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Exploited workers or proud innovators?

Explaining social identities in the platform economy

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Abstract

Based on recognizing the need to better understand work-related identities in the platform economy this research will analyse the following question: *To what extent and why are platform workers identifying with each other?* Therefore, based on a multidimensional conceptualisation of identity a theoretical framework will be developed, which explains identification both with workers from the same platform and with workers from platforms operating in different fields. In order to test this framework quantitative survey data has been collected – complemented by semi-structured interviews – which have been analysed in a series of multiple regression analyses.
It reveals that identification with other workers is still a relevant phenomenon in the platform economy, which can be mainly explained by social interactions among workers. But also, two on the first glance conflicting narratives, one based on class thinking and one based on a positive opinion on the platform economy are influencing identification in a complex but interesting coexistence. Finally, it will be shown how this complex form of identification might conflict with the narratives of political initiatives, which are trying to represent the interests of platform workers.

Table of Contents

Introduction

The decision to analyse social identities of the so-called platform workers within this study is based on a critique on the current state of discourse about the platform economy. In short, it can be said that however there is a growing interest in the situation of the platform workers only a few studies dealt the with question of how the platform workers are actually perceiving their situation.

In recent years the Marxist research community started to pay more attention on developments within the platform economy (Fuchs & Sandoval, 2014), which is oftentimes defined as a „two-sided markets“ (Hagiu & Wright, 2015). In this new form of economy two groups of workers and costumers are exchanging services against an oftentimes financial reward coordinated by algorithms of an internet platform. Within the platform economy, scholars are recognizing a reconfiguration of class struggles, which have been seen as an outdated concept in the modern fragmented society (Johnston, 2015; Pahl, 1993). Huws (2014) labelled the workers of the platform economy as a new “*cybertariat*”. But also, practitioners, such as the chairman of the German labour union association DGB Reiner Hoffman criticised working conditions in the platform economy, concluding that the platform workers start to form a new form of “digital proletariat” (dpa, 2018).

This discourse oftentimes refers to three processes within the platform economy. The platform economy is often considered to have the potential to further transform the economy from the model of the fully employed *standard worker* to the often discussed *non-standard worker* (Drahokoupil & Jepsen, 2017). For a lot of observes this goes hand in hand with a ***casualization*** (Codagnone, Abadie, & Biagi, 2016) of the platform workers, as they tend to be employed as freelancers, which includes for example a weaker access to welfare state services. Lehdonvirta (2016) has further shown that work in the platform economy has some features, that go beyond already known attributes of *“non-standard work*”. He invented in term ***delocalisation*** in order to describe the process in which workers are not necessarily physically linked to their employers and their co-workers. This can lead to an economy of isolated workers, which perform their work without any social interactions with other workers. Furthermore, work is often broken down into such specific tasks in the platform economy (Schmidt, 2016), such as taking pictures of a certain product at the supermarket via appJobber, that a connection to the aim of the task is often impossible. Therefore, platform work is often discussed as **alienated labour** (Godsiff, 2017).

These three processes, namely *casualization*, *delocalisation* and *alienation* are mainly described via external observation that do not examine on the question whether the workers agree with them (Fuchs & Sandoval, 2014; Godsiff, 2017; Huws, 2009). Although in recent years a growing number of literature emerged on the workers motifs to participate in the platform economy (Berg, 2015), on new forms of self-organisation (Salehi et al., 2015) and demands on traditional institutions such as labour unions (Al-Ani & Stumpp, 2015), many questions about platform workers remain unanswered. This is also recognized by Huws (2014), who admitted that it is still unknown in how far platform workers actually share a class awareness with other workers. This question is closely related to the concept of social or more precise work-related identities, which will be the focus of this study. As many sub-forms work-related identities exist (Bothma, Lloyd, & Khapova, 2015) it will be focused on identification with other platform workers. This can be formulated into the research question for this study:

To what extent and why are platform workers identifying with each other?

Societal relevance

Studying identification among workers in general has a practical relevance, because the question how to organise platform workers is intensively discussed among practitioners as well as scientist (Al-Ani & Stumpp, 2015). Thereby, the literature on social movement clearly names the existence of a common identity as a main factor making people getting engaged for their interests. For example, Klandermans (2002) demonstrated that *identification* in addition to *rational choice calculations* and *frustration* is one of the three factors, which mainly predict collective action. This was also recognized in the societal discourse, where discussions take place of how to strengthen the social identity of platform workers (Graham & Wood, 2016). Empirical insides would help to find out more about the contributing factors and obstacles of a common identity.

But not everybody agrees that work-related identities in the platform economy are based on a class-based interest in better working conditions. Following the delocalisation argument (Lehdonvirta, 2016) it can even be assumed that platform workers are so detached from each other that they do not identify with each other. Consequently, finding out in how far identification can be observed at all is also a necessary and relevant task for this research project.

But even if identification takes place, there is also a strongly positively framed narrative about the platform economy. Especially, in the United States the platform economy is often times regarded as a "disruptive innovation", which is a term for describing developing business or technologies which fundamentally transform a certain industry (Markides, 2006). This is often framed as a positive development and often connected to success stories of entrepreneurs, such as Uber founder Travis Kalanick (Kenney & Zysman, 2016). Although this discourse mostly focuses on the advantages for the consumers and the economy in general (Geradin, 2015), recent research on workers attitudes revealed that also some platform workers identify with the innovative potential of the platforms. Malin and Chandler (2017) showed that Uber and Lyft drivers are identifying with their platforms as they regard them to be superior service providers compared to the traditional taxi companies. Barbrook (2007) showed how forms of "non-standard forms of work" are positively framed by workers as a progress compared to outdated forms of work of the industrial economic phase. Tapscott (1996) showed how digital work might even be a way to overcome alienated labour, which has developed in the industrial phase.

To find out whether the social identity of the platform workers is rather based on the pessimistic *"exploited worker narrative"* or on the optimistic *"disruptive industry narrative"* will be seen as the main research puzzle of this study.

Scientific relevance

However, there is large agreement on the importance of analysing work related-identities and as shown above a discourse about social identity in the platform economy already exists, identification processes in the platform economy are empirically almost completely understudied. A notable exception is the study *"Flexibility in the gig economy: managing time on three online piecework platforms."* by Lehdonvirta (2016). He analyses organisational identities within microtask-platforms and comes to the conclusion that because of the delocalisation processes, an identification with the platform oftentimes does not take place. However, platform workers are gathering together in new online fora and discuss work-related issues. Qualitative interviews with those platform workers revealed that this can actually strengthen a common identity (Lehdonvirta, 2016). Lehdonvirta (2016) even uses the term "class identity" to describe that those workers were discussing working conditions in those online fora. Although, this paper provides a first empirical analysis of identification processes in the platform economy, many open questions remain, which form the research gap for this study.

Firstly, Lehdonvirta (2016) treats social identity as a one-dimensional phenomenon. Since H. Tajfel (1974) has most famously introduced the concept of social identity, many social-psychology researcher pointed to the importance of taking multiple dimensions of social identity into account (Ashmore, Deaux, & McLaughlin-Volpe, 2004; Cameron, 2004; Ellemers, Kortekaas, & Ouwerkerk, 1999; Leach et al., 2008). The recognition of the multidimensionality of social identity has not been done yet in the context of the platform economy and will be the theoretical perspective of this study. Secondly, Lehdonvirta does not explicitly specify with whom platform workers are identifying. Especially, the "exploited worker narrative", which often goes as shown often hand in hand with a class-bases thinking, requires specifying who is part of a possible class, which has not been done yet. Thereby, Lehdonvirta failed to take into account that the existing literature of social identity has already discussed different layers of social identity. Gaertner, Dovidio, Anastasio, Bachman, and Rust (1993) have invented the common in-group model in order to analyse under which conditions a member of a certain group does not only identify with this group but also with a broader superordinate group. Based on those theoretical foundations it will be systematically analysed whether platform workers do not only identify with workers from his own platform but also with workers from other platforms.

Thirdly, Lehdonvirta 's analysis is exclusively based on qualitative data. Consequently, there is not a single study about social identity in the platform economy which is based on quantitative data, which would be required in order to generalise Lehdonvirta`s findings. This lack of quantitative empirical data has influenced the decision for a quantitative research design.

Further procedure and sub questions

Within the next section the theoretical framework of this study will be discussed. Thereby, the multi-dimensional conceptualisation of social identity, which will be used in this project, will be introduced. In a next step a theoretical model will be developed, which explains social identity in the platform economy via a range of hypotheses. This part will be again divided into a part, which explains identification with workers from the same platform and workers from different platforms. This implies two sub-questions:

1.) To what extend and why are platform workers identifying with workers from the same platform?
2.) To what extend and why are platform workers identifying with workers from the other platforms?

In order to answer these two sub questions, mainly quantitative but also qualitative data will be collected, which will be described in more detail in the data collection section. Within the analysis section different statistical analyses with a focus on multiple regression analysis will be conducted in order to test the hypotheses. The results, which will answer the research question, will be summarized in the conclusion before giving suggestions for further research.

Theory

The goal of the theory section is to develop a theoretical framework, which explains social identity in the platform economy. This will be done in three steps. Firstly, it will be discussed with whom platform workers are supposed to identify. Secondly, it needs to be clarified how identification will be conceptualised. Thirdly, a framework will be developed in order to find factors, which might explain social identity in the platform economy.

Three layers of identification within the platform economy

As described in the last paragraph, this study focuses on identification of platform workers with other platform workers. As defining who is part of the ingroup and who is part of the outgroup is fundamentally important for understanding identification (Turner, 1975), it needs to be further specified, which subgroups of platform workers may exist. Within this study it will be differentiated between three groups of platform workers (Figure 1).

Firstly, there is the possibility of workers identifying with other workers of the same platform (e.g. all foodora workers).

Secondly, one can observe that in some branches platform workers seem to get connected within the same field. A good example are platform workers within the food delivery branch in Germany. In Cologne the initiative “Liefern am Limit (“deliver on the edge”) and in Berlin “DeliverUnion” has been founded in order to represent especially the interest of Deliveroo and foodora riders. These two companies are discussed as prominent examples of the platform economy (Kramer, 2018). This indicates that platform workers tend to organize in the field of their work if they want to get engaged for their own interests.

Thirdly, as already shown in the introduction, there is currently a discourse about an even broader group, the group of all platform workers in general. At the moment, at least in Germany no specific form of self-organisation of all platform workers can be observed. However, labour unions, such as the IG metal are trying to address all

platform workers for example through the initiative “Fair Crowd Work” (Kramer, 2017). Therefore, it will be analysed in how far workers identify with another across different fields.

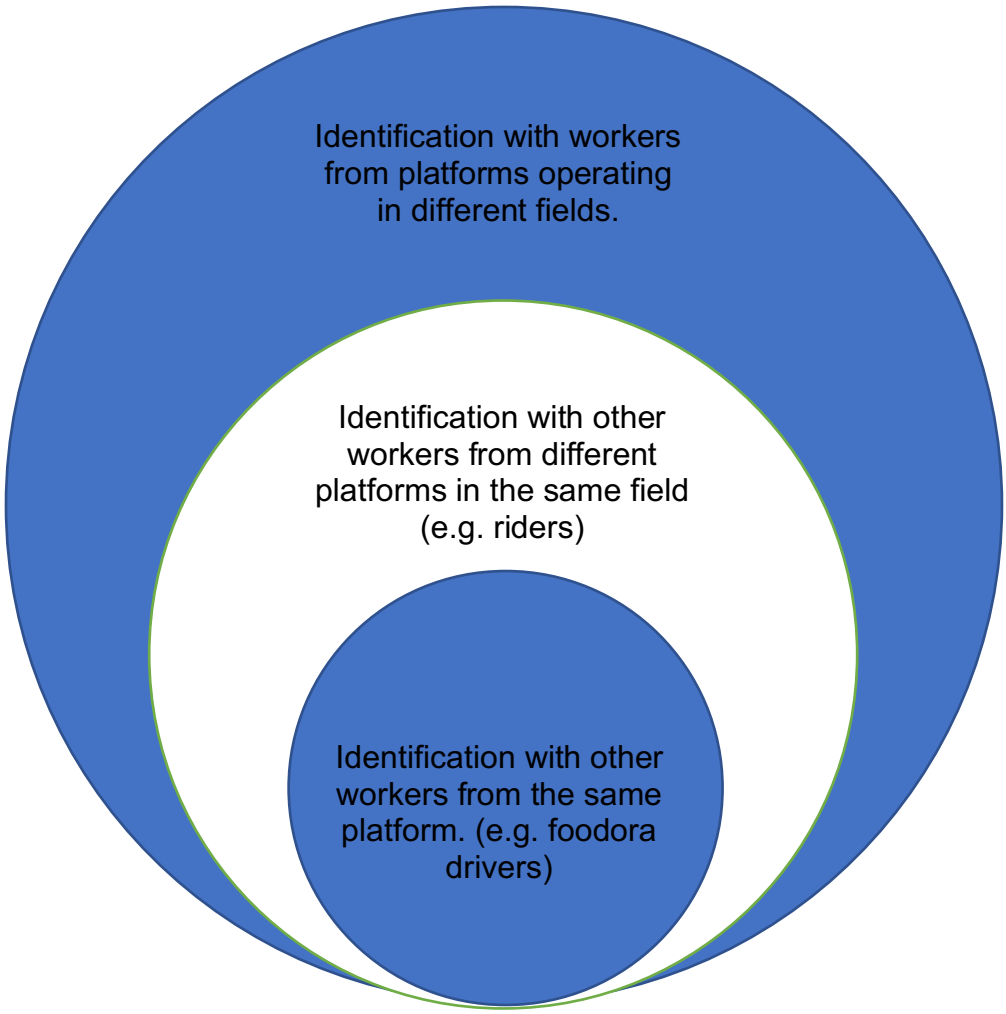

Figure 1: assumed layers of identification within the platform economy

Towards a multi-dimensional conceptualisation of identity

The process of identifying with other platform workers refers to the concept of social identity. The study of social identity within groups is most famously associated with Henri Tajfel. He defines social identity as *“that part of an individual self-concept, which derives from his knowledge of a membership in a social group (or groups) together with the value and emotional significance attached to the group”* (Henri Tajfel, 1978). Based on this definition Tajfel and Turner (1979) identified three processes, which are necessarily connected to the development of a social identity.

Firstly, there is the process of *social categorization* in which an individual creates categories to group other individuals. This is based on limited cognitive capabilities to

order the reality, which requires a reduction of its complexity by applying stereotypical thinking.

Secondly, in the process of *social identification* the group membership starts to affect the behaviour of a person as he starts to imitate the behaviour of what he thinks an average group member would do. In order to adopt the membership, he attaches emotional significance to be a part of the group.

Thirdly, the process of *social comparison* means that the individual starts to compare the qualities of the in-group to the qualities of the out-group. Thereby the individual tries to evaluate the groups in such a way that it strengthens its personal self-esteem. If this is not possible the individual tries to pursue certain strategies to improve his self-image. Strategies can be leaving the group, changing the measure of comparison or getting engaged in changing the social realities of the in-group out-group differences.

These three processes are also known as the cognitive (social categorization), affective (social identification) and evaluative (social comparison) dimension of social identity (Klandermans, 2002). Those dimensions reflect the opinion that it is important to not only conceptualise social identity on one dimension but to recognize that it has different facets. The recognition of the multi-dimensionality of social identity can be seen as one core assumption of the theoretical framework of this study. Since the contributions of Tajfel many researchers have proposed a different conceptualisation of social identity (Ashmore et al., 2004; Cameron, 2004; Ellemers et al., 1999; Jackson, 2002; Leach et al., 2008; Luhtanen & Crocker, 1992; Sellers, Smith, Shelton, Rowley, & Chavous, 1998)

5 dimensions by Leach et al. (2008)

In this study the Leach et al. (2008) conceptualisation of social identity will be applied. Its five dimensions will be discussed in this section. Thereby, it will be shown how Leach et al. (2008) conceptualisation differs from other concepts of social identity. Further advantages and limitations of the concept will be discussed, which will result in an extension of Leach's model for the sake of this research.

Individual Self-Stereotyping

Self-Stereotyping means the degree in how far a person perceives himself as similar to the prototypical member of the group (Leach et al., 2008). It highly overlaps with Tajfel's and Turner's (1979) concept of self-categorisation of which one facet is whether the individual perceives himself as a part of the group or not. However, individual self-stereotyping goes one step further as it asks for perceived similarities with the typical group member. This is based on the assumption that the identification

process goes hand in hand with a *depersonalisation* processes (Leach et al., 2008). Thereby, an individualistic self-description is constantly replaced by a self-description, which is based on characteristics associated with the typical group member.

Perceiving similarity towards the prototypical group member is not a new argument in the work of Leach et al. (2008). Within Ellemers et al. (1999) and Jackson (2002) social identity concept it was part of the self-categorisation dimension. Cameron (2004) used it within its "in-group ties" dimension, which also includes solidarity among group members.

In-Group homogeneity

In group-homogeneity describes the extent to which an individual perceives the other group members to be similar. Using this concept as a dimension of social identity is rather uncommon and was a contribution by Leach et al. (2008). It refers to the idea that within the process of identification a difference between the in- and out-group, including group boundaries between both groups is constructed. This increases the distinctiveness of the own group in relation to other groups. (Pickett & Brewer, 2001; Trepte, 2006).

Satisfaction

Satisfaction describes the positive feelings of being a member of a certain group. This dimension can be understood through H. Tajfel (1974) assumption that social identity aims at improving the individual self-esteem of a person. Therefore, a group membership must be associated with a positive feeling concerning this group membership. This again is closely linked to the process of social comparison between the in-group and comparable out-groups, which has been described by Henri Tajfel and Turner (1979). However, social comparison is often associated with an evaluation of the social status of a group, Leach et al. (2008) have conceptualised satisfaction in such a way, that the focus is on a general positive feeling, such as pride. That they detach satisfaction from the positive evaluation of the groups social status demonstrates Leach et al. (2008) attempt to formulate their dimensions as general as possible.

Satisfaction is a common used facet, which was part of the group self-esteem dimension of Ellemers et al. (1999), evaluation facet of Jackson (2002) and the in-group effect of Cameron (2004).

Solidarity

In addition to the cognitive acknowledgement of group membership, solidarity means that group members perceive a psychological bond with other group members (Lewin

48). Tajfel describes this as ties within the group, which can be perceived as an important characteristic of social identities H. Tajfel (1974).

It can be seen as a widely accepted dimension of social identity: Ellemers et al. (1999) included a commitment dimension in their concept of social identity, whereas Jackson (2002) discussed solidarity within his affective tie dimension and Cameron (2004) used the category in-group ties.

