Employment opportunities in the Indonesian peer economy

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Employment opportunities in the Indonesian peer economy

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Executive Summary

During the last decade, the ubiquity of technology has enabled the rise of the so called "peer economy", a technology-driven phenomenon that is radically transforming many industries. Peer-to-peer ridesharing platforms, in particular, are challenging taxi companies all over the world by creating digital marketplaces where private users can exchange transportation services (Schor & Fitzmaurice, 2015). Instead of having a fleet of drivers and vehicles at their payroll, peer-to-peer ridesharing platforms rely on peer providers, independent non-professional drivers who are algorithmically matched with passengers in need of a ride (Anderson, 2016). This is the case also for some developing countries, where peer-to-peer platform are not only competing with incumbent firms, but also transforming activities that traditionally belong to the informal sector, such as motorbike taxi services.

By eliminating traditional employer-employee relationships, platforms are able to drastically cut the costs of the service and escape the tight regulations of the sector (Isaac, 2014). In this way, peer-to-peer platforms are creating labour markets that are highly unregulated and easy to access, and that have already attracted millions of individuals worldwide. On the one hand, the lack of formal contracts deprives the peer providers of social and economic security ensured by employment laws (Aloisi, 2016). On the other hand, working in the peer economy offers the possibility to earn an income while enjoying other benefits of being an independent worker (Hall & Krueger, 2015). It is unclear whether peer-to-peer platforms are creating labour opportunities that exploit an already vulnerable labour force, or that instead attract workers in search for a flexible form of employment. Thus, the research objective of this study is: to explore how peer providers of developing countries perceive the benefits of working via peer-to-peer platforms.

To achieve the research objective we take the case of Indonesia, where peer-to-peer ridesharing platforms have been proliferating over the past few years by taking advantage of the large labour supply, the low productivity of the informal sector and the support of local authorities. The research objective is translated in a research question formulated as follows:

How do peer providers of Indonesian peer-to-peer ridesharing platforms value the benefits offered by working in the peer economy?

Peer-to-peer ridesharing platforms (for the exchange of transportation services) are part of the platform economy, a technological trend that takes advantage of the diffusion of internet technologies and of their decreasing cost to create markets that are two-sided. In two-sided markets customers (consumers) and peer providers (suppliers) are both end users, and

platforms act as brokers, earning from every transaction between them, yet without owning the assets being exchanged (Walravens & Ballon, 2009). With just a vehicle, a driving licence and a smartphone, individuals can enter the labour markets created by peer-to-peer platforms to become peer providers and start selling rides via peer-to-peer platforms.

Peer providers are hence autonomous self-employed who take advantage of peer-to-peer platforms to be connected with potential customers and sell their services. As self-employed, peer providers are not entitled to any financial and social protection, and have to take care of the costs and responsibilities attached to their employment status by themselves (Sundararajan, 2016), which may vary widely from one region to another. In developing countries, in particular, self-employed typically belong to the informal sector, a share of the economy that is not regulated and that yet can employ up to the 70% of the total labour force (Maloney, 2004).

According to the informal sector theory, self-employed workers of developing countries have an heterogeneous set of motivations to be employed in the informal sector, with some individuals voluntarily giving up the protection and stability of traditional forms of employment because driven by the recognition of an opportunity, and others who are instead primarily driven by the necessity (Maloney, 2004). In the case of the peer economy, **opportunity peer providers** have decided to work in the peer economy because attracted by the monetary and non-monetary returns of this job, while **necessity peer providers** ended up working in the peer economy because unable to find employment otherwise. The distinction between the two types of providers is determined by their perception of the benefits of working in the peer economy, valued as attractive by the former and not by the latter.

According to the self-employment theory, being an independent worker is indeed for many a superior choice compared to traditional forms of employment (Benz & Frey, 2008). Peer providers appear in fact to be attracted by the **income** opportunities of this job, the **autonomy** of not having a superior, the **flexibility** of working schedules and the **sociability** of interacting with always new customers. As the theory suggests, these features of being self-employed seem to increase the level of **satisfaction** of peer providers, and, in turn, their **future intention** to retain their job.

To explore how the concepts formulated on these two theoretical perspectives are related, we collect primary data by means of a survey questionnaire distributed to peer providers of Jakarta, capital of Indonesia. The data collection resulted in 311 responses that we analyse with three statistical methods.

Firstly, we use descriptive statistics to draw a picture of the population of Indonesian peer providers. The analysis shows that Indonesian peer providers are relatively young, well-educated and come from a variety of backgrounds, some entering the labour force from unemployment or studies, others working part-time next to jobs they already had, and others becoming full-time peer providers. Nearly half of the Indonesian peer providers reported to rely on the peer economy as the main source of income for their families and those, finding that should be taken into account by platform owners and policy makers to estimate the width of the impact of potential business decision or regulations.

Secondly, we use cluster analysis to identify opportunity and necessity peer providers by forming clusters of peer providers who perceive the benefits of working in the peer economy in a similar way. The results of this analysis shows that most of the peer providers (67% of our sample) are indeed attracted by this employment opportunity, either for all the features it has to offer or for combinations of them. A minority of peer providers (14% of our sample) appears instead to be working in the peer economy out of necessity, and to not enjoy the benefits of being self-employed. Additionally, a third group has emerged (19% of our sample), composed of peer providers that are neither attracted by the features of working in the peer economy nor are completely disinterested in them. We have profiled this group as opportunity/necessity hybrid, underlining its intermediate position between the previous two clusters. Our finding suggests that the perception of this group is not heavily consolidated in favour or against the features of working in the peer economy, hinting at their potential to become opportunity peer providers if the right conditions should present.

Thirdly, we use PLS-PM analysis to explore how the benefits of working in the peer economy influence peer providers' satisfaction and intention to continue their job in the future. Our results suggest that only the perception of income and autonomy can be used to predict peer providers' satisfaction, with autonomy having the highest predictive power. Moreover, the level of satisfaction of peer providers and their perception of autonomy can be used to predict their intention to continue working in the peer economy in the future, with the level of satisfaction having the highest predictive power. Our findings suggest that peer providers derive their satisfaction primarily from the autonomy of being self-employed in the peer economy, and that platform owners who wish to reduce the turn-over rate of peer providers should focus on increasing their level of satisfaction.

This thesis contributes to the formation of the nascent literature on the peer economy. The first scientific contribution concerns the implementation of peer-to-peer ridesharing platforms in developing countries, context not yet explored in the literature. We added the informal

sector theory to the set of theoretical frameworks available to study the peer economy. This has allowed us to describe the labour markets created by peer-to-peer platforms as informal and to identify issues that are relevant to the case of developing countries. The second scientific contribution concerns peer providers' perception of the benefits of working via peer-to-peer platform, their satisfaction and intention to retain the job in the future, aspects that had not been thoroughly addressed by the literature. We have created the first perception-based classification of peer providers, recognising the existence of opportunity and necessity driven entrepreneurs in the peer economy, and discovering a third hybrid group. Moreover, we have identified predictors of peer providers' satisfaction and intention to continue their job in the future.

Our results can be used by platform owners to increase the share of peer providers that are satisfied and committed to their job in the long-term, by focussing their efforts towards targeting the hybrid group. Further investigating the constrains that this group seem to face and exploring ways to unlock its potential can allow platforms to reinforce their relationship with the peer providers and possibly subtract hybrid peer providers from the competitors. Platforms could for instance invite in their ecosystem new parties that are able to create employment opportunities that fit the predilection that hybrid and necessity peer providers have for less autonomy and flexibility.

This study can also serve policy makers that intend to regulate the peer economy, and that can make use of our empirical results to make found decisions that take into account the role that peer-to-peer platforms have in the lives of peer providers, and the voluntary nature of their decision to be informal self-employed. Regulators should have a positive eye for the high numbers of opportunity peer providers and of those relying on the peer economy for the sustainment of their families and themselves, and perhaps consider recognising their employment status or work more closely with platform owners to keep granting acceptable working conditions and incomes that are above minimum-wage.

Future research could reproduce this study in other developing countries to increase the validity of our results. The set of variables considered in our model can be expanded to strengthen its predictive power and further explore the multifaceted aspects affecting the perception of peer providers. Moreover, future research, both academic and business, could focus on further investigating the characteristics of the hybrid group to understand the constraints faced by these peer providers and so prompt to the development of features and solutions that satisfy their needs.

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Chapter 1 - Introduction

1.1 Problem identification

Since the 2007-08 financial crisis, peer-to-peer platforms have been raising worldwide. Start-ups companies such as the Californians Airbnb and Uber have exponentially grown their businesses and expanded in as many as 191 and 81 countries respectively, receiving a collective valuation of $99 billion ($30 billion Airbnb, and $69 billion Uber) (Stone, 2017). Peer-to-peer platforms have been growing also in number (as of 2015, 131 peer-to-peer platforms were active in San Francisco alone, 89 in New York City and 72 in London (Davidson, 2015)), in a phenomenon described as "peer economy" (or "sharing economy", or "collaborative consumption") (Schor, 2014). The peer-to-peer business model has been replicated in a variety of industries, creating networks for the exchange of every kind of product or service: from private loans (Upstart, CircleBack Lending, Peerform), to currencies (Midpoint, Currencyfair, Transwerwise), to accommodations (Airbnb, Homeaway), to rides (Uber, BlaBlaCar, Lyft) or even babysitters (Nannies4hire, Care.com) (Einav, Farronato, & Levin, 2016). Common to all these platforms is the use they make of information technologies in the creation and distribution of value.

Instead of being intermediaries between suppliers and customers as traditional enterprises, peer-to-peer platforms create digital marketplaces where users occupy both sides of the market and can buy from and sell to each other (Kenney & Zysman, 2015). The ubiquity of technology, and of smartphones in particular, allows users to take advantage of instantaneous and rich information to enable exchanges that would have not been possible before. With just a few taps, we can hail a ride from a stranger, relying on reputations systems for our safety, and algorithms and GPS data to coordinate the exchange. This large use of information technology has been strategically used by peer-to-peer platforms to drastically reduce the costs for its users, resulting in competitive prices and a variety of offerings that traditional businesses struggle to match (Henten & Windekilde, 2016).

Ridesharing platforms (providing peer-to-peer transportation services) are among the most prominent components of the peer economy, which success has raised policy concerns due to the competition they have created for established transportation companies. Companies such as Uber have succeeded in becoming worldwide transportation networks by acting in what is often considered a legal grey area (M. Cheng, 2016; Isaac, 2014). Despite offering the largest taxi service globally, Uber does not own a single taxi nor employs any driver, and limits its role (and liabilities) to connecting users and facilitating transportation service exchanges.

Supplying these services are the peer providers, self-employed workers who are neither required to have a professional driving licence nor incur in the expenses typical of this job, such as legal and maintenance costs. On the one hand, this form of evasive entrepreneurship represents a threat to established industries who suffer an unfair competition. On the other hand, the growing size of supply and demand are evidence of the willingness of users to trade safety and security for convenience and flexibility. Nonetheless, due to the youth of this phenomenon, it remains unclear how the digital markets created by peer-to-peer platforms can be "supported and protected against" (Kenney & Zysman, 2015; Westerbeek, Ubacht, Van Der Voort, & Ten Heuvelhof, 2016).

From the perspective of the peer providers, peer-to-peer platforms are creating massive labour markets, where millions of people worldwide have already found employment. Individuals in search for flexible work are turning towards the peer economy either for casually earning an extra income or to make of this opportunity a full-time job. Peer providers are giving up the stability and security ensured by working contracts for the promise of attractive returns, flexible working hours and a job without a boss (Hall & Krueger, 2015). The motivations of individuals to become peer providers are hence tight to their perception of the benefits that working via peer-to-peer platforms has to offer. Studying these motivations represents a crucial step towards the understanding of the peer economy as a labour creation phenomenon, and ultimately the design of platforms and policies that take into account the values of peer providers and their motives to be employed in the peer economy.

The ability of peer-to-peer platforms to create easily scalable and accessible labour markets has found fertile ground also in developing countries, where local start-up and global leaders are in a fierce competition. Light employment regulations, an excess in labour supply and highly populated cities have created the preconditions for peer-to-peer platforms to thrive. Interestingly, in developing countries unregulated self-employment is not considered a legal grey area, as in developed countries, but instead as part of the informal sector (or informal economy), an intrinsic component of the economy where up to the 70% of the labour force finds employment "off the books" (Maloney, 2004). Peer-to-peer platforms in developing countries seem hence to be transforming the informal sector instead of threatening established firms, increasing the productivity of the sector by means of information technologies. While the informal sector has been for long seen as a last resort for people escaping poverty and unemployment, it is clear today that this sector is highly heterogeneous, and many individuals decide to work informally voluntarily, discovering and creating opportunities that compensate the inability of the formal sector to provide enough and attractive jobs. The potential of peer-

to-peer platforms is hence to have created employment opportunities that are attractive and overcome the institutional burdens characteristic of developing countries.

1.1.1 Societal and entrepreneurial relevance

The rise of peer-to-peer platforms is challenging policy makers all around the world. The peer economy is a novel phenomenon of which the controversial effects are only now being studied by the academia. Governors must trade-off its costs and benefits in absence of evaluative frameworks or empirical data. On the one hand, it is their duty to protect incumbent firms from possibly unfair competition (Fang, Ye, & Law, 2016; Zervas, Proserpio, & Byers, 2016). On the other hand, policy makers should act in the interest of their citizens, allowing them to regulate the supply and demand of the market, by designing policies that take into account their values and promote innovation and social protection. The challenge is hence to develop regulations that foster the beneficial effects while mitigating the negative ones. The lack of regulations addressing the new forms of employment created by the peer economy may endanger the large pool of people who rely on digital platforms for their sustainment, and whose future is left in the hands of platform owners. The social relevance of this study is hence to contribute to the formation of a body of literature that can support policy makers in the development of adequate employment regulations.

Moreover, the particular labour market conditions common to developing countries make of this investigation and interesting case. The informal sector of developing countries, which is experiencing an IT-driven transformation, is recognised to be feature of the economy, and to be responsible for more than half of the economic activity of the country (Vial, 2011; Webb, Bruton, Tihanyi, & Ireland, 2013; Williams, 2013). In the attempt to enhance the productivity of the sector, peer-to-peer ridesharing platforms are radically transforming informal activities by taking control over working conditions and labour market dynamics. The low capital and skills required to become a peer provider seem to be a promising opportunity for informal self-employment, which may individually represent a way to escape poverty, and collectively contribute to the economic development of the country. Increasing the levels of entrepreneurial activity is indeed a key element for economic growth (Dalglish, 2008; Mandelman & Montes-Rojas, 2009; Roy & Wheeler, 2006). With up to two thirds of the population working informally, it is important to understand whether the opportunities offered by peer-to-peer ridesharing platforms represent an attractive and sustainable employment opportunity or are exploiting already vulnerable workers.

1.1.2 Scientific relevance and knowledge gap

The peer economy is a young phenomenon which leads to mixed effects spanning from social, to economic, to environmental. The literature on this topic is still at its initial stages and the academia is rushing to develop frameworks and categorisations to describe it. The studies conducted so far are fragmented and explore distinct aspects of this phenomenon. Some of them have investigated the impact that peer-to-peer platforms are having on industries (Fang et al., 2016; Zervas et al., 2016), others have focused on the equilibrium points of supply and demand (Benjaafar, Kong, Li, & Courcoubetis, 2015; Fraiberger & Sundararajan, 2015), and others on social aspects such as inclusion and discrimination (Edelman, Luca, & Svirsky, 2016; Schor, Fitzmaurice, Carfagna, Attwood-Charles, & Poteat, 2016) and opportunities for disadvantaged groups (Dillahunt & Malone, 2015). In (Westerbeek et al., 2016), the potential effects of peer-to-peer platforms on public values have been categorised along two axis, according to their direct or indirect effects on the demand and supply sides of the market. As the study shows, studies focussing on peer providers are very limited in number and scope. While few platform-specific researches have investigated the socio-demographic characteristics and motivations of peer providers (De Groen, Maselli, & Fabo, 2016; Hall & Krueger, 2015), at the best of our knowledge the literature on the topic still lacks a framework for the categorisation of peer providers and for the analysis of their perception of the features of working in the peer economy. This research aims at filling this knowledge gap by exploring how different peer providers perceive the benefits of working via peer-to-peer platforms and how does this in turn influence their satisfaction and intention to remain peer providers in the future.

Moreover, the literature on the peer economy has focused until today primarily on the impacts of peer-to-peer platforms in developed countries. Yet, the fast diffusion of the peer economy in many developing countries calls for more targeted studies. This research will study the population of peer providers of a developing country and their perceptions in order to make a first step towards the formation of theories that take into account the particular labour dynamics of developing countries.

1.2 Research objective

Following the identification of the problem, the objective of this research is:

To explore how peer providers of developing countries perceive the benefits of working via peer-to-peer platforms.

This explorative research takes the case of peer-to-peer ridesharing platforms in Jakarta, capital of Indonesia, to study the population of peer providers and their perception of work in the peer economy.

1.3 Research question

The research objective stated in Section 1.2 is achieved by answering the following research question:

How do peer providers of Indonesian peer-to-peer ridesharing platforms value the benefits offered by working in the peer economy?

To answer this research question, several steps are taken.

Firstly, we define the domain of this study: peer-to-peer ridesharing platforms. The domain is defined by means of a literature review of the studies on the peer economy, where an academic and an economic perspectives are considered to understand how peer-to-peer ridesharing platforms create employment opportunities. This allows us to define the peer providers (service providers in the peer economy) as the main value creators and describe how this affects their employment status of autonomous workers.

Secondly, we want to understand what role do the labour markets created by peer-to-peer ridesharing platforms play in developing countries, and what are the benefits they create for the peer providers. We want to develop a conceptual model to describe the perception that peer providers have of the benefits of working in the peer economy working in the peer economy. In our conceptual model we need to include: (1) concepts that are relevant for the description of employment opportunities in a developing; and (2) concepts that are useful to the exploration of the perceptions that peer providers have of working in the peer economy and of their satisfaction and intention to continue this job in the future. This objective is achieved by means of two literature reviews, one concerning the informal sector theory, and one concerning the self-employment theory.

This first theoretical phase of the research is used to answer the first research sub-question, formulated as follows:

SQ 1: How do peer-to-peer ridesharing platforms create benefits for the peer providers of developing countries?

Thirdly, we want to investigate the characteristics of the population of Indonesian peer providers, defined as individuals providing services on Indonesian peer-to-peer platforms, to understand how to segment the peer providers according to their perceptions of the benefits of working in the peer economy, and how does their perception affect their satisfaction and intention to retain the job in the future. To achieve this goal, we translate the concepts included in our model into a survey questionnaire to be distributed to Indonesian peer providers. The responses collected are analysed by means of three statistical methods to achieve our objective.

We carry out a descriptive analysis to study the socio-demographic characteristics of the population of peer providers and their relationship with their job as peer providers. This analysis answers the second research sub-question formulated as follows:

SQ 2: Who are the Indonesian peer providers?

Then, we want to create a segmentation to identify groups of peer providers who share similar perceptions of the benefits of working in the peer economy. This allows us to categorise the peer providers according to their motivations between opportunity driven and necessity driven. We achieve this object by means of a cluster analysis that answers the third research sub-question formulated as follows:

SQ 3: How can the population of peer providers be segmented between opportunity and necessity entrepreneurs according to their attitude towards employment opportunities in the peer economy?

Lastly, we want to explore how peer providers' perception of the benefits of working in the peer economy affects their satisfaction and propensity to continue to work via peer-to-peer platforms. This objective is achieved by means of a PLS-PM analysis of the responses collected. The last research sub-question is formulated as follows:

SQ 4: What are the relationships between features of working in the peer economy and peer providers' satisfaction and intention to retain the job in the future?

The answers provided to these four sub-questions will ultimately lead to the achievement of our research objective as formulated in Section 1.2. The research strategy adopted is reported in Figure 1.1.

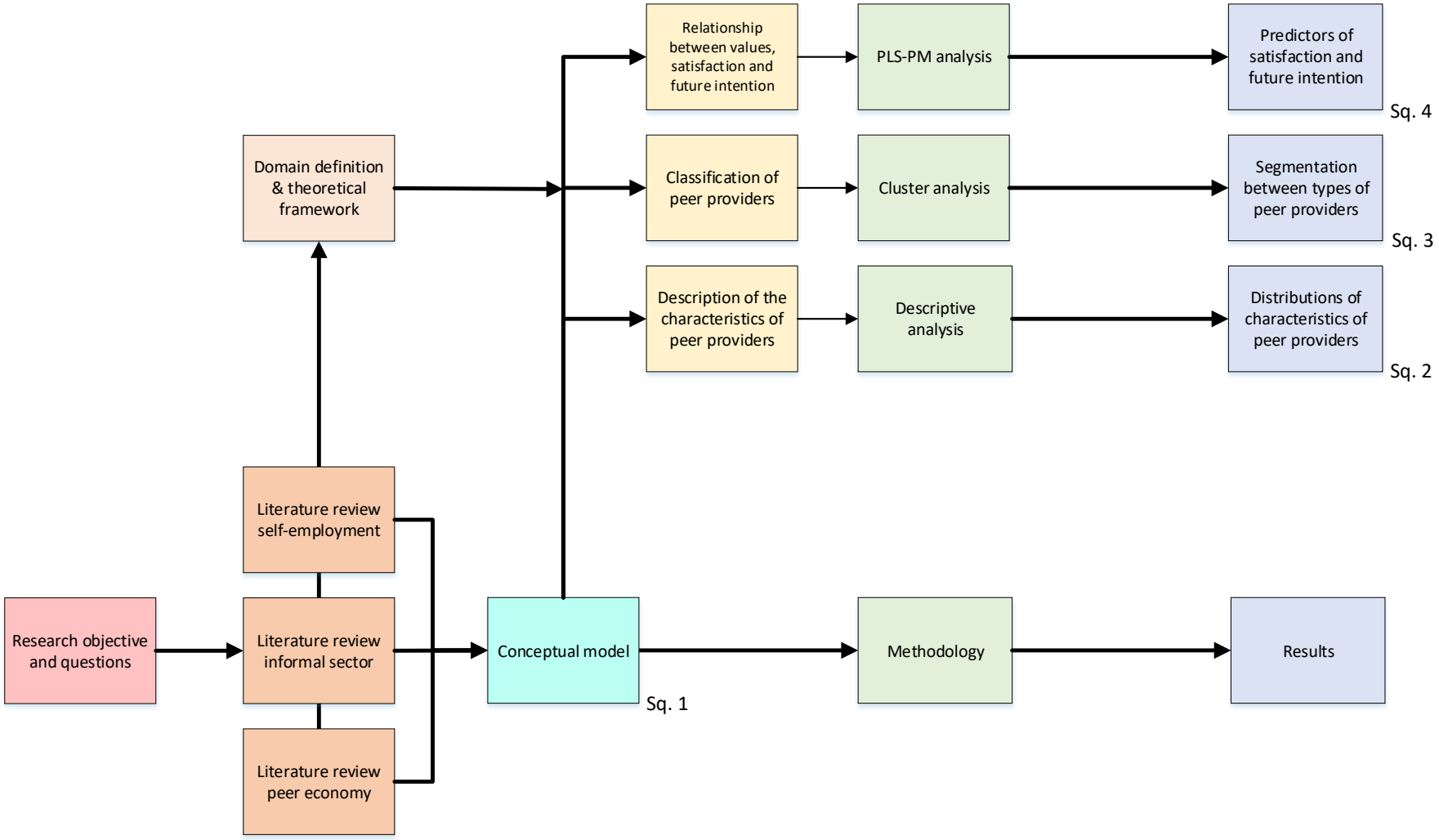

Figure 1.1 – Research flow diagram

1.4 Structure of the report

The remaining of this report is structured as follows. In the first chapter, we defined the problem and formulated the research objective. The research objective is then translated into a main research question which is fragmented in four research sub-questions. In the second chapter, we define the domain of this study and its scope. In the third chapter, we present the theoretical framework result of two literatures (the first on the informal sector theory, and the second on the self-employment theory) and develop a conceptual model, answering the first research sub-question. In the fourth chapter, we present the Indonesian case of this study, the sampling and data collection strategies as well as the development of the survey instruments. In the fifth chapter, we present the results of the analysis used to answer the second, third and fourth research sub-questions. Finally, in the sixth chapter, we discuss the conclusions of this research, its implications and limitations and present some future research directions. The structure of the report is summarised in Table 1.1.

Chapter	Research question(s)	Product(s)
1 – Introduction		Problem definition, research objective, research questions
2 – Domain definition		Definition and scope of the research domain
3 – Theoretical framework	SQ 1	Literature review of informal sector theory and self-employment theory, conceptual model
4 – Survey design		Study case, sampling and data collection strategy, instruments development
5 – Data analysis	SQ 2, SQ 3, SQ 4	Descriptive analysis, cluster analysis, PLS-PM analysis
6 – Final chapter	RQ	Conclusion, contribution, limitations, future research and reflection

Table 1.1 – Structure of the report

Chapter 2 - Domain definition

We introduced in the first chapter of this work the problem at stake and defined the strategy and methodology that we adopted to explore the emerging field of peer-to-peer platforms as a labour opportunity in developing countries. To achieve the research objective defined, and to answer the main research question, we formulated several research sub-questions. In this chapter, we answer part of the first research sub-question to provide a definition of our domain of investigation. We present here the peer economy and the economics and the academic debate around its effects to provide the reader with an updated understanding of this phenomenon.

To answer the first research sub-question (*SQ 1: How do peer-to-peer ridesharing platforms create benefits for the peer providers of developing countries?*), in this chapter we take the first step of describing what peer-to-peer ridesharing platforms are.

Firstly, in Section 2.1, we introduce the peer economy both from and economic and academic perspective. This allows us to understand how this economy came to exist and how it is currently being described in the academic literature.

Secondly, in Section 2.2, we specify the discourse from general peer-to-peer platforms to their ridesharing configuration. This illustrates the complex network of actors that are part of this ecosystem, and allows us to understand what the dynamics between them are.

Lastly, in Section 2.3, we deepen our investigation by focussing on the peer providers targeted by this study. We present the topic of labour in the peer economy and discuss some of the issues related to the employment status of peer providers.

2.1 The peer economy: description and definition

The peer economy is a phenomenon that has been spreading worldwide during the past ten years. Entrepreneurs have built businesses under this name, policy makers have tried to regulate it, and scholars to describe its multifaceted effects. However, defining what the peer economy is represents an ongoing challenge due to the many names that have been used to describe an even larger variety of activities which share similar principles and business models. "Collaborative consumption", "collaborative economy", "sharing economy" and "on-demand economy" are only some of the names that are used to denote this phenomenon.

This section explores the peer economy under three distinct perspectives, namely, academic, technologic and economic, with the goal of providing definitions and outlining the scope of our research. Firstly, the academic discourse around the definition of a peer economy is presented, together with the most adopted categorisations. This allows us to step aside the ongoing debate and specify our results to one configuration of this phenomenon. Secondly, the peer economy is framed as part of a digital platform economy. This provides a technological context, helpful at understanding the dynamics of value creation and capture of the peer economy. Finally, an economic perspective is adopted to explain from a market perspective how the peer economy came to exist and what are the underlying economic principles behind its success.

2.1.1 Definition and categorisation

The idea of an economy made of peers has been made popular by Botsman and Rogers who envisioned in their book an internet-enabled economy made communities (Botsman & Rogers, 2010). Thanks to digital communities, users can meet for "sharing, bartering, lending, or swapping" (Botsman & Rogers, 2010, p. 13) tangible and intangible assets in what they defined a collaborative consumption or sharing economy. According to the authors, technology is the enabler for the "reinvention of traditional market behaviours" towards the formation of "economic systems based on sharing unused assets or services" (Botsman, 2015, p. n.p.). Such an economy would be based on (1) unlocking the value of underused assets (called "idle capacity"); (2) empowering users at the two sides of the market (supply and demand); and (3) creating decentralised networks and distributed marketplaces from which users could mutually benefit and that create a sense of belonging among users of the same digital community. The authors proposed a first categorisation of this form of economy distinguishing three possible systems: (1) redistribution markets – where underutilised durable goods can be exchanged for money or for free -; (2) collaborative lifestyle – where tangible and intangible assets such as

space, time and skills are exchanged - and (3) product service systems – where users are enabled to access assets in the form of services, that is, without transfer of ownership.

Many critics have responded to these definitions for their positive rhetoric and misuse of terms. Belk (2014), for instance, has pointed at the elusive use of the term "sharing" that many enterprises that implemented this business model make. Despite not enabling any kid of share between users, an increasing number of platforms have been labelled under these names while adopting a far more commercial orientation. In the words of Codagnone and Martens: "because sharing has a positive and progressive connotation, more and more companies claim that they are part of the sharing economy" (Codagnone & Martens, 2016, p. 19).

With the goal of making clarity on the names of this phenomenon, Frenken and Schor (2017) proposed a critical and evaluative work on the debate on its definition. The authors proposed a distinction between a true sharing economy, described as "consumers granting each other temporary access to under-utilized physical assets ("idle capacity"), possibly for money" (Frenken & Schor, 2017, pp. 2, 3), and other economic activities which share some, but not all its characteristics. Figure 2.1 reports the categorisation as proposed by the authors.

