13}$$

$$p - w_l \left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} - w_h \left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} = 0, \tag{4.14}$$

$$u(w_h) - u(w_l) - C(\tilde{a}) + \sigma S(1 - F(\tilde{a})) = 0. \tag{4.15}$$

Accordingly, in an equilibrium the labor markets for academics and for non-academics clear, this being ensured by (4.12) and (4.13). The firm produces the profit-maximizing quantity (4.14) and each worker chooses the educational path that maximizes his or her individual utility (4.15).

Note that our equilibrium values depend on the exogenously given parameter σ measuring status concerns. Next, we conduct a comparative statics analysis and assess how our equilibrium values are affected by changes in status concerns.

The Jacobian determinant $|\mathbf{A}|$ of (4.12) – (4.15) w.r.t. $(w_h, w_l, X, \tilde{a})$ is given by[2]

$$\begin{aligned} |\mathbf{A}| = {} & [C'(\tilde{a}) + \sigma S'(1 - F(\tilde{a}))f(\tilde{a})] \left[\frac{1}{w_h}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-3\alpha} + \frac{1}{w_l}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{2-3\alpha}\right] \\ & - f(\tilde{a})u'(w_l)\left[\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{2-2\alpha} + \left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-2\alpha}\right] \\ & - f(\tilde{a})u'(w_h)\left[\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-2\alpha} + \left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-2\alpha}\right]. \end{aligned} \tag{4.16}$$

[2]For the calculation of the Jacobian determinant, see Appendix A.3.

Note that $C'(\tilde{a}) < 0$, $S'(1 - F(\tilde{a})) < 0$, and $f(\tilde{a}) > 0$ imply that $|\mathbf{A}|$ is strictly negative so that Cramer's rule can be applied.

Using Cramer's rule[3], the equilibrium wages react to changes in status concerns as follows:

$$\frac{\mathrm{d}w_h^*}{\mathrm{d}\sigma} = \frac{S(1 - F(\tilde{a}))f(\tilde{a}) \left[\left[\frac{\alpha}{1-\alpha} \frac{w_l}{w_h} \right]^{1-2\alpha} + \left[\frac{\alpha}{1-\alpha} \frac{w_l}{w_h} \right]^{-2\alpha} \right]}{|\mathbf{A}|}, \tag{4.17}$$

$$\frac{\mathrm{d}w_l^*}{\mathrm{d}\sigma} = \frac{-S(1 - F(\tilde{a}))f(\tilde{a}) \left[\left[\frac{\alpha}{1-\alpha} \frac{w_l}{w_h} \right]^{2-2\alpha} + \left[\frac{\alpha}{1-\alpha} \frac{w_l}{w_h} \right]^{1-2\alpha} \right]}{|\mathbf{A}|}. \tag{4.18}$$

Recall that $S(1 - F(\tilde{a})) > 0$ and $f(\tilde{a}) > 0$. Thus, the numerator is positive in (4.17) and negative in (4.18). The Jacobian determinant $|\mathbf{A}|$, as defined in expression (4.16), is negative, so that the wage for academics decreases with status concerns and the wage for non-academics increases around equilibrium.

The effect of status concerns on the number of (non-)academics is given by

$$\frac{\mathrm{d}\tilde{a}^*}{\mathrm{d}\sigma} = \frac{S(1 - F(\tilde{a}))X \left[\frac{1}{w_l} \left[\frac{\alpha}{1-\alpha} \frac{w_l}{w_h} \right]^{2-3\alpha} + \frac{1}{w_h} \left[\frac{\alpha}{1-\alpha} \frac{w_l}{w_h} \right]^{1-3\alpha} \right]}{|\mathbf{A}|}. \tag{4.19}$$

The numerator becomes positive and, with $|\mathbf{A}| < 0$, $\tilde{a}$ decreases in σ. Recall that $\tilde{a}$ is the threshold ability such that each worker with an ability level $a \geq \tilde{a}$ chooses the academic path. Then labor supply for academics is given by the number of workers choosing the academic path, $H_S = 1 - F(\tilde{a})$, and labor supply for non-academics is given by $L_S = F(\tilde{a})$. Thus, an increase in status concerns increases the number of academics around equilibrium, while the number of non-academics decreases with status concerns.

Next, we are interested in the effect of status concerns on the product market's output. Applying Cramer's rule yields

[3] For calculations of $\frac{\mathrm{d}w_h^*}{\mathrm{d}\sigma}$, $\frac{\mathrm{d}w_l^*}{\mathrm{d}\sigma}$, $\frac{\mathrm{d}\tilde{a}^*}{\mathrm{d}\sigma}$ and $\frac{\mathrm{d}X^*}{\mathrm{d}\sigma}$ see Appendix A.3.

$$\frac{\mathrm{d}X^*}{\mathrm{d}\sigma} = \frac{S(1-F(\tilde{a}))f(\tilde{a})X\left[\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-2\alpha}\left[\frac{1}{w_h}-\frac{1}{w_l}\right]\right]}{|\mathbf{A}|}. \tag{4.20}$$

The direction of (4.20) is directly related to the wage differential $w_h - w_l$. Note that (4.15) implies that the wage differential is positive for values of σ close to zero. For low levels of status concerns, (4.20) states that the product market's output increases with status concerns. This is the case as long as the wage for academics exceeds the wage for non-academics, i.e. $w_h - w_l > 0$. If the wage differential becomes negative, output decreases with status concerns. Furthermore, (4.20) indicates that there is a unique level of status concerns that maximizes the product market's output, i.e. $\frac{\mathrm{d}X^*}{\mathrm{d}\sigma} = 0$. At this level the equilibrium wages for academic and non-academic workers are equal.