Centrality

Centrality describes the importance of a certain social identity in relation to other social identities of a person. It refers to a questions raised by H. Tajfel (1974), which was: With which group are individuals identifying? Usually individuals are on the one hand members of a variety of different groups and on the other hand mental capabilities of strongly identifying with many groups are limited. Although Tajfel consequently notices that centrality (he called it salience) is another important characteristic of social identity, many conceptualisations did not include this aspect as an independent dimension. Ellemers et al. (1999) and Jackson (2002) discussed the centrality of a certain identity as a part of the self-categorization dimension. Only Cameron (2004) used a separate dimension for centrality. The same term was also used by Leach et al. (2008), who stated that centrality is important to make the individual sensitive to threats or challenges for the group and that individuals with a higher centrality tend to get more engaged in matters of the group.

Theoretical relationship between the five dimensions

For Leach et al. (2008) the five identities are not independent from each other. They are supposed to be based on two underlying factors. Self-stereotyping and in-group homogeneity can be seen as parts of the abstract category “self-definition”. Solidarity, centrality and satisfaction are perceived as part of the greater “self-investment” category. The distinctive characteristics of these two dimensions are, that self-definition is a purely cognitive process of perceiving similarities between oneself and social groups, while self-investment describes a deeper form of emotional engagement (Leach et al., 2008).

Advantages of the social identity conceptualisation Leach et al. (2008)

The differences and similarities between the different conceptualisations are summarized in figure 2. It reveals the main advantage of the social identity conceptualisation, which was used by Leach et al. (2008). It disentangles the traditional three dimensions (cognitive, evaluative and affective) into five more precise facets. This helps to recognize for example that there is a difference between characterizing

oneself as being similar to the prototype member of a group and attaching salience to the group membership. Another convincing argument is to add in-group homogeneity to the model of social identity. Especially because social identity in the platform economy is almost completely understudied it is interesting to analyse how the platform workers are evaluating the group structures of platform workers. Therefore, the discussed social identity conceptualisation is strong because it proposes general necessary and together sufficient facets, which can be applied to almost every context.

Explaining social identity

So far it was shown that the Leach et al. (2008) identity model provides a detailed way to describe and measure social identity. However, the goal of this study is also to *explain* social identity, because the question, on what social identities in the platform economy are based on, is almost completely understudied from the perspective of the workers. In the introduction it has been demonstrated that conflicting societal narratives about the identity in the platform economy and isolated explanatory factors (e.g. online discussion (Lehdonvirta, 2016)) exist. Therefore, a theoretical framework is needed in order to systematically use this information instead of simply testing isolated factors. Interestingly, although many conceptualisations of social identity exist, there is a lack of explanatory frameworks of social identity, which could be transferred to different contexts such as the platform economy. Facing this problem, the Ashmore et al. (2004) conceptualisation of identity has been further developed into an explanatory framework, which will be applied in this study. Why Ashmore et al. (2004) has been the starting point and how their work has been used will be explained in the next paragraph.

Ashmore et al. (2004) model – not just an extension but an explanation of social identity

The social identity model by Ashmore et al. (2004) was dealing with the same question, this study is also concerned about. They recognized that the previous identity conceptualisations were proposing dimensions, which are so general that they can be applied to almost any social group but were not able to reveal much information on what the social identity in a specific case is actually based on. Therefore, they developed two dimensions in addition to many others, which will not be explained here as they highly overlap with the already discussed identity dimensions. The two additional dimensions are *behavioural involvement* and *content*. Ashmore et al. (2004) are defining *behavioural involvement* as “the degree to which the person engages in actions that directly implicate the collective identity category in question” (pp. 92-93). Content means the *self-attributed characteristics*, *narratives* and the *ideology*, that

form the basis for the social identity. It can be already seen that these two dimensions reflect many of the theoretical thoughts presented in the introduction such as the conflicting narratives about the platform economy and are therefore highly relevant for this study. However, these two dimensions need to be used differently than Ashmore et al. (2004) propose. They perceive these dimensions as equal to the other identity dimensions so that they are supposed to be measured. For example, in the case of analysing whether one is a Marxist, it might be measured how much time a person spends with reading Marxist literature (behavioural involvement) and whether he has materialistic worldviews (content). Therefore, the behavioural involvement and the content dimension, which is related to a social identity needs to be defined a-priori (Ashmore et al., 2004). This can work in cases where identities of social groups are well analysed, such as the identity of a member of a certain religion, political group (e.g. Marxists) or ethnic minority, because important characteristics of their identities are already known. However, in the platform economy there is much uncertainty, which type of content, such as ideologies or narratives, are shared by platform workers or which form of behavioural involvement is closely linked to their social identities. Therefore, a different procedure is needed, which tests whether the assumptions about these two dimensions are actually important for the social identity. This procedure will be contrasted with the procedure proposed by Ashmore et al. (2004) in figure 2 and 3 on the next page.

Firstly, it will be agreed with Ashmore that it needs to be assumed what behavioural involvement and content means in the specific context. In the case of the platform economy this could for example mean that it will be assumed that a “exploited worker narrative” forms the core of the content.

Secondly, this narrative will not be measured directly as done by Ashmore et al. (2004). Instead explanatory factors will be derived from this assumed form of behavioural involvement or content. Therefore, it is important that the derived explanatory factor is not a sufficient condition for social identity. This should ensure that there is a theoretical separation between the independent and the dependent variable (identification) during the empirical analysis. For example, in the case of the “exploited worker narrative”, it can be argued that this narrative is related to a dissatisfaction with working conditions, although dissatisfaction does not imply that one identifies with follow workers. In the case of behavioural involvement this step can be usually skipped as the assumed form of involvement often implies the external factor. For example, if one assumes that

social interactions among platform workers can be seen as a form of behavioural involvement in the platform economy, the external factor is already derived. This process will be done in the remaining parts of the theory section.

Thirdly, it will be checked whether these external variables can explain identification measured by the five Leach identity dimensions. This will be done in the analysis section. This step forms the main deviation from Ashmore's procedure as they simply measure the content and behavioural involvement without relating them to other measures of identity.

Fourthly, based on the results it will be reflected whether the preliminary definitions of behavioural involvement and content are supported by the empirical analysis or whether a different form of content has turned to exist with a higher likelihood. This will be done in the final discussion (not displayed in figure 3 in order to reduce complexity).

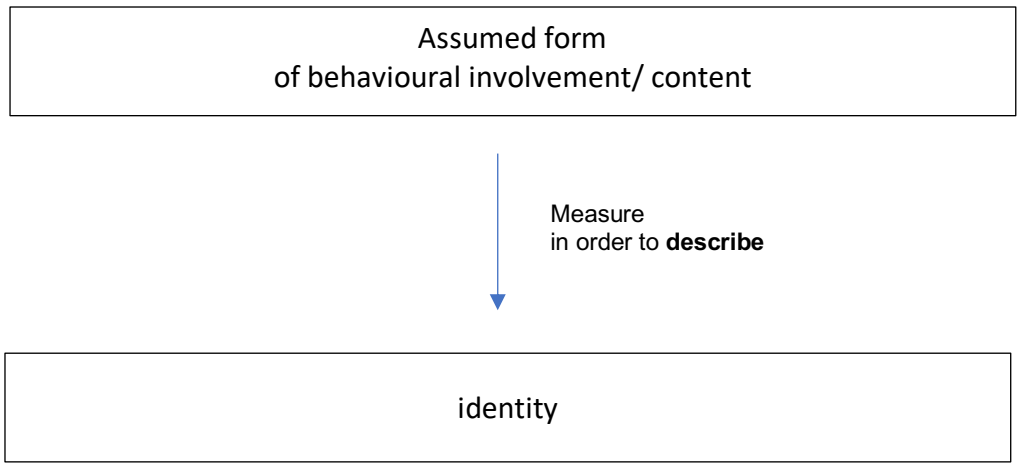

Figure 2: Usage of Behavioural Involvement and Content as descriptive elements as proposed by Ashmore

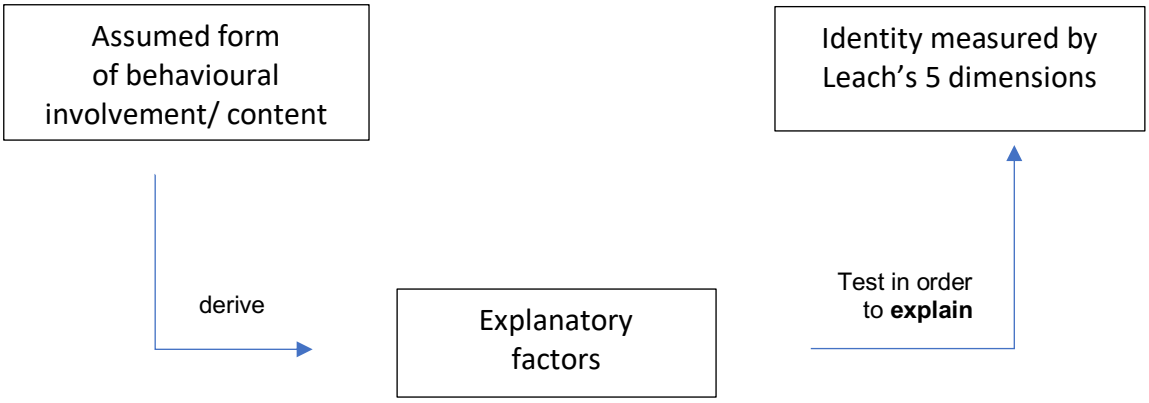

Figure 3: Usage of Behavioural Involvement and Content as explanatory elements in this study

These four steps demonstrate how Ashmore's descriptive usage of the two dimensions has been transformed into an explanatory framework with the two general dimension content and behavioural involvement in its centre. These steps will now be applied for identification in the platform economy.

Application of the framework to Behavioural involvement

It will be argued that in the context of identification with other platform workers two forms of behavioural involvement are assumed to be important.

Firstly, previous research about the platform economy has shown that workers are differing in the amount of time they invest into working for internet platforms (Al-Ani & Stumpp, 2015). Most platform workers have an additional income while others, who work full time via platforms, earn their primary income in the platform economy (Huws, Spencer, & Joyce, 2016). That the amount of time they invest in the platform economy is an important element of behavioural involvement is also argued by Ashmore et al. (2004), who give the example of working hours as an example of behavioural involvement in context of work-related identities. The **amount of time invested in the platform economy** can be therefore seen as the first external factor.

Secondly, **social interactions among platform workers** will be considered as another important dimension of behavioural involvement in the case of the group of platform workers. However, it is often discussed that personal interactions are less important in the platform economy than in the traditional economy, researchers have found out that in the case of digital work in the platform economy, new forms of online connections aroused (Lehdonvirta, 2016). Therefore, social interactions among platform workers can also be seen as the second explanatory factor.

Both explanatory factors will be further specified in the upcoming section, when hypothesis about their effect on identification will be presented.

Application of the framework to Content

Ashmore et al. (2004) conceptualise content as self-attributed characteristics, ideology and a group narrative. As shown in the introduction at least two conflicting narratives can be found, which could be seen as a possible content of the social identity.

Firstly, there is the *"exploited workers narrative"* of an emerging group of platform workers, which is based on the experience of bad working conditions, forming a group, which even shares some class based characteristics such as common self-attribution as being exploited workers (Graham & Wood, 2016; Huws, 2014). This narrative relates to explanatory factors. The *"exploited workers narrative"* is implicitly influenced

by the **dissatisfaction with the working conditions** or at least an **awareness** of **bad or unfair working conditions**.

Secondly, there is also the what will be called *"disruptive industry narrative"* of transforming the economic system into a more efficient form of digital capitalism (Kenney & Zysman, 2016). Being part of this transformation might be a positive reference point of platform workers in order to improve the personal self-esteem. Empirically Malin and Chandler (2017) have shown that some Uber drivers state that being part of Uber helps to makes the traditional driving industry much safer for the consumer than it was when taxi companies were dominating. This more positive narrative necessarily implies that the individual has a **positive opinion on the development of organising industries via internet platforms**.

These explanatory factors are expected to be no sufficient conditions for identification. This means that experiencing or having an awareness for working conditions does not necessarily lead towards social identification with other workers but could also lead to quitting the job (Hirschman, 1970) or to silent passive behaviour (Farrell, 1983). In the case of *"disruptive industry narrative"* having a positive opinion on the platform economy can also not be seen as a sufficient condition for identification with other workers. This enables a theoretical separation between these factors and social identity.

Hypotheses

In the last section general explanatory variables have been derived from the theoretical assumptions about behavioural involvement and content. In the next section these explanatory factors will be further specified. Furthermore, hypothesis about their effect on identification with other platform workers will be presented.

Hypotheses: Identification with workers from the same platform

As demonstrated in the beginning of the theory section, identification with workers from the same platform will be assumed to be the core of social identification with other platform workers and therefore discussed first. In a later section it will be discussed whether those hypotheses can also explain identification with broader groups of platform workers.

Behavioural involvement (same platform)

As already discussed in the last section behavioural involvement will be conceptualized by two dimensions, frequency of work in the platform economy and social interactions among workers. Researchers have shown that many platform workers are not **working full-time** via a platform but derive their primary income from other jobs (Al-Ani &

Stumpp, 2015). Caza, Moss, and Vough (2017) have done research on the influence of having many non-standard jobs on the strength of occupational identity. They found out that however under certain circumstances workers are able to harmonize the many identities, which are related to the different jobs, generally have more difficulties with developing occupational identities than standard workers, who work full-time for one employer. This is in line with a general problem that individuals are usually member of multiple social groups. Therefore, conscious and unconscious prioritizing is required. The amount of time a person is connected to a group is considered to be one criteria for this prioritization (Ashmore et al., 2004). Consequently, the first hypothesis will be:

H1.) The more a person works via a certain platform, the more he will identify with other workers from the same platform.

Prentice, Miller, and Lightdale (1994) have shown that **social interactions** can even lead to stronger identification if there is a weak attachment to the goals and narratives of the group itself. Theoretically this argument can be traced back to Melucci (1995), who showed that the process of developing a common identity is importantly affected by personal encounters, shared experiences and rituals. Therefore, it will be assumed that:

H 2.) The more a worker interacts with other workers from the same platform, the stronger the identification with other workers from the same platform.

Furthermore, it is important to analyse the nature of social interactions among workers from the same platform. Although many heuristics might exist, it will be focused on the content of the worker's discussions. Therefore, it will be analysed **how often** platform workers **discuss work-related issues** when they interact with each other. Simon and Klandermans (2001) have shown that if for example worker are more engaged into discussions about their work, the identity starts to become politized, which usually strengthens the bonds between the members. As already stated Lehdonvirta (2016) gave first empirical evidence that the participation in work-related discussions can be a way to strengthen identification among workers. Therefore, it will be assumed:

H 3.) The more frequently a worker discusses work-related issues with other workers from the same platform, the stronger the identification with other workers from the same platform.

Content (same platform)

As already demonstrated two narratives within the platform economy have been identified, that can be seen as a content of social identity: The *"exploited worker narrative"* and the *"disruptive industry narrative"*. Furthermore, general explanatory factors have been already derived from those narratives, which are now going to be further specified.

The exploited worker narrative

As already discussed dissatisfaction with the working conditions will be seen as the core factor related to the *"exploited worker narrative"*. Previous research has linked this concept to group identification. H. Tajfel (1974) has shown that people tend to react to negative experiences by stronger identifying with other in-group members if the negative experience is assumed to be shared by other group members. Thereby, the in-group identification helps to transform the negative experience into more positive experience of solidarity. As an example, Ashforth and Kreiner (1999) have shown how workers doing "dirty jobs" transform their experiences of work into a positive group narrative, which improves the personal and the group self-esteem. It can be assumed that a similar mechanism can be also observed in the platform economy.

Hirschman (1970) introduced the Exit, Voice and Loyalty model to explain different reaction towards job dissatisfaction. The voice option is relevant at this point as it states that because of job dissatisfaction people can become active in changing the working conditions oftentimes via collective action. This form of collectively raising voice does usually go hand in hand with a stronger identification with other workers in the same conditions (Klandermans, 2002).

Furthermore, it will be differentiated between **two different forms of job dissatisfaction**. The criteria, which will be applied is whether the working conditions have an **exceptional or structural character**. Therefore, it will be differentiated between job dissatisfaction, which is based on bad working conditions, such as low wages, bad equipment, short break times etc. on the one hand and between bad experiences with the platform such as delayed payments on the other hand. This difference will be made because it will be assumed that it is easier to perceive general working conditions as a group problem, than individual problems such as a delayed

loan transfer. The consequences of this differentiation are especially relevant for identification with broader groups of platform workers and will be discussed at a later point in this section. Based on the previous paragraph the next hypotheses will be:

H 4.) *The lower the satisfaction with the working conditions, the stronger the identification with other workers from the same platform.*

H 5.) *The more frequent a worker has frustrating experiences with the platform, the stronger the identification with other workers from the same platform.*

The disruptive industry narrative

The explanatory factor, which has been derived from the *"disruptive industry narrative"* is the **opinion on the development of organising industries via internet platforms.** The mechanism why a positive evaluation of the digital transformation leads to a stronger identification with workers from the same platform is related to one of the main functions of social identification, which is improving the personal self-esteem (Deaux, 1994). A condition under which a group membership is strengthening the self-esteem, is that being a part of the group contributes to higher goal (Aquino & Reed, 2002). In order to give an example of "higher goals" in the platform economy, it will be referred back to the study by Prentice et al. (1994). They demonstrated that Uber drivers show first characteristics of identification based on the feeling that they make the industry safer for the customers. Therefore, it will be assumed that:

H 6.) *The more positive the development of organizing the economy via internet platforms is evaluated, the stronger the identification with workers from the same platform.*

Hypotheses: Identification with workers from other platforms

The focus of this section is the question why platform workers not only identify with the workers from the own platform but also with workers from other platforms. In order to reduce complexity, it will not be differentiated between identification with platform workers working in the same field and platform workers working in different fields as the theoretical assumptions are almost the same. In the empirical analysis the hypothesis will then be rejected or accepted separately for both layers, which will be explained in the data collection and analysis section.

In the literature the questions why identity with a superordinate group emerge has been discussed within the field of “recategorization theory”, which is most famously associated with Gaertner et al. (1993); (Gaertner et al., 1999). Recategorization means the transformation of two group identities, which stand originally in a distinctive “us – them” relationship, into a superordinate “we” identity while maintaining the distinctive subordinate identities. Gaertner et al. (1999) has discussed two hypotheses, which can explain such a “recategorization” process. The first hypothesis is called the “contact hypothesis” and can be traced back to Allport (1954). It assumes that social interactions of in-group and out-group members can firstly lead to a reduction of the so called *ingroup bias* and secondly supports the transformation into a superordinate group identification. Secondly, Gaertner et al. (1999) states that recategorization can be also based on a common goal or a shared thought.