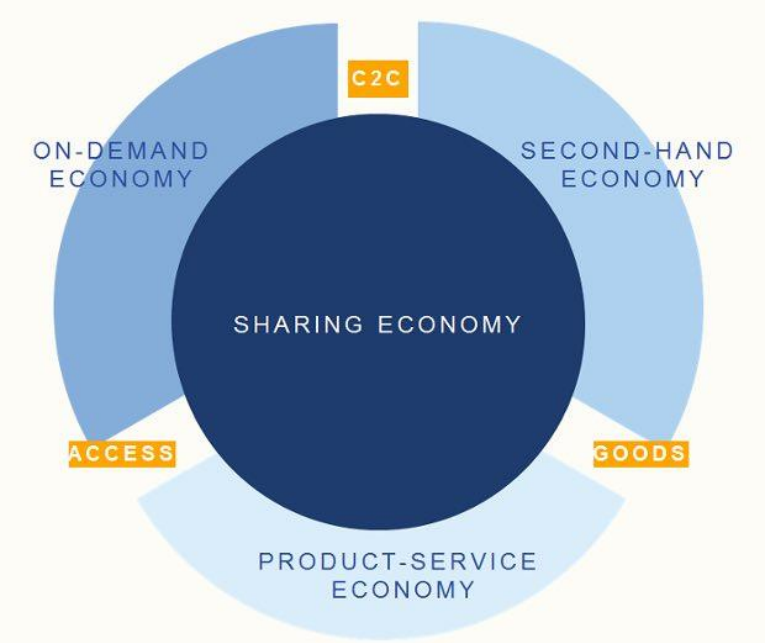

Figure 2.1 - The sharing economy as the meeting point of three digitally enabled economies. Retrieved from: (Frenken & Schor, 2017, p. 3)

As Figure 2.1 shows, the definition given places the sharing economy at the meeting point of three other economies: a "second-hand economy" where users sell goods to each other, such as in EBay, Olx or Marktplaats; a "product-service economy", where temporary access to

products is offered to customers, such as in traditional car rental services; and an "on-demand economy", also called "gig-economy", for the purchase of personal services such as a ride via Uber or a handyman hired on Taskrabbit.

The scope of this research is limited to this last category, the on-demand economy, where users are connected on a peer-to-peer network to exchange services (in an access based fashion) instead of goods. For the aim of this work we use the term **peer economy**, underlying its peer-to-peer nature and to set apart from the debate on the "true sharing" as this is not in the interests of this research.

Next to providing a definition, the academia has focused on studying the social and economic effects of the peer economy. Westerbeek et al. (2016) offered the first systematic review of the studies concerning the impact of the peer economy on social values. The authors have positioned all effects along two axis dividing actors between supply and demand side, and their direct or indirect involvement. As their study shows, the majority of the academic work has focused on designing models to predict equilibrium levels of supply and demand at different cost levels (Benjaafar et al., 2015; Fraiberger & Sundararajan, 2015); on studying impact of platforms on the local industry they operate in (Zervas et al., 2016); and on investigating the fairness of platforms (Edelman et al., 2016; Schor et al., 2016). Yet, as the authors highlight, many aspects of the impacts of peer-to-peer platforms on society still remain to be unveiled. The aim of this study is to contribute to one of the knowledge gaps of this literature study by studying employment opportunities on peer-to-peer platforms. Specifically, we want to address the knowledge gap described in the aforementioned work as "working conditions and labour market dynamics" (Westerbeek et al., 2016, p. 229), thus investigating the implications that this form of employment has for individuals who decided to become peer providers.

This section provided a brief review of the academic discourse around the names and definitions used to describe the phenomenon under analysis. In doing so, the scope of this work has been outlined with the goal of not creating confusion on whether the economic activities under analysis would have fallen under a certain category or another. The economic activities that we decided to include in this analysis are only on-demand services exchanged in a peer-to-peer fashion, which we defined as a peer economy.

In the following section we look at the peer economy under a technological perspective in order to understand once more what paradigms it belongs to and to further define the scope of our analysis.

2.1.2 Digital platform economy and peer-to-peer exchange

We provide in this section a description of the peer economy from a technological perspective, describing it as a particular type of digital platform, borrowing hence definitions from platform theory, and briefly presenting the key characteristics of the markets it enables.

The peer economy can be considered as part of a platform economy, which stems from the idea of digital platforms as marketplaces where actors can meet to create value by exchanging their resources. While markets have had this function since the beginning of civilisation, the fast diffusion of internet and its decreasing cost have allowed the existence of many digital platforms where users can virtually meet and interact with each other. Furthermore, the advances in cloud computing have teared down barriers of geographical location, as well as increased the number of features that is possible to implement, monitor and regulate on the platform. Nowadays algorithms enable more efficient and dynamic allocation of computing resources to allow the deployment of a platform at times and costs that have never been possible before (Kenney & Zysman, 2015).

To make clarity of what a platform is and how it create values, we refer to the classification provided by Walravens and Ballon (2009), who distinguishes four different types of platforms according to whether the platform has control over the assets that are being exchanged and over the relations between its users. Such a categorisation is reported in Table 2.1 including a brief description of the mechanism of value creation and capture and respective examples.

	No control over customers	Control over customers
Control over assets	**Enabler** The platform owner has control over the assets being exchanged, creating and capturing the largest share of the value, yet without having strict control over how the customers relate to each other and to the assets. Example: Android – the operative system developed by Google is left to third party to modify and resell. The end user does not have a direct relation with Google itself.	**System integrator** The platform owner has control both over the assets being exchanged and over the relations between customers, capturing the maximum of the value. Example: Apple iOS – the Californian technology company does not allow any other competitor to use its operative system, and keeps a direct relation with its customers through its products.
No control over assets	**Neutral** The platform owner does not have control neither over the assets being exchanged nor over the relations between customers. The value is hence created by the customers, thought their assets. Example: PayPal – the online paying platforms acts as an intermediary between customers (private and commercial) without having any additional relationship with them, and profiting from the volumes of transactions more than from the value creating assets.	**Broker** The owner of the platform has control over the relations between customers, yet without having control over the assets being exchanged. Example: eBay – the multinational e-commerce corporation acts as an intermediary between customers, hence without providing the assets being sold and bought. Nonetheless, eBay allows the customers to transact only on the platform, managing communication, reputation and payment channels.

Table 2.1 - Categorisation of digital platforms. Based on: (Walravens & Ballon, 2009, pp. 5, 6)

Firstly, as the categorisation shows, platforms can either provide (fully or partially) the assets being exchanged, or allow users to do so. While the former case is not relevant to the topic of this work, platforms that do not have control over the assets being exchanged have the role to connect and coordinate users in the market with the goal of enabling exchanges and creating markets that are two-sided. These markets have in fact the characteristic of being populated by end users both at the supply side, by providing the assets object of the exchanges, and the demand side, by demanding and accessing/purchasing these assets (Codagnone & Martens, 2016).

Secondly, platforms can exert different degrees of control over the relationships with and between their customers. In the case of Neutral platforms, the services that are provided are detached from the platforms itself, and no financial or brand customer relationships exist. These are often marketed as tools to be integrated in a business more than standalone solutions. Contrarily, Broker platforms have in their direct interest to bring and keep users in

the platform, and they do manage for this reason all the relevant channels of communication and transaction. The exchanges between customers are intermediated by the platform, which users (customers and suppliers) rely on.

For the aim of this research, we limit our scope to the last type of platforms, the brokers, where the users have control over the assets being exchanged, but not over their relationships. This is in fact the case for the platforms belonging to the peer economy object of this study. Firms such as Uber and Airbnb allow communication, payments and other interactions to happen only on the platform, and profit from these transactions. The cars and houses, central to the value creation, are and keep being owned and controlled by the users who decided to market them on the platform.

As mentioned, the platforms object of this analysis create two-sided markets as an alternative to supplying assets themselves. To better understand these particular kind of markets, it is important to further elaborate on two particular features, namely critical mass and network effects (Andersson, Hjalmarsson, & Avital, 2013; Dillahunt & Malone, 2015; Rochet & Tirole, 2003; Schor, 2014). The critical mass is the minimum number of users that are necessary for the platform to exist and to be attractive. A platform where only few users are offering assets, or with only few customers, does not have reason to exist. Only when enough users are offering a satisfying variety of products or services there will be a reason for customers to join the platform and perform exchanges. Interestingly, the sizes of the two sides of the market are highly related, as the growing number of users on the supply side will attract more users on the demand one, and vice versa, in what is described as a network effect. The network effect is in fact the increase in value that every use received from any additional user joining the platform. The larger the user base, the more valuable the platform is for every user. Beyond two-sided, digital platforms can also become multi-sided platforms when third parties are included in the market (Henten & Windekilde, 2016; Zervas et al., 2016). Additionally, the algorithms used to define trust among the users, typically with systems of feedbacks and reviews, allow on the one hand the formation of tight bonds between the platform and its users, and on the other a form of self-regulation that possibly solves what Akerlof (1995) defined as a "market for lemons" (Thierer, Koopman, Hobson, & Kuiper, 2015). Using the metaphor of lemons and peaches, Akerlof theorised that the information asymmetry between

buyers and sellers in absence of a trusted intermediary tends to degrade the market in the long run, crowding out the good deals (peaches) and retaining the bad ones (lemons) (Akerlof, 1995). Algorithmically managed reputation systems seem to provide a solution to this problem (Thierer, Koopman, Hobson, & Kuiper, 2015).

This section located the peer economy in the technological phenomenon that goes under the name of platform economy. By adopting a categorisation, we defined the scope to platforms which role is limited to intermediate transactions between customers, yet while controlling the relationship between the peer provider and the customer. This has pointed us to the two-sided (or multi-sided) nature of the markets they create and allowed us to define some important features of these markets.

In the following section we take an economic perspective to complete this description of the peer economy by understanding its determinants and factors of success.

2.1.3 Transaction cost theory and legal void

To conclude our description and to provide the last definitions, this section examines the peer economy from an economic perspective. The two concurring mechanisms that have determined the success of platforms belonging to the peer economy over their traditional counterparts are examined. Firstly, by adopting the theoretical framework of the transaction cost theory, we are able to explain *why* technology-based business models that are able to outpace established industries came to exist. Secondly, we describe *how* peer economy firms have been able to disrupt existing markets and create new ones.

Our argument, on the line of Henten and Windekilde (2016), is that the peer economy came to exist and succeed thanks to its ability to lower the costs of transaction and to substitute services in established markets. Coase (1937) developed a theory of transaction costs to explain the existence of firms. According to his work, every transaction in the market requires the acquiring party to discover who owns the desired asset inside the market, to negotiate its price, stipulate a contract and make sure that such a contract is enforced. All these steps represent costs, and specifically **search and information** costs, **bargaining and decision** costs, and **policy stipulation and enforcement** costs. Firms exist for the sake of lowering these costs by proving organised, standardised and secure transactions (Williamson, 1981). To put it simple, a

supermarket exists because it allows us to have many products in a single place, for a fixed price and with regulations and guarantees covering them.

Similarly, enterprises belonging to the peer economy have lowered the costs of transactions by eliminating traditional middlemen and by making use of algorithms to carry out and monitor transactions (Henten & Windekilde, 2016). The searching costs of tapping on a screen when we need a lift instead of physically looking for a taxi, already knowing the price of the ride and being able to pay digitally are among the costs that peer-to-peer transportation companies have been cutting. But their action goes beyond this. In fact, new feasible ways of contracting have emerged, enabling exchanges that were not available before. Sleeping in the house of a stranger would have been considered dangerous and uncommon ten years ago, yet, in the summer of 2015, 17 million people have preferred to do so instead of using a conventional hotel or hostel (Buhr, 2015). By bringing new actors in the market, the peer economy offers services at lower prices than its traditional counterpart, relying on instantaneous availability of information and reputation systems to establish trust, eliminate middlemen and manage transactions (Jøsang, Ismail, & Boyd, 2007). On the one hand peer-to-peer digital markets have been substituting traditional services, such as in the case of taxi companies, which have seen a large share of their market being taken from emerging peer-to-peer ridesharing platforms. On the other hand, the bundle of services offered digitally is tapping unexplored niches of the market, such as in the case of private hospitality as offered by Airbnb. Stagnant on established business models, incumbents of industries such as hospitality or transportation have failed in innovating and making a creative use of the latest technologies and the shift in consumers' behaviour. As exemplified in Textbox 2.1, even monopolistic sectors such as the taxi services have been cannibalised by internet/app-based new entrants. Yet, the legal nature of peer-to-peer platforms for service exchanges remains central topic of an ongoing regulatory debate. The main critics that the peer economy has received converge around the lack of a regulatory framework that allows peer-to-peer platforms to exploit what is often described as a **legal void** (Isaac, 2014; Traum, 2015). By maintaining the status of IT companies, instead of taxi or accommodation companies, Uber and Airbnb are able to circumvent the pricy taxations in which their traditional counterparts incur. With not a single driver at its payroll, Uber limits its activities to digitally match supply and demand, without actively taking part

Uber

Uber technology is the global leader of ridesharing services, with more than 40 million rides provided monthly (Kokalitcheva, 2016). Its business model involves the creation and management of transportation networks where users can participate either as private drivers, to supply transportation services and earn money, or as customers, purchasing and benefiting from this service. Without owning its own fleets, Uber matches passengers and drivers with the user or real-time data, and runs all the essential functions of the process: managing bookings, setting the fares and handling the payments. Passengers and drivers interact directly, with the support of Uber's mobile application.

Since its establishment in 2008, Uber has been threatening the taxi industries of many cities and countries. Taxi belong to a highly stagnant and monopolistic industry which fares and licences are rigorously regulated by local governments. Additionally, the taxi industry is characterised by high inefficiencies in matter of bookings, infrastructures, delays, dynamic management of supply, resulting in a generally poor yet highly priced service.

The technology-based business model implemented by Uber and other ridesharing platforms have led to the improvement of four key factors: (1) availability of the service (2) reduced waiting times (3) reduced fares (4) improved payment system (Jenk, 2015). These factors represent an overall reduction of the costs of transaction that a passenger deciding to hail a traditional taxi incurs in.

Textbox 2.1 – Uber technologies inc.

to the exchange between two privates. This evasive entrepreneurship is in fact a key component to maintain the costs of the services convenient for the customers and profitable for the providers. Licences, safety standards and other regulatory instruments for customer and labourer protection are eluded by on-demand peer-to-peer platforms, in a fundamental shift of risks towards the users (Isaac, 2014; Katz, 2015). Allowing, and perhaps promoting, the avoidance of taxes and an unfair competition, has the potential to create unregulated marketplaces (Martin, 2016) with serious industry impacts (Zervas et al., 2016). On the one hand, regulatory interventions are pivotal to the protection of industries, market structures, consumers and labourers (Sundararajan, 2014). On the other hand, some of the principles of the peer economy, as well as the resulting market efficiencies, are among governments' goals and have been proven to be attractive features for the users. States could take part to co-creation of peer-to-peer services, as in the case of Seoul and San Francisco, where governors

have actively turned at peer-to-peer platforms to help solving urban issues (Johnson, 2013), perhaps unlocking a hidden potential (Chasin & Scholta, 2015).

2.2 Peer-to-peer ridesharing

We introduced in Section 2.1 the peer economy by providing an academic, technologic and economic description of this phenomenon. Additionally, the scope of this work has been outlined according to the different categorisation adopted by the literature. We scoped in Section 2.1.1 our research to peer-to-peer networks for service exchange, described by Frenken and Schor (2017) as part of an on-demand economy and by Botsman and Rogers (2010) as belonging to a product service system. Then, we framed in Section 2.1.2 the peer economy as a digital platform, and in particular as a broker kind of platform which exerts control over its customers but not over the assets they exchange. Finally, we presented in Section 2.1.3 the economics mechanisms that lead peer economy platforms, and in particular their ability to drastically reduce the transaction costs.

In this section, we take further the scope of our analysis by narrowing the type of assets being exchanged on the digital platforms of our interest. Our investigation is in fact limited to ridesharing platforms, where transportation services are exchanged between users. Ridesharing is one of the most prominent components of the peer economy and a variety of configurations of this business model have been implemented around the globe.

A major distinction among types of platforms can be made between business-to-customer (B2C) ridesharing and peer-to-peer (P2P) ridesharing (Traum, 2015). The former refers to companies that acquire vehicles and make them available for temporary access to their customers. Users generally use a mobile application to locate the closest vehicle available, reserve it, open it and start it up. In this way, companies reduce to the minimum the time that each vehicle has the status of idle, thus maximising its use and profitability. Examples of these platforms are the German-based car2Go, the Netherlands-based WeGo, the US-based Zipcar and the Italian-based Genova Car Sharing. As specified in Section 2.1.2, our interest is limited to platforms that act as brokers, and that do not control the assets being traded. For this reason, B2C ridesharing platforms will be excluded from our analysis. The second case, of peer-to-peer ridesharing, refers to platforms that do not acquire any vehicle, but enable instead the connection between vehicles' owners and customers.

In the realm of peer-to-peer ridesharing platforms, two different models can be distinguished. In the first model, the platform enables owners to give access to their vehicles to other users for a fee. On one side, owners can make a profitable use of their vehicles when in its idle state. On the other side, users have the possibility to access a vehicle instead of owning it, thus avoiding the costs of purchase, maintenance, insurance and of the sort (Boyd Cohen & Kietzmann, 2014). This is the case of the US-based JustShareIt, Getaround and Turo.

In the second model, in which we are interested, platforms enable owners to provide rides to other users, coordinating the fees, pick-up and drop-off points and, sometimes, handling the payments. Following the categorisation proposed by Schor and Fitzmaurice (2015), a further distinction can be made according to the market orientation of the platform (and its users):

Sharing-oriented ridesharing platforms: the goal of users who ride together is to share the costs of the ride, and not to profit from this activity. Two successful European examples are the French BlaBlaCar and the British Haxi, both allowing users to split the costs of mid- and long-range rides among passengers. Drivers can post on the website or mobile application a trip they will make, and users can request one of the available seats. The goal is hence to make a better use of cars that would in any case commute on certain routes, reducing the environmental impact as well as providing economic advantages and promoting social interactions.

Profit-oriented ridesharing platforms: the goal of users who provide transportation services is to make a profit by offering a personal service. The global leader of this kind of services is the Californian Uber, but also many competitors such as the US-based Lyft or the Malaysian Grab are active worldwide. Contrarily to the previous case, users who need a ride post on the smartphone application their trip, and users that are active in that area can request to provide the ride for the price calculated by the platform. Those who provide the transportation service do so to earn the money of the ride, sharing part of the profit with the platform in the form of a fee.

Once more, and for the last time, we scope our analysis to a single type of platform, the profit oriented peer-to-peer ridesharing platform. Recalling the definitions used so far, the focus of this study has been put firstly on on-demand services, as defined by Frenken and Schor (2017). Secondly, we restricted platform to those that do not control the assets exchanged, but only the customer relationships, defined by Walravens and Ballon (2009) as Broker platforms. Thirdly, we introduced ridesharing platform, where the service being exchanged are of

transportation, and restricted our analysis to peer-to-peer, profit-oriented, ridesharing platforms.

With a fleet of peer providers and a large customer base at their disposal, many peer-to-peer ridesharing platforms have decided to expand their services horizontally, integrating additional products and services to be delivered by the peer providers. This is for example the case of UberEAT and UberRUSH, where Uber peer providers, instead of transporting a passenger, carry out respectively food deliveries and general-purpose deliveries on-demand.

While some of the characteristics of these kind of platforms have already been introduced in the description of the peer economy first, and of ridesharing platforms then, in the next section we take a closer look to the platform enabled ecosystem and the fundamental relationships between its elements.

2.2.1 The ridesharing ecosystem

We defined in Section 2.1.2 peer-to-peer platforms as a type two- or multi-sided markets where users are able to exchange assets. We can now sketch a first draft of the ecosystem created by these platforms starting from the three primary actors we have encountered so far: the company (or platform), the consumer (or customer or end user) and the provider (or peer provider). Taking from Cheng (2014, p. 10), the relationships between these actors can be represented as in Figure 2.2.

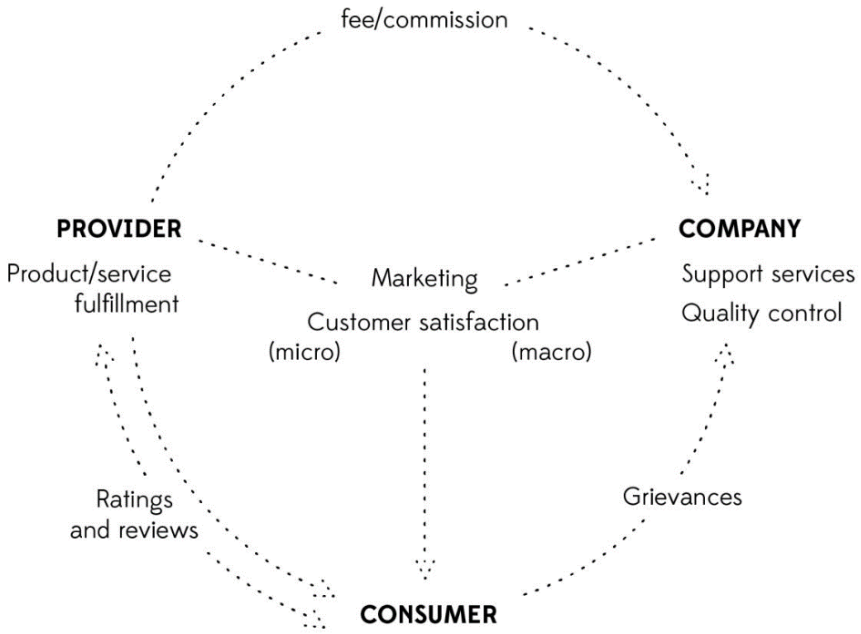

Figure 2.2 - Main actors of the peer economy ecosystem. Retrieved from: (Cheng, 2014, p. 10)

As Figure 2.2 shows, company, consumer and provider have responsibilities and duties to one another. *Company*, is the **Transportation Network Company** (TNC) owner of the platform. Its role is to design and maintain the platform and the network both ICT and marketing wise, attract actors in the ecosystem and support them, as well as to deal with regulators and authorities. *Provider*, is the **peer provider** at the supply side of the market. Its role is to provide personal transportation services to customers, communicating with him/her via the platform. The provider is not an employee of the platform but a customer, and as such has to pay a fee for using its channels to supply a service. The complex dynamics of employment relationship between peer providers and TNC are central to this work and is further explained in Section 2.3. Finally, *Consumer* is the **end user** purchasing the transportation service and receiving it from the peer provider. Consumer and Provider rate each other (usually on a five-star rating scale) for the quality of the service exchange, and contributing to the formation of each other's reputation. Consumers rate peer providers on factors such as their driving ability, the cleanness of their vehicle and their knowledge of the city/routes. Peer providers rate their customer on factors such as politeness or whether they had to wait for the user at the pickup point.
The responsibilities that one actor has for the others are summarised in Table 2.2.

From\To	Company	Provider	Consumer
Company	-	• IT Support • Attract consumers	• IT Support • Quality control • Attract providers
Provider	• Pay fee • Sponsor the brand • Attract consumers	-	• Provide the service • Provide feedback
Consumer	• Report issues	• Pay service • Provide feedback	-

Table 2.2 – Relationships between main actors

While the schematic representation of Figure 2.2 is helpful at understanding the basic dynamics of a Transportation Network, the actual ecosystem is far more complex. The IT nature of peer-to-peer platform enables in fact companies to bringing new parties in the ecosystem, increasing its strength, quality and attractiveness, in what is referred as a loose coupling approach (Tiwana, 2014). Third-, or adjacent-parties can increase the value of the ecosystem by adding important features and increasing the well-functioning of the network.

Whether by providing active components or by passively enabling them, secondary actors play a crucial role in the well-functioning of the network. Taking from the work of Dwi Reza Aditya (2016), three types of parties can be added to the ecosystem:

- **Adjacent collaborators**: they play a direct role in the ecosystem by providing additional products/services or enabling key features. Their involvement is direct, and they contribute to the value creation process. Examples of these actors are: payment getaways providing mobile payment services, online and offline stores marketing their products on the platforms and restaurants offering food services.
- **Adjacent actors**: they play an indirect role in the ecosystem, without taking active part in the exchange of services. They make use of secondary products to create revenue for them and increase the quality of the platform. Examples of these actors are: insurance companies providing coverage during the trips, data collectors and data processors performing data analytics.
- **Adjacent users**: they play an indirect role in the ecosystem, without taking active part in the exchange of services. They make use of secondary products such as behavioural analysis to either create value for themselves, as in the case of Transportation planning authorities, or to sell a service to the platform owner, as in the case of Market research companies.

An additional distinction can be made on the value that is transferred between actors. A **direct value transfer** involves the exchange of an asset, being it tangible or intangible. Examples are a fee being paid for a service, or the service itself. An **indirect value transfer**, contrarily, involves the use of secondary products such as the information tailored to the use of the platform by its users. A more complete ecosystem can now be sketched as in Figure 2.3, and a map of the value transfer relationships between the actors is represented in the value network of Figure 2.4.

We focus on one of the three main actors of the ridesharing ecosystem: the peer providers. As the value network of Figure 2.4 shows, peer providers directly contribute to the value creation

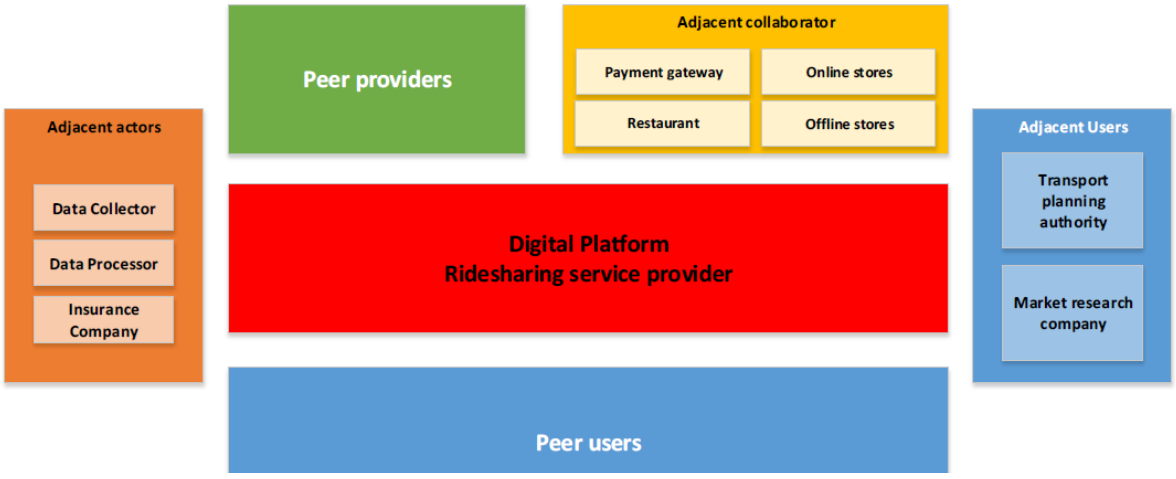

Figure 2.3 – Peer-to-peer ridesharing ecosystem. Retrieved from: (Dwi Reza Aditya, 2016, p. 21)

in the ecosystem in two ways: they provide services to customers, and produce data while using the platform. Secondly, they are recipients of the value creation in three ways: (1) they receive exposure on the platform by being enabled to provide the transportation service; (2) they receive the fee paid by the customer, part of which is held by the platform –usually between 20 and 30%-; (3) they receive a pay-as-you-go insurance coverage for the duration of the travel. Giving continuity to the focus on peer providers posed in this last paragraph, in the next section we look more closely at their working activities and in particular their relationships with the other main actors of the ecosystem.

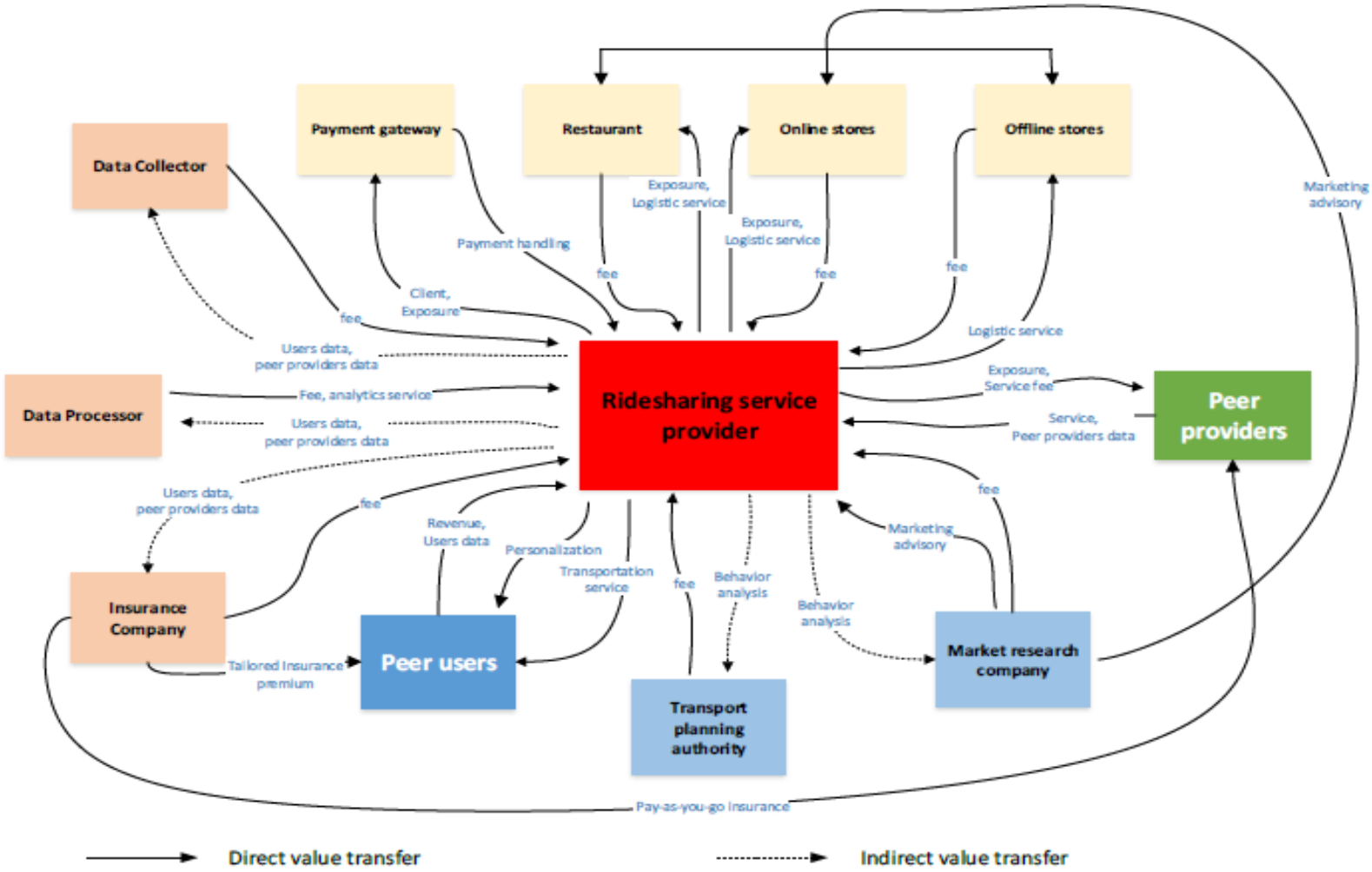

Figure 2.4 – The ridesharing value network. Retrieved from: (Dwi Reza Aditya, 2016, p. 22)

2.2.2 Peer provider working cycle

While we introduced in Section 2.2.1 the ridesharing ecosystem and its value network, in this section we extrapolate only part of it to look at the relationships that hold at different temporal (and logical) stages of the service exchange between peer provider, platform, insurance company and customer.