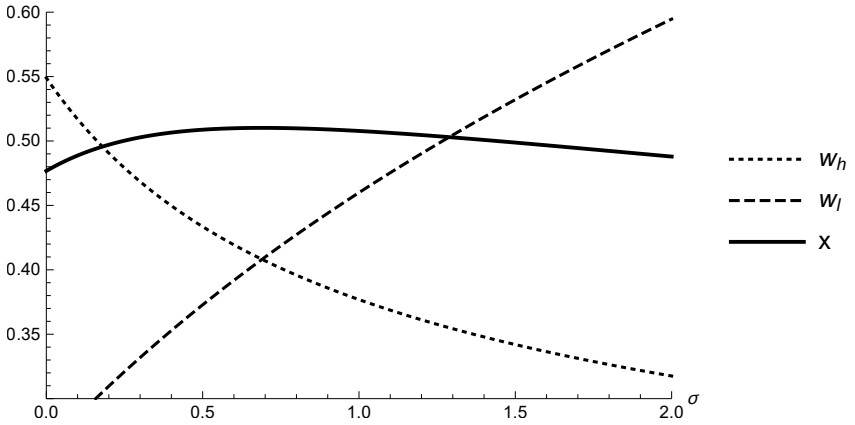
Summarizing the analysis given above, we have the following proposition:

Proposition 3. *The equilibrium values* $(w_h^*, w_l^*, X^*, \tilde{a}^*)$ *have the following characteristics:*

$$\frac{\mathrm{d}w_h^*}{\mathrm{d}\sigma} < 0, \quad \frac{\mathrm{d}w_l^*}{\mathrm{d}\sigma} > 0, \quad \frac{\mathrm{d}\tilde{a}^*}{\mathrm{d}\sigma} < 0, \quad \frac{\mathrm{d}X^*}{\mathrm{d}\sigma} \lesseqgtr 0 \quad \textit{if} \quad \sigma \gtreqless \tilde{\sigma},$$

where $\tilde{\sigma}$ *is such that* $w_h^*(\tilde{\sigma}) = w_l^*(\tilde{\sigma})$.

Figure 4.1 illustrates a numerical example. As Proposition 3 predicts, the wage for academics decreases and that for non-academics increases if we increase the intensity of social status associated with academic education. The production level increases, reaches its maximum value if both wages are equalized, and decreases afterwards. In Appendix A.1, Figure A.2, we also provide a numerical example that uses a production function that displays constant elasticity of substitution (CES) with different values for the elasticity of substitution between academic and non-academic labor. Our computations suggest that the results of Proposition 3 are robust to changes in the elasticity of substitution.



The figure shows equilibrium labor market outcomes for different values of the status concerns intensity parameter σ. Ability is distributed according to the normal distribution with mean 0.5 and standard deviation 0.1. The other parameter values and functions are given by $\alpha = 0.6$, $p = 0.8$, $C(a) = (1-a)^2$, $u(w) = \sqrt{w}$, $S(H_S) = \sigma(1 - H_S)$.

FIGURE 4.1: Effect of Status Concerns on Wages and Production (Numerical Example with Cobb-Douglas Production Function)

4.4 Interpretation and Discussion of Results

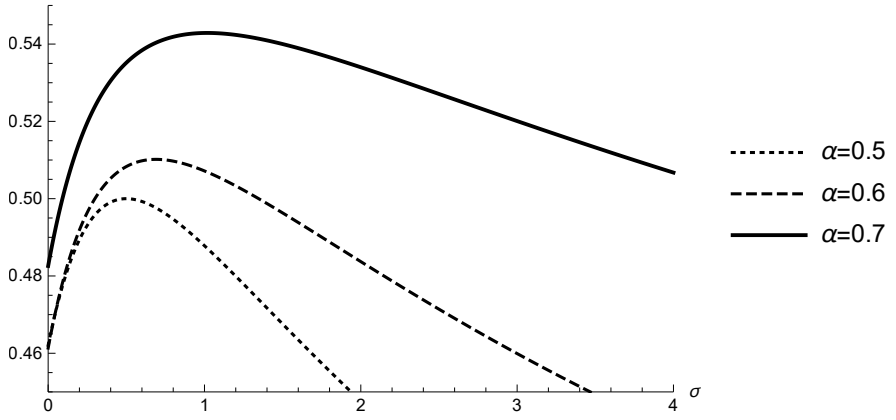
Our analysis shows that the number of academics increases if social status becomes more important. At the same time, the market-clearing wage for academics decreases. The reason for this is that the marginal product of academic labor is lower when more academics are employed. There is a substitution between the indirect consumption utility associated with the wage and utility from social status. Academics may be willing to "pay" for high social status in terms of reduced wages (Weiss and Fershtman, 1998), allowing the firm to set lower wages for academics.[4] By contrast, the number of non-academic workers decreases with status concerns, while the non-academic wage increases.[5]