These two hypotheses, which will be examined in greater detail in the following section, are strongly supporting the decision to use Ashmore´s two dimensions as an explanatory framework for social identity. On the one hand the “contact hypothesis” equals the *behavioural involvement* element. The shared goal hypothesis on the other hand is naturally discussed within the *content* dimension.

Behavioural involvement (other platforms)

The theoretical mechanism for frequency of work via the platform also applies for identification with broader groups of platform workers. It will be suggested that the likelihood of identifying with broader groups of platform workers increases with more amount of time spent on working for platforms. This is because the platform economy will become more salient for someone working full time via platforms than for someone, who is working via a platform as a side job. Therefore, the next hypothesis will be:

H 7.) The more a person works via a certain platform, the stronger the identification with workers from other platforms.

As formulated within the contact hypothesis (Gaertner et al., 1999) and shown for the group of platform workers from the same platform, social interactions are a major factor explaining social identity.

H 8.) The more a worker from one platform interacts with workers from other platforms, the stronger the identifications with workers from other platforms.

In this paragraph it will be argued that work-related discussions within the group of workers from the same platform also leads to identification with workers from other platforms. If workers from the same platform are discussing work-related issues, it will be assumed that shared problems and interests with workers from other platforms are more likely to become apparent than in the case of social interactions based on private conversations. Referring back to the "common goal hypothesis" (Gaertner et al., 1999) this might strengthen a common identity. Fominaya (2010) showed that within the global justice movement discussions at the subordinate level of separate working groups were the major factor explaining a superordinate identity with the entire movement. Therefore, it will be assumed that:

H 9.) The more frequently a worker discusses work-related issues with other workers from the same platform, the stronger the identification with workers from other platforms.

Content – (other platforms)

Such as in the case of identification with workers from the same platform, it will be assumed that the content of a superordinate identity can be based on different narratives.

The exploited worker narrative

The unifying interest of the "exploited worker narrative" is supposed to be the urge for better working conditions. This seems to be a likely scenario if one looks at the political initiatives, which are at the moment organising platform workers, in particular food deliverers by protesting for better working conditions (Horn, 2018). It is assumed that there are two facets related to bad working conditions, which can form a basis for a shared interest with other platform workers. Firstly, as shown in the last section **dissatisfaction with working conditions** can be a motivation for identifying with other workers in order to be able transform the personal frustration into a positive group experience (H. Tajfel, 1974). Secondly, workers that have an **awareness that workers from other platforms are also working under bad conditions** are more likely to perceive a shared interest, which then may lead to a superordinate form of

identification (Gaertner et al., 1999). Based on the presented line of argumentation, the following two hypotheses have been developed. [1]

H 10.) The lower the satisfaction with the working conditions, the stronger the identification with workers from other platforms.

H 11.) The higher the perception of workers from other platforms working under bad working conditions, the stronger the identification with them.

In the previous paragraph dissatisfaction with and awareness for bad working conditions were discussed as separate independent variables explaining identification with a broad group of platform workers. However, it can be the case that **people, who are satisfied with their working conditions, recognize** that **workers from different platforms are working under bad conditions.** This refers to an interaction effect of satisfaction with the working conditions on awareness for bad working conditions at other platforms. This interaction effect could have two directions as the literature suggests **two conflicting scenarios.**

In the first case, Dutton, Roberts, and Bednar (2010) are demonstrating that forms of work-related identities exist, which improve the personal self-esteem by contributing to challenges in the society. This can be the case because identifying with people in a bad situation can give a person the feeling of being a moral person, which is good for the personal self-narrative (Aquino & Reed, 2002).

It also could be the case that one is satisfied with the working conditions at his platform and therefore identifying with work via the platform. If one has such a positive identification with his work in the platform economy identifying with a broader group, which makes bad experiences could be considered as an identity threat. Schmid, Hewstone, Tausch, Cairns, and Hughes (2009) have shown that if the narrative of the identification with the superordinate group (e.g. the exploited) contradicts the narrative

[1] Within the section about identification with workers from the same platform it has been also argued that **isolated bad experiences with the platform** such as a delayed loan also have an effect on identification. In the case of identifying with workers from other platforms, this variable is not supposed to be influential because of the following reason. In contrast to dissatisfaction with the working conditions, which is as assumed to be based on structural factors such as low wages or short break times, making bad experiences was meant to describe isolated frustrations. It will be argued that isolated experiences are not likely to be perceived as common problem of all platform workers and therefore not suitable for explaining a superordinate identification.

of the subordinate group (e.g. the great job), this might lead to a low identification with superordinate group. For the moment the later scenario will be assumed:

H 12.) The more dissatisfied a worker is with the conditions at his platform, the stronger the effect of the awareness for workers from other platforms working under bad working conditions on identification with them.

The disruptive industry narrative

A positive opinion on the digital transformation of the economy has the potential for being a unifying interest across different platforms as it can be connected to the narrative that together the economy will be made more efficient. Wolf (2008) has for example demonstrated how the rejection of "traditional" forms of work can unify even workers, who would not be considered to be the winners of the digital economy. Therefore, by referring again to Gaertner et al. (1999) shared interest hypothesis it will be argued that:

H 13.) The more positive the development of organizing the economy via internet platforms is evaluated, the stronger the identification with workers from other platforms.

All independent variables and their effect on the different layers of identification will be summarized in the following table:

	Identification with workers from the same platform	*Identification with workers from the same field*	*Identification with workers from a different field*
Working hours	+	+	+
Social interactions	+	+	+
Work-related discussions (same platform)	+	+	+
Satisfaction with the working conditions	-	-	-
Bad experiences with the platform	+	No effect	No effect
Awareness for bad working conditions	(not included because, because overlap with satisfaction with the working conditions is assumed)	+	+
Positive opinion on the platform economy	+	+	+

+ = effect has a positive direction; - = effect has a negative direction

Table 1: The hypotheses

Data collection

This section will present the research design, which was developed in order to test the hypotheses. A quantitative survey-based analysis forms the core of the research project by providing data for making empirical statements about the existence and explanations of social identities in the platform economy. In addition to the quantitative data analysis, semi-structured interviews have been conducted. They will be used during the final discussion to put the quantitative results into a broader picture. Before discussing the survey and the operationalisations, which have been used to measure the variables from the theory section, it will be explained how the sample of platform workers has been selected.

Selection of the platforms and the respondents

In recent years, many typologies of platforms have been introduced. The typology, which will be applied in this research project was developed by De Groen, Maselli, and Fabo (2016) and consists of two dimensions. Firstly, there is the **location** of a service. Services can be either completed virtually or locally. In the case of virtual work, it does not matter from where a platform worker completes the jobs. In contrast physical or

local services must be delivered at a certain place because of their physical nature. The second dimension is whether the service offered via a platform requires **high or low skills**. Jobs for high skilled platforms require previous experience in the field or special training. Oftentimes a prove of formal qualification is required in order to be able to work via the platform. Low skilled jobs can be completed without pre-knowledge in the field and require at maximum a short introduction into the job routine.

In order to be able to make a statement about different dynamics in the platform economy the decision was made to not only focus on one type of platform, but to include at least two different types. At an early stage the decision was made to focus on food delivery platforms in Germany because they were accessible in the urban environment of the author. As especially for local platforms the legal frameworks for platform work differ across countries (Fabo, Karanovic, & Dukova, 2017), it will be focused on one national context in the case of local work. Furthermore, they are an interesting example as recently foodora and Deliveroo riders were protesting in Berlin criticising that the working conditions are insufficient (Horn, 2018). Two interest groups of platform workers, namely “DeliverUnion” and “Limit am Limit” (“Delivery on the edge”) are pushing for better working conditions and have received much attention by German media (Magoley, 2018). This could be an indicator that identification across platforms already exist in these networks. Furthermore, they were selected because food-delivery platforms are typical examples of low-skilled local platforms. Originally, it was planned to also focus on low-skilled internet platforms such as Amazon MTurk in order to control for the skill-level dimensions but to have differences on the virtual-local dimension. However, it quickly turned out to be difficult to reach enough low-skilled virtual workers for a meaningful analysis. Therefore, the decision was made to focus on the creative work platform Jovoto, which can be seen as an example of high-skilled virtual work. Workers from this platform were much more accessible. Consequently, the main focus of the data collection was on Deliveroo, Foodora and Jovoto. These platforms and the strategies to contact their workers will be further introduced in the following paragraphs.

Deliveroo

Deliveroo is a British food-delivery start-up. In Germany 1500 drivers are working for Deliveroo, which makes it the second biggest company in the industry. Deliveroo is available in 15 German cities (Kramer, 2018). It is often discussed as a typical example of low-skilled local platforms as the drivers are not employed by the platform but work as freelancers and are paid per job (Kramer, 2018). Deliveroo riders in Germany are

mostly using their own bicycles for their work, which is delivering food from restaurants to costumers within a certain area.

Deliveroo workers have been contacted via Facebook groups for Deliveroo riders. Furthermore, representatives from DeliverUnion Berlin and Leipzig distributed the survey through their networks.

Foodora

The German start-up foodora is the biggest competitor of Deliveroo in Germany and holds an even bigger market share with 2500 active riders in 35 cities (Kramer, 2018). In contrast to Deliveroo, most of the foodora drivers in Germany are not employed as freelancers and paid per hour and not per job. However, they will be considered in this study for the following reasons. The job routine of the foodora workers does not differ significantly from what Deliveroo workers are doing. Riders from both platforms deliver food for all partner restaurants of the platform. Gigs are in both cases managed via an app and the delivery is mostly done via private bicycles. This has the consequence that in the public discourse foodora and Deliveroo are equally discussed as prominent examples of the platform economy (Kramer, 2018).

Foodora riders have also been contacted via the contact persons from the already mentioned political initiatives. Furthermore, foodora riders have been contacted directly at their meeting points in the city of Münster and Dortmund. In both cities at least one rider ensured that he will post the online survey into a local WhatsApp group, which can be seen as a form of snowball sampling (Onwuegbuzie & Collins, 2007).

Jovoto

Jovoto is a German platform for workers from the creative industry, that attracts mainly graphic and user experience designers, architects and product designers. Companies or NGO’s are posting jobs (such as designing the Christmas edition of the swiss army knife) and ask Jovoto workers to submit their ideas and designs. Thereby, it needs to be differentiated between two types of procedures. Firstly, jobs can be posted within an open competition, in which every Jovoto worker can participate. Usually hundreds of proposals are submitted. The company or NGO decides on a price pool, which is split among the workers that created the best proposals. More recently, Jovoto focused more on private competitions, in which the clients are able to pre-select a certain number of creatives, which usually receive a fixed amount of money for the participation in addition to financial rewards for e.g. the winning idea.

The author signed up for Jovoto and contacted 400 Jovoto workers via the internal messenger service. However, it was tried to focus on German Jovoto workers, the final sample of Jovoto workers contains a variety of workers from different nationalities.

Other platforms

Within the field of food delivery platforms, riders from the German food company **Stadtsalat** ("city salad") were contacted. Although Stadtsalat delivers exclusively its own salads it was still included into the study because of two reasons: Firstly, Stadtsalat drivers have almost the same job routine as the drivers from the mentioned food delivery platforms, which is delivering food via bicycles. Therefore, it will be assumed that from the worker's perspective foodora and Deliveroo do not differ much from Stadtsalat.

Secondly, the example of Stadtsalat in relation to Foodora and Deliveroo is interesting as Stadtsalat's self-narrative is based on being a healthy alternative to foodora and Deliveroo, which treats their riders much better than the competitors (Stadtsalat, 2018). This is expected to give an insight into the puzzling question whether workers, that are satisfied with their own platform but are aware that other workers in the same field are working under bad conditions, are still identifying with other workers from the same field (Hypothesis 12).Consequently, the inclusion of Stadtsalat reflects a critical case sampling approach, as its inclusion is assumed to provide "compelling insight about a phenomenon of interest" (Onwuegbuzie & Collins, 2007, p. 285). The author had a personal contact to a Stadtsalat worker from Hamburg, who was willing to distribute the survey in the local WhatsApp group.

As stated at the beginning of this section, it was originally tried to focus on low skilled virtual workers in addition to low skilled digital workers. Therefore, the community advisors of different platforms have been contacted. The German "clickwork" platform **CrowdGuru** responded and posted our survey into a forum of the CrowdGuru intranet. In order to further increase the number of respondents, the survey was posted into Facebook groups for a variety of different platforms.

Description of the sample

119 respondents filled out the online survey between the 09th of Mai 2018 and the 12th of June 2018. Unfortunately, a significant number of respondents can be categorised as partial respondents or have skipped items, which are relevant for the theoretical model. At the end a sample of 75 platform workers has been selected based on the requirement that every item related to the independent and dependent variable needed to be answered.

The Platforms

The platform workers from the sample are working for nine different platforms. They have been presented in table 2. The distribution of workers among those platforms reflects the strategy to mainly focus on Jovoto workers on the one hand, and on the food delivery platforms Foodora and Deliveroo on the other hand. 75.6% of the respondents are working for these three platforms.

	Frequency	*Percent*	*Description*	*Local vs. virtual work*	*Low vs. high skilled*
Jovoto	38	50,0	Creative work	virtual	high
Foodora	19	25,0	Food Delivery	local	low
Deliveroo	8	10,5	Food Delivery	local	low
CrowdGuru	5	6,6	Microtask	virtual	Low and high
Stadtsalat	2	2,6	Food Delivery	Local	low
Clickworker	1	1,3	Microtask	virtual	Low and high
Helpling	1	1,3	Cleaning services	local	low
Takeaway.com	1	1,3	Food Delivery	Local	low
VIP kid	1	1,3	Teaching English	virtual	high
Total	*76*	*100,0*			

Table 2: Platforms within the sample

According to the De Groen et al. (2016) framework, this means that the sample consists mainly of low-skilled local and high-skilled virtual platforms. There are only two exceptions of platforms, where the lines between low-skilled and high-skilled virtual work are blurring. Clickworker and CrowdGuru are two microtask platforms, which offer jobs requiring different skill sets ranging from basic survey answering to sophisticated writing of texts for companies. As the survey is not capable of distinguishing between the different skill-levels within a certain platform and as those two platforms are only responsible for 7,9% of the respondents, the decision was made to group these platforms into the high-skilled virtual work category. The virtual/local distinction will thereby be seen as the main dimension of the recategorization. Furthermore, VIP kid, a platform which offers language courses for children via an internet platform, is another good an example of high-skilled virtual work.

Stadtsalat, Takeaway.com and Helpling, which is a platform for cleaning services, will be considered as low-skilled local platforms in addition to foodora and Deliveroo. *Table 3* shows that 59,2 percent of the platform workers are completing virtual work, while 40,8 percent are working locally.

	Frequency	*Percent*
Virtual workers (mainly high skilled)	45	59,2
Local workers (only low skilled)	31	40,8
Total	*76*	*100,0*

Table 3: Type of platform

Operationalisation

The survey was designed online via Qualtrics and included 58 items from which 21 were relevant for this study.[2] The following description of the operationalisation will focus mainly on the items, which have been used for measuring both the independent and the dependent variables of the theoretical model.

Social identity dimensions

The items, which were chosen for measuring the social identity dimensions, were taken from Leach et al. (2008). In order to reduce the length of the survey, it was decided to only include one item per dimension. All items of the Leach model are statements. The participants were asked for agreement on a five-point Likert-scale.

For **self-stereotyping** it was decided for the statement *"I have a lot in common with the average [member of the group of workers]."*. In the case of **in-group homogeneity**, it was asked for agreement with the statement *"[members of the group of workers] have a lot in common with each other."*. **Solidarity** was measured with "I feel solidarity with *[group of workers]*", whereas **satisfaction** was based on *"Being a [member of the group of workers] gives me a good feeling."*. Finally, the statement for **centrality** was: *"The fact that I am a [member of the group of workers] is an important part of my identity."*.

All questions were asked for the "group of workers from the same platform", the group of "workers from platforms from the same field as the own platform" and for "workers from platforms from different field than the own platform". The category "workers from platforms from the same field as the own platform" was only displayed if the participant had indicated that there are other platforms operating in the same field as the own platform, which was asked through an additional item.

In addition to the multidimensional measurement of identity the decision was made to include a unidimensional measurement into the study. By using one of the most commonly used item for identification (Brunsting & Postmes, 2002) it was asked: How strongly do you identify with [group of workers]? The response categories were given

[2] All other items were relevant for other projects on the same topic.

on a five-point Likert scale ranging from not at all (1) to very strongly (5). Again, the item was asked for workers from the same platform, workers from the same field and from different fields.

Behavioural involvement

Frequency of work in the platform economy was measured by the following open question: *"How many hours are you working for [name of the platform[3]] on average per week?"*. **Social interactions with other workers from the same platform** was measured via the following items: *"Have you ever met other people from [name of the platform]?"* The following answer categories were given: a.) *"Yes, I have met them personally."* b.) "Yes, I have met them online, for example in internet fora etc" c.) *"Yes, I have met other people that work for my platform personally as well as online."* d.) *"No, I have never met any other people that work for the same platform."* These four answer categories have been computed into a dummy variable in which answers a.) to c.) were recategorized into the category *interaction_yes*, while d.) was rephrased into *interaction_never*.

In order to analyse **social interactions with workers from other platforms** it was asked on a five-point Likert scale: *"How often do you interact with..."*. Here the differentiation has been made between *…other workers from the same field* and *…other workers from different fields*.

The frequency of **work-related discussions** was measured via the following item: *"Whenever you see other [name of the platform] workers while you are working, how frequently do you talk about your work?"* The answer categories on a five-point Likert scale were ranging from never (1) to always (5).

Content

Satisfaction with the working conditions where measured via the question *"How well are you satisfied with the working conditions in general (such as gear, break times etc.)?"* on a five-point Likert scale ranging from very dissatisfied (1) to very satisfied (5). Furthermore, it has been asked on the same scale: *"How well are you satisfied with the payment that you receive on your platform?"* Both items have been merged into a new satisfaction variable. **Awareness for bad working conditions** of other platform workers was measured via asking for agreement on a five-point Likert scale with the following statement: *"I think that [group of workers] are working under bad conditions."* This question was again asked for the workers of the same field and

[3] The name of the platform, the respondent is working for, appeared in the online survey.

workers from different fields. The question concerning **bad experiences with the platform** has been: *"Have you ever made bad experiences with the platform.?"* The respondent could choose between answering *"more than once", "once"* and *"never".* The **positive opinion on the platform *economy*** *was measured by* asking for agreement with the following statement on a five-point Likert scale: *"Organizing occupations via platforms such as [name of the platform] is generally a positive development."*

General questions and control variables

The respondents were asked to write down the name of the platform he or she is mostly working for. Furthermore, they needed to answer with a simple yes or no question whether they were aware that there are other platforms operating in the same field than the own variable. For the case that the respondent answered with no, all items related to identification within the same field have not been displayed.