The relationship between peer provider and the other parties can be synthesized in four phases in what we here define here as the **peer provider working cycle** represented in Figure 2.5 (Traum, 2015). **Phase A** corresponds to the use of the vehicle for personal purposes. The TNC mobile application is closed and the peer provider has no relationship with the platform or any customer. When the peer provider decides to start working, he/she turns the TNC mobile application on and passes to **Phase B**. During this phase, the peer provider starts using the vehicle for commercial purposes and is ready to accept transportation requests from customers. Once a customer posts a request, the platform matches customer and peer provider, enabling the second to accept such a request. Once the request is accepted, the peer provider passes to **Phase C**, following the coordinates provided by the TNC mobile application to go pick up the passenger. The peer provider uses his/her vehicle for commercial purposes, having accepted the ride and being on route towards the customer. Finally, once reached the customer, the peer provider enters **Phase D** and use his/her vehicle for the commercial purpose of transporting the customer to the pre-established destination. Once the destination is reached, the peer provider has two alternatives: (1) Re-entering Phase A by closing the TNC mobile application and stopping the commercial use of the vehicle; or (2) Re-entering Phase B, leaving the TNC mobile application open and thus becoming available to accept a new request and repeating Phases C and subsequently D.

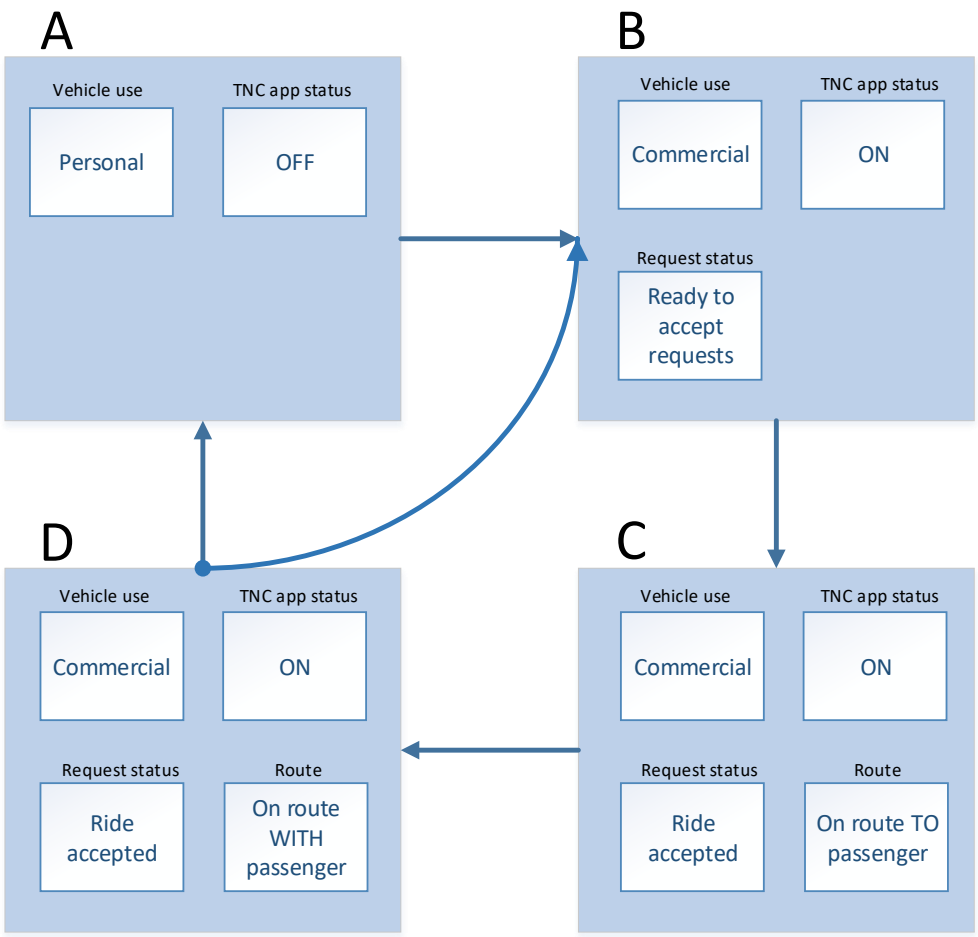

Figure 2.5 – Peer provider working cycle

Several considerations on the legal status of the service exchange activities can be made based on the relationship between peer provider and other parties for the different phases of the working cycle. Firstly, while policies vary from one region to another, regulations regarding insurance coverage usually make a distinction between personal and commercial use of a vehicle, and owners are entitled to purchase either one or the other. Using a personal vehicle for commercial purposes will hence leave the driver without insurance coverage. While this does not constitute a problem when the peer provider stations in Phase A; Phases B, C and D need to be carefully considered. Whether waiting for a potential customer or driving to pick one up, a peer provider in Phases B and C is making a commercial use of his/her vehicle. The peer provider has not yet physically engaged with the passenger, yet the commercial status has been triggered by the use of the TNC mobile application. During these two phases, the peer provider is hence left without insurance coverage due to his/her faulty doing. Once peer providers and passenger have met, a special pay-as-you-go insurance is stipulated between customer, provider and insuring agency. This insurance typically covers both the peer provider and the customer and lasts for the duration of the trip. While a pay-as-you-go is an important instrument for the protection of the customer, the peer provider still spends a large share of the working cycle without coverage at his/her own risk (Traum, 2015).

From a platform perspective, there is no responsibility toward its users who decide independently to make use of the digital platform to coordinate exchanges between them. Furthermore, from a customer perspective, the exchange of transportation services does not represent an issue, as an insurance is stipulated for the total duration of the travel. Only from a peer provider perspective legal issues triggered by the use of the TNC mobile application arise. The relationship between peer providers and platform are in fact central to the debate around the peer economy. This topic is explored in Section 2.3.

After having defined the peer economy in Section 2.1, and its ridesharing configuration in Section 2.2, in the following section we aim at laying fundamental bases for the acquaintance of the reader to the dynamics of work in the peer economy.

2.3 Labour in the peer economy

We defined in Section 2.1 the scope of this analysis to digital platform that enable the exchange of services on-demand in a peer-to-peer fashion. Additionally, in Section 2.2, we limited our analysis to profit oriented platforms and to their specific implementation in the field of transportation services. The profit orientation of peer-to-peer ridesharing platforms creates hence room for a commercial use, and giving the possibility peer providers to undertake this as an employment opportunity. The emergence of digital platforms has indeed enabled new forms of employment that we could group under the umbrella of **platform employment opportunities**. This section explores employment opportunities in the peer economy, referring first to the existing literature on the topic and then specifying for the ridesharing case object of this study.

Digital platforms have created an array of employment opportunities that are very different in modality and complexity. With the goal of defining our domain of analysis, we introduce a new categorisation as proposed by the literature. According to De Groen et al. (2016), Sundararajan (2016) and Aloisi (2016), it is possible to make a first distinction of whether the exchange takes place in a specific physical location or virtually. The former category, described as "work on-demand via apps/internet" (or "physical service platforms") comprehends services such as transportation, home and child care, repair and of the sort, requiring hence workers to be physically involved in a task at a specific location (Sundararajan, 2016). The latter category, that goes with the name of "crowd-work" (or "virtual service platforms"), is composed by tasks or other forms of work that can be performed online and delivered virtually. At this category belong activities spanning from the micro-tasks posted on Amazon Mechanic Turk to

more specialised services such as freelance design or accounting. The second dimension on which work on digital platform can be categorised is the level of skills required. Whether delivered physically or virtually, services may involve tasks that require specialised skills (**High-skills**) or more general ones (**Low-/medium-skills**). This categorisation and some exemplifying platforms are reported in Table 2.3.

	Virtual/global service platforms	Physical/local service platforms
High-skills	Specialised crowd-work E.g. *UpWork, CoContest*	Specialised on-demand E.g. *Takelessons*
Low-/medium-skills	Micro-task crowd-work E.g. *Amazon Mechanic Turk*	Micro-task on-demand E.g. *TaskRabbit, Uber, GoJek, GrabBike*

Table 2.3 – Categorisation of work on service platforms. Retrieved from: (De Groen et al., 2016, p. 2)

Virtual and physical service platforms share a number of similarities, while presenting crucially distinctive characteristics. Firstly, they both create globally distributed networks of users in two-sided digital marketplaces. Nonetheless, physical service platforms require, by definition, geographical proximity between users who engage in exchanges. Despite their global reach, on-demand platforms are more affected by local circumstances, being them political, regulative or cultural. By the same token, they will have a sizable impact on local labour markets (De Groen et al., 2016). Secondly, virtual service platform and physical service platforms both transform existing forms of employment and create new ones. A transformation of traditional forms of employment takes place in the case of high-skilled work delivered via digital platforms. Being it virtually or physically, digital platform increased the efficiency of freelancers' marketplaces. While freelancing is not a new activity, the possibility to find potential customers via digital platforms is, resulting in a larger potential customer base and more accessible channels for communication and management. For what concerns low- and medium- skilled work instead, new forms of employment have emerged from the rise of digital platforms. Virtual service platforms have created a distributed crowd for "Human Intelligent Tasks". These tasks are usually short assignment that require human intelligence as opposed to computer calculations. A remarkable example of this application is the campaign "Help find Jim Gray" launched on Amazon Mechanic Turk where satellite images of 77700 square kilometres have been distributed to a crowd of workers in the hope of finding a missing sailing boat where the computers were failing. Physical service platforms have instead enabled a different user base to perform pre-existing tasks. This is the case of the debated Uber, where private citizens without professional driving licences deliver services traditionally reserved to taxi drivers.

As the authors argue, it is still uncertain if the job opportunities created by digital platforms benefit at the very end the workers who decide to undertake them, and the society they are part of. If on the one hand new flexible opportunities could support young or disadvantaged groups, on the other hand working conditions that are not regulated and protected may deteriorate existing employment opportunities. This research focuses on the last type of digital platforms, those that provide local services, and in particular on platforms that do not require high-level skills.

2.3.1 Employment status

As anticipated in Section 2.1.3, the peer economy has given rise to many policy concerns, both for the legal nature of the activities it coordinates and for the legal status of the workers who work on peer-to-peer platforms. On this line, Aloisi (2016) argues that platforms have found ways to circumvent labour laws and employment regulations. The lack of a legal framework addressing employment over digital platforms has allowed enterprises to create forms of contracting that shift the risks and costs of employment on workers, thus managing to maintain competitive prices. While virtual services may not be directly affected, the delivery of physical services often conflicts with local regulations which reckon on licenses and safety standards to protect labourers and customers. Peer-to-peer service platforms have been widely criticised for implementing an elusive employer-employee relation (Elert & Henrekson, 2016). It is argued that the peer economy is undermining working conditions by replacing traditional full-time employment with more affordable casual work, or "bogus" self-employment (Williams & Horodnic, 2017). Instead of being regarded as employees, in fact, peer providers are classified as independent contractors or self-employed workers, who do not hold any of employment but only "click-wrap agreements" establishing the compliance of users to the platform's rules. Instead of proving a binding contract, the action these agreement is limited to "disclaim warranties, restrict liability, indicate the applicable laws and forums for dispute resolution" (Aloisi, 2016, p. 671), with the only possibility of accepting the prescribed conditions.

There is a profound difference between employees and independent contractors. Employees have a pre-established contract with their employers that makes them financially dependent, but also guarantees them security and stability. Their security is: (1) economic, in the sense that they are entitled to a fixed salary equal or above the minimum wage and paid overtime work, and (2) personal, from the safety that has to be ensured on the working-place to other types of disability and medical insurances they can be entitled to. Furthermore, part of the salary provides taxes for compensation after retirement. Contrarily, independent contractors

have complete control over their economic activities and establish contracts with their clients, typically on a task/assignment base. They have control over what activities to engage in and how to perform work, profit form special skills they employ, but are also responsible for possible losses and risks they may incur into. They are not entitled to any economic or social protection and have to organise insurances and retirement compensations on their own (Harris & Krueger, 2015).

Service providers working in the peer economy, previously defined as peer providers, are hence independent contractors as they do not have an employee-employer relation with the platform they work on. Enterprises such as Uber define them "partners", while a solid body of literature refers to "micro-entrepreneurs" (small scale entrepreneurs) or "independent contractors", highlighting the absence of subordination between providers and platforms, and their economic independence (Isaac, 2014). As such, peer providers are not entitled to any sort of protection or security, as they not fall under the same laws regulating the duties and responsibilities between employers and employees.

Taking the example offered by Aloisi (2016), a peer provider working for Uber is not an employee, as he/she is free to work as much and on preferred schedules, without any obligation imposed by the company in the form of a contract. Yet, the skills employed and degree of autonomy in deciding what activities to perform and how much to price his/her service suggest that also the status of independent contract does not fit. Despite not controlling the schedule of the working time of its drivers, the platform exerts a strict control, through algorithms, on the assignment of passengers to drivers, routes, fares and evaluation systems. Additionally, the company retains the power to dismiss drivers without warning when unsatisfied of their performance, as well as to alter the pricing system or any other feature offered by the platform.

The problems related to holding the status of independent contractors in the peer economy can be classified in four categories constructed on the work of Cheng (2014) and Isaac (2014):

- **Taxes**: Firstly, independent contractors have to administrate taxes by themselves, often without being able to do so and incurring in unexpected bills. Secondly, they evade the high taxations the sector they work in imposes.
- **Insurance** and **liability**: independent contractors are not required by the platforms to have commercial insurance and often find themselves without coverage as exemplified in Section 2.2.2.

- **Supply costs**: assets and their maintenance are at the expenses of peer providers, costs that may drive their earnings well below minimum wages. Some of these costs are: gasoline, tolls, insurance, repairs and equipment.
- **Instability** and **uncertainty**: despite their independence, the future of peer providers is tight to the one of the platform, both to its long-term survival and to its short-term decisions such as dismissing operations at a certain location or cutting fares and compensations.

The argument put forward is that workers in the peer economy are miss-classified, and that a newly employment status should be designed to represent the working opportunities offered by the peer economy (Sprague, 2015).

It is interesting to notice that most of the shortcomings of being an independent contractor in the peer economy just presented are to a certain degree related to the platform or its external ties. Regulators, insurance companies and platform have, at least on paper, the power to alter these variables by designing ad-hoc solutions with the goal of protecting labourers. The lack of frameworks for the analysis of employment opportunities in the peer economy is indeed among the reasons why such forms of protections have not been developed yet.

While possible regulative frameworks are currently being developed at local and international levels, we aim at taking a step aside the policy issues of the peer economy to look at hereditary features of the work of peer providers. Taking from the argument of peer providers as independent workers, we study, with the help of a selected theoretical framework, characteristics of work that are independent from the policy discourse, and hereditary of labour on peer-to-peer ridesharing platforms.

Chapter 3 - Theoretical framework

In this chapter, we present the theoretical frameworks adopted by this study to investigate employment opportunities in the Indonesian peer economy. We answer the second part of our first research sub-question (*SQ 1: How do peer-to-peer ridesharing platforms create benefits for the peer providers of developing countries?)* by focussing on the role that the labour market created by the peer economy plays in developing countries, and on what are the benefits of being a peer provider.

In order to provide an answer, we fragment our analysis in three parts.

Firstly, we investigate theories that are relevant to the setting of this study: the one of developing countries. We look at theories on the informal sector to understand how peer providers can be categorised according to the structure of the labour market they are part of, and to their personal drivers. This objective is achieved by means of a thorough literature review presented in Section 3.1.

Secondly, we adopt the theoretical framework of self-employment to take a closer look at the motivations that individuals have to become service providers on peer-to-peer platforms. This allows us to understand which features of working in the peer economy may be considered attractive by the peer providers, and how can they in turn influence their satisfaction and intention to retain their job in the future. The desk research carried out to achieve this goal is presented in Section 3.2.

Lastly, the concepts offered by the two theoretical perspectives are used to develop a conceptual model for the analysis of employment opportunities in the peer economy. The conceptual model has the function to show how the concepts identified are interrelated. Their relationships is then be explored by means of statistical analyses as presented in the following chapters of this research. The design of the conceptual model is included in Section 3.3.

Our objective is to identify a theoretical framework that is relevant to the description of characteristics and motivations of peer providers of developing countries. On the one hand, the complex labour dynamics of developing countries require the adoption of a theoretical perspective that is context-specific, as the one offered by the informal sector theory. On the other hand, this theory does not provide a framework for the study of individual's motivations that fits the case of peer-to-peer platforms under analysis, which is instead integrated with the self-employment theory. We argue that combining these two frameworks can provide a helpful instrument for the analysis of employment opportunities in the Indonesian peer economy.

3.1 The informal sector

While describing the domain of this study, we have introduced in Section 2.3.1 an important issue related to the working arrangements implemented by peer-to-peer platforms. In the peer economy, peer providers do not have an employer-employee relationship with the platforms, but are instead considered **self-employed**, independent entities towards whom platforms do not have any duty in terms of economic and social protection. With the goal of designing a conceptual model that is pertinent to the developing countries this study is focused on, we want to understand the role that the self-employment has in developing countries and how this is reflected in individuals' motivations.

In this literature review, we show how the problematic economic conditions of developing countries are reflected in their labour markets, where security and stability are often an exception instead of the norm. A large share of individuals in developing countries work in fact "off the books", usually performing small economic activities that are neither regulated nor accurately measured, and that are for this reason referred as informal. The sum of these activities, that takes the name of informal economy or **informal sector**, can account for more than half of the whole economy of a country, thus playing a crucial role in creating jobs and providing services when the formal institutions fail to do so.

As argued at the end of this section, the labour markets created by peer-to-peer platforms can be considered part of the informal sector, and the concepts offered by the literature on this topic represent a valuable instrument for the analysis of employment opportunities in the peer economy.

3.1.1 Origin, definition and theorisation

The origins of the concept of informal sector can be traced in the economic development theory, when academics started to design models to describe the industrialisation process of Third World countries (Moser, 1978). The first notorious model is the one designed by Lewis (1954) and later refined by Rains and Fei (1961), which assumed that, similarly to what happened in Europe, capital investment would have ultimately created industrialised cities with enough wage-employment opportunities (Lewis, 1954; Ranis & Fei, 1961). The "unlimited labour supply" of the rural agricultural sector, with a close to zero productivity, would have migrated to urban areas to take advantage and support this industrialisation process.

Yet, their prediction did not turn out to be completely true, and an over-urbanisation, or "urbanisation without industrialisation", called for new theories. Harris and Todaro (1970) developed a new dualistic model composed of an urban modern sector and a rural traditional

one. According to their model, rural workers would have the choice to either stay in the traditional sector or migrate to urban areas to seek for formal wage-employment in the modern sector. Due to the limited availability of jobs in the modern sector, migrants who did not manage to find formal employment would spend a period as unemployed while waiting for a job to become available.

Both the Lewis (1954) and the Harris and Todaro (1970) models for labour in urban settings did not consider alternatives other than modern employment or unemployment. Nonetheless, a more complex picture seems to better reflect the reality. Opposing the two models, Fields (1990) recognised the existence of a large share of urban workers who were neither unemployed nor employed in the modern formal sectors, and occupy the informal sector. This informal sector was composed by individuals left out of the previous two, who found or created an occupation in the urban setting without making use of modern means of production. The theorisation of this third sector was first made explicit by Hart (1973), and since then increasingly recognised by scholars and adopted in programmes aimed at addressing the problem of urban unemployment in developing countries by international bodies, such as the International Labour Organisation (ILO).

Finding a definition of the informal sector remains a challenge due to the variety of activities it includes and the differences that arise by taking specific countries or settings in consideration. Generally speaking, the informal sector is composed by all those activities that are not registered by the authorities, or that do not comply with regulations in matter of job security, labourers' protection and of the sort. Urban areas, in particular, show a great diversity among the activities performed informally. To this sector belong for example all the food, goods, and service providers who transact solely with cash and that often do not reside at a fixed location. These street-based traders operate at a micro-scale in a variety of industries, providing services such as transportation and domestic work, but also working in construction and manufacturing.

In a recent effort of the ILO to describe the many facets of informality, the focus of the definition of the informal sector has been extended from the enterprises that are not regulated, to all the employment relationships that do not fall under employment laws. In this view, the informal sector is composed by "all forms of employment without labour or social protection – both inside and outside informal enterprises, including both self-employment and wage-employment" (Chen, 2007).

Four dominant views have consolidated on the reasons for the informal sector to exist, on its relationship with the formal sector, and on what policy interventions can be used to reduce it, namely dualistic, integrative, legalistic and survivalist. A review of these four perspectives is reported in Table 3.1, together with their key assumptions and some of the authors supporting them. As the table shows, the function of the informal sector is the result of its relationship with the formal one, whether as a passive buffer for formal employment, as in the dualistic perspective, or with a complementary function, as in the integrative perspective.

	Exponents	Key assumptions	Roe of the informal sector	Policies to reduce it
Dualistic	(Ranis & Fei, 1961), (Harris & Todaro, 1970), (Hart, 1973)	• Formal sector is modern and capital-intensive; informal sector is traditional and labour-intensive. • Two separate entities with distinctive characteristics.	Buffer for formal employment, temporary source of income for unemployed and migrants.	Macro-economic growth, expansion of the modern sector.
Integrative	(Moser, 1978), (Tokman, 1978)	• Interdependence of formal and informal sectors. • Economic activities are on a continuum with interrelations between the two sectors. • Capitalist and petty commodity of production, domination and subordination between the sectors. • Backward (raw materials from formal to informal) and forward (outputs from informal to formal) linkages.	Provides income to the poor and services to the formal sector.	Provision of equal opportunities.
Legalistic	(DeSoto, 1989), (Thomas, 1995)	• Formal has legal end and legal means, informal has legal end but illegal means, criminal has illegal end and illegal means. • The cause of poverty is the incapacity of governments to meet the needs of people, forcing them to act outside the institutional boundaries. • Four legal dimensions (registration, taxes payment, regulation of work conditions, institutional regulations)	Avoid regulatory costs to provide incomes to the poor.	Reform institutions and regulations. Provide access to credit.
Survivalist	(DeSoto, 1989), (Portes, Castells, & Benton, 1990)	• Result of the social change and economic development, excess of labour supply and of rural-urban migration.	Provides opportunities for entrepreneurship and creation of wealth and capital. Safety net for unemployment.	Promote entrepreneurship.

Table 3.1 - Comparison of theories on the informal sector

3.1.2 Employment in the informal sector

The theories presented in the previous section and summarised in Table 3.1, offered us different perspective on the existence of the informal sector and its relationship with the formal one. In the view of these theories, we continue our investigation by questioning why individuals find employment in the urban informal sector instead of the formal one. Once more, distinct conclusions can be derived from each perspective, as reported in Table 3.2.

	Reason for employment
Dualistic	The informal sector is a buffer functional to the formal sector. Individuals who find employment in this sector are binding time, waiting for an employment opportunity in the formal sector to show up. Being employed in the informal sector is hence not desirable, but only a strategy to avoid unemployment
Integrative	The informal sector has a subordinate relationship with the formal sector dictated by its modes of production, but economic activities are in a continuum between the two sectors. Where, in this continuum individuals find employment is determined by their mode of production, thus by their ability to employ resources that are capital- or labour-intensive.
Legalistic	The informal sector is a way out of strict regulations that penalise the poor, a remedy to governments' inefficiencies. Individuals who find employment in this sector do so to escape taxation and regulations, which would otherwise make their job not possible.
Survivalist	The informal sector is the result of an economy that cannot entirely accommodate the labour supply consequence of the rural-urban migration. Individuals who find employment in this sector do so because they cannot find employment in the formal one, or because they foresaw business opportunities that could have not been pursued in the formal sector.

Table 3.2 – Reasons for employment in the informal sector

While the four perspectives seem to provide an exhaustive explanation being employed in the informal sector, in a matter of fact multiple reasons may concur. As anticipated by Hart (1973), and later confirmed by Fields (1990), the informal sector is in fact highly heterogeneous, not only in the kind of activities it comprehends, but also in the motivation that workers have to be part of it. The motivations, in particular, seem to be largely affected by the type of informal employment being considered: either informal wage-employment or informal self-employment.

Informal wage-employment refers to workers who perceive a fixed salary for working a determined number of hours. They can either be employees of an informal firm, or be informal employees of a formal firm, which keeps them "off the books". By looking at the wage differential of the two sectors, it appears clear that finding wage-employment in the informal sector is an inferior choice compared to its formal counterpart. Wages in the informal sector are generally lower, and its informal nature does not provide the social and economic protection typical of salaried jobs. The reason for undertaking informal wage-employment is hence related

to constraints that workers have in finding employment in the formal sector, as suggested by the dualistic view. These barriers are primarily related to skills and education, especially low among informal wage-employed. As suggested by Funkhouser (1996), there is a negative correlation between education and the probability of being wage-employed in the informal sector. Skilled workers with more years of schooling are more likely to be formally employed and to receive higher salaries than informal employees (Gong & van Soest, 2002; Saavedra & Chong, 1999). Informal wage-employment appears hence to be a strategy of last resort, the only source of income available to poor that are driven by necessity and who lack of the entrepreneurial abilities to start an activity on their own.

Studies on the **informal self-employment** yield different results. Entering the informal sector as an own-accountant, or self-employed, has been increasingly recognised to be both of voluntary and involuntary nature, as measured by Maloney (1999) in a study of urban informal employment in Mexico. While wage differentials have pointed at the informal wage-employees as a disadvantaged group, predicted earnings showed to be highly correlated with the decision of becoming self-employed in the informal sector, letting emerge a class of informal entrepreneurs (Carneiro & Henley, 2001). The motivations of individuals to become informal self-employed appear in fact not to be homogeneous, suggesting instead a distinction between two groups which differ in the voluntariness of their occupational choice.

The first group is composed of individuals who estimated higher earnings in this sector and decided to become informal self-employed to foster them. Yamada (1996) and Saavedra and Chong (1999) have found evidence of competitive earnings in the informal sector for workers in Peru, arguing for an "active process of search for the best employment sector to maximise income" (Yamada, 1996, p. 290). Supporting evidence of competitive earnings of the informal sectors has been found also in Malaysia (Blau, 1986) , Brazil (Carneiro & Henley, 2001), Mexico (Gong & van Soest, 2002), and Africa (Günther & Launov, 2012). Individuals belonging to this group are described in the literature as **opportunity entrepreneurs**, underlying the ability that some individuals have to discover and harvest economic opportunities in their environment. Moreover, opportunity entrepreneurs who manage to obtain satisfying returns through informal self-employment desire to stay in this sector even when formal alternatives become available. The second group is composed of individuals who are not able to find wage-employment, neither in formal nor in the informal sector, and self-employment is hence for them the only alternative to unemployment and poverty. Self-employed of this group are described in the literature as survival entrepreneurs, or **necessity entrepreneurs**, underlining the low or inexistent degree of voluntariness of their occupational choice.

The size of these two groups of informal self-employed has been object of the analysis of different studies. According to Maloney (2004), over the 60% of Mexican self-employed have left their previous occupation to voluntarily enter the sector in search of higher earnings or a greater level of independence. On the same line, 62% of the respondents of the Brazilian Annual Domestic Survey reported that they would not want a formal employment as already happy with their current position (Cunningham & Maloney, 2001).

Broadly speaking, the informal sector is to be considered heterogeneous and, as many authors describe it, distributed along multiple tiers. The **lower tier** is made up by individuals driven by necessity, who are constrained by inaccessibility of resources and capitals, and who lack of the entrepreneurial skills necessary at pursuing different careers. To this tier belong the informal wage-employed and the share of self-employed we defined as necessity entrepreneurs. The lower tier reflects a more traditional view of the informal sector, of workers who are biding time while waiting for a salaried employment opportunity in the formal sector, or escaping poverty due to unemployment as proposed by Tokman (1978). The **upper tier** is instead occupied by individuals who are in this sector voluntarily, and have decided to work informally to take advantage of opportunities they have foreseen and considered, for a variety of reasons, superior to their formal counterpart, reflecting the more modern view initiated by DeSoto (1989). To this tier belong the opportunity entrepreneurs. The distinction between the two tiers is hence related to the degree of voluntariness of the occupational choice of working in the informal sector, as summarised in Figure 3.1. The hypothesis that informal employment is merely a buffer for formal job search, or solely a last-resort, as proposed by the dualistic models, has been widely rejected. Interestingly, the heterogeneity of the informal sector is reflected also in individuals' personal traits such as risk acceptance, social networks, motivation and greed, with opportunity entrepreneurs (thus belonging to upper tier) consistently showing characteristic similar to those of SME owners of the formal sector, suggesting once more their ability to recognise and foster attractive opportunities (Bosch & Maloney, 2010; de Mel, McKenzie, & Woodruff, 2008; Djankov, Qian, Roland, & Zhuravskaya, 2005; Djankov, Qian, Roland, Zhuravskaya, & others, 2006, 2007; Gindling & Newhouse, 2014; Günther & Launov, 2012). The focus of this study is limited to informal self-employment (and the resulting two types of entrepreneurs), as this is the working arrangement implemented in the peer economy.

An overview of the studies concerning the occupational choice and the earning differentials among the two sectors is included in Appendix 1.