An interesting finding is that the product market's output may increase or decrease with status concerns. As long as the wage for academics exceeds that for non-academics, output increases with status concerns. If status becomes

[4]That people may forgo economic benefits to gain social status has also been stated by Heffetz and Frank (2011), for instance.

[5]An interesting aspect regarding this change in the wage structure might be the consideration of wage negotiations, since having a higher number of academic workers reduces their bargaining power.

more and more important, the wage differential diminishes. When the wage differential is negative, i.e. the wage for non-academics exceeds that for academics, the output decreases with status concerns. Accordingly, there exists a unique level of status concerns, where the wages are equal and the product market's output is maximized. At this level, the extra utility from social status equals the education cost paid by the marginal worker who is indifferent between the academic and the non-academic path.



The figure shows the equilibrium product market output for three different levels of the outcome elasticity of academic labor. Ability is distributed according to the normal distribution with mean 0.5 and standard deviation 0.1. The other parameter values and functions are given by $p = 0.5$, $C(a) = (1-a)^2$, $u(w) = \sqrt{w}$, $S(H_S) = \sigma(1 - H_S)$.

FIGURE 4.2: Effect of Status Concerns and Outcome Elasticity of Academic Labor on Production

The results indicate that people are induced to demand higher education if they care about their social standing in society and if social status is associated with a higher level of education. However, the change in the product market's output reflects the necessity that both types of workers are represented in the labor market in a particular composition. With regard to this outcome, it has to be taken into account that the optimal composition of workers depends on the level of economic development of a country.[6] The composition of differently skilled workers necessarily varies with technological change. In particular, the rapid progress in computer technology shows that the skills needed to meet new challenges and to remain competitive in the global economy have changed over

[6]Clearly, output elasticities and optimal factor composition also vary across industries.

time. In our model, such changes are represented by different levels of α – the output elasticity of academic workers. As Figure 4.2 shows, the level of status concerns that maximizes output increases with α.

Economic structural change might be a valid argument for the necessity of more highly educated workers. However, if more people hold the same degree this could conceivably weaken the perceived quality of the attained level of education. Our efficiency analysis shows that the labor supply decision does not maximize the workers' total utility if workers are concerned about their social status. This is based on the fact that a single worker who decides to become an academic does not consider the negative externality his or her decision imposes on all other workers who also choose the academic path. These results are consistent with concern about a possible devaluation of higher education degrees if there is an excessive demand for higher education, and are thus, also consistent with the characteristics of a positional good. The value of a positional good depends on the number of other people consuming the good and declines in the extensiveness of its use by others (Hirsch, 1977; Frank, 1985a, 1985b), or, as Hirsch pointedly states it: "*If everyone stands on tiptoe, no one sees better*" (Hirsch, 1977, p. 5). This is also true of what Hirsch calls positional jobs, which he considers to be the most important positional sector due to its influence on individuals' demand for education. A hierarchical relationship exists between many jobs, and jobs at the upper end of the hierarchy are often associated with higher education degrees. Where there is an increasing number of people holding the required educational qualification for these jobs, this not only gives employers scope for intensifying the screening process – if the occupational structure of the labor market fails to handle the growing number of highly educated workers, they cannot be absorbed into traditional graduate occupations and employers have the possibility of recruiting applicants with a level of education that is not necessarily required for the job. This phenomenon – referred to as over-education – and its consequences for the wage structure for graduates have received considerable attention in the literature (e.g. Dolton and Silles, 2008).

Another consequence of an increase in the number of highly educated people might be differences in the valuation accorded to the same level of education. On the one hand, the screening process for employment could be carried out on the basis of grades, i.e. employers prefer those applicants, who graduated

with distinction. On the other hand, the same education degree might be associated with higher quality if it is awarded by a higher education institution considered as an elite university. In consequence, the value of degrees from such establishments increases (see e.g. Hirsch, 1977), and the institutions themselves may become even more selective in offering a place to applicants.