As control variables it was decided to ask for the **age** of the participant. The answers have been recategorized into four age categories, that are "younger than 26", "26-30", "31-35" and "older than 35".[4] Information about the level of **education** have been collected separately for the respondents, who are working in Germany and the respondents, who are working in other countries. For the further analysis, a dichotomous variable has been created to differentiate between platform workers, who are or who have attended university and workers, who did not.

Further, the participant should write down the **country** in which he works for the platform. Out of the list of different countries three categories have been created: Germany, OECD countries and non-OECD countries. Finally, a dummy variable has been created in order to control for low-skilled local platforms. The criteria have already been explained in the beginning of the section.

Description of the variables

In this paragraph, the descriptive statistics about the sample will be presented. Firstly, the description of the identity dimension will be presented, and general trends will be discussed. Secondly, the key values of the independent variables will be discussed. Thirdly, a socio-cultural description of the sample will be given.

Dependent variables

A few general tendencies can be observed while looking at the descriptive tables of the identity dimensions (table 4, appendix 2 and 3). They give an answer to the first

[4] In the later analysis it will be shown that these categories also reflect the age quartiles.

part of the research question, which was *to what extend* platform workers are identifying with each other.

	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Same Platform					
Unidimensional Identification	75	1	5	3.1	1.1
Solidarity	75	1	5	4.0	1.0
Satisfaction	75	1	5	3.5	1.3
Centrality	75	1	5	2.6	1.4
Stereotyping	75	1	5	3.1	1.1
Homogeneity	75	1	5	3.3	1.0
Same field					
Unidimensional Identification	67	1	5	2.7	1.1
Solidarity	66	1	5	3.7	1.0
Satisfaction	67	1	5	3.0	1.1
Centrality	67	1	5	2.3	1.1
Stereotyping	67	1	5	3.0	.9
Homogeneity	67	1	5	3.2	.8
Different Field					
Unidimensional Identification	75	1	5	2.2	1.1
Solidarity	75	1	5	3.3	1.1
Satisfaction	75	1	5	2.9	1.1
Centrality	75	1	5	2.3	1.1
Stereotyping	75	1	5	2.7	.9
Homogeneity	75	1	4	3.0	.8

Table 4: Descriptive Statistics: Dependent Variables

Firstly, in the case of identification with other workers from the same platform the highest values can be overserved. The values get lower if one looks at identification within the same field and are the lowest when it comes to identifying with workers from different field.

Secondly, all layers have in common that on the solidarity dimension the highest values can be observed while centrality has the lowest scores.

Thirdly, it is notable that the standard deviations at the stereotyping and homogeneity dimensions are always the lowest. If one takes the frequency charts (appendix 1) into account, it can be observed that on both dimensions the biggest group of respondents have decided for the middle category, which is neither agreeing nor disagreeing with the statements.

Fourthly, if one compares the statics of virtual and local workers (appendix 2 and 3) it is notable, that local workers show significantly higher values on the solidarity

dimension, while virtual workers have values on the satisfaction and centrality dimensions.

Based on these findings it can be stated that social identities among platform workers can not only be observed within the same platform, but also across platforms from the same field and although less strong even across different fields.

Independent variables

Further, the descriptive statistics of the independent variables will be presented. This will be done in two tables. Table 5 will summarize the metric explanatory factors while table 6 focuses on the categorical variables.

	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Working hours	68	2	55	14.8	11.7
Social interactions (same field)	75	1	4	2.1	1.3
(Social Interactions different field)	75	1	5	1.9	1.0
Work related discussions (same field)	75	1	5	3.2	1.5
Satisfaction working conditions	75	1	5	3.5	1.3
Awareness bad working conditions (same field)	67	1	5	3.3	1.0
Awareness bad working conditions (different field)	75	1	5	3.3	.9
Positive opinion on the platform economy	75	1	5	3.6	1.1
Age	71	18	56	31.4	8.9
Political Attitudes	74	1	9	4.4	2.1

Table 5: Descriptive Statistics: Independent variables metric

	N	Frequency	Valid Percentage
Bad experiences with the platform	*75*		
Never		*35*	*46.7*
Once		*19*	*25.3*
More than once		*21*	*28.0*
Social interactions same platform	*75*		
Personally, and Online		*7*	*9.3*
Only Personally		*41*	*54.7*
Only Online		*8*	*10,7*
Never		*19*	*25.3*
Country	*74*		
Germany		*43*	*58.1*
OECD		*15*	*20.3*
Other non-OECD country		*16*	*21.6*
Education	*75*		
University Yes		*60*	*80*
University No		*15*	*20*
Age Categories	*71*		
Younger than 26		*19*	*26,8*
26-30		*22*	*31*
31-35		*13*	*18,3*
Older than 35		*17*	*23,9*

Table 6: Descriptive Statistics: Independent variables dummy

Socio-culture description of the sample

In order to get a better general impression of the composition of the sample, the values of the socio-cultural variables will be discussed. Thereby, it will be differentiated between virtual and local workers (appendix 4 and 5).

The average age is 31. It needs to be stated that there is a strong overrepresentation of 75% of the respondents being younger than 36. The sample of the virtual workers is significantly older than the one of the local workers from which all respondents are younger than 37.

The respondents are coming from 22 different countries, which were grouped into respondents from Germany (56,6%), from the remaining OECD (21,1%) and from non-OECD (21,1%) countries. Among the local workers, almost everyone (96,8%) is working in Germany, which reflects the attempt to focus on food delivery companies in Germany. In the case of virtual workers, a rather balanced distribution between the three mentioned categories of countries can be observed.

The sample is rather left-leaning in terms of political orientation as the average respondent perceives himself somewhere between three and four on a ten-point Likert scale, where 1 means very left-wing and ten very right-wing. It is notable, that although the biggest group (20 respondents) sees themselves as neither left nor right, almost no respondents indicated strong right-wing attitudes, while 28 respondents showed strong left-wing orientations (between 1-3 on the ten-point Likert scale.) The group of local workers showed a stronger left-wing orientation with a significant number of extreme-left attitudes (22,6% of the local workers placed themselves on 1).

It is striking that among the respondents 80% have a university background. This number is even higher for virtual workers (91%). This shows that the theoretical distinction, which has been made between high and low skilled platform work is reflected within the education levels of the respondents. However, it needs to be stated that still slightly more than two-third of the respondents doing local low-skilled platform work have or are attending university.

Validity of the sample

In order to finish the section about the quantitative data collection the main threats to the external validity based on the structure and characteristics of the sample will be discussed.

Firstly, especially within the sample of Foodora and Deliveroo drivers, it can be assumed that there is an over-representation of drivers, who identify strongly with other platform workers. This is due to the fact that the survey was partly distributed through networks of the political initiatives representing rider's interests. It will be assumed that being part of those networks correlates with a stronger identification with other platform workers.

Secondly, it was searches actively for Jovoto workers, that logged in most recently. This implies that there will be an overrepresentation of Jovoto workers, that are actively engaged into working for the platform.

Thirdly, many workers gave us feedback about our survey, asked for the purpose of our study and stated their opinion on the platform economy, Therefore, it will be assumed that there is a general tendency that workers, who already have a high interest in the development of the platform economy, have filled out the survey.

Fourthly, the sample consists as stated mainly of two different types of platform workers. Especially, the low-skilled virtual workers are underrepresented.

Sixthly, although it is possible to control for OECD and non-OECD countries, the set of countries within these categories is rather diverse. It can be assumed that there are culture related differences, which cannot be captured by the OECD categorization.

The interviews

In order to put the quantitative analysis into a greater context two types of interviews have been conducted.

On the one hand **semi-structured interviews with platform workers** have been performed. These interviews generally followed the structure of the survey. However, whenever it was possible participants have been asked to fill out the survey beforehand, so that the interview could focus on back questions concerning interesting answers in the case that the participant gave his permissions to look at his surveys. In particular two interviews with Jovoto workers have been conducted. The participants were selected according to the interesting case sampling method (Onwuegbuzie & Collins, 2007). They were identified as interesting cases because both gave feedback to the survey, arguing that they disagree with comparing food delivery platforms with creative platforms such as Jovoto. This was identified as a relevant perspective on the question of group identification of platform workers. Furthermore, an interview with a worker from Stadtsalat was conducted. The contact was established through private connections. Therefore, it was known that the participant has a positive opinion on Stadtsalat, which makes her an interesting case for analysing her perspective on riders, that are working under bad conditions. Finally, two foodora riders have been interviewed. The first one was recruited for the interview at the meeting point in the city of Münster. The interview itself was conducted later. A second interview was conducted spontaneously in the city of Dortmund. It was therefore not possible to make an audio record.

On the other hand, **semi-structured expert interviews** were conducted. It was possible to interview activists in leading positions of the three biggest networks of riders in Germany, which are Liefern am Limit and DeliverUnion Berlin. During the interviews three aspects were especially important. Firstly, the participants have been asked to describe the group dynamics of the riders. Secondly, they were asked whether riders identify with each other and other platform workers. Thirdly, the participants should give their opinion whether the problems in the riding industry are part of a broader problem and if yes what they do to raise the rider's awareness for these developments. Thereby, the expert interviews should give insights into the narratives, which are present in the discussions among platform workers.

Analysis

The analysis of this paper aims at discussing the results of testing the theoretical model, which has been developed in the theory section. This will be done via a series of multi-regression analyses. Before those will be performed, a series of bivariate analysis will be conducted in order to discuss relationships between the independent and the dependent variables.

Bivariate Statistics

The discussion of the bivariate statistics will be split in two parts. Firstly, the statistical relationships between the different identity dimensions will be discussed. Secondly, the same analysis will be repeated for the independent variables.

Correlations between the identity dimensions.

The bivariate analysis, which will be discussed within this section has been performed for identification with workers from the same platform. The correlation matrix for identification with workers from the same field and workers from different fields can be found in the appendix (6). The general pattern does not differ across the different layers. The bivariate correlation matrix (table 7) reveals that all identity dimensions are strongly correlated, although differences concerning the strength exist. Within the Leach dimensions, centrality and satisfaction have the highest coefficient (Pearson: 0.691). Also, homogeneity and stereotyping are exceptionally strong correlated (Pearson: 0.619), which reflects the theoretical framework of Leach, where both dimension were discussed under the general category self-categorization. Solidarity seems to differ most strongly from the other dimensions, especially from satisfaction and centrality, which is interesting because all three dimensions form Leach the general self-investment dimension according to (Leach et al., 2008). The unidimensional measurement of identity is most strongly correlated to the solidarity dimension.

	Homogeneity	*Stereotyping*	*Centrality*	*Satisfaction*	*Solidarity*	*General Identification*
General Identification	.402***	.486***	.553***	.467***	.635***	1
Solidarity	.369***	.434***	.329***	.223**	1	
Satisfaction	.369***	.425***	.691***	1		
Centrality	.496***	.525***	1			
Stereotyping	.619***	1				
Homogeneity	1					

*significant at a *0,9%, **0,95%, ***0,99% level*

Table 7: Correlation Matrix: Identification same field

The factor and reliability analysis (table 8 and appendix 7) raise doubts whether there is a need to further proceed with a multi-dimensional analysis. The internal consistency of the dimensions is high and only in the case of the identification within the same field two underlying factors could be found within the factor analysis. The second factor is negatively correlated with the homogeneity and the stereotyping dimension and not correlated with the solidarity dimension. This supports Leach et al. (2008) argument that the homogeneity and the stereotyping dimension are reflecting the superordinate self-definition dimension, but raises questions about the solidarity dimension.

	Same platform	*Same field*	*Different field*
Reliability analysis (Cronbach's Alpha)	0,8	0,73	0,77

Table 8: Reliability analysis

However, the decision was made to further conclude with the multidimensional conceptualisation of identity as another bivariate correlation analysis with the identity dimensions and the explanatory factors was conducted (appendix 9). It revealed that the effect of some independent variables had different directions on different dimensions. Especially, satisfaction with the working condition and the opinion on the platform economy needs to be mentioned. Negative correlations were observed for solidarity while positive correlations can be seen for satisfaction and centrality. This supported the first impression that solidarity is influenced by different dynamics than the other two self-investment dimensions. Consequently, all identity dimensions will be included into the regression analysis. This will enable a comparison between the explanatory power of the uni- and multidimensional approach towards social identity. Therefore, the unidimensional item from the survey will be taken.[5]

Correlations among the independent variables

The first notable finding of the correlation analysis of the independent variables (table 9) is that no extreme form of correlation can be observed, which could indicate multicollinearity. However, some items are significantly correlated. Local workers are more likely to get engaged into work related discussions and are less satisfied with the working conditions compared to virtual workers.

[5] A bivariate correlation analysis between the unidimensional identity item from the survey and the extracted variables from the factor analysis has been performed (Appendix 8). As the computed identity variables from the factor analysis highly correlated with the one from the survey, the decision was made to proceed with variable taken from the survey.

Furthermore, it is interesting to observe the relationships between variables, which are associated to the broad behavioural involvement and content dimension as the theoretical framework assumed a separation between both dimensions. Working hours, social interactions within the same platform and work-related discussions seem to be positively correlated with making bad experiences with the platform and work-related discussions are negatively correlated with satisfaction with the working conditions. Furthermore, working hours are positively correlated with making bad experiences.

	Working Hours	*Social interactions same platform (never)*	*Social interactions (different field)*	*Social interactions (same field)*	Work-related discussions	Satisfaction working Conditions	*Positive opinion platform economy*	*Awareness bad conditions (same field)*	*Awareness bad conditions (different field)*	*Bad experiences with the platform (more than once)*	Local work
Working Hours	1										
Social interactions (same platform) (never)	-.26**	1									
Social interactions (different field)	.17*	-.17*	1								
Social interactions (same field)	.31***	-.27**	.42***	1							
Work-related discussions	.27**	-.52***	.19*	.51***	1						
Satisfaction working Conditions	.07	.16*	.31***	.03	-.16*	1					
Positive opinion platform economy	.15	.046	.15	.14	.07	.42**	1				
Awareness bad conditions (same field)	-.12	-.25**	-.05	.02	.18	-.49***	-.48***	1			
Awareness bad conditions (different field)	.20*	-.160	-.08	-.03	.12	-.28***	-.28***	.61***	1		
Bad experiences with the platform (more than once)	.42***	-.23**	.07	.34***	.37***	-.22**	-.18*	.23*	.28***	1	
Local work	.19	-.49***	-.06	.16	.56***	-.41***	-.17	.37***	.18*	.14	1

significant at a *0,9%, **0,95%, ***0,99% level

Table 9: correlation matrix independent variables

Multivariate Statistics

In this section the theoretical model, which has been developed in the theory section, will be tested. Firstly, identification with workers from the same platform will be analysed in order to reject or accept hypothesis 1-6. Secondly, identification with platform workers from the same field and with platform workers from different fields will be modelled separately. In common discussion, hypothesis 7-13 will be then discussed. Thereby, hypotheses can be either accepted, partly accepted or rejected. The conditions for each category will be presented in table 10. If a variable is not significant on the unidimensional identity item, it must be significant on one self-investment dimension (solidarity, satisfaction or centrality) in order to be at least partly accepted. This is because Leach et al. (2008) clearly stated that it is not enough to just cognitively perceive oneself as a member of a group but that also a certain degree of personal investment is required.

Category	*Condition*
Accepted	- significant on the general identification dimension + one other Leach self-investment dimension (either solidarity, satisfaction or centrality), *or* - significant on at least Leach three dimensions
Partly accepted	- significant only on the general identification dimension, *or* - significant on the general identification dimension + one self-definition dimension (stereotyping or homogeneity), *or* - significant on two Leach dimensions from which at least one must be a self-investment dimension
Rejected	- Only significant on one Leach dimension, *or* - Only significant on two self-definition dimensions (stereotyping and homogeneity)

Table 10: Conditions for accepting, partly accepting and rejecting hypotheses

Social identification with workers from the same platform

The hypotheses 1-6, which are related to identification with workers from the same platform will be tested via a linear regression analysis. The final statistical model, which will be discussed in this section is the result of a three-step modelling process. These steps will be briefly summarized in the following paragraph.

The statistical models

1.) The first model (appendix 10) includes all variables, which are related to hypothesis 1-6. Namely, these are: Working Hours, social interactions with other workers from the same platform (never), frequencies of work related

discussions with other workers from the same platform, satisfaction with the working conditions, bad experiences with the platform (more than once)[6] and positive opinion on the platform economy. The goal of this pre-model was to find out whether working hours are statistically significant, because in contrast to every other variable, the working hour item was not answered by all 75 respondents, but only by 68 respondents. This preliminary analysis showed that on every dimension except homogeneity, working hours were statically insignificant. On the homogeneity dimension working hours were negatively correlated with perceived homogeneity (Coefficient B: -0,02, Std. Error: 0,01) at a 90% significance level. However, this effect can be seen as significant, the fact that it remained insignificant on all other five dimensions, leads to the **rejection of hypothesis 1.** Working hours will be excluded from this point on to ensure that the entire sample will be included in the following regression analysis.

2.) The goal of the second step is to test the importance of the control variables (appendix 11). Therefore, the local-work-dummy education, political attitudes and age will be included in the regression model to explain the unidimensional identification item. Every control except education was statistically insignificant. Because, the differentiation between virtual and local work has been an important part of this study until this point, the regression analysis with the local-work-dummy has been repeated for the other identity dimensions (appendix 12). The result that local work was insignificant remained the same, so that this variable will be excluded for the further analysis. Hence only education will be included in the analysis as a control variable.

3.) Based on the previous examinations the following variables will be included into the final analysis, which are related to the hypothesis 1-6: Social interactions with other workers from the same platform (never), frequencies of work related discussions with other workers from the same platform, satisfaction with the working conditions, bad experiences (more than once) with the platform and the opinion on the platform economy. In addition, the education dummy has been included into the analysis. The results of this analysis are shown in table 11.

[6] It has been decided to only include the bad experience (more than once) dummy, as it has the best explanatory potential among the bad experience dummies (appendix 10).