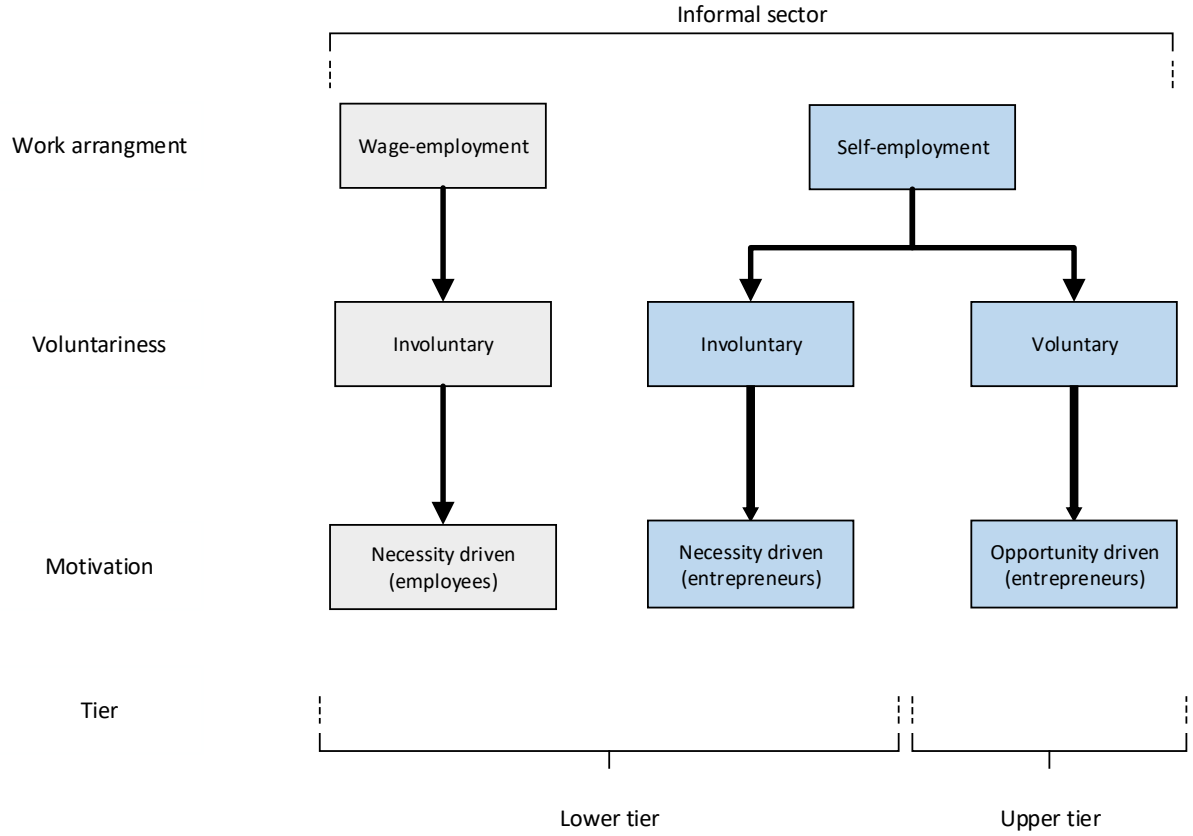

Figure 3.1 – Categorisation of informal workers. The share of the informal sector of interest for this study is coloured in light blue, while the share of the informal sector excluded from this study is coloured in light grey.

3.1.3 Peer economy and the informal sector

In light of the literature presented in the first part of this chapter, in this section we argue that the theories on the informal sector can be applied to the peer economy to explain the role that peer-to-peer labour markets have in the economies of developing countries.

To build our argument, we refer to the theoretical perspectives offered by the informal sector theory summarised in Table 3.1.

Firstly, from a dualistic perspective, formal and informal sector differ for the factors of production employed: capital intensive for the former and labour intensive for the latter. Being a peer provider is indeed a labour-intensive activity, with very small marginal returns to capital invested and high marginal returns to labour. From a dualistic perspective, we conclude that peer providers can be considered part of the informal sector.

Secondly, from an integrative perspective, formal and informal sector sectors differ for the modes of production and for the direction of their linkages. Peer providers conduct simple

transaction, product of their efforts, supporting the hypothesis of petty commodity modes of production of the informal sector. Moreover, the linkage with the formal sector is primarily forward, with peer providers supplying services in the market instead of final products. From an integrative perspective, we conclude that peer providers can be considered part of the informal sector.

Thirdly, from a legalistic perspective, activities of the informal sector avoid regulatory costs (such as registration, regulation of working conditions and taxes) that would make these activities unprofitable. We have identified regulatory issues as central to the discourse around work in the peer economy, pointing at their non-compliance to sectors' regulations (for instance by peer-to-to-peer ridesharing platforms operating as technology companies instead of transportation companies) as crucial to their strategic advantage. Despite not providing an illegal service, peer providers adopt illegal means (by not complying with existing regulations) to avoid costs that would make their job unprofitable. Additionally, the ridesharing services offered by peer providers do, to a certain extent, create a remedy to the governments' inefficiency in offering reliable public transportation services. Also from a legalistic perspective, we conclude that peer providers can be considered part of the informal sector.

Lastly, from a survivalist perspective, the informal sector is the result of an excess in labour supply consequence of rural-urban migrations. Peer-to-peer platforms emerged indeed in urban areas, where not only the labour supply is abundant, but it is also the demand for the services being provided. As this study argues, peer-to-peer platforms have created employment opportunities that may lead to the creation of wealth and capital, or provide a safety net for unemployment.

Recalling the definition provided by the International Labour Organisation, the informal sector comprise "all the employment relationships without labour or social protection" (International Labour Organisation, 2003, p. 9). As presented in Section 2.3.1, the employment relationships implemented in the peer economy are central to the debate around its legality. Peer-to-peer platform do not offer in fact any labour or social protection to the peer providers, who are instead to be considered autonomous self-employed. Thus, also according to the ILO definition, peer-to-peer platforms can be considered part of the informal sector.

In light of these considerations, we consider the activities enabled by peer-to-peer platforms, and the resulting labour markets, as fundamentally informal. For this reason, we expect the labour markets created by peer-to-peer ridesharing platform to reflect, at least in part, the characteristics of the informal sector. The peer providers, autonomous workers in the peer

economy, can for this reason be considered digitally enabled informal self-employed. As such, we expect the group of peer providers to have a heterogeneous set of motivations behind their occupational choice, with some of them being driven by necessity because unable to find other forms of employment, and others being driven by the recognition of an attractive opportunity.

The literature review of the informal sector theory, and its application to the case of peer-to-peer platforms yield to two concepts that we include in the design of our conceptual model.

The first concept is the one of **opportunity peer provider**, defined as an individual who is employed in the peer economy out of his/her own will, because chasing an attractive opportunity, perhaps result of a meticulous search for the best opportunity available in the labour market. The entrepreneurial attitude of opportunity peer providers has allowed them to identify the opportunities offered by peer-to-peer platforms in their environment and, attracted by the profit or other characteristics of being a peer provider, decided to foster their benefits.

The second concept is the one of **necessity peer provider**, defined as an individual who is employed in the peer economy out of necessity, escaping unemployment and perhaps poverty. Necessity peer providers are not attracted by working in the peer economy because they have recognised an attractive opportunity, but are instead unable to find other forms of employment. As the literature on the informal sector suggests, necessity peer providers are likely to not enjoy the benefits of being self-employed, as they reflect the characteristics of informal wage-employees.

Despite performing the same activity, the difference between opportunity and necessity peer providers lays in their motivation to be employed in the peer economy. With the goal of creating a categorisation between these two types of peer providers, in the following section we consider a second theoretical perspective that allows us to take a closer look at individuals' motivation to take up this form of employment.

3.2 Self-employment

With the literature review presented in the first part of this chapter, we have identified two types of peer providers that we expect to be employed in the peer economy, namely opportunity and necessity peer providers. By their definition, the two types of peer provider are fundamentally different for the motivation they have to be working in the peer economy, with the former type being driven by the recognition of an opportunity, and the latter by the necessity of earning an income. With ultimate the goal of developing a conceptual model useful to the analysis of labour opportunities in the peer economy, we want to further investigate the set of motivations that drive the occupational choice of peer providers.

In this section, we take the perspective of the self-employment theory to study the set of motivations that drive individuals to become self-employed, and specifically peer providers. We identify in this analysis the features of autonomous work that can be considered attractive for the workers, and subsequently investigate two of their direct consequences, namely satisfaction and intention to retain the job in the future. The concepts offered by this theoretical perspective are included in the design of our conceptual model as presented at the end of this chapter. Firstly, the concepts retrieved from this literature have the function of defining the dimensions of which we can categorise opportunity and necessity peer providers. Secondly, these concepts allow us to study the abovementioned direct consequences that motivations have on peer providers' satisfaction and future intention to remain peer providers.

3.2.1 Motivations to become self-employed

We present in this section a literature review of the self-employment theory, with the goal of identifying the determinants of the motivations of individuals who decided to become self-employed. Individuals in search of a job face in fact an occupational choice, as they have to decide what kind of working arrangement they like the most. This process involves a series of trade-offs between the feature that different work arrangements have to offer. Being a salaried employee, for instance, offers a certain degree of security and stability that are ensured and enforced by means of a contract. Contrarily, being self-employed gives up security and stability in favour of a higher degree of autonomy and flexibility. Our aim is to determine what peer providers gain from pursuing this particular work arrangement by looking at those characteristics of working in the peer economy that the literature here presented recognises as attractive.

The theories on self-employment as an occupational choice stem from the combined used of two disciplines: economy and psychology (Headey, 1993). On the one hand, economic theories seem to provide and appropriate conceptual framework for the calculus of decisions' outcomes, yet limiting the explanatory power to monetary-related aspects. On the other hand, phycology theories seem to offer instruments that better represent subjective perceptions, yet without adopting a well-defined and pragmatic framework. Unifying the two perspectives, we can expect individual choices to be driven by a utility maximisation process that involves subjective elements next to economic ones. Among the factors investigated, one has proven in multiple studies to play a major role in the decision of individuals to become self-employment: the autonomy.

Autonomy is a psychological need at the base of humans' motivation, which satisfaction is precondition to well-being, as argued by the self-determination theory (Gagné & Deci, 2005; Ryan & Deci, 2000). It does not surprise then that the value of autonomy has entered multiple disciplines, among which studies on entrepreneurship and its determinants, where definitions and instruments to measure this multidimensional concept have been developed (Breaugh, 1999). The hypothesis that autonomy is a key driver for individuals who decide to become self-employed breached the academic community, which searched for evidence in a variety of contexts. These results has been achieved first by Taylor (1996), who investigated the self-employment occupational choice as the result of an "unemployment push" (or the need of an easily accessible job, as for necessity entrepreneurs), high predicted earnings, and of an increase in autonomy. Interestingly, only the second two factors (predicted earnings and autonomy) have been proven to have a relevant weight on the outcome of the career choice (Taylor, 1996).

While some authors have discarded the hypothesis of the competitive earnings of self-employment, suggesting instead a trade-off between a decrease in income and an increase in autonomy (Croson & Minniti, 2012), its importance has been widely consolidated. The utility maximisation process on which decisions are made, and in this specific case, occupational choices, comprehends hence both monetary and non-monetary returns. The option with the highest utility, combination of these two types of return, will be selected by the individual decision maker. Some studies have focused on developing utility-maximising models, such as in (Levesque, Shepherd, & Douglas, 2002) and (Croson & Minniti, 2012), while others in finding additional empirical evidence of this effect, as in (Burke, FitzRoy, & Nolan, 2000), (Douglas & Shepherd, 2002) or (Guerra & Patuelli, 2016).

Yet, according to the self-determination theory (SDT) developed by Gangné, Ryan and Deci (2005; 2000), autonomy is not the only physiological need driving motivation. The authors

argue that humans also have a need for competence, which refers to the need to control that individuals exert over their doings, and for relatedness, which refers to the need to interact and be connected with others. Next to the economic utility, associated to monetary returns, a second kind of utility can hence be associated to non-monetary returns. This is what Frey, Benz and Stutzer (2004) have theorised with the name of **procedural utility**, defined as "the positive well-being people gain from living and acting under institutionalised processes as they contribute to a positive sense of self, addressing innate needs of autonomy, relatedness and competence" (Frey et al., 2004, p. 6). The authors refer to the utility that individuals derive from **how** an activity is performed, as opposed to a mere **what** object of the action (or choice). The utility maximisation process is helpful to understand what the drivers for individuals to take up one form of employment (and specifically for self-employment) are when making this choice. However, it is reasonable to expect this utility also to have pay-back once the decision has been taken. The concept of procedural utility has been in fact adopted by its initiators, and by a number of other authors after them, to investigate its effects, and in particular, on satisfaction.

Understood where the determinants of the occupation choice lay, we can now look at its outcomes in a broader way. The relationship between self-employment and the **job-satisfaction** has in fact been central to a number of studies. Scholars have researched in particular how wage employees and self-employed reported different levels of job-satisfaction, finding evidence of the latter group being more satisfied. While the earning differentials between the two groups are affected by the labour conditions of the setting chosen for the study, the satisfaction seems to be consistently determined by the greater autonomy that self-employed have over their wage counterpart. Blanchflower (2000) has studied this relationship in eleven OECD countries, Bradley and Roberts (2004) in the US, Tamvada (2010) in India, Fuchs-Schündeln (2009) in Germany, Sutherland (2013) in the UK, and Lange (2012) and Schneck (2014) on data from the European Social Survey. We can hence conclude that meeting the psychological needs defined by the self-determination theory and embedded in the concept of procedural utility has a direct impact on workers' satisfaction.

Finally, an additional relationship between psychological needs and satisfaction can be traced: the **future intention** of workers to retain their job. The topic of job turnover, as opposed to its retention, emerged in fact as a natural consequence of the hypothesis made by the self-determination theory. In a study presenting the application of their theory on work motivation, Gagné and Deci (2005) argue that that workers who can enjoy a certain degree of freedom by accomplishing their psychological needs will show a lower turnover rate, as well as a better

attendance, than those who are constrained by a limiting, and perhaps boring, job. Similar results have been achieved by Greguras & Diefendorff (2009) in a study on personal-environment fit. Supporting the hypothesis of the influence of satisfaction on the intention to change job, evidence has been provided by Lambert et al. (2001) in a study on American workers, by Aguiar do Monte (2012) in Brazil, and by van Breukelen et al. (2004) in the Netherlands.

3.2.2 Self-employment in the peer economy

As we discussed in the second chapter of this work, peer providers are self-employed in the peer economy, autonomous entities who do not hold any working contract with the platforms they are part of. Moreover, we have argued that their independence plays a crucial role in the strategic advantage that peer-to-peer platforms have on their traditional competitors, as it allows platforms (and peer providers) to offer services for a fraction of the price. As we argued in Section 2.3.1, being a peer provider comes with a number of disadvantages such as taxes, liability issues, supply costs, instability and uncertainty. Nonetheless, the growing number of peer providers worldwide suggests that other beneficial aspects of working in the peer economy can outweigh these disadvantages.

In light of the literature presented, we investigate the characteristics of work in the peer economy that have prompted hundreds of thousands of individuals to pursue this employment opportunity.

3.2.2.1 Income opportunity

The income opportunities in the peer economy are without doubts the most widely recognised attractive feature. This reflects the view earlier presented in this work of competitive earnings of this digitally-enabled self-employment over traditional alternatives. Whether as a primary or additional source of income (or perhaps side-job for diversely occupied groups such as students or stay-at-home parents), the opportunity to earn a compensation has been highlighted as one of the main drivers for individuals who decided to become peer providers. Authors that have found evidence of this are: Codagnone, Abadie, and Biagi (2016) in a critical review of digital labour markets; De Groen and Maselli (2016) in a study of the impact of peer-to-peer platforms on labour in European countries; Farrel and Greig (2016) in a study on income volatility in the peer economy; Anderson (2014) in a study comparing traditional taxi drivers and peer providers and Hall and Krueger (2015) in a study of US-based peer providers of Uber technologies. Thus, it appears clear that the economic utility that peer providers can derive by this employment opportunity plays indeed a key role.

What remains to be understood is how non-monetary returns are included in this occupational choice. Looking at the non-monetary returns, three main aspects of working in the peer-economy have been highlighted in the literature: autonomy, flexibility and sociability.

3.2.2.2 Autonomy

As presented in Section 3.2.1, the autonomy that being self-employed has to offer over its wage counterpart plays for many a key role in the occupational choice. Similarly, also becoming a peer provider offers a certain degree of autonomy, which has been pointed by the literature on the peer economy as an attractive feature (Schor, 2014). The fulfilling sense of freedom provided by an increased autonomy can indeed be an attractive feature of working in the peer economy, in line with what the argument of a psychological need of autonomy proposed by the SDT. Firstly, the employment relationship implemented by the peer economy allows peer providers to be bosses of themselves. Being one's own boss plays in fact an important part in the accomplishment of the psychological need of autonomy. Secondly, this allows peer providers to have an almost total control over their work/life balance, positively contributing to one's consideration of him-/herself. Providing evidence of this have been Hall and Krueger (2015) and Rizk (2017) for peer providers of Uber in the US and Egypt respectively, and Manyika et al. (2016) for a wider set of workers of the peer economy.

3.2.2.3 Flexibility

Directly related to the autonomy, peer providers also have a great degree of flexibility on how to organise their work. Peer providers are in fact free to autonomously schedule their own working times, both in matter of **when** to work, and **how much** to work. The flexibility offered by the peer economy allows workers to adopt this working opportunity as it best fits them, contributing to the satisfaction of psychological need of competence as argued by the SDT. Firstly, individuals can for instance combine work in the peer economy with other activities that have unpredictable working schedules or variable working loads. Secondly, work on the peer economy can be flexibly picked-up and dropped according to specific needs, such as harsh financial times, to smoothen unpredictable incomes, or to save up capitals. In both scenarios, the flexibility offered by the peer economy may help to overcome the barriers posed by traditional forms of employment. The attractiveness of the flexibility of the job of peer provider has been reported in (Manyika et al., 2016), (Hall & Krueger, 2015), (Cheng, 2014), and (Bonciu, 2016).

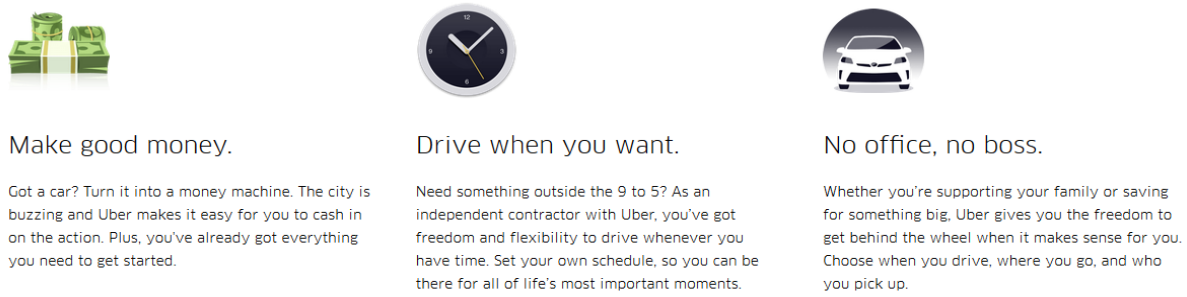

Figure 3.2 – Uber advertising message. Retrieved from: uber.com/join

3.2.2.4 Sociability

Finally, the peer-to-peer nature or the employment opportunities object of this study generate constant human interactions that some authors have highlighted as attractive for the users (Bellotti et al., 2015; Schor & Attwood-Charles, 2017). Having short and always new meetings with customers can in fact be an enjoyable feature which may introduce a certain degree of fun in the job, in agreeance with the argument of a psychological need of relatedness offered by the SDT. As the qualitative studies of Malin and Chander (2016) and Glöss, McGregor, and Brown (2016) revealed through a series of structured interviews, the benefits that peer providers derive from these social interactions can even outweigh financial motivations. Further evidence of the importance of sociability in the peer economy has been provided by Ikkala and Lampinen (2015) and Tussyadiah (2016), and theorised by Kim et al. (2015) in relation to the social exchange theory. Adopting once more a self-determination perspective, we can argue that work over peer-to-peer platforms offers a degree of relatedness that appears to be desirable.

3.3 Conceptual model development

The two theoretical perspective presented in this chapter have led us to the identification of a number of concepts that we have considered as relevant to the analysis of employment opportunities in the peer economy.

Firstly, we have defined two types of peer providers that we expect to be employed in the peer economy. The first type has labelled as **opportunity peer providers**, indicating that individuals belonging to this group have voluntarily decided to become peer providers because attracted by this opportunity. The second type has been labelled as **necessity peer providers**, indicating that individuals belonging to this group have not decided voluntarily to become peer providers, but have been instead pushed to do so by the need of earning an income. The distinction between the two types of peer providers lays hence in their motivations to be employed in the peer economy.

Secondly, we have further investigated the motivations that individuals have to become peer providers. Peer providers face in fact an occupational choice where they evaluate the monetary and non-monetary benefits of working in the peer economy and compare them to the available alternatives. This has yielded us to the identification of four constructs, namely **income**, **autonomy**, **flexibility** and **sociability** that we have argued being hereditary characteristics of working in the peer economy.

Thirdly, we have introduced two additional concepts that are direct consequence of the work, namely **satisfaction** and **future intention**. As the literature suggested, individuals who succeed making the occupational choice that best fits them are more satisfied than those who do not, and in turn desire to maintain their job as peer providers as opposed to desiring a different working arrangement. From the concepts just summarised, we design the conceptual model of Figure 3.3.

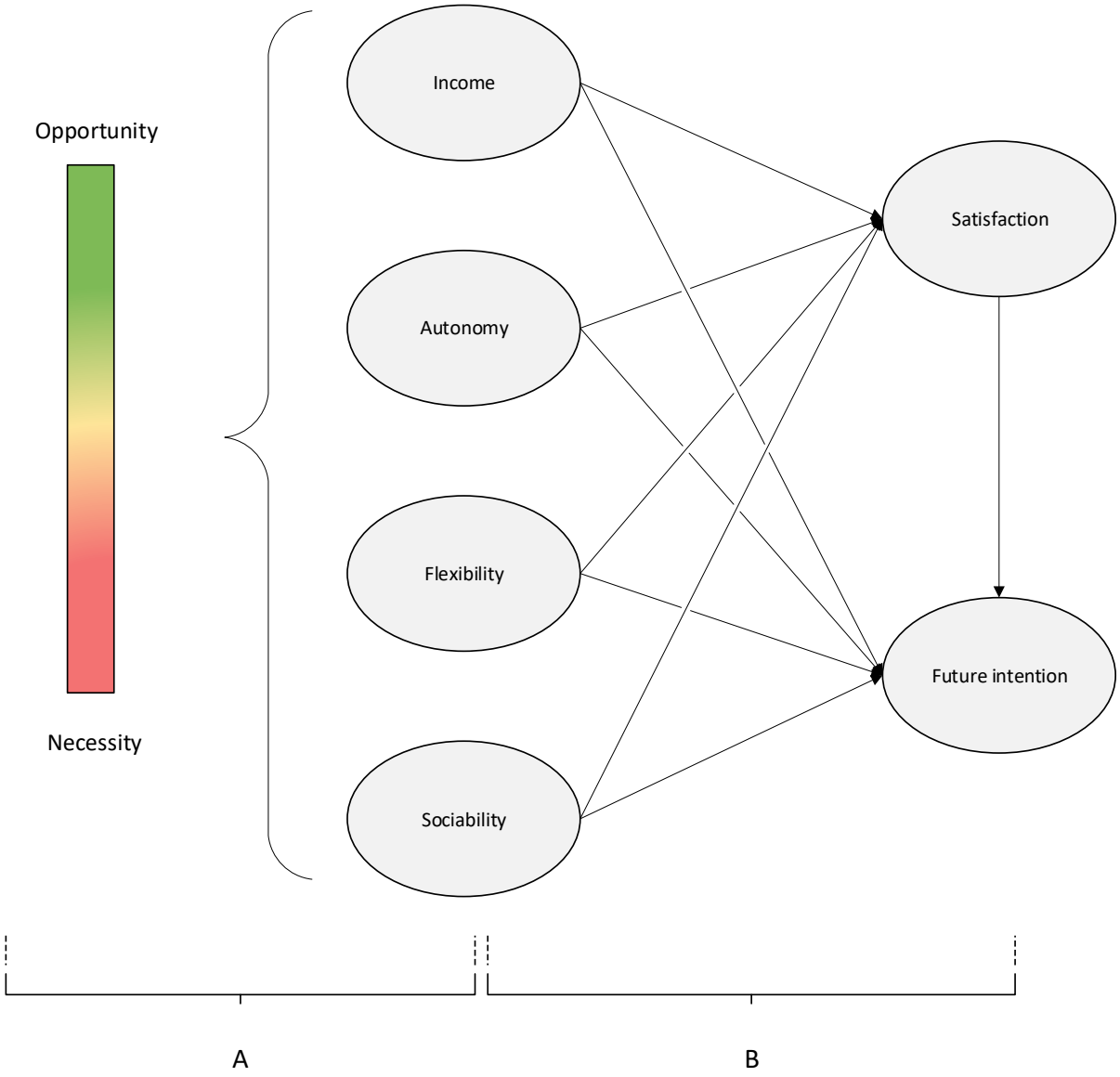

Figure 3.3 – Conceptual model

We present the conceptual model of Figure 3.3 as composed by two parts, as indicated by the letters A and B at the bottom of the figure.

The **A** side of the model represents the relationship between the two types of peer providers and the elements identified as reflecting the monetary and non-monetary benefits of working in the peer economy, determinants of individuals' motivation. As previously discussed, the distinction between opportunity and necessity peer providers lays in the motivation they have to be employed in the peer economy. Accordingly, we argue that the two types of peer providers can be categorised according to the value they attribute to the monetary and non-monetary benefits of this employment opportunity. Under this perspective, opportunity peer providers have voluntarily chosen to seek employment in the peer economy because attracted by the features of this job. In their occupational choice, they have weighted the income,

autonomy, flexibility and sociability of being peer providers against other working arrangements and employment opportunities. Contrarily, necessity peer providers are not attracted by the same monetary and non-monetary benefits of working in the peer economy, but ended up being peer providers because pushed by economic needs and perhaps unable to find other employment opportunities. By looking at the distinction between opportunity and necessity peer providers though the lens of four distinct concepts, we do not expect all the peer providers to categorically belong to either one or the other group. Instead, we expect peer providers to be distributed on a continuum (represented in the model as a colour gradient) between the two extremes. The combination of the values attributed to the four dimensions of work will position a peer provider somewhere on this continuum, indicating how much of an opportunity and necessity peer provider he/she is. Our goal is to create a segmentation of the peer providers on this dimension, grouping together peer providers of the same type, and that are hence clustered together along the scale. The methodology chosen to achieve this goal is a cluster analysis, a widely adopted technique useful to the creation of groups that have high internal similarity (within groups), and high external dissimilarity (between groups).

The **B** side of the model represents the relationship between the monetary and non-monetary returns of working in the peer economy and the two direct consequences of work previously discussed. As the literature presented in this chapter suggests, the ability that individuals have in fostering monetary and non-monetary benefits they are attracted from has a direct influence on their satisfaction and on their intention to retain their current job. Monetary and non-monetary benefits have in fact been identified as psychological needs at the base of motivation, and as such contributing to the formation of one's satisfaction. Accordingly, we argue that peer providers who attribute a high value to the features of their job, being attracted by them, are more satisfied than those who attribute a low value. By the same token, we argue that the same attributes are determinant in the intention of peer providers to continue their job in the future instead of searching for alternative employment opportunities. Additionally, the literature suggests that individuals' who are satisfied are more likely to intend to retain their job in the future instead of looking for a new one. Our goal is to understand which of the relationships defined are significantly true for peer providers. Specifically, we want to know which of the monetary and non-monetary benefits of working in the peer economy can be used to predict peer providers' satisfaction and future intention, and what their predictive power is. The methodology chosen to achieve this objective is a PLS-PM analysis, and explorative approach to the analysis of relationships between variables that has received increasing attention in the recent years.

The design of the conceptual model and the choice of methodologies reflect our objective of exploring how different peer providers perceive the benefits offered by working via peer-to-peer platforms.

Chapter 4 - Survey design

In the concluding section of the previous chapter, we have designed a conceptual model aimed at exploring how different peer providers of developing countries perceive the features offered by working in the peer economy. In this chapter, we present the research instruments adopted to operationalise the concepts included in the model, and the case of developing country chosen to achieve the objective of this study.

Firstly, we present in Section 4.1 the case of developing country selected for this research: the Indonesian peer economy. We argue that the problematic socio-economic conditions and labour dynamics of the country, combined with the exponential growth of local peer-to-peer platforms, make of Indonesia a suitable case for the achievement of our objective.

Secondly, we present in Section 4.2 the data gathering designed to explore our case. We include the sampling and data collection strategy as well as the instruments developed to measure the concepts included in our model. Additionally, we briefly introduce the types of analysis that we have selected for the achievement of the objectives of this work.

Lastly, we present in Section 4.3 the results of our data gathering, including the number of reposes collected and the data cleansing performed in preparation of the analyses.

4.1 Indonesian peer-to-peer ridesharing platforms

Indonesia is the largest economy and most populated region of Southeast Asia (and 4th most populated country worldwide), and home of over 250 million people. Despite its continues improvements in matter of development and economic growth, its GDP per capital remains well below world's average ($3,570.3 GDP per capita in Indonesia; $10,150.8 GDP per capita worldwide, compared to $45,294.8 GDP per capital in the Netherlands) (The World Bank, 2016). Indonesia is in fact recognised by the United Nations as a developing country and belongs to the lower-/middle-income group (United Nations, 2014). Like the majority of the countries in this stage of development, its informal sector is a major component of the economy and it is estimated to account between 61% and 70% of the total labour force (Rothenberg et al., 2016).