In our model, we do not consider these possible consequences and assume that all workers who choose the academic path enter the labor market for academics. This assumption might be debatable, because some students do not in fact finish their studies. However, the number of people holding a high educational qualification has been continuously increasing in many countries, so that a growing number of graduates have been entering the labor market over time. Furthermore, we assume that workers make their educational decision by maximizing their utility and that the crucial factor in this decision is an ability threshold. Indeed, such "thresholds" do exist for people who would like to go to university. First, people usually need a higher education entrance qualification to enroll at university. Second, access to university education is often limited by further restrictions such as a university's capacity limit. This is at odds with our assumption that the educational decision depends on the utility-maximizing behavior only, and on the ability threshold not being fixed. However, the positive trend in the number of beginning students suggests that many people seem to fulfill the requirements. One explanation might be that nowadays a higher education entrance qualification can be achieved by second-chance education as well. At this point it should be mentioned that even the decision as to which type of secondary school graduation to aim for could conceivably be influenced by status concerns. Children may choose to aim for a higher education entrance qualification if the level of education is, even at secondary school level, associated with social status.

Status-driven demand for higher education may have drastic consequences for labor supply when considering the two educational paths of vocational and academic education, particularly in the vocational sector, and it might be necessary to intervene politically.[7] If an increasing demand for higher education is strongly influenced by status concerns, the most obvious policy would be

[7] Government measures such as taxes and redistribution as a solution to negative externalities induced by status-seeking behavior have been discussed by authors such as Ireland (1994, 2001) and Frank (2008).

to equalize the social esteem for academic and vocational education – for example, by having schools promote both educational paths equally. Moreover, schools could act as an information source for parents to ensure that parents rate both educational paths equally and encourage their children to choose the education corresponding with their abilities and interests. As long as university education is seen as the "better" educational path with a view to moving up the social ladder or to achieving high status jobs, parents are more likely to encourage their children to aim at a university degree. Therefore, involving parents in the alignment process is necessary since parents have a strong impact on children's educational decision-making. Additionally, it is important that teachers who play an important role in promoting equal valuation for vocational and university education in schools actually gauge both paths as being equal. However, a study conducted by the National Foundation of Educational Research in England and Wales (NFER) reveals that many teachers accord a higher valuation to university education if students possess the necessary requirements for university entry (e.g. McCrone, 2014). Another policy might be to raise the cost of education, since educational costs associated with attending university may be over-compensated for by social status. However, such an intervention undermines the aim of social justice, because members of families with a disadvantaged socioeconomic background would be restricted in their scope for attending university. Increasing the cost of education would contradict those policies intended to reduce the impact of one's family background on educational achievement in order to ensure equality of opportunity.

Our results suggest that the increasing demand for high educational qualifications due to status concerns increases the labor supply for highly qualified workers, and that pay for academic and non-academic workers should at least converge, given that remuneration for academics is higher than that for non-academics. However, even though we can observe an increase in the supply of highly educated workers in many (especially advanced) countries or in particular sectors, the pay gap between higher and less educated workers has remained or even widened. An explanation might be that relative demand for higher educated workers has risen in these countries or sectors. We regard the consideration of status concerns and its effects on wages as an interesting point for future empirical research.

4.5 Conclusion

This paper presents a labor market model in which individuals enjoy extra utility from social status if they pursue a comparatively high educational path. We further assume that status decreases with the number of academics which represents a desire of exclusiveness or distinction from others. We find that social status associated with higher education induces more workers to follow the higher educational path, which leads to lower wages for academic workers and higher wages for non-academic workers. Moreover, the labor supply decision is not efficient if status concerns play a role. The reason is that each individual who chooses the academic path imposes a negative externality on all other academic workers. An important finding is that there is an optimal level of status concerns that maximizes the product market's output. This outcome suggests a number of policy recommendations. One example is that vocational education should be promoted more strongly if the status associated with academic education exceeds a critical threshold.

Our paper provides a good starting point for discussion and further research into the effects that status concerns have on labor markets. There is definitely a need for future research to test our findings empirically. It is likely that one of the most challenging tasks will be to generate data leading to appropriate measures for status concerns.

Chapter 5

Summary and Concluding Remarks

This thesis aims to shed light on the relationship between status concerns and educational attainment. It consists of three papers which are intended to be stand-alone papers. Each paper constitutes a chapter in this thesis.

Chapter 2 provides an overview of the concepts of self and identity and how these are related to status concerns. It also investigates the relationship between status concerns and educational attainment by reference to social mobility, the concept of positional goods, occupational prestige, and signaling. The literature, supported by empirical findings from quantitative and experimental analyses, suggests that social status is indeed attributed to individuals who hold a high educational qualification. Therefore, the demand for higher education (or for a level of educational attainment which is higher than the standard level of education of a society) would seem to be motivated by individuals' desire for esteem for themselves and from others – in addition to economically driven reasons such as better job opportunities or higher earnings. The article contributes to the economics literature in two ways. First, it outlines the concepts of self and identity based on psychological and sociological literature. Second, it provides an interdisciplinary way of framing the link between education and social status through consideration of those concepts which recur in the literature related to the role of social status in the process of educational attainment: social mobility, positional goods, occupational prestige, and signaling. Based on the analyzed literature, the article offers ideas and suggestions for future socioeconomic research on educational attainment that seeks to explore in depth the transdisciplinary perspectives on social identity and status concerns.