Table 11: Regression Analysis Identification Same Platform

	Unidimensional Identification		*Solidarity*		*Satisfaction*		*Centrality*		*Stereotyping*		*Homogeneity*	
N	75		75		75		75		75		75	
R^2	0,36		0,29		0,53		0,39		0,32		0,15	
	Coefficient B	Std. Error	Coefficient B	Std. Error	Coefficient B	Std. Error	Coefficient B	Std. Error	Coefficient B	Std. Error	Coefficient B	Std. Error
(Constant)	1,12*	0,30	3,81***	0,56	0,60**	0,29	-1,19*	0,70	1,49**	0,57	2,43***	0,59
Social interactions (never)	-0,56*	0,30	-0,15	0,29	0,60**	0,29	0,11	0,35	-0,09	0,29	-0,14	0,30
Work related discussions	0,35***	0,10	0,34***	0,09	0,30***	0,09	0,34***	0,11	0,30***	0,09	0,17*	0,01
Satisfaction working conditions	0,23*	0,12	0,18	0,10	0,49***	0,12	0,56***	0,14	0,11	0,12	0,08	0,12
Bad experiences with the platform (more than once)	-0,73***	0,27	-0,36	0,26	-0,55**	0,26	-0,42	0,32	-0,81***	0,26	-0,64**	0,27
Opinion platform economy	0,04	0,12	-0,29**	0,11	0,30**	0,11	0,17	0,14	0,18	0,11	0,07	0,12
University education (dummy)	0,43	0,30	-0,36	0,29	0,54*	0,29	0,34	0,36	-0,13	0,29	-0,02	0,30

*significant at a *0,9%, **0,95%, ***0,99% level*

The results

It can be observed that the same model of independent variables has different effects on the social identity dimension, which can be seen as empirical support for the multi-dimensional approach of this study. These differences are namely the varying significance of the different independent variables on the one hand and the varying explanatory power of the entire model on the other hand. The identity dimension satisfaction is by far the best explained dimension (R^2=0,52) within this series of regression analysis. The model works almost equally well for the overall identity dimension, for stereotyping and centrality (R°2 between 0,32-0,39). It has a moderately weaker explanatory power for satisfaction (R^2=0,29) and is not a good predictor of homogeneity (0,15). In the following paragraphs the hypothesis on identification with workers from the same platform will be discussed.

Hypothesis 1: working hours

As already discussed **hypothesis 1 about the effect of working hours has been rejected**.

Hypothesis 2: social interactions

The social interaction dummy for respondents, that never interacted with other workers, has a negative significant effect on the general identification dimension. These workers are identifying 0,56 units less with other workers from the same platform than the rest of the sample. Apart from the general dimension, the interaction variable has only another significant effect on satisfaction. Interestingly, this effect is positive, which means that people that never interact with another tend to have a more positive feeling about being a worker from a certain platform. This highly conflicts with assumptions of the theoretical framework and must be the object of further investigations. Therefore, **hypothesis two can only be partly confirmed**.

Hypothesis 3: work-related discussions

The variable about the frequency of work-related discussions with workers from the same platform variable is the only factor, which shows a positive significant effect on every identity dimension. In the case of the unidimensional identity dimension this means that for every increase of one unit of work-related discussions the identification gets 0,35 units stronger. As the standard deviation of the discussion variable is ca.1,5 it means that for every standard deviation on this variable, the identification gets 0,51 units stronger. This underlines how strong the effect of work related discussions is. Therefore, **hypothesis 3 can be confirmed**. In comparison to hypothesis 2 it states that the significant difference is not whether the interaction itself takes place, but

whether the interaction is based on discussion of work-related issues. Because of the importance of this factor a further analysis of the relationships with the other independent variables has been conducted, which is presented in the footnotes.[7]

Hypothesis 4: satisfaction with the working conditions

Satisfaction with the working conditions has a positive significant effect on the unidimensional identification, the satisfaction and the centrality dimension. A change of one units of satisfaction with the working conditions accounts for a change of 0,23 units of the unidimensional identification dimension, for 0,49 on the satisfaction dimension and even higher for a change of 0,56 units of the centrality dimension. In the case of satisfaction this is not very surprising as it can be assumed that being satisfied with the conditions at a certain platform and having a good feeling about being a worker of this platform is closely related. Here it is more interesting to formulate the effect in the other direction. It shows that workers, who are dissatisfied with the working conditions did not manage to reinterpret this dissatisfaction in a way, that leads to a good feeling about being a worker from a certain platform. The same applies for centrality, although here the positive effect between satisfaction with working conditions and centrality is more interesting as the relationship is theoretically less obvious. The fact that the effect of satisfaction with the working conditions is not significant for solidarity shows that in this case also workers, who are dissatisfied with the platform, are feeling solidarity. As a negative relationship between satisfaction and identification has been assumed **hypothesis 3 needs to be rejected.** However, an additional analysis revealed that awareness for bad working conditions has a positive

[7] As understanding the effect of the frequent work-related discussions is fundamentally important for explaining identification within a platform, it is necessary to further discuss the interrelations with other independent variables. The analysis of the bivariate correlation matrix already revealed that there are correlations especially with making bad experiences. To further analyse this assumed indirect effect in a multivariate analysis, a regression model including with frequency of work related discussions as a dependent variable was performed (appendix 13). It included every explanatory variable form the final model excluding the interaction dummy. In addition to education, only the dummy for making bad experiences more than once has turned out to have a negative significant effect, which is further empirical evidence for the indirect effect on work-related discussions. This shows that work-related discussions are affected by a variable, which is related to the class narrative instead of the disruptive industry narrative.

effect on identity within the same platform, which can be seen as empirical support for the *"exploited worker narrative*".[8]

Hypothesis 5: bad experiences with the platform

In terms of the effect of frequently having bad experiences with the platform the results are clear without ambiguity. On the general identification dimension, on satisfaction, stereotyping and homogeneity bad experiences have a strong negative effect. That means that the identification of workers with bad experiences in comparison to the rest of the sample is depending on the dimension between 0,55 (satisfaction) and 0,8 (stereotyping) units lower. If one takes into account that the standard deviations of the affected identity dimensions do not exceed 1,25 the effect can be seen as highly influential. It shows that unlike suggested within the framework of the *"exploited worker narrative",* the negative experiences do not lead to a stronger identification with other platform workers. Therefore, **hypothesis 5 can be rejected.** The only limitation to this finding is that, as already shown in the footnote, the group of workers, which have made bad experiences more than once, is more likely to get engaged into work-related discussions, which is a highly significant factor for identification.

Hypothesis 6: opinion on the platform economy

Finally, the effect of a positive evolution of organising the economy via internet platforms will be discussed. It only had a significant effect on the solidarity and the satisfaction dimension. Interestingly, the direction of the effect differs. On solidarity it has a negative effect, which means that for every unit of positive opinion on the platform economy, the solidarity decreases by 0,28 units. This contradicts the hypothesis 5, which was developed within the *"disruptive industry narrative"*. However,

[8] As the effect of dissatisfaction with the working conditions is considered to be fundamentally important for a later discussion of the prevalence of the class narrative, a more in-depth analysis of this variable will be performed. It was decided to change the item used within the regression analysis (appendix 14). As it has been demonstrated the variable satisfaction with working conditions seem to imply a positive feeling about the group membership. By including the variable about the awareness of bad working conditions the emotional facet of satisfaction will be tried to exclude from the model. Unfortunately, only items for awareness for bad working conditions in the same field (N=67) and in different fields (N=75) are available. After checking that both measures are highly correlated (Pearson 0,61 at a 0,999%-significance level) awareness for bad conditions in different fields has been chosen in order be test the effect for the entire sample. Awareness for bad working conditions in different fields had a positive significant effect on the unidimensional identification and solidarity dimension and improved the explanatory power of both models.

it is still interesting because while a positive correlation between identification and positive opinion on the platform economy would support the existence of the *"disruptive industry narrative*", a significant negative effect can be seen as empirical support for the existence of a *"exploited worker narrative".* The reason is that it can be assumed that a negative effect indicates that the identification has been developed in opposition to the platform economy. This negative effect can be only observed within the solidarity dimension. In the case of the satisfaction dimension it can be said that for every additional unit of positive attitudes towards the platform economy, the satisfaction score increases by 0,3 units. However, **hypothesis 5 needs to be rejected** according the accepting criteria, which have been developed in the beginning of the section.

Social identification with workers from the other platforms

In this section it will be analysed whether the statistical model, which has been used to analyse identification with the same platform also explains identification with workers from different platforms. Thereby, the model will be applied for both identification with workers from the same and from different fields. Thereby, it needs to be mentioned that in the case of workers from the same field only a sample of 66 workers can be included into the analysis. This can be explained by the fact that eight workers were not aware that there are different platforms than the own one operating in the same field. Another two workers did not answer every needed item. For identification with workers from different fields the entire sample was included into the analysis.

The statistical models

In general, the goal was to use the same model as in the previous section for the analysis. However, some pre-tests needed to be made.

1.) It was again necessary to conduct a preliminary analysis including working hours. Therefore, in the case of identification with workers from the same field the opinion on the platform economy variable and the education dummy and in the case of identification with workers from a different field only the education dummy was excluded from the analysis in order to not overload the model. Within the same field layer (N=60) working hours had no significant effect on identification (appendix 15), while on the different field layer working hours (N=68) had its only significant positive effect on the unidimensional identification dimension (Coefficient B=0,02) (appendix 15),. It needs to be stated that in this case working hours only closely (p value: 0,10) met the 0,9% significance threshold. This means that for every ten additional working hours, there is a 0,2 unit change on the unidimensional identity dimensions. However, not everyone

mentioned their working hours, the results are not fully representative for the entire sample of this analysis. In the case of the same field layer **hypothesis 7 needs to be rejected**. However, because working hours have a significant effect on the unidimensional identity dimension on the different field layer, **hypothesis 7 will be partly accepted** when it comes to **identification with workers from different fields**.

2.) In the case of identification within the same field the final model includes every variable related to hypothesis 8-12 but does not include the education dummy as a control variable because of the limited number of cases. On the different field layer, the education dummy has been included. The variable for the interaction variable related to hypothesis 11 has not been included at this stage. The results of the regressions analysis on both layers will be displayed in table 12 and 13.

3.) In order to test the interaction effect, which was related to hypothesis 11 the model was slightly adjusted (appendix 18). For identity within the same field the interaction effect variable was included instead of the opinion about the platform economy variable after it was checked that opinion about the platform economy turned out to be insignificant on every identity dimension. In the case of identification with workers from different fields the interaction variable was included instead of the education control variable. The analysis has been with a centred interaction variable in order to control for multicollinearity and the original satisfaction and awareness variable in order to control for the direct effect.

Table 12: Regression analysis identification same field

	Unidimensional Identification		*Solidarity*		*Satisfaction*		*Centrality*		*Stereotyping*		*Homogeneity*	
N	66		66		66		66		66		66	
R^2	0,26		0,19		0,37		0,30		0,17		0,14	
	Coefficient B	Std. Error	Coefficient B	Std. Error	Coefficient B	Std. Error	Coefficient B	Std. Error	Coefficient B	Std. Error	Coefficient B	Std. Error
(Constant)	0,51	0,93	1,95**	0,93	-0,01	0,87	-0,06	0,92	1,94	0,75	2,01	0,78
Social interactions (same field)	0,31**	0,12	0,06	0,12	0,21*	0,11	0,04	0,12	-0,01	0,10	-0,01	0,10
Work related discussions (same platform)	0,14	0,12	0,20*	0,11	0,03	0,10	0,13	0,10	0,15*	0,09	0,08	0,09
Satisfaction working conditions	0,31**	0,14	0,16	0,13	0,51***	0,13	0,62***	0,13	0,19*	0,11	0,10	0,11
Bad experiences with the platform (more than once)	-0,53*	0,31	-0,26	0,31	0,05	0,29	-0,16	0,30	-0,63**	0,25	-0,58**	0,26
Opinion platform economy	-0,15	0,15	-0,14	0,15	0,10	0,14	-0,15	0,14	-0,05	0,12	0,12	0,12
Awareness for bad working conditions (same field)	0,17	0,15	0,30**	0,15	0,07	0,14	0,11	0,15	0,09	0,12	0,10	0,12

*significant at a *0,9%, **0,95%, ***0,99% level*

Table 13: Regression analysis identification different field

	Unidimensional Identification		*Solidarity*		*Satisfaction*		*Centrality*		*Stereotyping*		*Homogeneity*	
N	75		75		75		75		75		75	
R^2	0,26		0,13		0,33		0,40		0,25		0,31	
	Coefficient B	Std. Error	Coefficient B	Std. Error	Coefficient B	Std. Error	Coefficient B	Std. Error	Coefficient B	Std. Error	Coefficient B	Std. Error
(Constant)	0,75	0,91	2,0*	1,0	0,24	0,90	-0,86	0,84	0,68	0,75	0,60	0,70
Social interactions (different field)	0,40***	0,12	0,23*	0,14	0,19	0,12	0,26***	0,11	0,23**	0,10	0,08	0,08
Work related discussions (same platform)	0,05	0,09	0,13	0,01	-0,01	0,09	0,02	0,08	-0,04	0,07	-0,02	0,06
Satisfaction working conditions	0,17	0,13	0,05	0,15	0,24	0,13	0,33***	0,12	0,05	0,11	0,26***	0,10
Bad experiences with the platform (more than once)	-0,05	0,30	0,17	0,33	-0,08	0,29	0,13	0,28	-0,23	0,24	-0,01	0,01
Opinion platform economy	0,05	0,13	-0,06	0,14	0,29**	0,13	0,28**	0,12	0,28**	0,11	0,20**	0,09
Awareness for bad working conditions (different field)	-0,08	0,15	0,15	0,16	0,01	0,14	0,03	0,14	0,22*	0,12	0,26**	0,11
University education (dummy)	0,08	0,34	-0,01	0,38	0,64*	0,34	0,38	0,32	-0,10	0,28	0,01	0,23

*significant at a *0,9%, **0,95%, ***0,99% level*

The results

The explanatory power of the theoretical model is significantly lower in the context of identification with workers from other platforms than with workers from the same platform. However, also differences between the identifying with workers from the same field and with workers from different fields exist, it is unclear, which of the two layers is better explained by the model if one only looks at the R^2 values. In the case of solidarity and satisfaction the R^2 values higher for the same field layer, while for the other dimensions identity on the different field layer is better explained.

Hypothesis 6: working hours

As already stated **hypothesis 6** can be **rejected in the case of identification with workers from the same platform** but can be **partly accepted in the case of identification with workers from different platforms**.

Hypothesis 7: interactions

Social interactions with workers from different platforms has turned out to be a strong predictor of identification with workers from other platforms. On the same field layer, it is significant for the unidimensional identification and for the satisfaction dimension. On the different field layer, it is significant for every dimension except satisfaction and homogeneity. The direction of the effect is always positive. On the general identification dimensions, it means that for every additional unit of social interactions the identity value increases for 0,31 units (table 12) on the same field layer and 0,40 units (table 13) on the different field layer. This indicates that the effect of social interactions on identification with workers from different fields is stronger than for the same field. In the case of both layers **hypothesis 7 can be accepted**.

Hypothesis 8: frequencies of work-related discussions

Unlike in the case of identification within the same platform, the frequency of work related discussions with other workers from the same platform is completely insignificant for identification with workers from a different field. However, it explains identity on the same field layer in the case of the solidarity and the stereotyping dimension. On those dimensions the effect is with a 0,2 (solidarity) and 0,15 (stereotyping) unit change of the identity dimension for every additional unit of work-related discussions not extremely strong (table 12). Consequently, **hypothesis 8 can only be partly accepted in the case of the same field layer and must be rejected in the context of the different field layer.**

Hypothesis 9: satisfaction with bad working conditions

Again, satisfaction with the working conditions again has only a positive effect on identification. On the same field layer, it is significant on all Leach dimensions except

solidarity and homogeneity. On the centrality dimension it is even the only significant variable and therefore has an extremely high unstandardized coefficient (0,62) (table 12). In the case of the different field layer satisfaction with the working conditions has a significant effect on satisfaction, centrality and homogeneity (table 13). Although satisfaction with the working conditions has an important effect on identification, **hypothesis 9 needs to be rejected on both layers** as a negative effect on both layers within the "exploited worker narrative" has been assumed.

Although it has been assumed that making bad experiences with the platform does not influence identification with workers from other platforms, it has turned out to be negatively significant on the general identification, the stereotyping and the homogeneity dimension within the same field layer. In particular, this means that the unidimensional identification score of the group of workers, who are frequently making bad experiences, is 0,53 units smaller than the score from the rest of the sample. On the different field layer, making bad experiences with the platform does not have any significant effect.

Hypothesis 10: awareness for bad working-conditions

Awareness for bad working conditions is only a significant predictor when it comes to solidarity with workers from the same field. For every unit increase of awareness, there is a 0,3 unit increase of the solidarity score (table 12). In the case of identification across different fields awareness for bad working conditions has a significant effect on stereotyping and homogeneity (table 13). In terms of Leach identity concept this means that awareness for bad working conditions leads to a cognitive self-definition but is not related to any form of personal self-investment for this general group of all platform workers. Although these effects are highly interesting, **hypothesis 10 needs to be rejected.**

Hypothesis 11: Interaction effect of satisfaction on awareness for bad working conditions

As stated above an additional regression analyses for the interaction effect in the context of hypothesis 11 have been conducted. This was done to answer the question, whether awareness for bad working conditions has an effect on identification if the worker itself is satisfied with the conditions at his platform. This question is highly relevant for understanding relationships between workers from different platforms. The regression analysis (appendix 18) showed that the interaction effect variable did not

have any significant effect on identification at any layer. Therefore, **hypothesis 11 will be rejected.**[9]

Hypothesis 12: positive opinion on the platform economy

Finally, the effect of the workers' opinion about the platform economy needs to be discussed in order to offer empirical insights into the existence of the *"disruptive industry narrative".* At the same field layer, this factor is completely insignificant. However, it has a positive significant effect on the satisfaction, the centrality, the stereotyping and the homogeneity dimension within the different field layer. One changes of a unit of this independent variable accounts for a change of between 0,20 (homogeneity) and 0,29 (satisfaction) units of the identity scales (table 13). Consequently, **hypothesis 12 will be accepted for explaining identification across different fields and rejected for identification within the same field.**

The results of the study have been summarized in table 14.

[9] In addition, a rather simple comparison of the mean identity score of all identity dimensions between workers with high values on both the satisfaction and the awareness dimension has been performed (appendix 19). Within the same field satisfied workers with a high awareness are on average stronger identifying with workers from the same field on every identity dimension than the average worker from the sample. When it comes to the relationship between workers from different fields no significant difference between the subsample and the average worker can be observed. Although a clear trend can be recognized, it is difficult to draw further conclusions based on this analysis, because the subsample of satisfied workers with a high awareness rather small (N=10 for same field and 14 for different fields) is. Therefore, further research on this question needs to be done.