Peer-to-peer ridesharing platforms have risen all around the word, entering developed as well developing countries. Indonesia, Southeast Asia largest market, is no less in the race for the adoption of ridesharing platforms, with both global players extending their reach to this market and local enterprises catching up on their success. Interestingly, the innovative power of the

latter enterprises has managed, as in few other regions only, to outpace foreign industry leaders by addressing national specific needs. This is the case of the locally owned Go-Jek, a peer-to-peer platform which offerings span from traditional car-based ridesharing services to more innovative transportation and delivery services delivered by motorbikes, with a market capital estimated around $3 billion (Russell, 2017) and about 40 million downloads of its app in the country alone (of which 10 million active weekly) (Freischlad, 2017). Three preconditions can be identified in the success of Go-Jek and other peer-to-peer ridesharing platforms in Indonesia, and in particular in its capital Jakarta.

Firstly, Jakarta, the capital of Indonesia, is affected by a serious problem of congestions. With the tile of "world's worst traffic jam", the city's transportation infrastructures have to handle around 3.5 million commuters daily who move between commercial areas and more peripheral satellite dwelling agglomerates that form the 30 million people Greater Jakarta. Without a subway system to serve this population, private transportation has been in constant raise during the past decades, and accounts for about 70% of the city's pollution (N. van Mead, 2016). The transportation sector is for this reason a market opportunity for service providers who, next to traditional taxis, have implemented a variety of alternative solution, referred as paratransit services (private alternative to public transport) (Gang, Zhang, Nugroho, Linh, & Fujiwara, 2011). For decades citizens have hence made large use of minibus (angkots), pedicabs (becaks) or motorbike-taxis (ojeks), proofing their willingness to adopt alternative solutions for their transportation needs. This offered indeed a market opportunity for peer-to-peer platforms to succeed.

Secondly, all the above-mentioned services, despite being widely adopted, belong to the informal sector and are not for this reason regulated by Indonesian authorities. Nonetheless, they provide a necessary service to the passengers, and a source of income to the service providers. Thus, the existence of this informal sector is tied to the failure of the public sector in developing adequate infrastructures, as argued by the legalistic perspective of the informal sector theory. For this reason, the transportation sector is already largely left in informality and authorities are less prone to pose opposition to solutions that do not fall under current regulations. The digital evolution of informal service, and in particular of ojeks, did not find the regulatory disagreement that we have highlighted in Section 2.1.3 as central to the debate on peer-to-peer platforms (Ford & Honan, 2017).

Thirdly, over the last decade Indonesia has been experiencing a digital transformation in a phenomenon often referred as mobile leapfrogging (Puspitasari & Ishii, 2016). While computers and cable connections did not spread as fast as they did in developed countries, the always

decreasing costs of smartphones and mobile connections have enabled a rapid increase in the number of mobile users. Additionally, Indonesian mobile population is particularly large and digitally active, globally 3rd in size of internet users, and 2nd for social media use. For this reason, digital platforms have been able to find fertile ground for their services.

The pushes and pulls of these preconditions have created a perfect environment for peer-to-peer ridesharing platforms to flourish. Starting in 2014, the Californian Uber, the Malaysian Grab, the local Go-Jek and a few other competitors are in a fierce fight for the control of the market for peer-to-peer transportation services.

4.1.1 Go-Jek and its competitors

Founded in 2011, Go-Jek is a social enterprise which vision is to professionalise and increase the productivity of ojek drivers, Indonesian informal self-employed workers providing motorbike-based transportation services. Started by coordinating passengers and drivers by means of a call centre, the company has experienced an enormous growth since its evolution into a digital platform in 2015. The introduction of a mobile application has allowed Go-Jek to reach millions of users, creating the largest peer-to-peer ridesharing marketplace of the country (Freischlad, 2017). The peer providers working in this digital marketplace are referred as to "o-jek online" in common jargon, highlighting the digital transformation of traditional and informal o-jek services.

As almost every peer-to-peer ridesharing platform, Go-Jek markets itself as a technology company, which role is to mediate the interactions between peer providers (o-jek online, or Go-Jek drivers) and customer. Users can hail a ride through the app, which makes use of GPS and internal payment services to facilitate the service exchange. Go-Jek imposes its tariff policy (which includes a minimum fare, a per kilometre tariff, and a surge tariff for high-demand times), and retains 20% of the fee paid by the customer, while the remaining 80% is earned by the peer provider. Both customers and peer providers benefit from the increased efficiency of avoiding transaction costs (especially search, bargain and enforcement) as well as receiving the perk of an insurance coverage for the time of the ride. In order to become a peer provider, individuals have to submit an application which, after being checked for criminal records and vehicle ownership, grants them the possibility to offer services through the platform.

The company has soon understood the potential that the fleet of peer providers could achieve and, under the motto "an ojek for every need", started to continuously implement new services that can be purchased on the platform and delivered by the peer providers. As today, Go-Jek's

offering comprehend as many as 15 services presented on the company's website as in Table 4.1:

Go-Jek							
Go-Ride	Go-Car	Go-Food	Go-Mart	Go-Send	Go-Box	Go-Tix	Go-Med
Motorbike ride service	Car ride service	Food delivery from affiliated restaurants	Goods delivery from affiliated shops	Courier service	Van service for moving bulky goods	Ticket service for theatres and cinemas	Drugs delivery from affiliated pharmacies

Go-Pay		
Go-Pay	Go-Points	Go-Pulsa
Payment service for in-app purchase	Internal point system for rewards	Phone credit purchase

Go-Life			
Go-Massage	Go-Clean	Go-Auto	Go-Glam
Massage therapist dropped delivered by an o-jek online	House cleaning service which personnel delivered by an o-jek online	Road assistance service delivered by an o-jek online	Beautician delivered by an o-jek online

Table 4.1 - Go-Jek's offering. Based on: go-jek.com

In this way Go-Jek has attracted a variety of third-parties to its platform, from restaurant and shops marketing their goods, to other self-employed such as massage therapists or beauticians. This highly multi-sided platform is a strong innovative driver for the country. Despite its elusive entrepreneurship of acting as a technology company, instead of a transportation one, Go-Jek has received large support from the authorities which have recognised the benefits that the service marketed on the platform bring to customers, peer providers and to the country's transportation issue (Ford & Honan, 2017). By primarily transforming the informal sector, instead of focussing on challenging established industries, the company has created and exploited the legal void in which the entire informal sector lives.

Nonetheless, the market leadership of Go-Jek is under the constant threat of a fierce competition. The Malaysian Grab and the Californian Uber have soon entered the Indonesian market with their peer-to-peer ridesharing platforms. After an initial car-only offering, both companies have strived to extend their services to match Go-Jek's motorbike offering. GrabBike and UberMotor are the respective services of peer-to-peer motorbike ridesharing implemented by the two companies, but around 37 cases of app-based motorbike taxi service (o-jek online) are available in the Indonesian market as of 2016 (Dwi Reza Aditya, 2016). While many of these peer-to-peer platforms cover quite specific needs (such as woman-only lady-jek), Go-Jek, Grab and Uber compete for the largest share of the market.

From the considerations made in this section, we argue that the Indonesian peer economy makes a suitable case for the achievement of the objective of this study. The socio-economic conditions of the country reflect in fact the characteristics typical of developing countries such as the prominent role of the informal sector and the general lack of urban infrastructures. This has allowed local and international peer-to-peer platforms to thrive, experiencing an exponential growth that resulted in the creation of massive digitally enabled labour markets. The Indonesian peer economy is hence a good candidate for the exploration of peer providers' perception of the benefits of working via peer-to-peer platforms. In the next section, we present the strategy chosen to explore types of peer providers and their perception of work in the peer economy.

4.2 Survey protocol

In order to explore the types of peer providers and their perception of the benefits of working in the peer economy, we have chosen the case of the Indonesian peer economy, arguing for its suitability to achieve the objective of this research. The concepts and relationships we want to explore, as presented in the conceptual model included in Figure 3.3, required us to collect primary data from individuals who are currently employed in the peer economy, and specifically Indonesian peer providers.

To achieve this goal, we developed a survey questionnaire targeting the population of Indonesian peer providers, and in particular of Jakarta, capital of the country. A survey questionnaire has been chosen for the following reasons: firstly, it offers a feasible way to overcome the language barriers that the inability of the researcher to speak the local language poses; secondly, it provides quantitative data on which is possible to adopt the analytical methods that ensure (1) high representativeness; (2) good statistical significance; and (3) the avoidance of interview bias (Sekaran & Bougie, 2016)

We describe in this section the survey protocol adopted for the data collection. Firstly, we present the sampling and data collection strategy. Secondly, instruments to measure the concepts included in our conceptual model are developed together and translated into questions for the survey. Lastly, we briefly present the types of analysis selected to achieve the objectives of this research.

4.2.1 Sampling and data collection strategy

We have chosen the Indonesian peer providers as the target population of our data collection, and specifically peer providers of peer-to-peer ridesharing platforms in Jakarta, capital of the

country. Unfortunately, no official data are available on the size of this population as the competing platforms (mainly Go-Jek, Grab and Uber) are not prone to making statistics about their peer providers available to the public. In a recent statement, only Go-Jek, current market leader, has declared to have a fleet of around 300,000 peer providers in the 50 cities where it is active (Go-Jek Data Blog, 2017).

Due to the unavailability of reliable information on the size of our population, we decided to set the size of our sample so that to exceed the minimum data requirements of the analyses we have chosen for exploring the issue at stake. Based on the number of variables considered in our model, cluster analysis and PLS-PM analysis require a particularly small number of observation to ensure their validity, respectively above 16 (Mooi & Sarstedt, 2010) and above 60 (Sanchez, 2013). Moreover, we want to ensure that the distribution of our data reflects the characteristics of the population relatively to its mean in terms of skewness and kurtosis. Looking at how these two values variate increasing the sample size, we conclude that a sample including more than 250 observations allows us to achieve results within the 95% confidence interval desired, and complying to the "consistency at large" required for the PLS-PM analysis (McNeese, 2010; Sanchez, 2013).

The survey questionnaire, prepared in digital form and distributed via a link and a QR-code has been handed out by the researcher in person with the help of a local researcher. The nature of work via peer-to-peer platforms posed some challenges to our data collection, primarily concerning the strategy employed to reach the respondents. The location-independence of peer providers does not offer the possibility to create geographically stratified samples as it could be desirable to target similar populations of informal self-employed service providers (i.e. street-based food vendors). The location of peer providers depends in fact solely on their last accepted order, as they move through the day around Jakarta picking-up and dropping-off passengers in every area of the city. We assume for this reason that the probability of finding a peer provider (instead of another) at a specific location can be considered as randomic, as it cannot be controlled neither from the peer provider nor from the researchers. We hence handpicked sites for our data collection where we would expect a large number of peer providers to be waiting for new passengers. The locations selected have been highly dense areas such as malls, commercial districts and public offices, where large numbers of customers (and thus of peer providers) arrive and depart at every time of the day. Often times, peer providers gather together to take a break from their work and are hence easier to approach. The locations selected for the data collection have been:

- Central Park Mall in West Jakarta;

- Kota Kasablanca in South Jakarta;
- Plaza Indonesia in Central Jakarta
- Jalan Medan Merdeka in Central Jakarta
- University of Indonesia, Depot

The data collection lasted 10 days, from the 15th to the 24th of June 2017, and took place at different times of the day (and night) in order not to introduce a working-time preference bias. Meeting the researcher in person and being explained the objective of the research has contributed to establish trust in providing personal information. The respondents have generally felt involved in the process and were happy to contribute to the research and to the achievement of its objectives.

To increase the response rate, a compensation of 10.000 Indonesian Rupiah (0.63 Euro) was offered in the form of "Pulsa", a common mobile phone credit. The compensation, more in the form of a tip, has been regarded as an important instrument from the researcher to show gratitude for the participation and for having subtracted time from their labour-intensive job.

4.2.2 Survey questionnaire and instruments development

The concepts included in the conceptual model that we aim at measuring had to be translated into survey instruments to be included in the questionnaire. Secondly, in order to make the questionnaire understandable for the target population, the instruments have been translated in Bahasa Indonesia, the most spoken language of the country, with the help of local researchers. Additionally, we have included in the questionnaire a set of socio-demographic and employment variables on which our descriptive analysis is based.

The pre-test of the questionnaire, which involved 15 respondents, showed that the average time spent on filling the questionnaire was below 10 minutes, as intended by the researchers. The questions included in the questionnaire have been developed as follows.

4.2.2.1 Perceived benefits of working in the peer economy

Four constructs have been formulated for the perceived benefits of working in the peer economy, based on the concepts of Income, Autonomy, Flexibility and Sociability as presented in Section 3.2.2. The formulation of these concepts and their subsequent translation into survey instruments has been based on previous studies addressing similar issues, and in particular on (Hall & Krueger, 2015), (Manyika et al., 2016), (Kim et al., 2015), (Rizk, 2017) and (Glöss et al., 2016).

The definition of the four constructs is included in Table 4.2.

N.	Construct	Definition	Source
1	Income	The perception of employment as an attractive source of income to satisfy one's economic needs	(Hall & Krueger, 2015; Manyika et al., 2016; Rizk, 2017)
2	Autonomy	The perception of employment as a source of independence granting control over one's work and life	
3	Flexibility	The perception of employment as a source of independence granting control over one's schedules and modes of production	
4	Sociability	The perception of employment as a source of new socially rewarding interactions	(Kim et al., 2015)

Table 4.2 – Construct definition of perceived attractiveness

From their definitions, three instruments have been designed to measure each of the constructs, as presented in Table 4.3. The respondents have been asked to attribute a score to each instrument on a 7-point Likert scale ranging from 1="Not important at all" to 7="Extremely important".

N.	Construct	Instrument	Source
1	Income	Importance attributed to earning a good income	(Hall & Krueger, 2015; Manyika et al., 2016; Rizk, 2017)
2	Income	Importance attributed to earning an income to support oneself and family	
3	Income	Importance attributed to earning a steady income	
4	Autonomy	Importance attributed to having a good level of autonomy	
5	Autonomy	Importance attributed to having control over work/life balance	
6	Autonomy	Importance attributed to being one's own boss	
7	Flexibility	Importance attributed to having a good level of flexibility	
8	Flexibility	Importance attributed to being able to schedule one's working time	
9	Flexibility	Importance attributed to being able to schedule one's working load	
10	Sociability	Importance attributed to having good social interactions	(Glöss et al., 2016; Kim et al., 2015)
11	Sociability	Importance attributed to creating social ties with customers	
12	Sociability	Importance attributed to creating social ties with other peer providers	

Table 4.3 – Operationalisation of perceived attractiveness

4.2.2.2 Satisfaction and future intention

Two constructs have been formulated for the satisfaction that workers derive from their work and their future intention to keep working as peer providers. The formulation of these concepts

and their subsequent translation into survey instruments has been based on previous studies, and in particular on (Joern Block & Koellinger, 2009), (Jörn Block & Sandner, 2009), (Lambert et al., 2001) and (Tussyadiah, 2016).

The two constructs have been defined as reported in Table 4.4.

N.	Construct	Definition	Source
1	Satisfaction	Reported level of satisfaction derived from work	(Joern Block & Koellinger, 2009; Lambert et al., 2001; Tussyadiah, 2016)
2	Future intention	State intention to continue the current occupation in the future	(Lambert et al., 2001; Tussyadiah, 2016)

Table 4.4 – Construct definition of Satisfaction and Future intention

Each construct has been operationalised into survey instruments to be included in the questionnaire as presented in Table 4.5. The respondents have been asked to attribute a score to each instrument on a 7-point Likert scale ranging from 1="Extremely dissatisfied" to 7="Extremely satisfied" for the variable Satisfaction and from 1="Strongly disagree" to 7="Strongly agree" for the variable Future intention.

N.	Construct	Instrument	Source
1	Satisfaction	Subjective measure of achieved level of overall job-satisfaction	(Joern Block & Koellinger, 2009; Lambert et al., 2001; Tussyadiah, 2016)
2	Satisfaction	Subjective measure of achieved level of satisfaction with job security	
3	Satisfaction	Subjective measure of achieved level of satisfaction with income	
4	Satisfaction	Subjective measure of achieved level of satisfaction with the job itself	
5	Future intention	Stated expectation to keep working as peer provider in the future	(Lambert et al., 2001; Tussyadiah, 2016)
6	Future intention	Stated self-projection of working as peer provider in the future	
7	Future intention	Stated likelihood of being a peer provider in the future	

Table 4.5 – Operationalisation of Satisfaction and Future intention

4.2.2.3 Socio-demographic & employment variables

Finally, we included a set of socio-demographic and employment-related variables in our questionnaire. These variables have the function of providing a descriptive picture of the population of peer providers, as well as of creating sub-categories, by means of variables segregation, for the exploration of types of peer providers and their perceptions.

The socio-demographic variables are used to measure basic social and demographic characteristics of our sample and of the population of Indonesian peer providers at large. The variables included in the questionnaire have the function of identifying: (1) whether specific social strata are more likely to be employed in the peer economy (i.e. in matter of age and marital status); (2) what is the role of the peer providers within their household; and (3) whether educational levels correspond to those typical of the informal sector. The socio-demographic variables included have been largely based on previous studies of the informal sector, and especially on (Cunningham & Maloney, 2001), (Maloney, 2004), and (Djankov et al., 2006).

The employment variables are used to assess the economic relevance of working in the peer economy, as well as to provide a comparative base for this working opportunity and its alternatives. These variables have been designed to reflect aspects of working in the peer economy, as well as to investigate previous and current occupations of peer providers. The function of the employment variables is to understand how peer providers relate to their job in terms of: (1) previous type of employment and current main occupation, to identify full-time (commercial) and part-time peer providers; (2) type of vehicle use to provide services and its ownership; (3) time spent as peer provider and expected remaining time in the peer economy; (4) average worked hours and earnings per week.

A full review of the variables included in the survey questionnaire is reported in Table 4.6.

N.	Construct	Sub-construct	Coding
			Independent variables
1	Income	Good income	Inc_1
2		Support self and family	Inc_2
3		Steady income	Inc_3
4	Autonomy	Good autonomy	Aut_1
5		Control over work/life balance	Aut_2
6		Being own boss	Aut_3
7	Flexibility	Good flexibility	Flex_1
8		Schedule working time	Flex_2
9		Schedule working load	Flex_3
10	Sociability	Good social interactions	Soc_1
11		Ties with other peers	Soc_2
12		Ties with customers	Soc_3

			Dependent variables
13	Satisfaction	Job overall	Sat_1
14		Job security	Sat_2
15		Income	Sat_3
16		Job itself	Sat_4
17	Future intention	Expect to keep working as peer provider	Fut_1
18		See oneself as peer provider in the future	Fut_2
19		Likely to be peer provider in the future	Fut_3
			Socio-demographic variables
20	Gender		D_sex
21	Age		D_age
22	Marital status		D_mar
23	Number of children		D_chi
24	Primary source of income		D_pri
25	Education completed		D_edu
			Employment variables
26	Previous occupation		E_pre
27	Current main occupation		E_main
28	Transport type		E_type
29	Time spent as peer provider		E_time
30	Expected future time as peer provider		E_fut
31	Average hours worked per week		E_hour
32	Average earnings per week		E_earn

Table 4.6 - Variables included in the survey questionnaire and respective coding

4.2.3 Types of analysis

The 32 questions included in the survey questionnaire have been designed to explore the characteristics of Indonesian peer providers and their perception of working via peer-to-peer platforms. We want to analyse the data collected to explore three aspects of this phenomenon by: (1) studying the characteristics of the target population of Indonesian peer providers, (2) segment this population among opportunity and necessity peer providers; and (3) understand how their perception of the benefits of working in the peer economy is related their satisfaction and intention to continue their job. In order to achieve these results, the responses collected are analysed by means of three statistical methods.

Firstly, descriptive statistics provides us a first and general picture of the population target of this study. The frequency and distribution of all the studied variables are presented together with their relevant metric definition.

Secondly, multivariate analysis is used to achieve the remaining two goals. Multivariate analysis is a family of statistical methods used to analyse simultaneously multiple variables. Two approaches to multivariate analysis can be taken: a confirmatory approach is used to test

hypothesis in existing theories and concepts; an exploratory approach is used to identify patterns in case of little or no prior knowledge (Joseph F. Hair, 2014). A review of multivariate analysis methods is reported in Table 4.7.

	Primarily Exploratory	Primarily Confirmatory
First-generation techniques	• Exploratory factor analysis • Cluster analysis	• Logistic regression • Multiple regression
Second-generation techniques	• PLS-PM	• Confirmatory factor analysis

Table 4.7 – Organisation of Multivariate Methods. Retrieved from: (Joseph F. Hair, 2014, p. 2)

In view of the exploratory approach of our research project, cluster analysis and PLS-PM analysis are used.

4.2.3.1 Cluster analysis

Cluster analysis is a multivariate method used to create groups of observations (clusters) that share similar characteristics. The resulting clusters show high internal homogeneity (similarity within-cluster) and high external heterogeneity (diversity between-clusters). Cluster analysis is a helpful instrument to create meaningful groups from otherwise meaningless datasets and can be used to compare theoretically guided classifications (typologies) to the data collected (Hair, Black, Babin, Anderson, & Tatham, 1998). Among the main critics received by this method are: (1) its descriptive, atheoretical and non-inferential nature of this analysis, for which it is considered an exploratory and non-generalizable technique; and (2) its ability to create cluster even when no structure in the data exists, which leaves wide room for interpretation (Joseph F. Hair et al., 1998).

Among the many clustering techniques, we choose an agglomerative hierarchical clustering (AHC), which algorithms considers all the observations as isolated and iteratively merges similar observations (and groups of observations) according to the definition of cluster proximity until the formation of a single macro cluster. Among the advantages of this clustering technique are its ability to: (1) avoid combinatorial optimisation problems; (2) handle clusters of different size; and (3) prevent local classification criteria to become global classification criteria. The main disadvantage of agglomerative hierarchical techniques is their high requirement for computational power and storage room (Chin, 2010).

This statistical method has been chosen for achieving the goal of segmentation part of our research. As presented in the conceptual model, we want to identify opportunity and necessity

peer providers in our sample, creating groups of peer providers who perceive similarly the benefits of working in the peer economy. The four perceptual variables (Income, Autonomy, Flexibility and Sociability) are used to create these groups by means of the cluster analysis. We want to take advantage of the ability of this technique to handle clusters of different size, as we do not expect homogeneity in the size of the clusters. The high computational requirement highlighted by the literature as a major drawback of AHC techniques did not constitute a problem when applied to our limited dataset.

4.2.3.2 PLS-PM

PLS-PM (Partial Least Square Path Modelling) is a multivariate analysis used to model complex relationships between observed and latent variables. Instead of necessarily describing cause-effect relationships, as the SEM analysis it is often compared to, PLS-PM offers a more explorative approach to estimate the connections between variables (Sanchez, 2013) . This propriety comes particularly handy when the proposed model relies on limited information (and soft distributional assumptions) instead of being a fully developed theoretical model (Chin, 2010). As such, PLS-PM is able to reduce the biases that "hard" approaches like SEM would introduce into studies where theoretical and substantive knowledge is limited. Furthermore, PLS-PM is well suited for the analysis of indexes that quantify notions such as importance and satisfaction, where the data may not follow a strict data-generation process as required by covariance-based methods. In this sense, PLS-PM is a helpful analytical tool to get useful insights on the available data, without being influenced by how the data was generated (and is distributed) (Sanchez, 2013).

The PLS-PM analysis if often regarded as a "silver-bullet" for the lack of absolute disadvantages that this statistical method has (Joe F. Hair, Ringle, & Sarstedt, 2011). All the criticisms advanced towards PLS-PM analysis stem from its comparison with SEM analysis, or from the unavailability of a substantial number of empirical studies on which to draw solid conclusions concerning its advantages (Rönkkö, McIntosh, Antonakis, & Edwards, 2016).

This statistical method has been chosen to explore the relationship between the perceived benefit of working in the peer economy and peer providers' satisfaction and future intention to continue their job. We want to take advantage of the ability of PLS-PM to handle limited information, as the phenomenon we wish to explore by means of our model does has not yet been tackled by a substantial body of literature, giving us the ability to adopt this method with explorative purposes.

4.2.3.3 Software

The statistical analysis software chosen for our descriptive and cluster analysis has been XLSTAT, a statistical tool developed by Addinsoft which runs a proprietary statistical application with the aid of Microsoft Excel for the input management and visualisation of the results. The statistical analysis software chosen for our PLS-PM analysis has been SmartPLS, a part modelling tool with proprietary software developed by SmartPLS GmbH.

4.3 Data cleansing

The data collection produced a total of 314 answers during the 10 days allocated for this activity. Surprisingly, only 2 answers have been excluded because of incompleteness. We conclude that this is due to three reasons. Firstly, the questionnaire was designed in such a way that only completely filled surveys could be submitted. The few incomplete questions have hence been due to dropout. Secondly, the compensation offered for filling the questionnaire, which has been distributed in the form of phone credit, could be received only by filling in the phone number in the last page of the survey questionnaire (27 respondents, 8.6%, refused to receive such a compensation). Thirdly, the total time required to complete the questionnaire remained by choice below the 10 minutes, in order to minimise the dropout. Only one outliers was found among the answers and excluded from the results. Out of the initial 314 answers, 311 have been retained for the analysis, with a dropout ratio as low as 1%. The raw data have been imported in an Excel file and coded for the analyses.

With the data collected and cleansed, we carried out the three analyses previously discussed. In the next chapter we present and discuss the results of these analyses.

Chapter 5 - Data analysis

Following the data collection presented in Chapter 4, we present in this chapter the results of the survey by discussing the analyses and their results.

Firstly, we present in Section 5.1 the results of the descriptive analysis we carried out to answer the second research sub-question of this study: *SQ 2 Who are the Indonesian peer providers?*

We used descriptive statistics to analyse the responses collected with the goal of providing a picture of our sample and of the population of Indonesian peer providers at large. This analysis looked at: (1) socio-demographic variables, (2) employment-related variables and (3) perception-related variables. We wanted to understand who the peer providers interviewed are, what are they doing with and next to their job, and how do they perceive the discussed characteristics of this job. Additionally, we wanted to describe their level of satisfaction and self-stated intention to be peer providers in the future.

Secondly, we present in Section 5.2 the results of the cluster analysis used to answer the third research sub-question: *SQ 3 How can the population of peer providers be segmented between opportunity and necessity entrepreneurs according to their attitude towards employment opportunities in the peer economy?*

We carried out cluster analysis with the goal of creating a segmentation of our sample of peer providers according to their attitudes towards the monetary and non-monetary returns of their job. Our aim has been to discover groups of respondents who perceive working in the peer economy in a similar way, and that hence may be driven by similar motivations. In particular, we wanted to reproduce the distinction made by the literature between opportunity and necessity entrepreneurs by considering how individuals value the characteristics of their job.

Thirdly, we present in Section 5.3 the results of the PLS-PM analysis we carried out to answer the last research sub-question: *SQ 4: What are the relationships between features of working in the peer economy and peer providers' satisfaction and intention to retain the job in the future?*

We used the PLS-PM analysis to investigate possible relationships between the perceived benefits of working as a peer provider and two additional aspects of work: satisfaction and intention to retain the job. Our goal has been to study the effects that monetary and non-monetary returns of working in the peer economy have on workers' satisfaction and intention to be peer providers in the future. We wanted to know whether peer providers' satisfaction ca

be predicted by their perception of the benefits of this working opportunity and whether this, in turn, influences their intention to continue their job.

5.1 Characteristics of peer providers

In this section, we present the results of our survey questionnaire by employing descriptive statistics on the three sets of variables included and answer the research sub-question *SQ 2: Who are the Indonesian peer providers?*. Firstly, we analyse the socio-demographic variables to describe who the Indonesian peer providers interviewed are. Secondly, the employment-related variables are analysed to study what our sample was doing before becoming peer provider and currently does, in terms of worked hours, revenues, as well as other sources of income. Lastly, we analyse the perception-related variables to describe how our respondents perceive certain features of working in the peer economy as well as their satisfaction and intention to retain the job.

5.1.1 Socio-demographic characteristics

In this section we present the distribution of the socio-demographic characteristics of the respondents, namely gender, age, marital status, number of children, whether they are primary source of income of their household and lastly their level of education.

Firstly, the gender. The large majority of the respondent is male, with 96% of men against only 4% of women. Due to this vast imparity, we exclude this variables from further comparison as the number of female respondents is too small for any statistical analysis.

Secondly, the age. The sample surveyed is relatively young, with most of the respondents belonging to the range 25-27 and a mean of 32 years (Standard deviation 8.5, Skewness .65). Nonetheless, also older drivers have taken part to the survey with the maximum reached at 63 years. The distribution of the age of the respondents is reported in Figure 5.1.

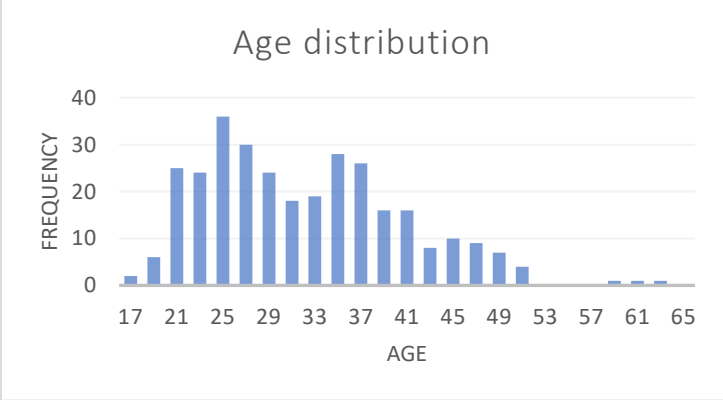

Figure 5.1 – Histogram of age

Thirdly, the marital status. Most of the peer providers interviewed are married (61%) or have been married (3%), most of whom with one (40%), two (23%) or three (23%) children. Moreover, in our sample 79% of the respondents have declared to be the primary source of income of their household.

Lastly, the level of education completed. The sample interviewed resulted to be highly educated, with 59% of the respondents having completed the senior high school and 31% having achieved a higher education. Only 3% of the respondents did not receive any education or have completed only the primary schools.