Chapter 3 empirically investigates the possibility that education has the

characteristics of a positional good, and is a valuable addition to the empirical literature (e.g. Salinas-Jiménez et al., 2011; Botha, 2014) by providing findings for Germany. In addition to the variables measuring education used by Salinas-Jiménez et al. (2011) and Botha (2014), the study considers a variable which divides individuals into those having vocational education and those with university education (or none of these). The use of different variables measuring the level of education also ensures that the outcomes do not depend on the choice of variable. A further novel contribution is the inclusion of a variable measuring whether education comparisons are asymmetric or symmetric. The results suggest that education comparisons for Germany are symmetric. This means that having a higher level of education than the majority of (relevant) others significantly increases life satisfaction, while individuals having less education are less satisfied. The dependent variable is satisfaction with life in general, as a measure of subjective well-being. Several determinants which have been found to be correlated with life satisfaction are considered in the analysis. The focus lies on the question of whether there is, in Germany, a relationship between education and life satisfaction above and beyond the effect education might have through other variables such as income, health, or occupational prestige. Additionally, the study investigates the possibility that the consumption of education is subject to positional concerns. Using representative data for the German population, the findings suggest that there is indeed a positive relationship between education and life satisfaction even when controlling for absolute and relative income, health, joblessness, and occupational prestige, which are known to correlate with life satisfaction – partly through education – as well. Furthermore, the relationship between education and life satisfaction depends on the distribution of levels of educational attainment within German society and particular groups. Thus, the results indicate that education has a consumption component and a positional character among the German population.

Chapter 4 incorporates the findings on social identity and social status into an individual's decision regarding education, and theoretically explores the effects of status concerns on the labor market. Higher education is associated with social status, which decreases with the number of individuals who also acquire higher education. Thus, higher education has the characteristics of a positional good. The results suggest that the desire for social status which is

associated with higher education induces more workers to acquire such an education. This leads to lower wages for highly educated workers and higher wages for less educated workers. Since each worker who decides to acquire higher education imposes a negative externality on all other workers who pursue the higher educational path, the labor supply decision is not efficient. There exists an optimal level of status concern which maximizes the product market's output.

Even though this thesis does not primarily aim at establishing policy implications, the three articles contain some thoughts and discussions on how status-driven demand for higher education could be considered by policymakers. An important point that can be taken from all three articles is that different educational paths may differ in their societal appreciation. This differing appreciation may result in stronger demand for educational levels which are regarded as conferring high social status on the holder. In particular, institutions – such as politics, the media, and schools – that have a large impact on individuals and society may emphasize equal appreciation. With a view to appropriate political recommendations, there may be potential in empirically examining how large the impact of different institutions such as the media and schools is, and whether equal treatment encourages individuals to choose an educational path according to their interests and not (or less so) for status reasons. Furthermore, status associated with higher education may vary across different countries (e.g. van Noord et al., 2019). For this reason, another promising line of investigation may be to empirically examine the relationship between educational attainment and social status for countries which differ in culture or economic power, for instance, and to compare the countries with respect to the importance of status concerns in the process of educational attainment. For countries with an education system which can be divided into mainly vocational and chiefly academic education, such as Germany, it might also be interesting to investigate empirically whether individuals are affected by status concerns in their educational decision due to differing appreciation of the vocational and academic tracks, and what the consequences are for both the economy and the individual.

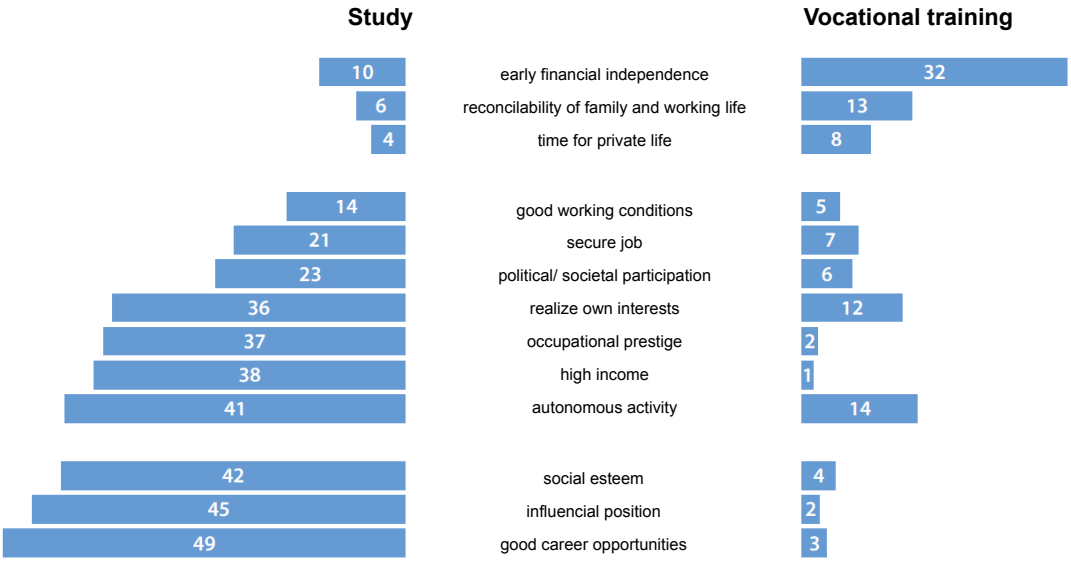
Since the differing degrees of esteem associated with particular levels of education and educational paths may lead to adverse consequences and inefficiencies at both an individual and societal level, greater consideration needs to be given to the relationship between individuals' desire for self-esteem and esteem