	Identification with workers from the same platform	*Identification with workers from the same field*	*Identification with workers from a different field*
Working Hours	no effect	no effect	(+)
Social interactions	+	+	+
Work related discussions (same platform)	+	no effect, except on solidarity	no effect
Satisfaction with the working conditions	+ (negative effect was assumed)	+ (negative effect was assumed)	+ (negative effect was assumed)
Bad experiences with the platform	- (positive effect was assumed)	No effect	No effect
Awareness for bad working conditions	+	+	+
Positive opinion on the platform economy	Conflicting effect Negative: Solidarity Positive: Centrality	No effect	+

+ = effect has a positive direction; - = effect has a negative direction

Table 14: results overview

Discussion and Conclusion

In this final section the results from the empirical analysis will be put into a greater context in order to answer the original research question. Thereby, the meaning of the empirical results will be highlighted by linking the results from the quantitative data analysis with the insights gained during the seven semi-structures interviews. Further, the findings will be used to reflect on the theoretical framework of social identity, which has been used for this study. Then the implications of this study for the societal debate about work in the platform economy will be discussed until finally limitations of this study will be mentioned, which will result in suggestions for further research.

Answering the research question

The original research question, which was "To what extent and why are platform workers identifying with each other?" will be answered by following the structure given through the sub questions. Although there are big differences between the different dimensions and layers on which identification takes place it can be stated that at least the delocalisation argument, that work-related identities in the platform economy are not a relevant factor anymore, needs to be rejected.

Identification with workers from the same platform

Not surprisingly, the highest identity scores within this sample can be found on the layer of identification among workers from the same platform.

Here it is interesting that the largest majority of the workers felt solidarity within this group. However, it was also shown that solidarity does not necessarily go hand in hand with other dimensions of identification. Especially, on the centrality dimension much lower scores could be observed.

Across all identity elements the variables, that are associated with the behavioural involvement dimension by Leach et al. (2008) had the most significant effect on identification with the workers from the same platform. However, it needs to be stated that working hours interestingly had no effect. Instead social interactions among workers turned out to be the most relevant factor. Thereby, it is interesting that not only the interaction itself seems to be important, but especially whether work-related issues are being discussed.

By analysing the content dimension of Ashmore et al. (2004) interesting insights could be gained into the question whether social identity among workers is rather based on the *"exploited worker"* or the *"disruptive industry narrative"*. Interestingly, the items which were related to the "exploited worker narrative" turned out to be

insignificant. Firstly, workers that are satisfied with the working conditions evaluate being a worker from a certain platform as much more important for their personal identity then those, who are dissatisfied. This indicates that a “reinterpretation process” (H. Tajfel, 1974), that changes a feeling of injustice or frustration into a positive feeling of collective self-efficacy, is not the predominate pattern within this sample.

However, due to the usage of a multi-dimensional framework of identity, it can still be stated that especially on the solidarity dimension the variables related to the “exploited worker narrative” seem to have an impact although this is not indicated by the satisfaction or bad experience variable. Instead workers, who had a negative opinion on the platform economy and people, who showed a higher awareness of bad working conditions are more likely to express solidarity with other workers. This raises the question why those items were influential while the original ones were not. One hypothesis, which needs to be tested in further research, is that the significant variables where linked to rational processes while factors such as dissatisfaction also imply an emotional component. In the context of the ongoing discussion about Hirschman (1970) exit, loyalty and voice framework it could mean that an emotionally experienced frustration does more likely lead to detachment from other workers. If injustice is only perceived on a rational level the incentives to get emotionally detached from other workers might be lower and therefore the potential for a group formation is higher.

However, the additional analysis of social interactions between the independent variables revealed that there could be a way out of the tendency of detachment. The frequencies of work related discussions as the strongest explanatory factor of identity could be explained by making bad experiences. This can be an indicator that factors associated to the *“exploited worker narrative”* have an indirect effect via social interactions among the platform workers.

When it comes to the *“disruptive industry narrative”* a positive opinion on organising economic processes via internet platforms could only explain the satisfaction dimension. This is not enough to call the “*disruptive industry narrative”* the most central explanatory factor, but it reveals two interesting findings. If one wants to understand identification within the platform economy, it is not sufficient to regard the “exploited worker narrative” and “*disruptive industry narrative*” as two contradicting stories. Indeed, both narratives have been found to have an effect within quantitative

but also within the quantitative analysis. A representative from DeliverUnion Berlin stated:

"The people want to be freelancer, but they also want to enjoy all the benefits of employed people." (DeliverUnion_Berlin, 2018)

This demonstrates that the platform economy is not only perceived as negative development but that the flexibility is also appealing to workers. However, this does not distract them from demanding better working conditions (DeliverUnion_Berlin, 2018; Jovoto_worker_1, 2018).

Secondly, it shows that only positive feelings, such as satisfaction with the working conditions or the *"disruptive industry narrative"* are capable of achieving that the platform worker perceives this social identity as important and associates it with a good feeling. Variables related to the *"exploited worker narrative"* does only effect solidarity. Especially, if one looks at Jovoto, it becomes clear how being satisfied with the working conditions might lead to a positive form of identification with other platform workers. Therefore, it is helpful to consider what Huws (2014) writes about creative work. She describes the creative industry as an industry, in which workers are disconnected not only physically but also because jobs are usually offered within open competitions, which creates a significant degree of competitiveness among platform workers. Therefore, the interview partner, who was asked whether he interacts with other Jovoto workers, stated:

"Jovoto is a platform where you can collaborate with other workers. The best jobs I had where two cooperation´s with workers I met here. And we are friends now. We met in the offline world as well…" (Jovoto_worker_2, 2018)

This shows how platforms can also reunite workers in a competitive industry, so that identification with other workers is also based on an identification with the platform itself.

Identification with workers from other platforms

When it comes to identification with workers from other platforms, social interactions again had the most significant effect. This applies to both identification with workers

from the same and with workers from different fields. This shows that the classical "interaction hypothesis" by Allport (1954) is still valid in the platform economy.

However, it has turned out to be the case that content wise social identity among workers from the same platform and workers from different fields differ from another. Within the same field work related discussions within and the awareness for bad working conditions as indicators of the "exploited workers narrative" turned out to have a significant effect while the opinion about the platform economy as an indicator for the *"disruptive industry narrative"* was not significant. But again, satisfaction with the working conditions did not have a negative but a positive effect on the satisfaction and especially the centrality dimension. This supports the finding from the same platform layer that in the case of the *"exploited workers narrative*" only variables that are related to rational opinions are significant, while the feeling of dissatisfaction leads to greater emotional detachment from the group.

In the case of identification with workers from other fields all the items, which are related to the "*exploited worker narrative",* are not significant on the one hand. On the other hand, the variable related to the *"disruptive industry narrative"* is significant on many dimensions within the different field layer.

The finding that the variables related to the "exploited worker narrative"" are significant within the same field but not across fields is also supported during the qualitative interviews. One Jovoto worker stated:

"Companies are taking advantage of this. Sometimes you feel shit, because they are exploiting the people's resources and skills. And they are also taking the copyright […] I would participate in a discussion for a or in a few skype meetings. I would be interested to join. […] They [riders for food delivery platforms] have their own problems. I think they have to solve them out, because I think there are huge problems as well. But in terms of industry they are very different. (Jovoto_worker_1, 2018)

This shows that she clearly perceives non-creative workers, such as foodora worker, as forming an outgroup, while she identifies injustice within the same field, which would even motivate her to get engaged into collective action. Also, the experts for workers from food delivery platforms stated that solidarization is especially taking place between foodora and Deliveroo workers (DeliverUnion_Berlin, 2018; Liefern_am_Limit, 2018).

Also, a Foodora worker stated that he felt the same amount of solidarity with other Deliveroo workers than with other Foodora workers while he is not aware of an overall category of platform workers

"I strongly feel solidarity with other drivers from the industry. But with platform workers. Hmm. I don`t know them, so there are not in my sight." (Foodora_rider_1, 2018).[10]

Summing up it shows that when it comes to identification with workers from other platform both narratives can be separated more clearly as variables of the *"exploited worker narrative"* tend to have a significant effect within the same field of platforms, while the variable related to the "*disruptive industry narrative"* effects, that a superordinate form of platform worker-identity emerges.

Societal Relevance

What can be drawn from this research is first of all that work-related identities in the platform economy already exist. Social identity can be found within the same platform, the same field and across different fields. It can therefore not be created by external actors from scratch. Here it is especially notable that the identification with workers from different fields is not based on a *"exploited worker narrative"* as some observers assume (Huws, 2014). The empirical analysis showed that satisfaction with the working conditions and a positive opinion on the platform economy are relevant factors explaining identity. Therefore, an identity conflict could occur if these positive narratives would be questioned through the *"exploited worker narrative" of* for example labour unions. As Schmid et al. (2009) have stated such an *identity threat* would rather lead to a rejection of the unions narrative and would strengthen the original content of identification. The interviews are giving empirical evidence that this actually takes place. The representative from DeliverUnion Berlin reported that workers were complaining at their meetings that they disagree with the demand of employing people in normal working contracts. They would actually prefer to stay freelancers (Liefern_am_Limit, 2018). This opinion was shared by a Jovoto worker, which has been interviewed:

"For me when I think of workers, I think of jobs like a nine to five schedule. While for freelancing it is whole different things. You have control over your time. It's like comparing apple with banana. When you say platform workers. At least from the point

[10] Translation

of terminology." Later he stated *"You always repeated platform worker, platform worker, platform worker...and I am not a worker..." (Jovoto_worker_2, 2018)*

This shows that simply the usage of the term worker has caused such negative associations that he was completely detached from the idea of being a platform worker. However, at later point in the interview he stated that he calculated the average salary he earns at Jovoto, which is way too low in his eyes (Jovoto_worker_2, 2018) This shows that although he has an awareness for bad working conditions, it is more important for him to maintain a positive image of himself as a freelancer than admitting that he has shared interests with workers, who are not active in the creative industry.
In order to solve this identity conflict new narratives would be needed, which recognize both: The need to improve working conditions but also the positive self-image of the workers.
Further, the analysis revealed that the amount of time spent in the platform economy seem to be not as important as one might think. Instead the social interactions variable is among the strongest factors explaining social identity and is also capable of transforming the *"exploited worker narrative"* into a social identity, which makes the worker attach significance to. Thereby, especially the interviews are showing in how many different ways interaction among platform workers does already take place. One Jovoto worker stated that she knows many other Jovoto workers, because one of her clients invited all participants of a challenge to a real-life meeting, which resulted in lasting friendships (Jovoto_worker_1, 2018). The other interview partner from Jovoto mentioned that he regularly meets up with other Jovoto workers from the same city to do free time activities (Jovoto_worker_2, 2018). This shows that networks in the platform economy already exist, which can be extended and strengthened.

Reflexion on the theoretical framework

However, the five dimensions by Leach et al. (2008) seemed to be highly correlated on the first glance, the application of the theoretical framework revealed that the dimensions can be explained by different factors. Although, Leach mainly differentiates between the self-investment (solidarity, satisfaction, centrality) and self-categorization (stereotyping, homogeneity), it was shown that divergent dynamics especially between the centrality/satisfaction dimension and the solidarity dimension can be observed.
Furthermore, the explanatory framework, which was developed based on the Ashmore et al. (2004) model seems to provide a promising way to develop a set of variables that explains social identity within a certain group. Testing the own assumptions about

behavioural involvement and content by asking whether these factors actually explains the universal identity measures by Leach et al. (2008) has turned out to reveal interesting effects. By using the explanatory approach, it is possible to show that in practice there is a complex coexistence of factors, which are related to both narratives. If the strategy proposed by the Ashmore et al. (2004) model would have been followed, which is measuring identity via the content and behavioural involvement misleading conclusions would have been made about for example the result that working hours turned out to be insignificant.

The fact that job satisfaction had a highly positive effect on identification shows, that if one only includes behavioural involvement and content as the main explanatory dimensions, there might be a weak focus on why people have a good feeling about their group membership. Therefore, extending the procedure with a dimension especially related to the positive evaluation of the identity might be a next step.

Finally, the fact that identification with workers from the same field and from a different field have been explained by different variables can be seen as a supporting evidence for the decision to separate identification within and across different fields.

Suggestions for further research

Smaller discussions of limitations and suggestions for further research have been done throughout the paper. In this section it will be focused on the most important next steps based on the results of this study.

Firstly, more needs to be known about the question whether satisfied platform workers, who are also aware of bad conditions at other platforms, are identifying with workers from other platforms. Within this study the interaction effect between satisfaction and awareness for bad working conditions turned out to be insignificant. However, basic descriptive statistic shows that this group is actually more than average identifying with other workers, but these results are only based on a small subsample, which makes it hard to generalize. The interview with the Stadtsalat driver revealed interesting insights into the mechanism in this matter. When asked about her image about Foodora drivers, she stated.

"I have the image in my head that I feel sorry for them. […] It would be a strong statement for Stadtsalat if their workers are getting engaged for other workers, that work under conditions, that are significantly worse." (Stadtsalat_rider, 2018)[11]

[11] Translation

These first observations could be seen as a starting point in order to find out more about the relationship between platform workers, who are satisfied with the platform economy and those who are not.

Secondly, more research needs to be done on the nature of social interactions among platform workers, as this has turned out to be a strong explanatory variable for social interactions. Thereby especially two aspects are interesting. Firstly, which narratives can be observed when platform workers are meeting up? This empirical analysis demonstrated the significance of variables, which are related to pre-defined narratives. How these factors are in practice forming complex narratives, need to be further studied within future exploratory qualitative research projects. Secondly, how do these social interactions construct the ingroup-outgroup boundaries? In this study it was assumed that these boundaries are existing along the lines of the group of workers from same platform and from the same field. However, the interviews revealed how diverse the reference groups for identification can be. One Jovoto worker reported that he identifies strongly with freelancers in general (Jovoto_worker_2, 2018) while the representative of DeliverUnion Berlin stated that it is important to strengthen a common identification of workers with low income workers no matter if they work for internet platforms or not (DeliverUnion_Berlin, 2018). This shows that there is an urgent need of more exploratory research in order to find out what the most important reference groups for work-related identities in the platform economy are. Therefore, the research designs of two studies are interesting. Saunders (2008) did a qualitative observational study in which he analysed the development of a superordinate identity within the environmental movement. He observed that within the movement the different subgroups have created their own narratives about environmental ideologies, which resulted in exclusive in-group boundaries, a high in-group bias and a low identification with the superordinate group. Contrary, Flesher Fominaya (2010) showed that exclusive narratives within the subordinated fora of the global justice movement led to a stronger identification with the entire movement. It can be suggested that such processes also take place within the platform economy. As representatives from all three major political initiatives dealing with the working conditions at food delivery companies were interviewed strong differences in terms of goals narratives and ideology could be observed. While the initiative DeliverUnion is associated to anarchist labour union and postulates demands, which are based on a fundamental class

struggle and the necessity of radical methods (DeliverUnion_Berlin, 2018), Liefern am Limit seemed to have a more moderate rhetoric (Liefern_am_Limit, 2018). Therefore, doing exploratory qualitative research using similar approaches to the mentioned ones will hopefully contribute to a better understanding of how social interactions among platform workers construct narratives and group boundaries. Such a study would be the logical next step based on the results from this study.

Final remarks

This study has started with a critique of the fact that the workers perspective on their situation in the platform economy is strongly underrepresented in a polarized discourse. It was shown that if one puts the platform worker into the centre of the examination, it becomes apparent that the dichotomous thinking of the *"exploited worker narrative"* and the *"disruptive industry narrative"* needs to be overcome. Only then it is possible to recognize the complex needs of the platform workers, which express themselves in their social identities.

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Appendix

Appendix 1: Frequencies Identification

	1	*2*	*3*	*4*	*5*
Stereotyping same platform	7 (9.3%)	11 (14.7%)	28 (37.3%)	24 (32%)	5 (6.7%)
Stereotyping same field	4 (6%)	12 (17,9%)	36 (53,7%)	13 (19,4%)	2 (3%)
Stereotyping different field	10 (13,3%)	13 (17,3 %)	42 (56%)	9 (12%)	1 (1,3%)
Homogeneity same platform	5 (6.7%)	5 (6.7%)	36 (48%)	21 (28%)	8 (10,7%)
Homogeneity same field	3 (4,5%)	8 (11,9%)	33 (49,3%)	21 (31,3%)	2 (3%)
Homogeneity different field	5 (6,7%)	7 (9,3%)	45 (60%)	18 (24%)	0 (0%)

Appendix 2: Descriptive statistics of the dependent variables for local workers.

	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Same Platform					
General Identification	31	1	5	3.5	1.1
Solidarity	31	1	5	4.5	0.9
Satisfaction	31	1	5	3.2	1.3
Centrality	31	1	5	2.4	1.4
Stereotyping	31	1	5	3.2	1.0
Homogeneity	31	1	5	3.4	1.0
Same field					
General Identification	31	1	5	2.9	1.0
Solidarity	31	1	5	4.1	1.0
Satisfaction	31	1	5	2.9	1.2
Centrality	31	1	4	2.2	1.1
Stereotyping	31	1	5	3.0	.8
Homogeneity	31	1	5	3.2	.9
Different Field					
General Identification	31	1	5	2.3	1.2
Solidarity	31	1	5	3.6	1.3
Satisfaction	31	1	4	2.6	1.0
Centrality	31	1	4	1.9	1.1
Stereotyping	31	1	5	2.7	.9
Homogeneity	31	1	4	2.8	.8

Appendix 3: Descriptive statistics of the dependent variables for virtual workers.

	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Same Platform					
General Identification	44	1	5	2.9	1.1
Solidarity	44	1	5	3.7	1.0
Satisfaction	44	1	5	3.7	1.2
Centrality	44	1	5	2.7	1.4
Stereotyping	44	1	5	3.1	1.1
Homogeneity	44	1	5	3.3	1.0
Same field					
General Identification	36	1	5	2.6	1.1
Solidarity	36	1	5	3.4	1.0
Satisfaction	36	1	5	3.0	1.1
Centrality	36	1	5	2.4	1.2
Stereotyping	36	1	5	2.9	.9
Homogeneity	36	1	5	3.1	.8
Different Field					
General Identification	44	1	4	2.1	1.1
Solidarity	44	1	5	3.1	0.9
Satisfaction	44	1	5	3.2	1.2
Centrality	44	1	5	2.5	1.2
Stereotyping	44	1	4	2.7	.9
Homogeneity	44	1	4	3.1	.7

Appendix 4: Descriptive statistics of the independent variables for local workers.