A summary of the socio-demographic characteristics is included in Table 5.1.

Variable	Categories	N	%
Gender	Male	298	95.8
	Female	13	4.2
Age	16 to 24 years	67	21.5
	25 to 34 years	129	41.5
	35 to 44 years	84	27.0
	45 to 54 years	28	9.0
	55 to 64 years	3	1.0
Marital status	Not married	111	35.7
	Married	190	61.0
	Divorced/widowed	10	3.2
Primary source	Yes	246	79.1
	No	65	20.9
Education	No schooling	4	1.3
	Primary school	6	1.9
	Junior high school	18	5.8
	Senior high school	184	59.2
	Higher education	99	31.8

Table 5.1 – Summary of socio-demographic characteristics of the respondents

For the goal of future analysis (cluster analysis in Section 5.2 and PLS-PM analysis in Section 5.3), we want to segregate some of the socio-demographic in order to split the respondents into two groups for further comparison. The two variables selected for this objective are: (1) Age, on which the respondents have been divided among young (below 35 years) and old; (2) their Educational level, on which respondents have been divided among high educated group (if they have completed a higher education) or low educated group. Moreover, also the variable Primary source, indicating whether they are the primary source of income of their household

or are not used for comparisons of this kind. The three variables, and the number of respondents for each group, are reported in Table 5.2.

	Age		Primary source		Education	
Tot	Young	Old	Yes	No	Low	High
311	196	115	246	65	212	99
100%	63.0	37.0	79.1	20.9	68.2	31.8

Table 5.2 – Number of respondents for segregated socio-demographic variables

5.1.2 Employment characteristics

In this section we present the result of the analysis of employment-related variables included in the survey questionnaire, and specifically the previous and current occupation of the respondents, their current main activity, the type of vehicle used for working, time already spent as peer providers and time expected to stay on the platform, average hours worked per week and average earnings per week.

Looking at the previous occupation, the respondents reported to be involved in a variety of activities before becoming peer providers. Most of them (around 48%) reported to have been wage-employed prior to working in the peer economy, with the second largest group (around 19%) being of those working as self-employed. In smaller, yet considerable, percentage are the group of students (10%) and entrepreneurs with their own employees (8%).

Noteworthy are a significant number of peer providers coming from unemployment (about 9%) and another 6% previously employed as "offline" drivers, traditional o-jek. The former result suggests that becoming a peer provider may indeed represent an accessible opportunity to escape unemployment, and this implication would confer a certain social relevance to the labour creating power of peer-to-peer platforms. The second result suggests that some informal workers who were already active in the transportation service sector have decided to join peer-to-peer platform instead of paying the consequences of the competition they created.

Then, looking at the current employment situation, the majority of the respondents have reported to work as a peer provider on a full-time base (about 51%). The groups of students, entrepreneurs with employees and self-employed, despite slightly shrinking in size compared to the Previous employment variable, remain on similar proportions. Only the group of employees (hence of those being peer providers on a part-time base, and maintaining their salaried occupation) accounts now for only the 20% of the respondents.

For what concerns the type of vehicle used to the work as peer provider, as well its ownership, the majority of the respondents reported to work with their own bike (about 72%) or their own car (about 18%). A still considerable number of workers rent a car in order to work as peer providers (about 9%) while only a 2% do so with a motorbike.

Continuing our analysis, we are interested in knowing for how long the peer providers interviewed have been active on peer-to-peer ridesharing platforms and for how long they intend to continue this job. The distribution of these two variables are reported in Figure 5.2 and show two rather opposite trends. Most of the respondents are in fact active in the peer economy since a relatively short time and are for this reason concentrated in the left part of the histogram (with 70% of the respondents working as peer provider since less than a year). This result seems to reflect the youth of peer-to-peer platforms in Indonesia and their only recent explosive growth. For what concerns their future expectations, the analysis of the responses shows that most of the peer providers intend to keep working on peer-to-peer platforms for a long period of time, with 45% of them expecting to be peer providers for more than 3 years. This result suggests that, in the eyes of the peer providers, peer-to-peer platforms are going to survive the near future and remain operative on the long-term.

Figure 5.2 – On the left: Histogram of time spent as peer provider; On the right: Histogram of stated intention of remaining a peer provider

Finally, we look at how much peer providers work (and earn) in a week on average. The peer providers interviewed have reported quite different amounts of worked hours in a week on average. The largest group works between 10 and 20 hours per week (around 30%), followed by those who work less than 10 hours per week (around 24%) and the two groups of 20 to 30 hours per week (11%) and 30 to 40 hours per week (10%). While intermediate groups are quite small (7% between 40 and 50 hours, 5% between 50 and 60 hours), more than 11% of the respondents reported to work in average more than 60 hours per week. For what concerns the

average earnings, most of the respondents (about 51%) reported to earn less than 750000 Indonesian Rupiah per week (approximately €47), or between 750000 and 1000000 Indonesian Rupiah (about 24%, and approximately between €47 and €63). Only 6% of the respondents reported to earn more than 2000000 Indonesian Rupiah on average (approximately €125). A summary of these results is reported in Table 5.3.

Variable	Categories	N	%
Previous occupation	Unemployed	27	8.7
	Student	32	10.3
	Employer	25	8.0
	Employee	149	47.9
	Self-employed	58	18.6
	Driver offline	20	6.4
Current main occupation	Peer provider	160	51.4
	Student	30	9.6
	Employer	21	6.7
	Employee	62	19.9
	Self-employed	38	12.2
Type of vehicle	Own car	55	17.7
	Rent car	27	8.7
	Own bike	223	71.7
	Rent bike	6	1.9
Time as peer provider	Less 6 months	98	31.5
	6 months to 1 year	118	37.9
	1 to 1.5 years	48	15.4
	1.5 to 2 years	26	8.4
	2 to 2.5 years	13	4.2
	2.5 to 3 years	6	1.9
	More 3 years	2	0.6
Average hours per week	Less 10	76	24.4
	10 to 20	94	30.2
	20 to 30	35	11.2
	30 to 40	32	10.2
	40 to 50	23	7.4
	50 to 60	16	5.1
	More 60	35	11.2
Average earnings per week	Less Rp. 750,000	160	51.4
	Rp. 750,001 to 1,000,000	75	24.1
	Rp. 1,000,001 to 1,250,000	26	8.4
	Rp. 1,250,001 to 1,500,000	15	4.8
	Rp. 1,500,001 to 1,750,000	7	2.2
	Rp. 1,750,001 to 2,000,000	9	2.9
	More Rp. 2,000,001	19	6.1

Time expected on the platform	Less than 6 months	20	6.4
	6 months to 1 year	45	14.5
	1 to 1.5 years	30	9.6
	1.5 to 2 years	33	10.6
	2 to 2.5 years	20	6.4
	2.5 to 3 years	20	6.4
	More than 3 years	143	46.0

Table 5.3 - Summary of employment-related characteristics of the respondents

As for the socio-demographic variables, we want to segregate the employment-related variables with the goal of forming comparable groups. The variables selected for this aim are: (1) the previous occupation, for which we distinguish those previously economically active from those inactive (to which belong unemployed and students); (2) the current employment situation, grouping full-time peer providers (previously defined as commercial peer providers) and part-time peer providers (previously defined as casual peer providers); (3) their vehicle, a car or a bike; (4) the time already spent as peer provider, imposing the threshold of below one year for those who recently joined, and above for the experienced peer providers; (5) the hours worked peer week, with a distinction between below 30 hours for "soft workers" and above for "hard workers"; and (6) on their average earnings, distinguishing "soft earners" as those who earn less than 1 million Indonesian Rupiah per week and "hard earners", those who manage to earn more. Such a segregation is reported in Table 5.4.

	Previously economically active		**Current employment**		**Type of vehicle**	
Tot	Yes	No	Commercial (Full-time)	Casual (Part-time)	Bike	Car
311	59	252	160	151	229	82
100%	19.0	81.0	51.4	48.6	73.6	26.4

	Time as peer provider		**Average Worked hours per week**		**Average earnings per week**	
	Recently	Experienced	Soft workers	Hard workers	Soft earners	Hard earners
311	216	95	205	106	235	76
100%	69.5	30.5	65.9	34.1	75.6	24.4

Table 5.4 - Number of respondents for segregated employment-related variables

5.1.3 Perception, satisfaction and future intention

Third and last step of our descriptive analysis, we present the analysis of the perception-related variables included in our survey questionnaire as well as the reported level of satisfaction and intention to continue the job of peer provider. The goal is to study the responses collected in terms of standard statistical measures. Recalling the measures used for by our instruments,

the answers were given on a 7-points Likert scale, with 1 indicating low levels (i.e. of reported level of satisfaction) and 7 indicating high levels.

We first look at the variables representing the importance attribute to the four features of working in the peer economy: Income, Autonomy, Flexibility and Sociability.

Firstly, we can observe that the variables have scored rather high for all the measured dimensions (average means are 5.4 for Income, 5.8 for Autonomy, 6.3 for flexibility and 6.2 for sociability). All the means are hence above the indifference level (represented by the value 4), showing a consistent interest for these features. Furthermore, all the variables have scored a negative value of Skewness, suggesting that the results are concentrated at the right side of the spectrum, where positive values are. The variable Income is moderately skewed (Skewness between -1 and -.5), thus indicating that the responses are moderately symmetrical to the mean. The variables Autonomy, Flexibility and Sociability are instead highly skewed (Skewness below -1), indicating a low degree of symmetry of the responses, that are unbalanced towards higher values (above 4). Controlling for the standard error of Skewness, we can conclude that the population is likely to be negatively skewed (Cramer, 1997, p. 85).

Secondly, we can observe how the responses are concentrated around the mean (as opposed to distributed on the tails) by looking at the Kurtosis scored by the different variables. Positive values of Kurtosis indicate that the data present some responses in the tails (further from the mean), while negative values indicate that the data are more concentrated around the mean. The variables Income and Autonomy showed Kurtosis values close to 0, indicating a distribution rather normal, with data slightly concentrated around the mean for Income and slightly more spread for Autonomy. Contrarily, the variables Flexibility and Sociability have higher values of Kurtosis, suggesting that the responses are more distribute on the spectrum than the previous two variables. Controlling for the standard error of Kurtosis, we can conclude that the population is likely to have a positive Kurtosis for Autonomy, Flexibility and Sociability (Cramer, 1997, p. 89). These results are summarised in Table 5.5, Table 5.6, Table 5.7 and Table 5.8.

Income statistics					**95% Confidence interval**	
	Mean	Std. deviation	Skewness	Kurtosis	Lower	Upper
Average income	5.43	1.64	-0.73	-0.39	5.24	5.61
Provides good income	5.47	1.62	-0.74	-0.30	5.29	5.65
Support family and self	5.53	1.70	-0.90	-0.20	5.34	5.72
Smoothen unpredictable earnings	5.28	1.62	-0.54	-0.67	5.10	5.46

Table 5.5 – Income descriptive statistics

Autonomy statistics					95% Confidence interval	
	Mean	Std. deviation	Skewness	Kurtosis	Lower	Upper
Average autonomy	5.82	1.45	-1.14	0.64	5.66	5.99
Provides good autonomy	5.73	1.46	-0.93	-0.03	5.57	5.89
Control over work/life balance	5.76	1.44	-1.01	0.30	5.59	5.92
Being own boss	5.99	1.44	-1.49	1.65	5.83	6.15

Table 5.6 – Autonomy descriptive statistics

Flexibility statistics					95% Confidence interval	
	Mean	Std. deviation	Skewness	Kurtosis	Lower	Upper
Average flexibility	6.28	1.17	-1.88	3.54	6.15	6.41
Allows good flexibility	6.27	1.15	-1.82	3.41	6.14	6.40
Control over working schedule	6.31	1.14	-1.87	3.49	6.18	6.43
Control over working load	6.27	1.21	-1.95	3.74	6.13	6.40

Table 5.7 – Flexibility descriptive statistics

Sociability statistics					95% Confidence interval	
	Mean	Std. deviation	Skewness	Kurtosis	Lower	Upper
Average sociability	6.20	1.18	-1.65	2.70	6.07	6.33
Enables good social interactions	6.27	1.14	-1.92	4.15	6.14	6.40
Social ties with other peer providers	6.09	1.27	-1.61	2.72	5.95	6.23
Social ties with customers	6.24	1.12	-1.42	1.24	6.11	6.36

Table 5.8 – Sociability descriptive statistics

We now look at the reported levels of satisfaction. The mean levels of reported satisfaction are slightly above the neutral level indicated by the value 4, with overall job satisfaction and satisfaction related to the job itself showing the highest scores (means 5.33 and 5.12 respectively). The reported satisfaction is moderately skewed, indicating that the responses are concentrated towards the positive values of the spectrum. Moreover, the negative kurtosis suggests that the data are also distributed in the tails. Yet, controlling for the standard errors, we can expect only the skewness of the population to be negative as well. These results are summarised in Table 5.9.

Satisfaction statistics					95% Confidence interval	
	Mean	Std. deviation	Skewness	Kurtosis	Lower	Upper
Average satisfaction	4.78	1.70	-0.39	-0.52	4.59	4.97
Overall job satisfaction	5.33	1.53	-0.73	0.01	5.16	5.50
Job security	4.16	2.02	-0.14	-1.09	3.94	4.39
Income	4.51	1.75	-0.26	-0.61	4.32	4.71
Job itself	5.12	1.50	-0.43	-0.38	4.95	5.29

Table 5.9 – Satisfaction descriptive statistics

Finally, we study the future intention. The mean values of the responses show that the sample interviewed slightly agree with the proposed expectations of being a peer provider in the future (average mean is 5.19). Looking at the skewness, we can once more notice that the results are more concentrated above the indifference level (4), and a negative Kurtosis suggesting that the responses are not concentrated around their mean value. Nonetheless, looking at the standard errors, we can conclude only that we expect the population to have negative skewness and thus be concentrated towards values of higher agreeance. These results are presented in Table 5.10.

Future intention statistics					95% Confidence interval	
	Mean	Std. deviation	Skewness	Kurtosis	Lower	Upper
Average future intention	5.19	1.75	-0.69	-0.40	4.99	5.39
Expect to be a peer provider	5.40	1.71	-0.82	-0.23	5.21	5.59
See oneself as peer provider	5.15	1.73	-0.66	-0.40	4.96	5.34
Likely to be a peer provider	5.02	1.81	-0.58	-0.57	4.82	5.22

Table 5.10 – Future intention descriptive statistics

5.2 Segmentation between opportunity and necessity peer providers

We present in this section the results of our cluster analysis based on the importance attributed to the monetary and non-monetary returns of working in the peer economy. With this analysis we segmented our sample of peer providers in order to group together respondents who have attributed similar value to the variables Income, Autonomy, Flexibility and Sociability. The objective is to use the resulting clusters to identify groups of opportunity and necessity peer providers in our sample, and answer the research sub-question *SQ 3: How can the population of peer providers be segmented between opportunity and necessity entrepreneurs according to their attitude towards employment opportunities in the peer economy?*. Firstly, we discuss the data requirements that have to be ensured for the validity of this analysis. Secondly, we present

the results and discuss our categorisation on the distinction between necessity and opportunity peer providers. Lastly, we present the results of the cluster analysis for the segregated variables as presented in Section 5.1.

5.2.1 Data preparation

Deriving from its propriety of non-inference, cluster analysis does not have strong requirements of normality, linearity and homoscedasticity of other statistical techniques. Instead, we need to look at representativeness of the sample and absence of multicollinearity between variables.

For what concerns the representativeness of the sample, considerations on the sampling strategy have been presented in the previous chapter. As mentioned, a sampling bias may have been introduced and thus hamper the inference of the results. Nonetheless, since we are taking an exploratory approach more than a confirmatory one, and since the results of this analysis are not be used for further analysis, we consider the representativeness of our sample as satisfactory.

To test the multicollinearity between variables we have carried out multicollinearity statistics which provided us with a correlation matrix as well as values of tolerance and VIF (Variance Inflation Factor). To assess the presence of multicollinearity, we use the VIF indicator, adopting the rule of thumb of VIF bigger than 5 as indicator of significant multicollinearity (Joe F. Hair et al., 2011). Looking at the results of our multicollinearity statistics, included in Appendix 4, we conclude that our variables present no multicollinearity (maximum value VIF=2.85) and can hence be used to carry out the cluster analysis.

5.2.2 Analysis

The atheoretical propriety of the cluster analysis, and its ability to always create clusters, do not provide a "stopping rule" to decide what the appropriate number of clusters is. We have defined this stopping rule as suggested by (Husson, Josse, & Jerome, 2010), by looking at the change of within- and between-classes variance while forming new cluster. We have set this threshold to .05, assuming that if creating a new cluster lowers the within class variance less than .05 its effect can be ignored, and the algorithm stopped. By adopting this rule, we end up with five clusters, each of them containing at least 5% of the population.

5.2.3 Results

Running the cluster analysis with the parameter previously defined, we obtained five final clusters. We have then recomputed the results by recalculating the value of the variables in order to facilitate the interpretation of the results. Specifically, we have rescaled the 7-point Likert scores on a linear function redistributing the values between -1 and 1. Every variable

has been rescaled according to a variable-specific function that considers the minimum, maximum and mean of the collected responses. In this way, responses at the bottom of the spectrum (value 1) have been accordingly recomputed at the bottom of the new scale (-1) and top of the spectrum (value 7) assumed top position in the new scale (+1). The intermediate values (between 1 and 7) are linearly distributed between -1 and 1. The resulting classes are reported in Figure 5.3.

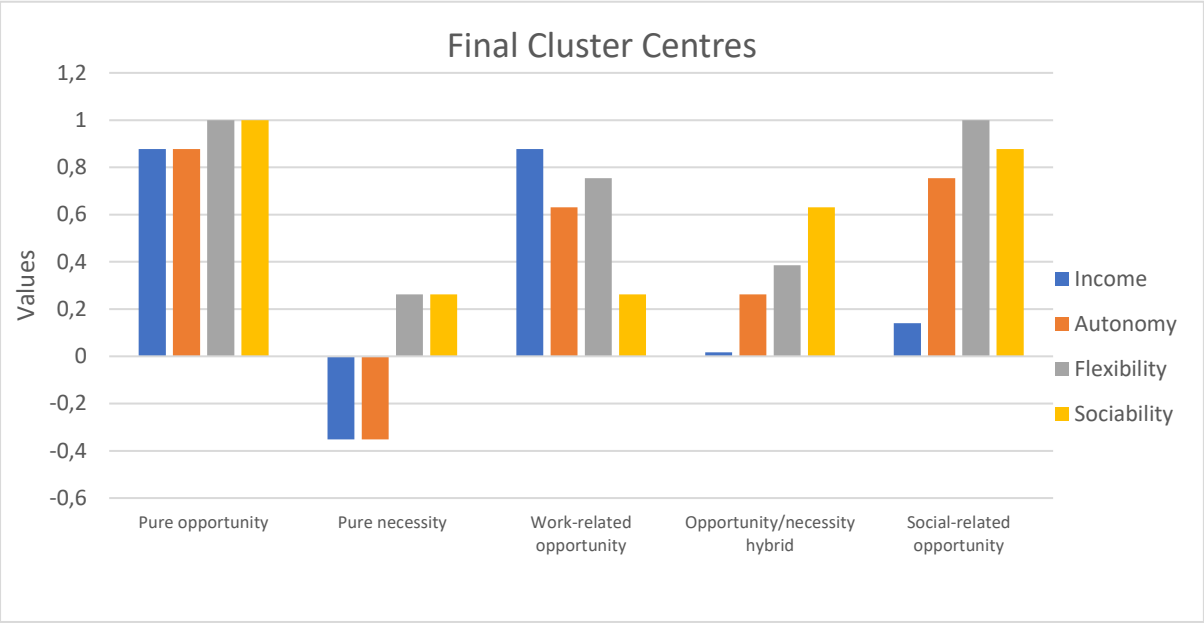

Figure 5.3 – Final clusters characteristics

Figure 5.3 reports the score on the four variables (Income, Autonomy, Flexibility and Sociability) for the central objects of each of the five clusters. We profile the first cluster as **pure opportunity**, as the observations belonging to this cluster have indicated as very important all the four variables. This cluster is hence occupied by individuals who are attracted by all the features of working in the peer economy. We profile the second cluster as **pure necessity**, as the importance attribute to the variables is low or close to indifference. Despite working as peer providers, individuals that are part of this cluster are not attracted by the features of this work. The third cluster is profiled as **work-related opportunity**, because the importance attributed to the variables is concentrated towards the first three variables (Income, Autonomy and Flexibility) which are all dimensions related to one's work efficacy and control. The fourth cluster has been profiled as **opportunity/necessity hybrid**, indicating that some of the variables have obtained scores (slightly) above the mean, and in particular the variable Sociability, yet without showing a large importance attributed to them. Finally,

we have profiled the fifth cluster as **social-related opportunity**, as the combination of the three variables with high scores (Autonomy, Flexibility and Sociability) suggest a higher importance attribute to dimensions of work that are related to one's life in a social context.

In the perspective of the existing literature on opportunity and necessity entrepreneurs of the informal sector, two distinct characteristics have emerged. Firstly, by carrying out a cluster analysis on the four variables that we have defined as determinants of workers' motivation, we are able to specify more in detail the drivers of opportunity peer providers. In particular, we recognise that among the opportunity peer providers preferences exist, with some individuals attributing an higher value to social-related aspects (combination of autonomy, flexibility and sociability) and others attributing an higher value to work-related aspects (combination of income, autonomy and flexibility). Secondly, a hybrid group, positioned between the opportunity and necessity peer providers, has emerged. Individuals of this group seem to attribute a limited importance to the features offered by working via peer-to-peer platforms, yet without showing neither great interest nor perceiving these features as unimportant. The existence of a third intermediate group between the dualism of opportunity and necessity driven entrepreneurs has been found also by previous studies on informal self-employment, that described them as "constrained gazelles" (Grimm, Knorringa, & Lay, 2012) or "unsuccessful entrepreneurs" (Gindling & Newhouse, 2014). The authors refer to entrepreneurs who, despite showing the potential of being opportunity entrepreneurs, are not able to realise such a potential, remaining constrained in their actions and ultimately resulting as unsuccessful. Similarly, our results suggest that peer providers that belong to the hybrid group share, to a certain extent, the same preferences of opportunity peer providers, yet without perceiving the features of working in the peer economy as equally beneficial, perhaps because facing constrains that this study is not able to identify.

Looking at the cluster membership, nearly 47% of the respondents belong to the pure opportunity cluster, 14% to the pure necessity cluster, 4.5% to the work-related opportunity cluster, 18.5% to the opportunity/necessity hybrid cluster, and the 16% to the social-related opportunity cluster. Nonetheless, from how the cluster have been profiled, and from their graphical representation, we notice that the first, third and fourth clusters all share high scores on the variables under analysis (in different compositions), suggesting that the peer providers that belong to these groups can all be classified as driven fundamentally by opportunity recognition. We can re-profile this merged cluster as **opportunity**, the second cluster as **necessity** and the third cluster as **opportunity/necessity hybrid**. This re-classification can be

represented as in Figure 5.4. The class membership to the new clusters is reported in Figure 5.5.

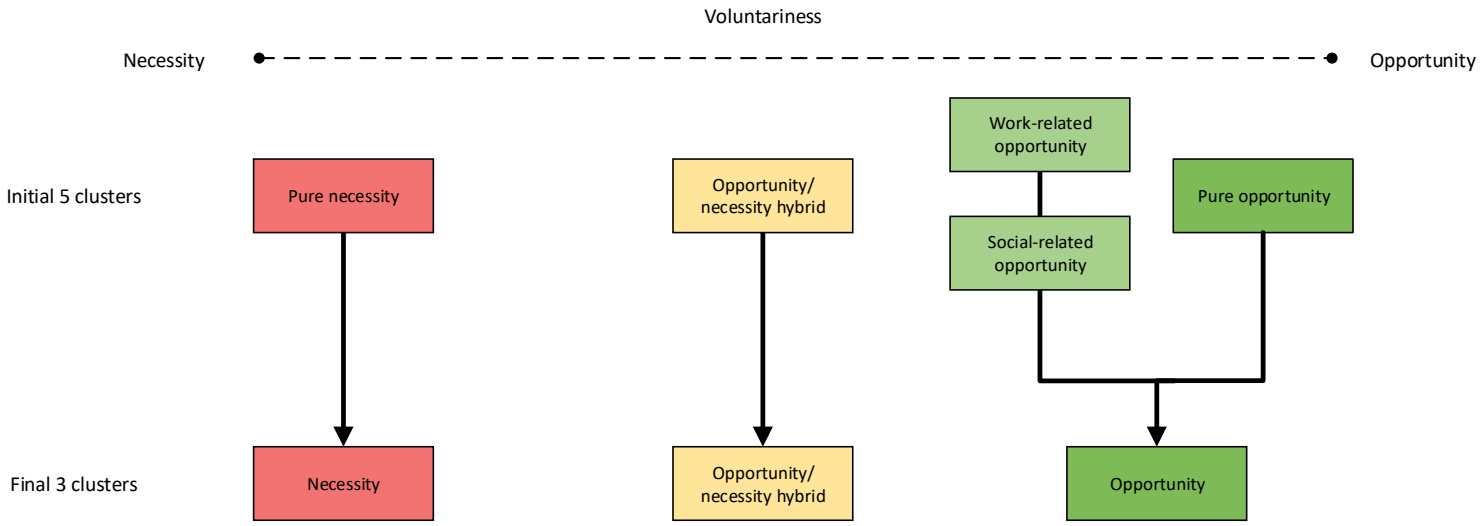

Figure 5.4 – Re-classification of clusters from five to three

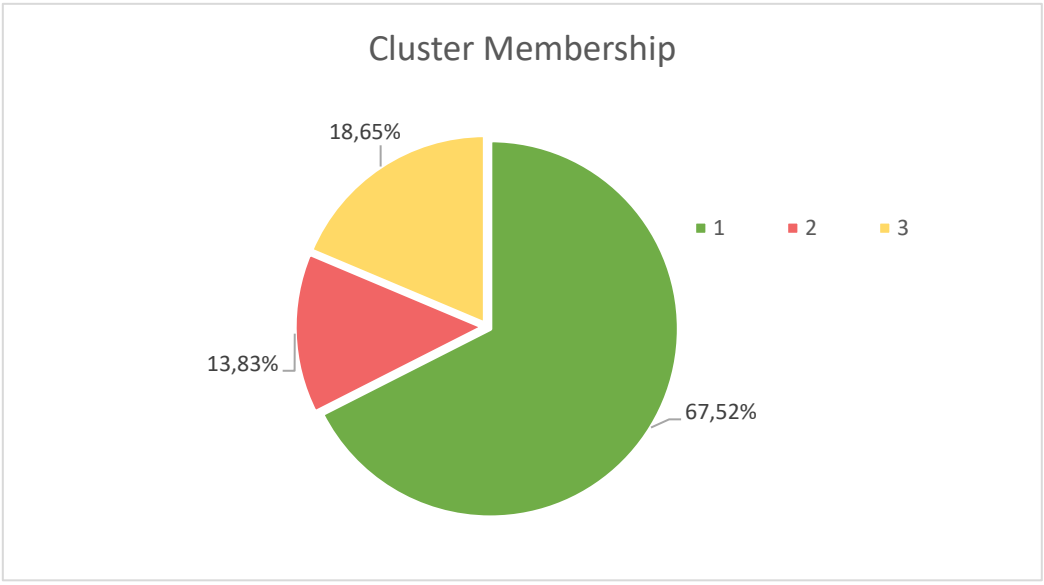

Figure 5.5 – Final clusters membership

Several considerations can be made on these newly formed cluster. Firstly, the opportunity cluster is the largest, with 67.53% of the. This result suggests that most of the peer providers

are attracted by the four features defined as hereditary of working in the peer economy. While different combinations have emerged (in the formation of a work-related against a social-related opportunity clusters), this group can be considered as formed by opportunity peer providers, who are working in the peer economy to benefit from the features it offers.

Secondly, the necessity cluster is the smallest, with only 13.83% of the respondents belonging to this group. The results suggest that these peer providers do not give much or any importance to the features of working in the peer economy that the opportunity cluster has indicated as attractive. We do interpret this cluster as occupied primarily by necessity peer providers, who are not working in the peer economy because of the attractiveness of job and its features but because driven by necessity.

Lastly, the opportunity/necessity hybrid cluster accounts for 18.65% of the respondents. Members of this cluster attribute an importance to the features of working in the peer economy slightly above the indifference level. This suggests that they are somehow attracted by this opportunity, yet without fully benefitting from it. Peer providers belonging to this cluster are neither employed completely out of necessity, nor are they pursuing an opportunity that is very appealing to them. Thus, they are a hybrid of the previous two.

A detailed description of this analysis is included in Appendix 5.

5.2.3.1 Cluster analysis on segregated demographic and employment variables

We then carried out the same cluster analysis, thus adopting the same parameters for clustering methods and stopping rule as before, to the segregated variables as previously defined. This analysis helps us understand whether subgroups show different compositions form the original sample. For instance, we can investigate if young and old peer providers, or commercial and casual peer providers, are likely to be driven by significantly different motivations in respect to the aspects considered by this study. Table 5.11 summarises the results of this analysis by showing the percentage of respondents assigned to each group as well as the average membership for each cluster.

The table helps us to identify for which sub-groups the cluster membership is the highest (or the lowest), thus providing additional meaning to this classification. Looking at the distinction between previously economically active, for instance, we notice that those who are entering the labour force via peer-to-peer platforms (defined as previously unemployed or students) show simultaneously the lowest percentage of pure opportunity peer providers and the highest percentage of pure necessity peer providers. This results suggests that among the previously not economically active, only a small group is attracted by the full set of features of working

in the peer economy, with many of them valuing as more important either work-related aspects (the combination of income and autonomy) or social-related aspects (the combination of flexibility and sociability). Moreover, the highest (and well above average) percentage of necessity driven peer providers for this sub-group suggests that our results are in agreeance with the view of necessity entrepreneurs escaping unemployment as suggested by the informal sector theory.