from others, and their demand for education. This thesis delivers empirical and theoretical evidence for the importance of status concerns in the educational attainment process, and encourages future research to focus on providing more detailed policy advice on the best approach to status-driven educational attainment and its consequences.

Appendix A

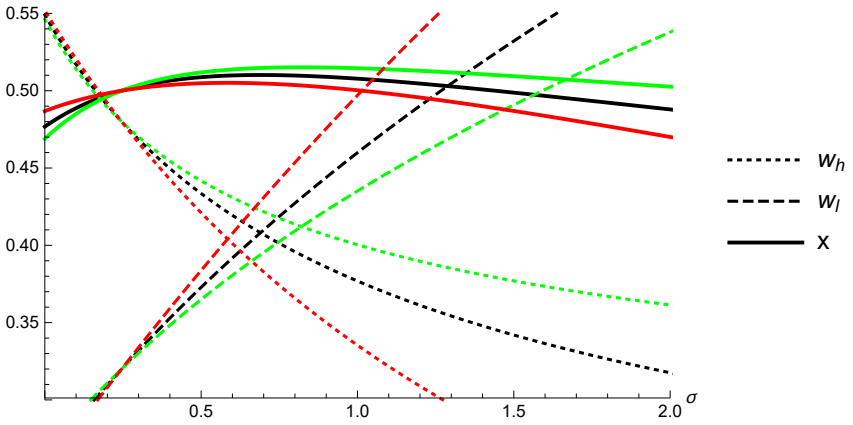
Appendix to Chapter 4

A.1 Figures



Benefits associated with vocational training and degree studies by German school leavers with a *higher education entrance qualification (Abitur)*, six months after graduating from upper secondary school (*Gymnasium*) in 2010. The shown benefits are rated 5 on a scale of 1 *not at all* to 5 *greatly*.

FIGURE A.1: Benefits Associated with Vocational Training and Degree Studies. Source: Based on Lörz et al. (2012).



The figure shows equilibrium labor market outcomes for different values of the status concerns intensity parameter σ by using a CES production function for three different levels of elasticity of substitution: 1 (displayed in black), 1.5 (displayed in green) and 0.5 (displayed in red). Ability is distributed according to the normal distribution with mean 0.5 and standard deviation 0.1. The other parameter values and functions are given by $\alpha = 0.6,\ p = 0.8,\ C(a) = (1-a)^2,\ u(w) = \sqrt{w},\ S(H_S) = \sigma(1 - H_S)$.

FIGURE A.2: Effect of Status Concerns on Wages and Production (Numerical Example with CES Production Function)

A.2 Proofs

Proof of Proposition 1

We first prove that $\tilde{a}$ is a function depending on w_h, w_l, σ. Define $g(\tilde{a}, w_h, w_l, \sigma) = u(w_h) - u(w_l) - C(\tilde{a}) + \sigma S(1 - F(\tilde{a}))$ and let $(\tilde{a}^0, w_h^0, w_l^0, \sigma^0)$ be a solution to $g(\tilde{a}, w_h, w_l, \sigma) = 0$. Differentiation with respect to $\tilde{a}$ leads to $\frac{\partial g}{\partial \tilde{a}} = -C'(\tilde{a}) - \sigma S'(1 - F(\tilde{a}))f(\tilde{a})$. Recall that $C'(\cdot) < 0$, $\sigma \geq 0$, and $S'(\cdot) < 0$, which implies that $\frac{\partial g}{\partial \tilde{a}}$ is strictly positive. In particular, this is also true at $(\tilde{a}^0, w_h^0, w_l^0, \sigma^0)$. Then, according to the implicit function theorem, $g(\tilde{a}, w_h, w_l, \sigma) = 0$ defines $\tilde{a}$ as a function of w_h, w_l, σ in some neighborhood of $(\tilde{a}^0, w_h^0, w_l^0, \sigma^0)$. Furthermore, the derivatives with respect to w_h, w_l and σ are given by

$$\left(\frac{\partial \tilde{a}}{\partial w_h}, \frac{\partial \tilde{a}}{\partial w_l}, \frac{\partial \tilde{a}}{\partial \sigma}\right) = -\frac{1}{\frac{\partial g}{\partial \tilde{a}}} \left(u'(w_h), -u'(w_l), S(1 - F(\tilde{a}))\right).$$

By $u'(w) > 0, \frac{\partial g}{\partial \tilde{a}} > 0$, we have $\frac{\partial \tilde{a}}{\partial w_h} < 0, \frac{\partial \tilde{a}}{\partial w_l} > 0, \frac{\partial \tilde{a}}{\partial \sigma} < 0$.