	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Working Hours	31	4	55	17,3	12,7
Social interactions (same field)	31	1	5	3.0	1.3
Social Interactions (different field)	31	1	3	1.8	0.8
Work related discussions (same field)	31	2	5	4.2	0.9
Satisfaction working conditions	31	1	5	2.7	1.3
Awareness conditions (same field)	31	1	5	3.7	1.1
Awareness conditions (different field)	31	1	5	3.5	1.0
Opinion platform economy	31	1	5	3.4	1.1
Age	30	18	36	26.3	5.1
Political Attitudes	30	1	9	3.8	2.3

	N	*Frequency*	*Valid Percentage*
Bad experiences	*31*		
Never		*10*	*32.3*
Once		*10*	*32.3*
More than once		*11*	*35.5*
Interactions same platform	*31*		
Personally, and Online		*3*	*9.7*
Only Personally		*27*	*87.1*
Only Online		*1*	*3.2*
Never		*0*	*0*
Country	*31*		
Germany		*30*	*96.8*
OECD		*1*	*3.2*
Other non-OECD country		*0*	*0*
Education	*31*		
University Yes		*20*	*64.5*
University No		*11*	*35.5*

Appendix 5: Descriptive statistics of the independent variables for virtual workers.

	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Working Hours	37	2	45	12.8	10.6
Social interactions (same field)	36	1	5	2.6	1.2
Social Interactions (different field)	44	1	5	1.9	1.2
Work related discussions (same field)	44	1	5	2.5	1.4
Satisfaction working conditions	44	1	5	4.0	1.1
Awareness conditions (same field)	36	1	4	3.0	.8
Awareness conditions different field	44	1	5	3.2	.9
Opinion platform economy	44	1	5	3.8	1.1
Age	41	20	56	35.1	9.4
Political Attitudes	44	1	9	4.8	1.9

	N	*Frequency*	*Valid Percentage*
Bad experiences	*44*		
Never		*25*	*56.8*
Once		*9*	*20.5*
More than once		*10*	*22.7*
Interactions same platform	*44*		
Personally, and Online		*4*	*9.1*
Only Personally		*14*	*31.8*
Only Online		*7*	*15.9*
Never		*19*	*43.2*
Country	*43*		
Germany		*13*	*30.2*
OECD		*15*	*34.9*
Other non-OECD country		*15*	*34.9*
Education	*44*		
University Yes		*40*	*90.9*
University No		*4*	*9.1*

Appendix 6: Correlation matrix for the same and different field layer

6a. identification with workers from the same field

	Homogeneity	*Stereotyping*	*Centrality*	*Satisfaction*	*Solidarity*	*General Identification*
General Identification	.326***	.373***	.530***	.471***	.536***	1
Solidarity	.345***	.384***	.294***	.283**	1	
Satisfaction	.139	.159*	.507***	1		
Centrality	.390***	.487***	1			
Stereotyping	.656***	1				
Homogeneity	1					

significant at a *0,9%, **0,95%, ***0,99% level

6b. identification with workers from different fields

	Homogeneity	*Stereotyping*	*Centrality*	*Satisfaction*	*Solidarity*	*General Identification*
General Identification	.248**	.388***	.449***	.429***	.541***	1
Solidarity	.242**	.395***	.281***	.310***	1	
Satisfaction	.380***	.323***	.702***	1		
Centrality	.377***	.510***	1			
Stereotyping	.566***	1				
Homogeneity	1					

significant at a *0,9%, **0,95%, ***0,99% level

Appendix 7: Factor analysis

7a. identification with workers from the same platform

	Component 1
Solidarity same platform	,589
Satisfaction same platform	,732
Centrality same platform	,828
Stereotyping same platform	,812
Homogeneity same platform	,770

Extraction Method: Principal Component Analysis.[a]

a. 1 components extracted.

7b. identification with workers from the same field

	Component 1	*Component 2*
Solidarity same field	,633	,007
Satisfaction same field	,541	,755
Centrality same field	,761	,342
Stereotyping same field	,805	-,399
Homogeneity same field	,759	-,464

Extraction Method: Principal Component Analysis.[a]

a. 2 components extracted.

7c. identification with workers from a different field

	Component 1
Solidarity different field	,566
Satisfaction different field	,762
Centrality different field	,815
Stereotyping different field	,773
Homogeneity different field	,705

Extraction Method: Principal Component Analysis.[a]

a. 1 components extracted.

Appendix 8: Correlation matrix for the unidimensional identification score and the extracted factors

	Factor same platform	*Factor same field 1*	*Factor same field 2*	*Factor different field*	*Identification same platform*	*Identification same field*	*Identification different field*
Identification different field	,293**	,374**	,589**	,554**	,553**	,795**	1
Identification same field	,408**	,499**	,610**	,483**	,773**	1	
Identification same platform	,666**	,522**	,607**	,518**	1		
Factor different field	,601**	,555**	,681**	1			
Factor same field 2	,604**	,332**	1				
Factor same field 1	,679**	1					
Factor same platform	1						

significant at a *0,9%, **0,95%, ***0,99% level

Appendix 9: Correlation matrix for the identification with the same platform and independent variables

	Opinion platform economy	Bad experiences	Satisfaction conditions	Work related discussions	Social Interactions	Homogeneity	Stereotyping	Centrality	Satisfaction	Solidarity	Unidimensional Identification
Opinion platform	1										
Bad experiences	-,18	1									
Satisfaction conditions	,42**	-,22	1								
Work related discussions	,07	,37**	-,16	1							
Social interactions	,05	-,23	,16	-,52**	1						
Homogeneity	,19	-,23	,14	,18	-,11	1					
Stereotyping	,33**	-,24*	,19	,32**	-,16	,62**	1				
Centrality	,37**	-,13	,51**	,22	-,04	,50**	,53**	1			
Satisfaction	,49**	-,25*	,60**	,09	,16	,37**	,43**	,69**	1		
Solidarity	-,15	,05	-,04	,45**	-,28*	,37**	,43**	,33**	,22	1	
Unidimensional Identification	,20	-,13	,24*	,39**	-,34**	,40**	,49**	,55**	,47**	,64**	1

significant at a *0,9%, **0,95%, ***0,99% level

Appendix 10: Regression: Identity same platform + working hours + test for the choosing the bad experience dummy

Long version for the unidimensional identity measure.

	Unidimensional Identification	
N	68	
R^2	0,34	
	Coefficient B	Std. Error
(Constant)	1,51***	0,55
Social interactions (never)	-0,50	0,31
Work related discussions (same platform)	0,32***	0,09
Satisfaction Conditions	0,21	0,12
Bad experiences (more than once)	-0,74**	0,31
Opinion Platforms	0,01	0,12
Working hours	**0,01**	**0,01**

significant at a *0,9%, **0,95%, ***0,99% level

Short version for the other identity dimensions.

The table shows the effect of working hours on the five identity dimensions.

	Coefficient B	*Std. Error*	*p. value*
Solidarity	0.01	0.01	0.28
Satisfaction	-0.01	-0.01	0.21
Centrality	-0.01	-0.02	0.35
Stereotyping	-0.01	-0.01	0.23
Homogeneity	-0.02*	-0.01	0.06

significant at a *0,9%, **0,95%, ***0,99% level

Choosing the bad experience dummy.

	Unidimensional Identification	
N	75	
R^2	0,32	
	Coefficient B	Std. Error
(Constant)	0.84	0,61
Social interactions (never)	-0,60**	0,31
Work related discussions (same platform)	0,29***	0,10
Satisfaction Conditions	0,24*	0,12
Bad experiences (never)	0,35	0,24
Opinion Platforms	0,08	0,12
University Education	0,33	0,31

significant at a *0,9%, **0,95%, ***0,99% level

This shows that the effect of bad experience (never) is insignificant, while the effect of bad experience (more than once) is significant in the same model (table 11).

Appendix 11: Regression: Identity same platform + control variables

11a. political attitudes

	Unidimensional Identification	
N	74	
R^2	0,34	
	Coefficient B	Std. Error
(Constant)	1,56***	0,55
Social interactions (never)	-0,58	0,30
Work related discussions	0,30***	0,10
Satisfaction Conditions	0,30**	0,12
Bad experiences	-0,66**	0,27
Opinion Platforms	0,04	0,12
Political Attitudes	**-0,05**	**0,06**

significant at a *0,9%, **0,95%, ***0,99% level

11b. education university background

	Unidimensional Identification	
N	75	
R^2	0,35	
	Coefficient B	Std. Error
(Constant)	1,12	0,59
Social interactions (never)	-0,56	0,30
Work related discussions	0,35***	0,10
Satisfaction Conditions	0,23**	0,12
Bad experiences	-0,73***	0,27
Opinion Platforms	0,04	0,12
Education university	**0,43**	**0,30**

significant at a *0,9%, **0,95%, ***0,99% level

11c. age

	Unidimensional Identification	
N	71	
R^2	0,39	
	Coefficient B	Std. Error
(Constant)	1,54**	0,55
Social interactions (never)	-0,64	0,29
Work related discussions	0,35***	0,10
Satisfaction Conditions	0,24**	0,12
Bad experiences	-0,63**	0,29
Opinion Platforms	0,04	0,12
Age till 25	**-0,25**	**0,30**
Age 30 - 35	**-0.11**	**0.27**

significant at a *0,9%, **0,95%, ***0,99% level

	Unidimensional Identification	
N	75	
R^2	0,35	
	Coefficient B	Std. Error
(Constant)	1,33**	0,57
Social interactions (never)	-0,63	0,30
Work related discussions	0,35***	0,10
Satisfaction Conditions	0,25**	0,12
Bad experiences	-0,61***	0,30
Opinion Platforms	0,04	0,12
Age 30 - 35	**0,18**	**0,31**
Age 35 plus	**0.15**	**0.29**

significant at a *0,9%, **0,95%, ***0,99% level

Appendix 12: Regression: Identity same platform + local work

Long version for the unidimensional identity measure.

	Unidimensional Identification	
N	75	
R^2	0,35	
	Coefficient B	Std. Error
(Constant)	-0,54	0,31
Social interactions (never)	-0,54	0,31
Work related discussions (same platform)	0,28***	0,10
Satisfaction Conditions	0,31**	0,12
Bad experiences	-0,64**	0,28
Opinion Platforms	0,03	0,12
Local work	**0,20**	**0,31**

significant at a *0,9%, **0,95%, ***0,99% level

Short version for the other identity dimensions.

The table shows the effect of the local work dummy on the five identity dimensions.

	Coefficient B	*Std. Error*	*p. value*
Solidarity	0.30	0.30	0.32
Satisfaction	-0.07	-0.30	0.82
Centrality	-0.32	-0.37	0.39
Stereotyping	-0.32	-0.11	0.12
Homogeneity	-0.12	-0.31	0.70

significant at a *0,9%, **0,95%, ***0,99% level

Appendix 13: Regression: Indirect effect on work-related discussions

	Discussions about work	
N	75	
R^2	0,366	
	Coefficient B	Std. Error
(Constant)	3,13***	0,73
Satisfaction Conditions	-0,07	0,17
Bad experiences (more than once)	**1.24*** **	**0,37**
Opinion Platforms	0,250	0,17
Education (university)	-0,777*	0,42
Political attitudes	-0,080	0,09

significant at a *0,9%, **0,95%, ***0,99% level

Appendix 14: Regression: Identity same platform + Awareness for bad working conditions

Pre-test to check whether Awareness for working conditions in a different field can be used instead of Awareness for working conditions in the same field in order to be to include the entire sample into the regression analysis.

		Awareness conditions different field
Awareness conditions same field	Pearson Correlation	.614
	Sig. (2-tailed)	.000
	N	67

	Identification		*Solidarity*	
N	75		75	
R^2	0,366		0,315	
	Coefficient B	Std. Error	Coefficient B	Std. Error
(Constant)	-0,04	0,89	2,52***	0,85
Social interactions (never)	-0,475	0,300	-0,068	0,285
Work related discussions (same platform)	0,359***	0,096	0,353***	0,091
Satisfaction Conditions	0,094	0,098	0,073	0,093
Bad experiences (more than once)	-0,897***	0,280	-0,530**	0,266
Opinion Platforms	0,153	0,116	-0,186**	0,110
Education (university)	0,753*	0,324	-0,034	0,308
Awareness for bad working conditions (different field).	**0,251***	**0,141**	**0,275****	**0,134**

significant at a *0,9%, **0,95%, ***0,99% level

Appendix 15: Regression: Identity same field + working hours

Long version for the unidimensional identity measure.

	Unidimensional Identification	
N	68	
R^2	0,34	
	Coefficient B	Std. Error
(Constant)	0,32	0,96
Social interactions (same field)	.29**	0,12
Work related discussions (same platform)	0,11	0,11
Satisfaction Conditions	0,18	0,14
Bad experiences	-0,56*	0,33
Awareness conditions (same field)	0,19	0,16
Working hours	**0,013**	**0,012**

significant at a *0,9%, **0,95%, ***0,99% level

Short version for the other identity dimensions.

The table shows the effect of working hours on the five identity dimensions.

	Coefficient B	*Std. Error*	*p. value*
Solidarity	0.020	0.012	0.10
Satisfaction	0.002	0.019	0.87
Centrality	-0.005	0.013	0.69
Stereotyping	-0.014	-0.010	0.17
Homogeneity	-0.002	0.010	0.83

significant at a *0,9%, **0,95%, ***0,99% level

Appendix 16: Regression: Identity different field + working hours

Long version for the unidimensional identity measure.

	Unidimensional Identification	
N	68	
R^2	0,32	
	Coefficient B	Std. Error
(Constant)	1,54*	0,86
Social interactions (different field)	.44**	0,12
Work related discussions (same platform)	0,01	0,09
Satisfaction Conditions	0,08	0,13
Awareness conditions different field	-0,22	0,14
Opinion platform economy	-0.003	0.12
Working hours	**0,018**	**0,011**

significant at a *0,9%, **0,95%, ***0,99% level

Short version for the other identity dimensions.

The table shows the effect of working hours on the five identity dimensions.

	Coefficient B	*Std. Error*	*p. value*
Solidarity	0.011	0.012	0.39
Satisfaction	0.009	0.011	0.41
Centrality	0.001	0.011	0.90
Stereotyping	-0.010	0.009	0.30
Homogeneity	-0.008	0.008	0.30

significant at a *0,9%, **0,95%, ***0,99% level

Appendix 17: Regression: Identity same field + interaction effect

Long version for the unidimensional identity measure.

	Unidimensional Identification	
N	66	
R^2	0,258	
	Coefficient B	Std. Error
(Constant)	-0,03	0,81
Social interactions (same field)	.30**	0,12
Work related discussions (same platform)	0,12	0,10
Satisfaction Conditions	0,29**	0,13
Bad experiences	-0,60*	0,32
Awareness conditions same field	0,20	0,14
Interaction effect	**-0,12**	**0,12**

significant at a *0,9%, **0,95%, ***0,99% level

Short version for the other identity dimensions.

The table shows the effect of the interaction effect on the five identity dimensions.

	Coefficient B	*Std. Error*	*p. value*
Solidarity	-0.08	0.12	0.35
Satisfaction	0.06	0.11	0.61
Centrality	-0.08	0.13	0.69
Stereotyping	-0.17*	0.09	0.06
Homogeneity	-0.10*	0.10	0.32

significant at a *0,9%, **0,95%, ***0,99% level

Appendix 18: Regression: Identity different field + interaction effect

Long version for the unidimensional identity measure.

	Unidimensional Identification	
N	75	
R^2	0,26	
	Coefficient B	Std. Error
(Constant)	0,85	0,77
Social interactions (different field)	.40***	0,12
Work related discussions (same platform)	0,05	0,09
Satisfaction Conditions	0,18	0,13
Bad experiences	-0.032	0.29
Awareness conditions different field	-0,10	0,14
Opinion platform economy	-0.05	0.12
Interaction effect	**-0,021**	**0,11**

significant at a *0,9%, **0,95%, ***0,99% level

Short version for the other identity dimensions.

The table shows the effect of the interaction effect on the five identity dimensions.

	Coefficient B	*Std. Error*	*p. value*
Solidarity	-0.12	0.15	0.32
Satisfaction	0.004	0.11	0.97
Centrality	-0.06	0.10	0.57
Stereotyping	-0.20**	0.08	0.02
Homogeneity	-0.03	0.08	0.66

significant at a *0,9%, **0,95%, ***0,99% level

Appendix 19: Descriptive statistics for satisfied worker with high awareness for bad working conditions

Same field (N=10)		*Different field (N=14)*	
Mean entire sample	Mean selection	Mean entire sample	Mean selection
2,7	3,1	2,2	2,1
3,7	4,3	3,3	3,4
3	3,6	2,9	2,9
2,3	3,2	2,3	2,2
2,9	3,4	2,7	2,7
3,1	3,6	3	3,4

Selection criteria: (satisfaction bigger or equal than 3.5) AND (awareness for bad working conditions -> 4 OR 5)

Appendix 20: The survey

Workers in the platform economy

Start of Block: Explanation: What is a platform?

Q1.1 Welcome! This survey was designed for the purpose of completing our Bachelor thesis. We are very happy that you are willing to contribute the success of our thesis by filling out this survey.
Completing this survey will take approximately 10 minutes.

Q109 This survey is about work in digital platforms.

Internet platforms, like for example Uber, Jovoto, Deliveroo and many more, link workers with clients for a particular job. In such platforms, workers are either employed by the platform or work as freelancers on-demand and are paid for every single job separately or per hour.

This is the case for you and your platform? Great! So let us begin.

End of Block: Explanation: What is a platform?

Start of Block: Information about platform

Q2.1 What is the name of the platform you are working for?

(In case that you working for more than one platform, please mention the one via which you are working for most of the time. The following questions of this survey will then refer to this platform.)

_____

Q2.2 Apart from this platform, are you working via another platform?

- ○ Yes (1)
- ○ No (2)

End of Block: Information about platform

Start of Block: work for and perception of other platforms

Q3.1 Are you employed by ${Q2.1/ChoiceTextEntryValue} or do you work as a freelancer via ${Q2.1/ChoiceTextEntryValue}?

- ○ employed (1)
- ○ freelancer (2)
- ○ I don't know (3)

Q3.2 Are you aware of the fact that there are platforms other than ${Q2.1/ChoiceTextEntryValue} in the field you are working? For example: If you are working for a food delivery platform, do you know any other food delivery platform?

- ○ Yes (1)
- ○ No (2)

Q3.3 Sometimes people talk about *'platform worker'* to refer to all workers from different platforms. Have you ever heard of such a categorization?