A graphic representation of the clusters formed for segregated variables is included in Appendix 6.

Cluster		Pure opportunity	Work-related opportunity	Social-related opportunity	Pure necessity	Opportunity/necessity hybrid	Cases
Generic		46,9%	4,5%	16,1%	13,8%	18,6%	311
Age	Young	55,1%		30.6%	14.7%		196
	Old	50,4%	4,3%	13,9%	15,7%	15,7%	115
Primary source	Yes	53,3%		16,7%	16,3%	13,8%	246
	No	52,3%		27,7%	20,0%		65
Education	High	64,6%		9,1%	7,1%	19,2%	99
	Low	41,5%		21,2%	15,6%	21,7%	212
Previously active	Yes	54,0%		16,3%	14,7%	15,1%	252
	No	30,5%	22,0%	23,7%	23,7%		59
Type of provider	Commercial	56,3%		27,5%	16,3%		160
	Casual	55,0%		11,9%	5,3%	27,8%	151
Vehicle	Bike	51,1%		19,2%	2,2%	27,5%	229
	Car	65,9%			8,5%	25,6%	82
Time on platform	Short	73,6%		12,0%	14,4%		216
	Long	43,2%		28,4%	6,3%	22,1%	95
Average hours	Soft workers	42,4%		25,9%	9,8%	22,0%	205
	Hard workers	67,0%		14,2%	18,9%		106
Average earnings	Soft earners	43,8%		19,1%	17,0%	20,0%	235
	Hard earners	59,2%		30,3%	10,5%		76
Average		52,8%	10,3%	19,6%	13,1%	20,8%	
Ranking		1st	5th	3rd	4th	2nd	

Table 5.11 – Summary of the cluster analysis results for the generic sample and the segregated variables

5.3 Peer providers' satisfaction and future intention

We present in this section the results of the PLS-PM analysis we used to explore the relationships between Income, Autonomy, Flexibility and Sociability and peer providers' satisfaction and stated intention to retain the job. The objective of this analysis is to explore possible paths between the variables, identifying directions and intensity of the relationships between them, and answering the research sub-question *SQ 4: What are the relationships between features of working in the peer economy and peer providers' satisfaction and intention to retain the job in the future?* Firstly, we discuss the data requirements for the design of the model and its analysis. Secondly, we present the results obtained for the entire sample. Lastly, we present the results obtained for the segregated variables as previously defined.

5.3.1 Data preparation

As specified in Section 4.2.3.2, PLS-PM does not require any distributional assumption and is instead able to carry our analysis with the data obtained from our data collection. Nonetheless, variables and model structure have to be defined before starting the analysis. Four elements are essential to the PLS-PM analysis: latent and manifest variables, and outer and inner models.

Latent variables are constructs that cannot be directly measured. This is the case for our constructs Income, Autonomy, Flexibility and Sociability, as well as for Satisfaction and Future Intention. These constructs cannot be effectively measured directly, as observing them is either very difficult or impossible. Instead of directly measuring them, we rely on other variables which these constructs are represented by, and we call these manifest variables.

Manifest variables are indicators (or items) that can be more easily observed or measured and that reflect aspects of the construct (latent variable) we want to observe. Thus, manifest variables contain part of the information we wish to measure and can be used to approximate the latent variable's value. Our manifest variables are the items that we have previously developed (i.e. Inc_1, Inc_2 and Inc_3 are the manifest variables for the latent variable Income).

Logically, manifest and latent variables are in a relationship. The set of relationships between manifest and latent variables is defined as the outer model. In our model, manifest variables are connected to latent variables in a reflective way, as the manifest variables are being caused by the latent ones. Thus, manifest variables (i.e. Sat_1, Sat_2, Sat_3 and Sat_4) reflect the latent variable (i.e. Satisfaction).

Finally, the inner model is made connection between latent variables and is represented in Figure 5.6, and obtained from Figure 3.3.

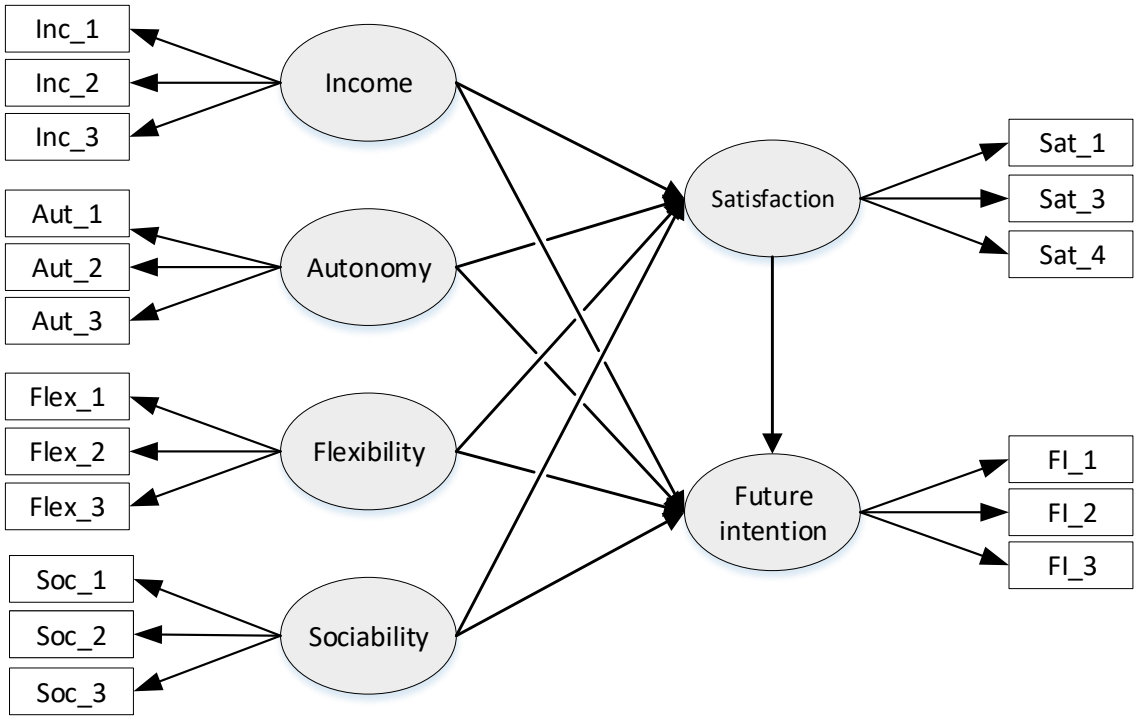

Figure 5.6 – Structural model of latent and manifest variables

5.3.2 Analysis

The PLS-PM analysis consists of two phases. The first phase aims at evaluating the outer model, thus assessing the correctness of our measurement model. The second phase aims at evaluating the inner model, this assessing the goodness of our inner mode.

5.3.2.1 Outer model assessment

In order to assess the correctness of out outer model, we analyse the indicators it is composed of. The reflective indicators we have chosen for measuring our latent variables impose us two main requirements, they need to show: a **strong mutual association** between instruments, and **significant membership** to the associated latent variable. The evaluation of three aspects can ensure us the validity of these conditions: unidimensionality of the indicators, their correlation to the latent variable, and their independence from other latent variables.

The first of these conditions can be evaluated on Cronbach's alpha, Dillon-Goldestein's rho and first eigenvalue of the correlation matrix. As a rule of thumb, we adopted a threshold of .7 for both Cronbach's alpha and Dillon-Goldestein's rho as in (Sanchez, 2013). Both values showed a high degree of correlation, indicating a good ability to measure the latent variables

(lowest score obtained for Cronbach's alpha is .83) also in term of variance (lowest score obtained for Dillon-Goldestein's rho is .90). Additionally, also the first eigenvalue of every latent variables is larger than 1 (smallest value is 2.24) and the second smaller than 1 (largest value .46). Thus, we can conclude on the unidimensionality of all the indicators.

Secondly, the correlation between manifest and latent variables is measured in terms of loadings and communalities. Loadings indicate the correlation between manifest and latent variables, while communalities indicate the square correlation. Once more, we adopted the .7 threshold suggested by (Sanchez, 2013) as a rule of thumb. Only one of the indicators did not meet this condition (Sat_2) and has been for this reason excluded from every future analysis. This indicator may have been wrongly formulated (or translated), and its elimination has been necessary to avoid the introduction of additional bias. Without this indicator (and still three indicators for the construct Satisfaction) the previously discussed conditions still hold true, and have been reinforced. With the adjusted model, the two conditions are met, and we can conclude on the correlation between manifest and latent variables.

Finally, the independence between manifest variables can be assessed by means of cross-loading (included in Table 5.12). Calculating the matrix of monofactorial manifest variables, we can conclude that each set of manifest variables score the highest loading for the latent variable they reflect, and their correlation with other latent variables is not suggesting any unexpected bias.

	Income	Autonomy	Flexibility	Sociability	Satisfaction	Future Intention
Inc_1	**0,88**	0,64	0,56	0,43	0,43	0,37
Inc_2	**0,93**	0,70	0,53	0,44	0,46	0,38
Inc_3	**0,84**	0,62	0,46	0,31	0,32	0,31
Aut_1	0,70	**0,86**	0,59	0,59	0,47	0,38
Aut_2	0,65	**0,91**	0,59	0,53	0,50	0,44
Aut_3	0,56	**0,82**	0,60	0,50	0,41	0,32
Fle_1	0,53	0,54	**0,84**	0,51	0,28	0,23
Fle_2	0,57	0,67	**0,93**	0,55	0,38	0,32
Fle_3	0,46	0,59	**0,89**	0,50	0,31	0,25
Soc_1	0,41	0,55	0,52	**0,88**	0,32	0,22
Soc_2	0,35	0,48	0,48	**0,86**	0,28	0,16
Soc_3	0,43	0,60	0,54	**0,89**	0,34	0,24
Sat_1	0,45	0,53	0,44	0,38	**0,88**	0,45
Sat_3	0,45	0,39	0,20	0,23	**0,88**	0,45
Sat_4	0,54	0,51	0,33	0,34	**0,92**	0,54
Fut_1	0,39	0,40	0,26	0,26	0,48	**0,93**
Fut_2	0,40	0,45	0,32	0,25	0,53	**0,95**
Fut_3	0,35	0,39	0,27	0,18	0,52	**0,94**

Table 5.12 – Cross-loadings between manifest and latent variables. In bold the highest scores for each item.

By these three analyses, we can conclude that our measurement model (or outer model) is good for the analysis.

5.3.2.2 Inner model assessment

The second phase of this analysis includes the assessment of the inner (or structural) model. The quality of our inner model is determined by three metrics: determination coefficient R^2, redundancy index and Goodness-of-Fit (GoF).

Firstly, the coefficient of determination R^2 represents, as in other multivariate analysis, the variance in endogenous (dependent) latent variables that is explained by its exogenous (independent) latent variables. As a rule of thumb, values of R^2 between .2 and .5 can be considered as moderate, while values below .2 can be considered low and above .5 as high. With a value of .306 scored by the variable Satisfaction, and .331 by the variable Future intention in our model (mean .319), we can conclude that the independent latent variables have a moderate ability to explain the dependent latent variables.

Secondly, the index of redundancy represents the ability of independent latent variables to predict dependent latent variables as a percentage of the variance of the instruments (manifest variables) of the independent variable. A high redundancy can be interpreted as a high ability to predict. In our model dependent variables are predicted in mean by the in mean 27% of variance of the instruments.

Thirdly, the Goodness-of-Fit (GoF) is an index that accounts for goodness of both the inner and the outer model. It can be used to assess the overall performance of the model, interpretable as an average of the predicting power of the model. Although no threshold exists, we can conclude that our model (GoF=.503) has a moderate predictive power. This result suggests that the variables and relationships included in the model are to a certain extent well suited for the prediction of satisfaction and future intention, yet implying that the model can be further improved, perhaps including more variables, to increase its overall predictive power.

Moreover, controlling for the Average Variance Extracted (AVE), representing the variance that each latent variable captures from the variance caused by measurements errors of its indicators, we found values all above the threshold value of .50 (Sanchez, 2013).

Table 5.13 presents the correlation between latent variables and, on the diagonal, AVE, Composite Reliability and Cronbach's Alpha for each latent variable.

	Income	Autonomy	Flexibility	Sociability	Satisfaction	Future intention
Income	0,78 0,91 0,86					
Autonomy	0,74	0,75 0,90 0,83				
Flexibility	0,59	0,68	0,79 0,92 0,87			
Sociability	0,59	0,62	0,59	0,77 0,91 0,85		
Satisfaction	0,37	0,54	0,37	0,36	0,79 0,92 0,87	
Future intention	0,30	0,44	0,30	0,24	0,54	0,88 0,96 0,93

Table 5.13 – Correlation between latent variables. On the diagonal, where correlation is 1, from top to bottom: Average Variance Extracted (AVE), Composite Reliability, and Cronbach's Alpha

5.3.3 Results

Due to the absence of distributional assumption of PLS-PM analysis, the significance of the model needs to be ensured by mean of resampling techniques. The most widely used is bootstrapping, and it is employed in this study. This non-parametric approach allows an estimate of the precision of the PLS analysis. In the outer model, all the relationships identified resulted to be significant at 95% level of confidence. For what concerns the inner model, four of the initially considered result significant. These relationships are: (1) Income → Satisfaction; (2) Autonomy → Satisfaction; (3) Autonomy → Future intention; and (4) Satisfaction → Future intention. We can now redraw the model including only the significant relationships, as in Figure 5.7.

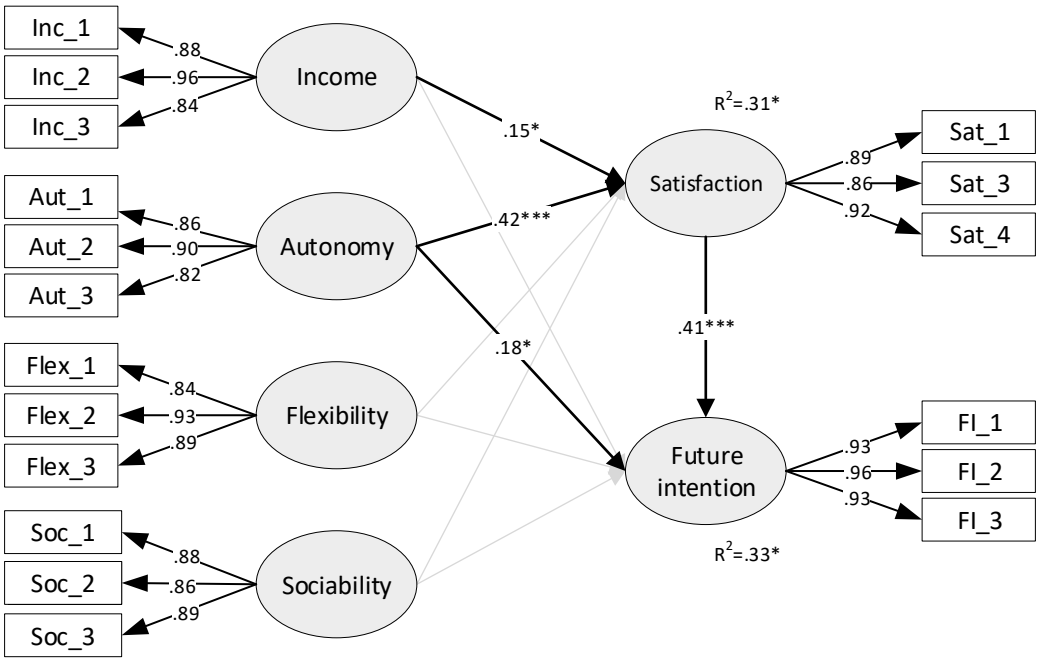

Figure 5.7 – Complete structural model with significant relationships. * Correlation is significant at the 0.05 level; ** Correlation is significant at the 0.01 level; *** Correlation is significant at the 0.001 level.

While Flexibility and Sociability are adequately measured, their relationship with the dependent variables are not significant and have been shadowed in Figure 5.7. For clarity, the holding relationships with a significant level of 95% are reported in Figure 5.8, together with their path coefficients, significant level, and the R^2 values.

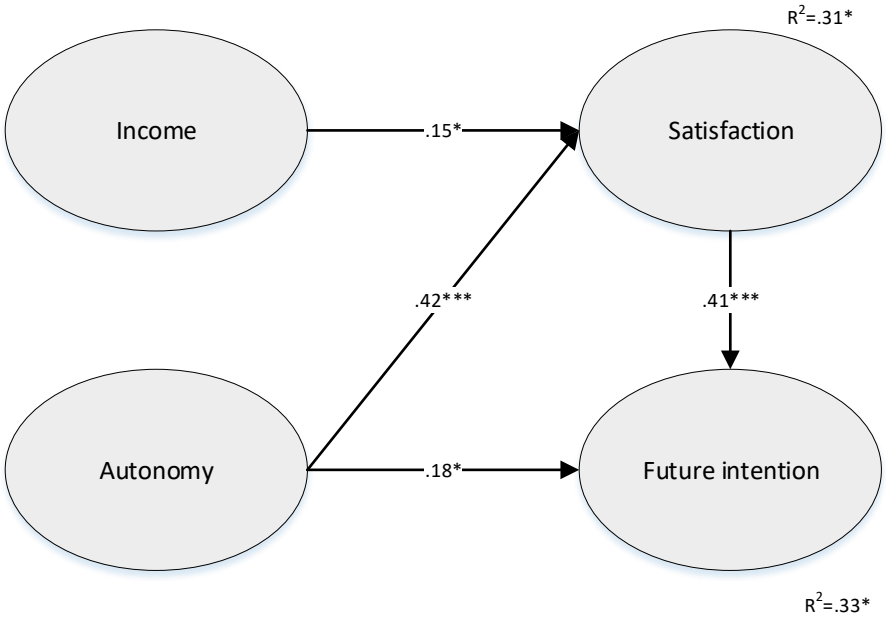

Figure 5.8 – Structural model with only significant relationships. * Correlation is significant at the 0.05 level; ** Correlation is significant at the 0.01 level; *** Correlation is significant at the 0.001 level.

The path coefficients represent the strength (and the direction) of the relationship between latent variables (Sanchez, 2013). Focussing on the first independent variable Satisfaction, we can conclude that its variance is moderately explained by the two dependent variables Income and Autonomy ($R^2 = .31$). Moreover, we know that the importance attribute to the Autonomy has a larger effect on Satisfaction (path coefficient .42) than Income (path coefficient .15). This result suggests that the satisfaction of peer providers is determined both by their consideration of monetary returns (Income) but more importantly by the non-monetary aspects, and specifically by the autonomy that this employment opportunity offers.

Secondly, looking at Future intention, we can conclude that its variance is moderately explained by the independent variable Autonomy and by the moderating variable Satisfaction ($R^2 = .33$). Distinguishing the effects of the two latent variables on Future intention, the perceived Autonomy has both a direct and indirect effect on it. The direct effect is indicated by its significant path coefficient (of value .18), while the indirect effect is forwarded through the mediating variable Satisfaction (the value of the indirect effect is .18*.42=.07). Yet, the impact of the variable Satisfaction is greater and account for most of the variance of Future intention (path coefficient .42). This second result suggests that the stated intention of peer providers to keep working in the peer economy in the future is largely influenced by their current level of satisfaction, as well as by their perception of the level of autonomy offered by this opportunity.

5.3.3.1 PLS-PM on segregated demographic and employment variables

We then performed a PLS-PM analysis on segregated demographic and employment-related variables, as presented in Section 5.1. The objective of a PLS-PM analysis on segregated variables is to determine whether the parameters of the model change significantly across two groups (Chin, Mills, Steel, & Schwarz, 2014).

Among the groups created, significant difference has been identified only between peer providers using car and motorbikes. Two paths have been found to be significantly different between the two groups. The first difference is between the variables Autonomy and Satisfaction. For the car-based peer providers, this relationship is not significant, while it is for the motorbike-based peer providers with p-value below .001. The second difference is between the variables Income and Future intention. Nonetheless, despite different, the relationship between the two variables is not significant neither for one nor for the other group, just as it was not significant for the complete sample. Finally, the relationship between the variables Income and Satisfaction, despite not being significantly different among the two groups, it is significant (with p-value below .05) only for the group of car-based peer providers.

The models for the two groups of motorbike-based and car-based peer providers are reported in Figure 5.9 and Figure 5.10.

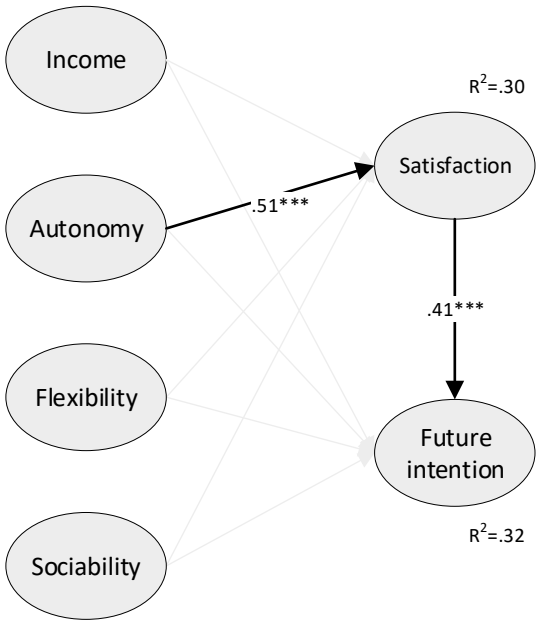

Figure 5.9 – Structural model with significant relationships for motorbike-based peer providers

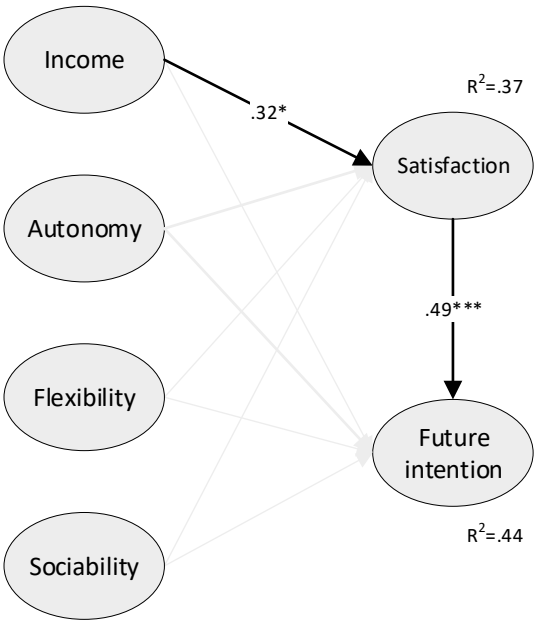

Figure 5.10 – Structural model with significant relationships for car-based peer providers

5.4 Discussion

Based on the analyses presented in this chapter, we discuss our results concerning the socio-demographic and employment characteristics of the peer providers interviewed, their segmentation between opportunity and necessity peer providers, and their perception of the benefits of working via peer-to-peer platforms. We first report the results of our analyses and later discuss the results in light of previous studies that have targeted peer providers in different geographical areas or the informal sector.

The analysis of the socio-demographic and employment characteristics showed us that the peer providers part of our sample are quite young (with more than 63% of them being younger than 35 years), mostly married and primary source of income of their household (61% and 79% respectively), and rather well educated (59% having completed senior high school and 32% having a higher degree). A large share of the peer providers interviewed were previously employees (48%), with the majority of the respondents being peer providers on a full-time base (51%). Most of the respondents own their own vehicle, and more motorbike-based peer providers were included in the sample (72%). The majority of the peer providers interviewed have been active in the peer economy for less than a year (69%), but expects to keep working via peer-to-peer platforms for more than 3 years (46%). Peer providers in our sample mostly work less than 40 hours per week (76%), with earnings that are on average below IDR 1 million

per week (overall the 75,5%, of whom the 68% below IDR 750.000). With a minimum weekly wage of IDR 745.000 per week in the province of Jakarta in 2017 (circa € 47) (DKI Jakarta Province, 2017), we conclude that, after expanses such as cost of gas, maintenance and phone credit, only a 24.5% of the peer providers is likely to earn a salary that is above the minimum wage of the province by working solely via peer-to-peer platforms.

Drawing a parallel with previous studies that have targeted peer providers in different geographical areas, we compare our results with those of (Hall & Krueger, 2015) and (Rizk, 2017), who have studied the characteristics of peer providers working via Uber's platform in the US and in Egypt respectively. Indonesian peer providers resulted to be generally younger than US-based peer providers (where 49% of the peer providers aged below 40 years, whereas almost 82% in Indonesia) and have similar age to Egyptian peer providers (with nearly 70% of the peer providers aged below 35 years, against the 63% in Indonesia). The share of Indonesian peer providers that are married (61%) is similar to what found in Egypt (64%) and above their US-based counterpart (50%). Compared to the two other countries, a low percentage of Indonesian peer providers have completed a higher education (51% in the US, 48% in Egypt and 32% in Indonesia) but more similar results are achieved when also senior high school diplomas are taken into account.

For what concerns the previous employment, the share of previously unemployed peer providers is comparable to the one measured in the US and in Egypt (8% and 10% respectively, compared to the 8.7% in Indonesia). The percentage of Indonesian peer providers working via peer-to-peer platforms on a full-time base (51%) is almost equal to the one found in Egypt (50%) but well above the US results (where only 40% of the peer providers do so on a full-time base). A small share of Indonesian peer provider worked for more than 40 hours (24%) per week when compared to Egyptian peer providers (where nearly 60% of the peer providers do so), yet still more than US-based peer providers (19%).

The analysis of the perception of the benefits of working via peer-to-peer platforms showed that peer providers attribute quite a high value to the four features analysed with mean scores of 6.28 for Flexibility, 6.20 for Sociability, 5.82 for Autonomy and 5.43 for Income on a 7-point Likert scale going from 1 to 7. While the two studies carried out in the US and Egypt adopted different measures, we can compare the relative position of these four attributes. Compared to the US-based peer providers, Indonesian peer providers attributed more importance to the flexibility offered by this job, and less to the income they can generate, while the autonomy maintained the same relative position. The social aspects have not been investigated in the US-based study. Compared to Egyptian peer providers, Indonesian peer providers attributed

relatively more importance to the flexibility, much higher importance to the sociability, the same relative importance to the autonomy, but much lower importance to the income.

The cluster analysis has been carried out on the four variables representing the perception of the benefits of working in the peer economy with the goal of grouping together peer providers who share similar perceptions. This analysis resulted in the formation of five clusters of peer providers attributing a similar value to the benefits of working in the peer economy. Then, these clusters have been re-labelled forming three macro segments that we have profiled as opportunity peer providers, necessity peer providers and opportunity/necessity hybrid peer providers. We summarise the characteristics of the clusters resulted from the cluster analysis and their subsequent reclassification in Table 5.14, reporting the value attributed by the members of each cluster to the benefits of working in the peer economy.

Original clusters	**Income**	**Autonomy**	**Flexibility**	**Sociability**		*Final clusters*
Pure opportunity	High	High	High	High	}	Opportunity
Work-related opportunity	High	High	High	Medium		
Social-related opportunity	Medium	High	High	High		
Opportunity/necessity hybrid	Low	Medium	Medium	High	→	Hybrid
Pure necessity	Low	Low	Medium	Medium	→	Necessity

Table 5.14 – Characteristics of the cluster and re-classification

Looking at the final clusters, we defined as opportunity peer providers those who truly enjoy the features of working via peer-to-peer platforms and that we consider for this reason as following a personal desire of achieving their preferred level of income, autonomy, flexibility and sociability thanks to this employment opportunity. To this group belong the 67.5% of the peer providers interviewed. We defined as necessity peer providers those who do not enjoy at all the features of working via peer-to-peer platforms and that we consider for this reason to be employed in the peer economy not by their own desire (and will) but because pushed by the necessity of earning an income and the impossibility of finding a different type of employment. To this group belong the 13.8% of the peer providers interviewed. Finally, we

defined as opportunity/necessity peer providers those who neither enjoy nor dislike working in the peer economy and that we consider for this reason neither truly following their preferred career path nor finding themselves in an employment situation in which they would rather not to be. To this group belong the 18.6% of the peer providers interviewed.

The share of opportunity peer providers identified in our sample reflects the findings of studies on informal self-employment, which reported that two third of the informal self-employed are driven by opportunity in Mexico and Brazil (Cunningham & Maloney, 2001; Maloney, 2004). Similarly, Manyika et al. (2016) investigated this proportion among the independent workers (thus considering also the formal self-employed), identifying the share of opportunity driven self-employed to be in 72% in the US, 68% in France, 70% in Germany, 58% in Spain, 74% in Sweden and 74% in the UK. While in all these studies the non-opportunity driven self-employed have been regarded as been driven by necessity, we introduced a hybrid category that provides a more complex view of this group, arguing that some individuals have intermediary drivers.

The PLS-PM analysis has been used to study the relationships between the perception of benefits of working via peer-to-peer platforms and peer providers' satisfaction and intention to continue their job in the future. The analysis showed that a significant relationship holds between the variables Income and Satisfaction, and between Autonomy and Satisfaction, with the latter having a higher path coefficient. This showed that the perception of income and autonomy are a predictor of one's satisfaction. Moreover, the analysis showed that a significant relationship holds between Autonomy and Future intention, and between Satisfaction and Future intention, with the latter having a higher path coefficient. This showed that the perception of autonomy and the level of satisfaction are a predictor of one's future intention to continue the job of peer provider. These results are in agreeance with previous studies concerning the impact of working dimensions on one's satisfaction and intention to retain the job (Joern Block & Koellinger, 2009; Lambert et al., 2001).

As it is reasonable to expect, the three types of peer providers identified show significantly different levels of satisfaction and future intention to retain the job, with opportunity peer providers scoring 5.4 and 5.6, necessity peer providers scoring 3.5 and 3.8, and opportunity/necessity hybrid peer providers scoring 4.7 and 4.9 on average on the two variables (once more one a 1 to 7 Likert scale, with 7 representing the most positive value possible and 4 the indifference level).