It remains to be shown that $\tilde{a}$ is unique if $\sigma f(a)S'(1-F(a))/C'(a) < 1$ for each a. For given w_h, w_l, σ,

$$\tilde{a} = C^{-1}(u(w_h) - u(w_l) + \sigma S(1-F(a))) \tag{A.1}$$

describes a mapping $\tilde{a} : \mathbb{R} \to \mathbb{R}$. By using $d(a_0, a_1) = |a_0 - a_1|$ for any $a_0, a_1 \in \mathbb{R}$ as a metric, $(\mathbb{R}, d)$ is a metric space. Then $\tilde{a} : \mathbb{R} \to \mathbb{R}$ is a contraction mapping on $\mathbb{R}$ if there exists $q \in [0, 1)$ such that, for all $a_0, a_1 \in \mathbb{R}$:

$$\begin{aligned} d(\tilde{a}(a_0), \tilde{a}(a_1)) &\leq q d(a_0, a_1) \\ \frac{|\tilde{a}(a_0) - \tilde{a}(a_1)|}{|a_0 - a_1|} &\leq q. \end{aligned} \tag{A.2}$$

To fulfil this condition, it is sufficient that

$$\left|\frac{d\tilde{a}}{da}\right| < 1 \quad \Leftrightarrow \quad \left|-\sigma f(a)\frac{S'(1-F(a))}{C'(a)}\right| < 1.$$

Notice that $\frac{d\tilde{a}}{da} < 0$ by $S' < 0, C' < 0$. Accordingly, $\tilde{a}$ is a contraction mapping if

$$\sigma f(a)\frac{S'(1-F(a))}{C'(a)} < 1. \tag{A.3}$$

If (A.3) holds, (A.1) has a unique fixed point according to the contraction mapping theorem. □

A.3 Calculations

Calculation of the Jacobian determinant

The Jacobian matrix of (4.12)–(4.15) w.r.t. $(w_h, w_l, X, \tilde{a})$ is given by

$$\mathbf{A} = \begin{pmatrix} \frac{1-\alpha}{w_h}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} X & -\frac{1-\alpha}{w_l}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} X & -\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} & -f(\tilde{a}) \\ -\frac{\alpha}{w_h}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} X & \frac{\alpha}{w_l}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} X & -\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} & f(\tilde{a}) \\ -\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} & -\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} & 0 & 0 \\ u'(w_h) & -u'(w_l) & 0 & -C'(\tilde{a}) - \sigma S'(1-F(\tilde{a}))f(\tilde{a}) \end{pmatrix}.$$

From $\mathbf{A}$ we obtain the Jacobian determinant given by

$$
\begin{aligned}
|\mathbf{A}| = [C'(\tilde{a}) + \sigma S'(1-F(\tilde{a}))f(\tilde{a})] \left[\frac{1}{w_h}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-3\alpha} + \frac{1}{w_l}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{2-3\alpha}\right] \\
- f(\tilde{a})u'(w_l)\left[\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{2-2\alpha} + \left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-2\alpha}\right] \\
- f(\tilde{a})u'(w_h)\left[\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-2\alpha} + \left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-2\alpha}\right].
\end{aligned} \tag{A.4}
$$

Comparative statics analysis

Implicit differentiation of (4.12)–(4.15) w.r.t. σ yields:

$$
\begin{aligned}
\frac{1-\alpha}{w_h}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} X\frac{\mathrm{d}w_h}{\mathrm{d}\sigma} - \frac{1-\alpha}{w_l}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} X\frac{\mathrm{d}w_l}{\mathrm{d}\sigma} - \left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha}\frac{\mathrm{d}X}{\mathrm{d}\sigma} - f(\tilde{a})\frac{\mathrm{d}\tilde{a}}{\mathrm{d}\sigma} &= 0 \\
-\frac{\alpha}{w_h}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} X\frac{\mathrm{d}w_h}{\mathrm{d}\sigma} + \frac{\alpha}{w_l}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} X\frac{\mathrm{d}w_l}{\mathrm{d}\sigma} - \left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha}\frac{\mathrm{d}X}{\mathrm{d}\sigma} + f(\tilde{a})\frac{\mathrm{d}\tilde{a}}{\mathrm{d}\sigma} &= 0 \\
-\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha}\frac{\mathrm{d}w_h}{\mathrm{d}\sigma} - \left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha}\frac{\mathrm{d}w_l}{\mathrm{d}\sigma} &= 0 \\
u'(w_h)\frac{\mathrm{d}w_h}{\mathrm{d}\sigma} - u'(w_l)\frac{\mathrm{d}w_l}{\mathrm{d}\sigma} + [-C'(\tilde{a}) - \sigma S'(1-F(\tilde{a}))f(\tilde{a})]\frac{\mathrm{d}\tilde{a}}{\mathrm{d}\sigma} &= -S(1-F(\tilde{a}))
\end{aligned}
$$