- ○ Yes (1)
- ○ No (2)

Q3.4 Do you agree with the following statement: "I see myself as a *'platform worker'*."

- ○ Agree (1)
- ○ Somewhat agree (2)
- ○ Neither agree nor disagree (3)
- ○ Somewhat disagree (4)
- ○ Disagree (5)

End of Block: work for and perception of other platforms

Start of Block: Job satisfaction

Q4.1 In general, how satisfied are you with the sort of work you are doing via ${Q2.1/ChoiceTextEntryValue}?"

- ○ very satisfied (1)
- ○ somewhat satisfied (3)
- ○ neither satisfied nor dissatisfied (4)
- ○ somewhat dissatisfied (5)
- ○ very dissatisfied (7)

Q4.2 And more specifically, how well are you satisfied with...

	very satisfied (1)	Somewhat satisfied (2)	Neither satisfied nor disatisfied (3)	Somewhat dissatisfied (4)	very dissatisfied (5)
the flexibility your work provides you with, for example, given the working hours? (1)	○	○	○	○	○
the payment that you receive on your platform? (2)	○	○	○	○	○
the working conditions in general (such as gear, break times etc.) (3)	○	○	○	○	○
the experiences with your clients? (4)	○	○	○	○	○

End of Block: Job satisfaction

Start of Block: Valuation of work features

Q5.1 Please, state in how far you agree with the following statements.

Q5.2 It is more important to me to be flexible in deciding when and how much I want to work than to have a stable income.

- ○ Strongly agree (1)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Strongly disagree (7)

Q5.3 It is very important to me to be able to organize my daily activities in the way I want.

- ○ Strongly agree (1)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Strongly disagree (7)

Q5.4 Financial security is more important to me than free time.

- ○ Strongly agree (1)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Strongly disagree (7)

Q5.5 A stable income is the most important feature of a job.

- Strongly agree (1)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Strongly disagree (7)

End of Block: Valuation of work features

Start of Block: Social connectedness Maike

Q6.1 Have you ever met other people from ${Q2.1/ChoiceTextEntryValue}?

- Yes, I have met them personally. (1)
- Yes, I have met them online, for example in internet fora etc. (2)
- Yes, I have met other people that work for my platform personally as well as online. (3)
- No, I have never met any other people that work for the same platform. (4)

Display This Question:

If Have you ever met other people from ${q://QID5/ChoiceTextEntryValue}? = Yes, I have met them personally.

And Have you ever met other people from ${q://QID5/ChoiceTextEntryValue}? = Yes, I have met other people that work for my platform personally as well as online.

Q6.2 How frequently do you literally see other ${Q2.1/ChoiceTextEntryValue} workers **while you are working**?

- ○ every time I work (1)
- ○ often (2)
- ○ sometimes (3)
- ○ seldomly (4)
- ○ never (5)

Display This Question:

If Have you ever met other people from ${q://QID5/ChoiceTextEntryValue}? = Yes, I have met them personally.

And Have you ever met other people from ${q://QID5/ChoiceTextEntryValue}? = Yes, I have met other people that work for my platform personally as well as online.

Q6.3 How frequently do you see other ${Q2.1/ChoiceTextEntryValue} workers personally **in your free time**?

- ○ almost every day (1)
- ○ about once a week (2)
- ○ every other week (3)
- ○ about once a month (4)
- ○ less frequently than every month (6)
- ○ Never (7)

Display This Question:

If How frequently do you literally see other ${q://QID5/ChoiceTextEntryValue} workers while you are... != never

Q6.4 Whenever you see other ${Q2.1/ChoiceTextEntryValue} workers **while you are working**, how frequently do you talk about your work?

- ○ Always (1)
- ○ Often (2)
- ○ Sometimes (3)
- ○ seldom (4)
- ○ never (5)

Display This Question:

If Have you ever met other people from ${q://QID5/ChoiceTextEntryValue}? = Yes, I have met them online, for example in internet fora etc.

And Have you ever met other people from ${q://QID5/ChoiceTextEntryValue}? = Yes, I have met other people that work for my platform personally as well as online.

Q6.5 How often do you read discussions of other ${Q2.1/ChoiceTextEntryValue} workers **online**?

- ○ about every day (1)
- ○ about once a week (2)
- ○ every other week (3)
- ○ about once a month (4)
- ○ less frequently than once month (5)
- ○ Never (6)

Display This Question:

If Have you ever met other people from ${q://QID5/ChoiceTextEntryValue}? = Yes, I have met them online, for example in internet fora etc.

And Have you ever met other people from ${q://QID5/ChoiceTextEntryValue}? = Yes, I have met other people that work for my platform personally as well as online.

Q6.6 How often do you actively engage **online** with other ${Q2.1/ChoiceTextEntryValue} workers by for example chatting, discussing or posting in groups?

- about every day (1)
- about once a week (2)
- every other week (3)
- about once a month (4)
- less frequently than once month (5)
- Never (6)

Display This Question:

If How frequently do you see other ${q://QID5/ChoiceTextEntryValue} workers personally in your free... != Never

Q6.7 Whenever you meet up with other ${Q2.1/ChoiceTextEntryValue} workers **in your free time**, how frequently do you talk about your work?

- always (1)
- often (2)
- Sometimes (3)
- seldom (4)
- never (5)

Display This Question:

If Have you ever met other people from ${q://QID5/ChoiceTextEntryValue}? = Yes, I have met them online, for example in internet fora etc.

And Have you ever met other people from ${q://QID5/ChoiceTextEntryValue}? = Yes, I have met other people that work for my platform personally as well as online.

Q6.8 Whenever you interact with other ${Q2.1/ChoiceTextEntryValue} workers **online** how frequently do you talk about your work?

- ○ Always (1)
- ○ often (2)
- ○ sometimes (3)
- ○ seldomly (4)
- ○ Never (5)

Display This Question:

If Have you ever met other people from ${q://QID5/ChoiceTextEntryValue}? = Yes, I have met them online, for example in internet fora etc.

And Have you ever met other people from ${q://QID5/ChoiceTextEntryValue}? = Yes, I have met other people that work for my platform personally as well as online.

Q6.9 Would you be willing to meet up with those that you met online to discuss issues related to your work?

- ○ Yes (1)
- ○ Maybe (2)
- ○ No (3)

End of Block: Social connectedness Maike

Start of Block: Information Groups

Display This Question:

If Are you aware of that there platforms other than ${q://QID5/ChoiceTextEntryValue} in the field you a = Yes

Q7.1 In the next section of this survey, it will be often referred to three groups, which will be explained here:

1) ${Q2.1/ChoiceTextEntryValue} workers

2) all workers, operating in the same field as ${Q2.1/ChoiceTextEntryValue}
(For example, Uber and Lyft workers are forming the group of drivers)

3) platform workers (all workers working via internet platforms)

Display This Question:

If Are you aware of that there platforms other than ${q://QID5/ChoiceTextEntryValue} in the field you a = No

Q7.2 In the next section of this survey, it will be often referred to two groups, which will be explained here:

1) ${Q2.1/ChoiceTextEntryValue} workers

2) platform workers (all workers working via internet platforms)

End of Block: Information Groups

Start of Block: Social Connectedness

Q8.1 How often do you interact with...

	Very often (1)	Often (2)	Sometimes (3)	Seldom (4)	Never (5)
Are you aware of that there platforms other than ${q://QID5/ChoiceTextEntryValue} in the field you a = Yes					
other workers from platforms operating in the same field as ${Q2.1/ChoiceTextEntryValue}? (1)	○	○	○	○	○
workers platforms operating in a different field than ${Q2.1/ChoiceTextEntryValue}? (2)	○	○	○	○	○

End of Block: Social Connectedness

Start of Block: Willingness to participate in different forms of collective action Maike

Q9.1 In recent years, platform workers have been protesting the conditions under which they work, for example low wages, lack of insurance or prohibition to organize in labor unions. Have you heard of such protests?

- ○ yes (1)
- ○ no (2)

Q105 Are you engaged in any form of collective action for the interests of ${Q2.1/ChoiceTextEntryValue} workers?

(being member of a labour union, being active in a political initiative such as "Liefern am Limit", supporting workers via social media etc.)

If yes please mention the forms of engagement.

- ○ yes (1) _____
- ○ no (2)

Q108 Please answer the following question only if you working for a food-delivery platform.

Are you in any form (online or offline) connected to one of the following political initiatives?

If you are connected to both, please select only the one you feel more connected too.

- ○ Liefern am Limit (origin Cologne) (1)
- ○ Deliverunion (origin Berlin) (2)

Q9.2 How willing would you be to:

	Very willing (1)	willing (2)	slightley willing (3)	rather unwilling (4)	not willing at all (5)
join a facebook (or reddit) group to discuss problems related to the platform? (1)	○	○	○	○	○
to meet up with fellow workers to discuss actions? (2)	○	○	○	○	○
to sign an online petition for better working conditions? (3)	○	○	○	○	○
to join a strike? (4)	○	○	○	○	○
to join a labor union? (5)	○	○	○	○	○

End of Block: Willingness to participate in different forms of collective action Maike

Start of Block: Indentification Leon

Q10.1 How strongly do you identify with ...

	very strongly (1)	strongly (2)	moderately (3)	slightly (4)	not at all (5)
other ${Q2.1/ChoiceTextEntryValue} workers? (1)	○	○	○	○	○
Are you aware of that there platforms other than ${q://QID5/ChoiceTextEntryValue} in the field you a = Yes					
other workers from platforms operating in the same field as ${Q2.1/ChoiceTextEntryValue}? (2)	○	○	○	○	○
other workers from platforms operating in a different field than ${Q2.1/ChoiceTextEntryValue}? (3)	○	○	○	○	○
with the platform ${Q2.1/ChoiceTextEntryValue} itself (4)	○	○	○	○	○

End of Block: Indentification Leon

Start of Block: Solidarity

Q11.1 Please, indicate in how far you agree with the following statements.

Q11.2
I feel solidarity with...

	Strongly agree (1)	Somewhat agree (3)	Neither agree nor disagree (4)	Somewhat disagree (5)	Strongly disagree (7)
other ${Q2.1/ChoiceTextEntryValue} workers? (1)	○	○	○	○	○
Are you aware of that there platforms other than ${q://QID5/ChoiceTextEntryValue} in the field you a = Yes					
workers from platforms operating in the same field as ${Q2.1/ChoiceTextEntryValue}? (2)	○	○	○	○	○
workers from platforms operating in a different field than ${Q2.1/ChoiceTextEntryValue}? (3)	○	○	○	○	○

End of Block: Solidarity

Start of Block: Satisfaction

Q12.1 Being a [...] gives me a good feeling.

	Strongly agree (1)	Somewhat agree (3)	Neither agree nor disagree (4)	Somewhat disagree (5)	Strongly disagree (7)
${Q2.1/ChoiceTextEntryValue} worker (1)	○	○	○	○	○
Are you aware of that there platforms other than ${q://QID5/ChoiceTextEntryValue} in the field you a = Yes					
a part of all workers from platforms operating in the same field as ${Q2.1/ChoiceTextEntryValue} (2)	○	○	○	○	○
platform worker (3)	○	○	○	○	○

End of Block: Satisfaction

Start of Block: Financial dependency & autonomy

Q13.1 If you think about the income of your platform work with which situtions would you identify on the scales below?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)	
My income is very stable. I earn approximately the same every month.	○	○	○	○	○	○	○	○	○	○	My income is very unstable. I earn something different every month.
I know in advance how much I will earn each month.	○	○	○	○	○	○	○	○	○	○	I dont know in advance how much I will earn each month.
I have many opportunities to accept tasks.	○	○	○	○	○	○	○	○	○	○	I have few opportunities to accept tasks.
I know in advance how many tasks i will be offered each month.	○	○	○	○	○	○	○	○	○	○	I dont know in advance how many tasks i will be offered each month.
I can choose which tasks I want to work on.	○	○	○	○	○	○	○	○	○	○	I have to take every task i can get.
I can choose how i approach a tasks and be creative.	○	○	○	○	○	○	○	○	○	○	I have to strictly follow procedures when i approach a task.

End of Block: Financial dependency & autonomy

Start of Block: Centrality

Q14.1 Please, indicate in how far you agree with the following statements.

Q14.2 The fact that I am a [...] is an important part of my identity.

	Strongly agree (1)	Somewhat agree (3)	Neither agree nor disagree (4)	Somewhat disagree (5)	Strongly disagree (7)
${Q2.1/ChoiceTextEntryValue} worker (1)	○	○	○	○	○
Are you aware of that there platforms other than ${q://QID5/ChoiceTextEntryValue} in the field you a = Yes					
a part of all workers from platforms operating in the same field as ${Q2.1/ChoiceTextEntryValue} (2)	○	○	○	○	○
platform worker (3)	○	○	○	○	○

End of Block: Centrality

Start of Block: Individual Self-Stereotyping

Q15.1 I have a lot in common with the average [...].

	Strongly Agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly Disagree (5)
${Q2.1/ChoiceTextEntryValue} worker (1)	○	○	○	○	○
Are you aware of that there platforms other than ${q://QID5/ChoiceTextEntryValue} in the field you a = Yes					
worker from platforms operating in the same field as ${Q2.1/ChoiceTextEntryValue} (2)	○	○	○	○	○
platform worker (3)	○	○	○	○	○

End of Block: Individual Self-Stereotyping

Start of Block: in-group homogeneity

Q16.1 [...] have a lot in common with each other.

	Strongly agree (1)	Somewhat agree (3)	Neither agree nor disagree (4)	Somewhat disagree (5)	Strongly disagree (7)
${Q2.1/ChoiceTextEntryValue} workers (1)	○	○	○	○	○
Are you aware of that there platforms other than ${q://QID5/ChoiceTextEntryValue} in the field you a = Yes workers from platforms operating in the same field as ${Q2.1/ChoiceTextEntryValue} (2)	○	○	○	○	○
platform workers (3)	○	○	○	○	○

End of Block: in-group homogeneity

Start of Block: Social Status Leon

Q17.1 There are many people who believe that different groups enjoy different amounts of social status in this society. You may not believe this for yourself, but if you had to rate each of the following groups as most people see them, how would you do so?

	Very high status (1)	high (2)	rather high (3)	neither high nor low (4)	rather low (5)	low (6)	very low status (7)	I don't know (8)
all ${Q2.1/ChoiceTextEntryValue} workers (1)	○	○	○	○	○	○	○	○
Are you aware of that there platforms other than ${q://QID5/ChoiceTextEntryValue} in the field you a = Yes								
all workers from platforms operating in the same field as ${Q2.1/ChoiceTextEntryValue} (2)	○	○	○	○	○	○	○	○
all platform workers working in a different field than ${Q2.1/ChoiceTextEntryValue} (3)	○	○	○	○	○	○	○	○
all platform workers (4)	○	○	○	○	○	○	○	○

End of Block: Social Status Leon

Start of Block: Platform economy statements Leon

Q18.1 Have you ever made a bad experience with ${Q2.1/ChoiceTextEntryValue}, such as a delayed loan transfer?

- ○ More than once (1)
- ○ Once (2)
- ○ Never (3)

Q18.2 Please, indicate in how far you agree with the following statements.

Q18.3 Organizing occupations via platforms such as ${Q2.1/ChoiceTextEntryValue} is generally a positive development.

- ○ Strongly agree (1)
- ○ Somewhat agree (2)
- ○ Neither agree nor disagree (3)
- ○ Somewhat disagree (4)
- ○ Strongly disagree (5)

Q18.4 I think that [...] are working under bad conditions.

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
Are you aware of that there platforms other than ${q://QID5/ChoiceTextEntryValue} in the field you a = Yes					
workers from platforms operating in the same field as ${Q2.1/ChoiceTextEntryValue} (1)	○	○	○	○	○
workers from platforms operating in a different field than ${Q2.1/ChoiceTextEntryValue}? (2)	○	○	○	○	○

End of Block: Platform economy statements Leon

Start of Block: Desire of standard employment relationship

Q19.1 If you could choose freely, would you prefer to fullfill the same function in wage employment? (with a standard working contract)

- ○ Yes (1)
- ○ No (2)

Display This Question:

If If you could choose freely, would you prefer to fullfill the same function in wage employment? (w... = Yes

Q19.2 Would you like to fullfill the same funtion in wage employment, even if you receive less pay?

- ○ Yes (1)
- ○ No (2)

End of Block: Desire of standard employment relationship

Start of Block: Block 21

Q20.1 Only a few general questions until you are done!

End of Block: Block 21

Start of Block: working hours

Q104 In which country are you working for ${Q2.1/ChoiceTextEntryValue}?

- ○ Germany (1)
- ○ other country: (2) _____

Q21.1 How many hours are you working for ${Q2.1/ChoiceTextEntryValue} on average per week?

_____

Q21.2 Is the work for ${Q2.1/ChoiceTextEntryValue} your primary source of income?

- ○ Yes (1)
- ○ No (2)

Display This Question:

If Apart from this platform, are you working via another platform? = Yes

Q21.3 Do all incomes from the different platforms combined form your primary income?

- ○ Yes (1)
- ○ No (2)

End of Block: working hours

Start of Block: General Information 1 Maike and Leon

Q22.1 How old are you?

_____

Q22.2 Please, state to what degree you agree with the following statement:
The government should take measures to reduce differences in income levels.

- ○ strongly agree (1)
- ○ Somewhat agree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat disagree (5)
- ○ Strongly disagree (7)

Q22.3 In politics people sometimes talk of "left" and "right". Where would you place yourself on this scale, where 0 means very left and 10 means very right?

	0 1 2 3 4 5 6 7 8 9 10
Political orientation ()	

Display This Question:

If In which country are you working for ${q://QID5/ChoiceTextEntryValue}? = Germany

Q22.4
What is the highest degree you already completed or that you are currently completing?

- ○ Master's degree (or equivalent) at a university or college (1)
- ○ Bachelor's degree (or comparable) at a university or college (2)
- ○ Apprenticeship (3)
- ○ Abitur (4)
- ○ Realschule (10)
- ○ Hauptschule (7)
- ○ no degree (8)

Display This Question:

If In which country are you working for ${q://QID5/ChoiceTextEntryValue}? = other country:

Q107

What is your level of education? Please select the highest achieved level. If currently enrolled, please select the criteria which fit your enrollment.

- ○ No school finished (1)
- ○ General school (6)
- ○ High School (7)
- ○ Undergraduate/Bachelor Degree (or comparable) (8)
- ○ Graduate/Master Degree (or comparable) (9)

Q22.5
That's it! Thank you so much for having taken your time. We appreciate it a lot.

If there is anything you want us to know, feel free to leave a comment below:

_____