Applying Cramer's rule, the effect of status concerns on the wage for academics is

$$
\frac{\mathrm{d}w_h^*}{\mathrm{d}\sigma} = \frac{|\mathbf{A}_{w_h}|}{|\mathbf{A}|},
$$

where $|\mathbf{A}|$ is given by (A.4) and

$$
|\mathbf{A}_{w_h}| = \begin{vmatrix}
0 & -\frac{1-\alpha}{w_l}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} X & -\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} & -f(\tilde{a}) \\
0 & \frac{\alpha}{w_l}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} X & -\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} & f(\tilde{a}) \\
0 & -\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} & 0 & 0 \\
-S(1-F(\tilde{a})) & -u'(w_l) & 0 & -C'(\tilde{a}) - \sigma S'(1-F(\tilde{a}))f(\tilde{a})
\end{vmatrix}.
$$

Thus, we get

$$
\frac{\mathrm{d}w_h^*}{\mathrm{d}\sigma} = \frac{S(1-F(\tilde{a}))f(\tilde{a})\left[\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-2\alpha} + \left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-2\alpha}\right]}{|\mathbf{A}|}.
$$

Applying Cramer's rule, the effect of status concerns on the wage for non-academics is

$$\frac{\mathrm{d}w_l^*}{\mathrm{d}\sigma} = \frac{|\mathbf{A}_{w_l}|}{|\mathbf{A}|},$$

where $|\mathbf{A}|$ is given by (A.4) and

$$|\mathbf{A}_{w_l}| = \begin{vmatrix} \frac{1-\alpha}{w_h}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} X & 0 & -\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} & -f(\tilde{a}) \\ -\frac{\alpha}{w_h}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} X & 0 & -\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} & f(\tilde{a}) \\ -\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} & 0 & 0 & 0 \\ u'(w_h) & -S(1-F(\tilde{a})) & 0 & -C'(\tilde{a}) - \sigma S'(1-F(\tilde{a}))f(\tilde{a}) \end{vmatrix}.$$

Thus, we get

$$\frac{\mathrm{d}w_l^*}{\mathrm{d}\sigma} = \frac{-S(1-F(\tilde{a}))f(\tilde{a})\left[\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{2-2\alpha} + \left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-2\alpha}\right]}{|\mathbf{A}|}.$$

Applying Cramer's rule, the effect of status concerns on the product market's output is

$$\frac{\mathrm{d}X^*}{\mathrm{d}\sigma} = \frac{|\mathbf{A}_X|}{|\mathbf{A}|},$$

where $|\mathbf{A}|$ is given by (A.4) and

$$|\mathbf{A}_X| = \begin{vmatrix} \frac{1-\alpha}{w_h}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} X & -\frac{1-\alpha}{w_l}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} X & 0 & -f(\tilde{a}) \\ -\frac{\alpha}{w_h}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} X & \frac{\alpha}{w_l}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} X & 0 & f(\tilde{a}) \\ -\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} & -\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} & 0 & 0 \\ u'(w_h) & -u'(w_l) & -S(1-F(\tilde{a})) & -C'(\tilde{a}) - \sigma S'(1-F(\tilde{a}))f(\tilde{a}) \end{vmatrix}.$$

Thus, we get

$$\frac{\mathrm{d}X^*}{\mathrm{d}\sigma} = \frac{S(1-F(\tilde{a}))f(\tilde{a})X\left[\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-2\alpha}\left[\frac{1}{w_h} - \frac{1}{w_l}\right]\right]}{|\mathbf{A}|}.$$

Applying Cramer's rule, the effect of status concerns on $\tilde{a}^*$ is

$$\frac{\mathrm{d}\tilde{a}^*}{\mathrm{d}\sigma} = \frac{|\mathbf{A}_{\tilde{a}}|}{|\mathbf{A}|},$$

where $|\mathbf{A}|$ is given by (A.4) and

$$|\mathbf{A}_{\tilde{a}}| = \begin{vmatrix} \frac{1-\alpha}{w_h}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} X & -\frac{1-\alpha}{w_l}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} X & -\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} & 0 \\ -\frac{\alpha}{w_h}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} X & \frac{\alpha}{w_l}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} X & -\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} & 0 \\ -\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-\alpha} & -\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{-\alpha} & 0 & 0 \\ u'(w_h) & -u'(w_l) & 0 & -S(1-F(\tilde{a})) \end{vmatrix}.$$

Thus, we get

$$\frac{\mathrm{d}\tilde{a}^*}{\mathrm{d}\sigma} = \frac{S(1-F(\tilde{a}))X\left[\frac{1}{w_l}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{2-3\alpha} + \frac{1}{w_h}\left[\frac{\alpha}{1-\alpha}\frac{w_l}{w_h}\right]^{1-3\alpha}\right]}{|\mathbf{A}|}.$$

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