Chapter 6 - Conclusion

We present in this concluding chapter the results of this study, discussing the steps taken to achieve them as well as possible implications. Firstly, in Section 6.1, we recall the objective of this research and summarise the answers we have provided to the several sub-questions formulated to achieve it. Secondly, in Section 6.2, we argument how this research enriches the already established theories and contributes to the development of the literature on the peer economy. Thirdly, we elaborate on the limitations of this study, in Section 6.3, and formulate possible future research directions in Section 6.4. Finally, we reflect on the overall research project in Section 6.5.

6.1 Conclusion

Peer-to-peer platforms have emerged in the recent years as an alternative way of doing business, where the traditional duality of demand and supply (embedded in the relationship between enterprises and customers) is substituted with networks of users occupying both sides of the market. Decentralised in nature, peer-to-peer platforms are creating massive digital marketplaces where users exchange goods and services among them, in a phenomenon we have defined as peer economy. A very successful implementation of this model, to which this study has been scoped, is the case of peer-to-peer ridesharing platforms, where users can sell (and buy) private transportation services, and anyone can become a service provider or, as we defined it, a peer provider. In the view of the peer provider, peer-to-peer platforms are hence creating new employment opportunities that are enabled by the ubiquity of technology and driven by an exponentially growing demand.

While policy makers in all the developed countries are questioning the regulatory elusiveness of this new form of work on-demand, the already highly unregulated labour markets of developing countries offer a fertile ground for peer-to-peer platforms to thrive. This is the case for peer-to-peer ridesharing platforms in Indonesia, where traditionally informal activities, and specifically motorbike-taxi services, are being transformed by means of ICT. The key role that the informal sector plays in the economy of developing countries makes of peer-to-peer platforms an interesting case, as they potentially represent an accessible step to escape urban poverty, or even a new opportunity for the creation of sustainable jobs.

The objective of this research is to understand whether the employment opportunity created by peer–to-peer platforms constitute last resort for individual that are driven by necessity, or instead an attractive labour opportunity which features are highly valued by the peer providers. We want to know how peer providers perceive hereditary characteristics of working

in the peer economy and how does this, in turn, influences their level of satisfaction and intention to remain peer providers in the future.

Following this research objective, we formulated the main research question as follows:

How do peer providers of Indonesian peer-to-peer ridesharing platforms value the benefits offered by working in the peer economy?

In order to answer this research question, we formulated several sub-questions, which individual answers incrementally led to the achievement of our research objective.

SQ 1: How do peer-to-peer ridesharing platforms create benefits for the peer providers of developing countries?

We first presented in Chapter 2 the literature on the peer economy, providing definitions and scoping our analysis to the case of peer-to-peer ridesharing platforms. This analysis revealed the economic mechanisms at the base of the success of peer-to-peer platforms, and pointed us at peer providers as principal value creators, as owners of the assets central to the exchanges taking place on digital platforms. Looking at the employment-employee relationships implemented in the peer economy, we defined peer providers as autonomous workers, or self-employed, who trade the security and stability of traditional salaried job, for the independence of being bosses of themselves.

We then further investigated the motivations of individuals who became peer providers in Chapter 3, by adopting two theoretical perspectives: the informal sector theory and the self-employment theory. The former theory allowed us to identify concepts that are pertinent to the context of developing countries, and yield to the fundamental distinction of informal self-employed between entrepreneurs who are driven by opportunity and by necessity. Additionally, we argued that this theory well depicts the labour markets created by peer-to-peer platforms and can for this reason represent a helpful investigative lens for the study of employment opportunities in the peer economy.

Nonetheless, we discarded the instruments adopted by the literature on the informal sector to distinguish between the two types of entrepreneurs, arguing that the binary question adopted in the studies on the informal sector may be over-simplistic. Thus, we decided to look at the motivation to become self-employed in a broader way, positioning necessity and opportunity entrepreneurs on a continuum defined by the voluntary decision of individuals to pursue job opportunities that appeal them. To create this framework, we integrated concepts of the theory on self-employment, identifying monetary and non-monetary aspects that concur to the career

choice made by peer providers (and specifically, the income, autonomy, flexibility and sociability offered by this job). Moreover, we argued that these monetary and non-monetary aspects may influence peer providers' satisfaction and intention to retain their job in the future. The chapter concluded with a conceptual model summarising the constructs retrieved from the two literatures.

Then, we translated the concepts contained in the model into survey questions, included in a questionnaire that has been distributed to a sample of peer providers active in Jakarta, capital of Indonesia. The data collection resulted in 311 responses that have been analysed to answer the remaining sub-questions.

Firstly, we employed descriptive statistics to analyse the responses collected and answer the research sub-question:

SQ 2: Who are the Indonesian peer providers?

The descriptive analysis provided us with an articulated picture of the heterogeneous characteristics of our sample. Summarising the results, the peer providers interviewed (predominantly men) resulted to be relatively young, mostly married and rather highly educated. Moreover, the large majority of our sample reported to be the primary source of income of their household, suggesting that the product of their work has a direct impact on a large number of families.

Nearly half of the sample interviewed reported to be peer providers on a full-time basis, and most of those working part-time started to work as peer providers next to the job they already had. About a fifth of the full-time peer providers stated to work more than 60 hours per week on average, and some of them to be capable of earnings up to the equivalent of €125 Euro per week. The largest share of our sample has been working in the peer economy for less than a year, but expects to keep working on peer-to-peer platforms for a rather long time.

Furthermore, the analysis revealed that the respondents considered quite important the income, autonomy, flexibility and sociability of working as peer providers, yet without being on average neither satisfied nor dissatisfied with their job, and expect only slightly to be peer providers in the future.

Secondly, we carried out a cluster analysis to provide an answer to the research sub-question:

SQ 3: How can the population of peer providers be segmented between opportunity and necessity entrepreneurs according to their attitude towards employment opportunities in the peer economy?

The cluster analysis was used to segment our sample according to the value they attributed to the income, autonomy, flexibility and sociability of working in the peer economy. This has led to the formation of five clusters, which we have then relabelled under three main profiles.

The first group has been profiled as **opportunity cluster**, occupied by peer providers who consider highly important the discussed features of working in the peer economy, and contains about the 67% of our sample. We argued that individuals belonging to this cluster are working in the peer economy because attracted by the features of this work, and did so out of their own will to maximise their monetary and non-monetary returns.

The second group has been profiled as **necessity cluster**, occupied by peer providers who attribute a low value to the features of working on peer-to-peer platforms. We have argued that individuals belonging to this cluster (nearly 14% of our sample) did not become peer providers because they enjoy the features that this job has to offer but more because driven by the necessity of earning an income, perhaps pushed by the impossibility to find better employment opportunities.

The third group has been profiled as an **opportunity/necessity hybrid** (19%), positioned between the previous two clusters. While individuals belonging to this cluster attributed a slightly positive value to some of features offered by this job, they do not seem to be driven by the recognition of an attractive opportunity, nor to clearly desire a different form of employment.

Lastly, we carried out a PLS-PM analysis to answer the fourth research sub-question:

SQ 4: What are the relationships between features of working in the peer economy and peer providers' satisfaction and intention to retain the job in the future?

The PLS-PM analysis has been used to explore possible statistically significant paths between the income, autonomy, flexibility and sociability that peer providers derive from working in the peer economy and their satisfaction and intention to retain the job in the future. Firstly, we wanted to understand whether the monetary and non-monetary returns could predict peer providers' satisfaction.

The analysis revealed that only two of the variables significantly influence workers' satisfaction: income and autonomy. While the monetary component (income) showed to have a moderate impact on peer providers' satisfaction, the effect of the non-monetary component autonomy has proved to be of bigger relevance (and about three times as influential). On the one hand, this result is in agreeance with the studies on self-employment that have pointed at

the autonomy of being an independent worker as a true source of satisfaction. On the other hand, the lack of significant relationships between the remaining two non-monetary components (flexibility and sociability) suggests that these features of working in the peer economy may have been overlooked by the academic discourse on the peer economy. It is interesting to notice that the flexibility, despite being close to the concept of autonomy, if not even a more practical side of it, does not play any role in the prediction of peer providers' satisfaction.

Secondly, we investigated the determinants of the intention of workers to remain peer providers in the future. The analysis resulted again in two significant relationships among the variables, with only autonomy and satisfaction being able to predict peer providers' future intention. Worker's autonomy has both a direct effect on their intention to retain the job, as well as an indirect effect forwarded by peer providers' satisfaction, which assumes a mediating role. Satisfaction has indeed a greater predictive power on peer providers' future intention, as suggested by its higher path coefficient.

The incremental achievements of the individual sub-questions have ultimately led us to the formulation of a complete answer to our research question.

6.2 Contributions

The results achieved by this research project contribute to the literatures it is built on, as well as to the understanding of the phenomenon of the peer economy from a societal and policy perspective.

6.2.1 Academic contribution

6.2.1.1 Peer economy in developing countries

The peer economy has received in the recent years increasing attention by the academia, which has nonetheless focussed on studying the effects of peer-to-platforms operating in developed countries. Our first contribution is hence related to the developing country context chosen for this study: Indonesia. With no prior works available on this topic, we argued that the business model implemented by peer-to-peer platforms seems to fit the needs and dynamics of labour markets of developing countries, making of their implementations an interesting case. Thus, this research project has added to the existing literature on the peer economy by extending its domain to developing countries.

6.2.1.2 Informal sector theory on peer-to-peer labour markets

By the same token, we adopted for the first time the theoretical perspective of the informal sector theory to study labour markets created by peer-to-peer platforms. The scarcity of

theoretical frameworks for the analysis of peer-to-peer labour markets have prompted the researchers to adopt a context-specific perspective, by taking up the theoretical lens offered by the informal sector theory. This theory has allowed us to describe for the first time the labour market created by peer-to-peer platforms as reflecting the characteristics of the informal sector. Moreover, the theoretical perspective of the informal sector has suggested that peer providers may be driven by heterogeneous motivations, and that employment opportunities in the peer economy can represent either a last resort for individuals driven by necessity or an attractive job for individuals driven by the recognition of this opportunity and their will to foster its benefits.

6.2.1.3 Procedural utility approach to the recognition of necessity and opportunity peer providers

Elaborating on the literature on the informal sector, we have in this study extended its toolset for the recognition of opportunity and necessity entrepreneurs. We have in fact adopted a novel perspective on this topic, rejecting the over-simplistic clear cut offered by available methodologies and adopted by previous studies. Opportunity and necessity entrepreneurs in the peer economy have been categorised under the guidance of the concept of procedural utility by looking at the value individuals attribute to the monetary and non-monetary returns of their job. Our contribution is hence the extension of the duality between opportunity and necessity entrepreneurs to a continuum defined by how individuals perceive hereditary characteristics of their job.

6.2.1.4 Value of procedural utility in determining peer providers' satisfaction and retention intention

Finally, our research has contributed to the literature on the peer economy by investigating the determinants of peer providers' satisfaction and intention to retain the job. No previous studies researched the relationship between monetary and non-monetary returns of working in the peer economy, and level of satisfaction and future intention to retain the job. In doing this, we evaluated with quantitative techniques the claim made by authors of the peer economy on the benefits of being a peer provider, showing that personal and social factors (flexibility and sociability) are not well suited for the prediction of workers' satisfaction and, in turn, of their future intention to keep working as a peer provider.

6.2.2 Entrepreneurial implications

6.2.2.1 Implications for perspective peer providers

This study has showed that working in the peer economy constitutes for many an attractive employment opportunity. Nonetheless, the results of our analysis, and in particular of the PLS-PM analysis, has shown that among the variables investigated the perception of income and autonomy are the only two predictors of peer providers' satisfaction and intention to continue their job. Thus, individuals who are attracted by this employment opportunity or that are evaluating the trades-off of becoming a peer provider should question how they value these attributes if they wish to predict their level of satisfaction. Adding to this trade-off, the responses collected showed that being a peer provider can represent a full-time employment and the primary source of income of a person and his/her household.

6.2.2.2 Implications for platform owners

Three major implications can be drawn for the platforms owners from the analysis we have performed on the responses collected.

The descriptive analysis has shown that nearly half of the sample relies on peer-to-peer ridesharing platforms as their main occupation, and that the majority of the peer providers interviewed reported to be the primary source of income for their household. Thus, decisions of platform owners seem to potentially have direct repercussions on hundreds of thousands of families and for this reason should not be under estimated. A reduction in fares, a change in reward system, or the withdrawal of operations from a location are only few examples of strategic decision which impact appears to go well beyond the borders of the platform itself.

By means of the cluster analysis we have identified a group of peer providers that is intermediate between the opportunity and necessity clusters, and that we have for this reason profiled as opportunity/necessity hybrid. Differently from necessity peer providers, individuals that belong to the hybrid group appear to be partially attracted by the features of working in the peer economy, suggesting that it may be possible for platform owners to increase the attractiveness of the job and possibly swing this group towards the opportunity group.

As the PLS-PM has shown, in fact, the perception that peer providers have of the benefits of working in the peer economy, and specifically of the autonomy and income, is a predictors of peer providers' satisfaction and intention to retain their job in the future. Platform owners that aim at cultivating the satisfaction of their peer providers, and ultimately reduce the turn-over rates, could focus on investigating the needs (and constrains) of the group of hybrid peer providers, as it seems more likely to succeed in targeting and preserving this group instead of

focussing on the less attracted necessity peer providers. The size of this group (19% of our sample) suggests that a single platform like Go-Jek could potentially preserve on the long term some 60000 peer providers, strengthening their relationship with them and increasing their level of satisfaction.

6.2.3 Policy implications

Several policy implications can be drawn from the analysis carried out in this research.

Firstly, as we have pointed out from an entrepreneurial perspective, the number of individuals and families that rely on peer-to-peer platforms as their main source of income has a serious weight on the outcome of any policy decision. Policy makers who wish to regulate the peer economy should for this reason take into high consideration the width of impact of potential regulations. On the one hand, policies that are designed to limit the action of peer-to-peer platforms risk to have repercussions on the lives of many. The denial of a permission to operate, or the extension of existing regulations to peer-to-peer platforms, as in the case of transportation laws, may in turn push a vast number of individuals into unemployment, putting at stake the future of just as many households. On the other hand, a complete lack of policies addressed at enterprises of the peer economy may leave the faith of peer providers in the hands of platforms' owners. By not recognising the employment status of peer providers, and without setting minimal duties for the platforms for their providers, such as ensuring good working conditions, regulators risk to turn their head away from an already vulnerable group. Thus, careful trade-offs must be made, possibly involving in the decision-making process actors that are directly affected, and specifically the peer providers.

Secondly, peer-to-peer platforms appear to be an attractive and accessible opportunity for individuals seeking employment, as well as a feasible and scalable solution to the generate jobs. This is particularly relevant for the case of developing countries, where the informal sector accounts for a large share of the domestic economic activity. Peer-to-peer platforms offer themselves as a tool to increase the productivity of the sector, transforming fundamentally inefficient processes for the benefit of the workers and of the society as a whole. For this reason, we argue that regulators that wish to achieve this goal may consider the business model adopted by the peer economy as a tool to take a first step towards the transformation of the sector. Moreover, by playing a proactive role, policy makers could not only increase the productivity of the informal sector, but also gradually push towards its formalisation, for

instance by recognising employment statuses and developing ad-hoc regulations to achieve this objective.

6.3 Limitations

The research project and the results presented in this work contain several limitations the researchers are aware of. This section highlights the main limitations of this study.

The first limitation is related to the setting chosen for this study. Our analysis is based on platforms that act specifically in the current regulatory framework. Regulations are in fact the major force keeping peer providers in informality, as well as in labelling informal the services they provide. For this reason, the results achieved in this research may not be valid in contexts where the provision of services falls under different laws regulating them.

The second limitation is related to the factors that we have considered in the design of our model and in the analyses performed. Firstly, the effect of external factors, and in particular of other employment opportunities has been omitted. We have estimated that including a complete set of external factors would have been unfeasible or it would have steered away too much our scope, at the cost limiting the validity of this study. Secondly, also the selection of internal factors has been limited to hereditary characteristics of the job, leaving outside important elements that characterise the relationship between peer providers and the platforms they work on. This resulted in an overall positive connotation given to the job of peer providers, while negative aspects such as the instability caused by the total control that platforms' owners have on fares and the market have been omitted. The reason for this choice has been due to the fact that most of these aspects are either platform- or governance-related, out of the control of peer providers or very specific to the single platform being considered or to the laws regulating it. Instead, we have scoped our study to features that are heredity of the type of work arrangements. Nonetheless, due to this limitation we are likely to have considered a non-optimal set of factors for the prediction of peer providers' satisfaction and intention to retain the job.

The third limitation of this study is related to the population under analysis and the sampling and data collection strategy adopted to study it. Firstly, the complete absence of information on the size and composition of the population of peer providers did not allow us to set up stratified samples or to fully ensure the representativeness of our sample. Secondly, the location-independence of peer providers force the researchers to design a sampling strategy that despite being intended as simple random, resembles a convenience sampling. The lack of

more advanced sampling techniques for the study of a population without a working place may have hampered the possibility to make inference of our results. Similarly, the locations and times chosen for the collection of data may have left outside our study peer providers who voluntarily avoid the highly dense areas used in this study.

Lastly, the forth limitation of this study is related to the statistical techniques chosen for the analysis of our dataset. The agglomerative hierarchical clustering method used to perform a segmentation is subject to limitations that are related to its algorithm. Among all, this deterministic technique is quite sensitive to outliers, and cluster membership is assigned in an irrevocable way. This may have led to the formation of clusters containing deficient observations.

6.4 Future research directions

Elaborating on the limitations identified in this study, we formulate several possible directions for future research that may help to overcome our limitations and extend our results:

1- Reproduce this study in different settings in order to enrich our results and extend their validity. These settings can be either other developing country, where similar results are expected and could be used for confirmatory purposes, or developed countries, where different results are expected, for instance in the composition of opportunity and necessity peer providers, which would unlikely reflect the percentage of informal labour markets, and that could be used for purposes of comparison. Moreover, this study can be extended to peer-to-peer platforms for the provision of services that differ from transportation.

2- Include external factors, such the availability of other employment opportunities in the labour market. These market forces can be included in the conceptual model to further investigate differences between opportunity and necessity entrepreneurs in the peer economy.

3- Expand the set of internal factors, including additional aspects of peer-to-peer platforms such as reputation, platform control, and peer competition. A more complete conceptual model can yield to the discovery of new relationships between its variables and increase its overall predictive power.

4- Adopt different sampling and data collection strategies. Elaborating on the information provided by the results of this study, more accurate estimates of the population of peer providers can be done with the goal of producing more representative samples. Moreover, different data collection strategies can be employed to include in the sample peer providers that may have not been considered in this study.

5- Adopt different statistical techniques to overcome the limitations of those employed in this study. In particular, different clustering techniques such as latent class analysis can be used to confirm the results presented in this study and include additional variables.

6.5 Reflection

In this concluding section we reflect on some of the choices made within this research project and discuss their implications. Moreover, we reflect on how this research project fulfils the requirements of the master programme in Management of Technology it is part of.

The choice of Indonesia as the setting of this study has been due to a variety of reasons, both concerning the particular entrepreneurial environment of the country and the opportunities that the researcher has been able to create to achieve the objective of this research project. Firstly, as discussed in Chapter 4, Indonesia has experienced over the past few years a rise of peer-to-peer platforms in a process that has differentiated itself from most of the other countries for the creativity that local entrepreneurs have employed in creating service platforms that target very specific market needs. Thanks to their goal of increasing the productivity of the informal sector, rather than disrupting incumbent firms, platforms received very high acceptance from citizens and policy makers, who have in multiple occasions shown their support towards these platforms. This has been perceived by the researcher as a real willingness of the country to embrace innovations that aim at improving the conditions of its informal sector, suggesting that platforms able to create social impact are welcome in the Indonesian entrepreneurial environment in the long-term rather than being short-sighted implementations that are likely to be restricted in the near future, as continuously witnessed for other global players. In order to consider the peer economy as a sustainable job-creating phenomenon, a high degree of collaboration between platforms, users and policy makers is a precondition that we have not been able to find as equally strong in other countries. On the one hand, this may have hampered the external validity of our results, as discussed in Section

6.3, due to the different regulatory frameworks adopted by other developing countries. On the other hand, we strongly suggest that platforms should establish such a degree of cooperation with the authorities if they wish to support local economies instead of disrupting them. If this condition is met, we expect the results of this study to be easily reproduced. Secondly, the rapid growth of peer-to-peer platforms in Indonesia has attracted some local researchers who have been able to provide their support both for acquiring relevant knowledge and for carrying out practical matters such as translations and questionnaire distribution. The researcher has not be able to identify equally involved research communities in other countries, and considered the support offered by the Indonesian researchers of crucial importance for the accomplishment of our goals in the limited time available.

Delineating this research project has been a true challenge for multiple reasons, but especially for the novelty of the phenomenon of peer-to-peer platforms and the high relevance of its implementation in developing countries. With literally no similar studies to refer to, the researcher faced a sea of possible research directions in which it has been particularly difficult not to drown. The goal has been since the very beginning to study the impact that the peer economy has on the peer providers, as the researcher firmly believes that this phenomenon represents a true game changer for the labour dynamics of developing countries. Nonetheless, the literature on the peer economy is highly unbalanced towards the consumer side of the market, and most of the considerations made by the authors refer to aspects of this phenomenon (such as environmental considerations or the access over ownership paradigm) that were not relevant to our case. Many of the published papers are rather discursive, and touch the topic of labour on peer-to-peer platforms only on a superficial way, using more buzzwords than definition and thus creating more confusion than clarification. This resulted in the consideration of misleading literatures such as the one on micro-entrepreneurship that do not apply to the case of peer-to-peer platforms. For this reason, the researcher had to readjust multiple times the boundaries of the research, in a continuous process of learning new aspects of this fascinating phenomenon and assessing their fit in the research project.

By the same token, also the selection of an appropriate theoretical framework came as a challenging task. On the one hand, the theoretical frameworks offered by the literature on the peer economy are too far from the issues that characterise developing countries. Adopting these frameworks would have completely denatured the problem at stake. On the other hand, the theoretical frameworks offered by the literature on the informal sector are too far from the case of peer-to-peer platforms. Adopting these frameworks would have not contributed to the literature on the peer economy as intended in this research. The meeting point has been found

in the self-employment theory, aspect compelling both sides and that assumed the role of bridging the two main aspects of our analysis.

Until recently, it was common belief that the validity of the self-employment theory was limited to Wester countries. This was due to the assumption that cultural differences, such as those existing between individualistic Western societies and collectivistic Asian ones, would influence individuals' intrinsic motivations, such as the need for autonomy investigated in this study (Iyengar & Lepper, 1999). Nonetheless, recent studies have proven wrong this assumption, showing that the monetary and non-monetary returns of being self-employed are equally perceived across cultures, and to be consistently related to individuals' satisfaction both in developed and less developed countries (Benz & Frey, 2003). The psychological needs defined by the self-determination theory appear in fact to be hereditary humans' traits instead of the fruit of a cultural development process. The fundamental difference between the labour markets of developing and developed countries is not related to the people populating them or their motivation, but instead to the institutions regulating them and creating the right entrepreneurial environment. As our results have shown, the self-employment theory can indeed be applied to informal labour markets of developing countries, such as those created by peer-to-peer platforms, and the needs of peer providers reflect those identified by the self-employment theory this study has been built upon.

With the PLS-PM analysis, we have found that, also in developing countries, the psychological need of autonomy is highly valued by workers, and a predecessor of one's satisfaction, confirming indeed the applicability of the self-employment theory to the case of developing countries. As we discussed, informal self-employment is a widely diffused form of employment in developing countries, taken up by most of the labour force. While the informal sector theory has provided us a set of reasons for the informal sector to exist, our results show that this form of employment is not undesirable for the workers, who appear to perceive their independence as rewarding and as a source of satisfaction. Thus, if informality deprives workers from social and economic protection, the type of employment opportunities it enables, and specifically informal self-employment, seems to be a welcomed outcome that many individuals pursue for the independence they can have. Moreover, we have shown that workers following this path desire to maintain their job in the long term, as they derive high levels of satisfaction from their independence. The labour opportunities created by peer-to-peer platforms seem for this reason to fit very well the desires of the workers of developing countries and have the potential to represent a long-term solution for the transformation of informal activities.

A stepping stone for this research project has been the distinction between opportunity and necessity entrepreneurs. The researcher has been deeply surprised by the measure adopted by the literature on the informal sector and proposed by international agencies such as the Global Entrepreneurship Monitor (GEM). The GEM and almost all the studies considered categorise necessity and opportunity entrepreneurs on the single question "Are you involved in this start-up to take advantage of a business opportunity of because you have no better choice for work?" (Reynolds et al., 2005). We considered this black and white cut as too simplistic to accurately represent the complexity that drives a person to pursue an employment opportunity. The distinction between the two types of entrepreneurs poses the roots for assessing their satisfaction (as showed in this study and other researches) and well-being at large. The researcher believes for this reason that policies (and enterprises) that aim at improving the quality of work should adopt more comprehensive instruments to define this categorisation.

For what concerns the research methods, quantitative methods have been chosen over qualitative ones for two reasons. Firstly, gathering data with a survey questionnaire instead of interviews has been a feasible way to overcome the language barrier imposed by conducting a study in Indonesia without any knowledge of the language. Secondly, the limited amount of time available to the researcher in the country where this study has been conducted would have not given enough time to reach the desired level of confidence with qualitative methodologies that are unfamiliar to the researcher. The researcher recognises that a qualitative study would have led to much broader results, which would have in turn opened the way too many more directions for future research.

All in all, this research project has been an extremely enriching process that opened the eyes, the mind and the heart of the researcher to issues that would have easily gone unnoticed, and that instead are experienced as deeply formative.

The master programme in Management of Technology within which this researcher project has been carried out focuses on the multifaceted impacts that technology has on the society. The phenomenon of peer-to-peer platforms is an outstanding example of interaction between technology and society, and one of the few innovations that makes use of information technologies to bring together people in the real world, instead of setting them apart in the virtual one. While the technology employed by peer-to-peer platforms is relatively simple, its effect on society (comprising people but also governments and enterprises) is of great magnitude and has the potential to radically transform the way business is done. While its implementations in developed countries has raised many concerns from a legal perspective, the case of developing countries object of this study leaves room for more positive outcomes.

Epilogue

We conclude this research project by including an epilogue in which we discuss some implications that the problem studied let emerge but that go beyond the scope of our analysis. We briefly discuss how the key drivers and economic impacts of the peer economy, as presented in the literature, almost perfectly reflect the economic conditions and needs of developing countries in a series of arguments we make for Jakarta, where our study was set.

While these elements have been presented in a scattered way by many scholars, Sundararajan (2014) offers a discursive review we refer to. The key drivers are the socio-economic global trends that are both cause and enabler of the flourishing of the peer economy; the economic impacts are macro-economic-effects that may or may not result from the diffusion of businesses adopting a peer-to-peer based model. Three relevant key drivers have been identified:

Consumerisation of digital technology: diffusion, speed and reliability of digital technologies are leading the next business era, one where consumers' needs shape the rise of new enterprises instead of research and development departments. With the ubiquity of smartphones and customers that are comfortable in making internet transactions, mass peer-to-peer markets are a logic technological advancement.

Argument for consumerisation of digital technology: the penetration of digital technologies, and of smartphones in particular, is remarkably high in many Southeast Asian countries. The almost 55.000.000 smartphone users in Indonesia make of it the 8th biggest smartphone market with huge low-end-targeted technological capabilities. On the same trend are Malaysia and Thailand where the smartphones penetration exceeds 64% and 40% percent respectively. After three decades lagging behind in internet adoption, less developed countries have leap-frogged computers to adopt smartphones on a mass scale. Additionally, their use of internet is more frequently oriented towards social networks, that have often adopted the function of marketing platforms (and among all, Instagram) and may as well better accept businesses that are based on social interactions between peers (Poushter, 2016). Technologically speaking, the preconditions for the rapid diffusion of peer-to-peer platforms for service exchange are hence met.

Urbanisation: the worldwide urbanisation trends set have been leading to metropolis and megalopolis that are estimated to dwell around 70% of the world population by 2050. Highly densely populated cities demand and enable innovative solutions. On the one hand, they call for solutions to overcome the constrains of the city, such as a scarce dwelling space and strenuous traffic jams. On the other hand, they create the preconditions for the implementation

of peer-to-peer solutions, such as the physical proximity of users and scalability of customer base and variety of product/services.

Argument for urbanisation: while the rural-to-urban migration is a global phenomenon, and cities have been readjusting its modes of production and consumption, problems have risen in developing countries, where infrastructures and institutions have failed in providing adequate services to the citizens. The rate of increase of urban poor is outpacing the overall urbanisation, resulting in enlarged slums and challenges that open up to uncertain future scenarios (Barney Cohen, 2006). Most of the megacities (with over 10 million inhabitants) are indeed in the south of the world, with greater Jakarta, setting of this study, being among the largest urban agglomerations and house of over 30 million people. If urbanisation is a pull force for innovative solutions, and an enabler for peer-to-peer platforms, fast growing capitals of developing countries represent a fertile ground for the peer economy to spread. Its potential is hence to support the existing, yet inadequate, infrastructures, providing for instance personalised transportation services that can reduce the number of cars in the streets.

Ecological and resource consideration: the last decades have been characterised by a general increase of awareness towards natural resources and the ecological impact of our modes of production. The peer economy offers a shift towards an access-based, rather than ownership-based, society, where forms of living with a smaller ecological footprint can dominate over traditional ones. A better utilisation of durable goods is a goal that may raise its position on many political agendas and cost-effective and asset-light solutions may be increasingly implemented by city planners and governments.

Argument for ecological and resource consideration: following the urbanisation argument, the ecological footprint of megacities is far above the one of less densely populated areas. The waste produced by millions of people concentrated in a limited space can overcome the capabilities of a city in managing it. Pollution and hygiene are among the most common issues of these cities. Furthermore, both urban and rural poor suffer from resource constrains. In a setting characterised by a scarcity of resource, a better utilisation of durable goods is an even more desirable goal. With the help of peer-to-peer platforms, city planners and regulators could potentially design cities that alleviate these issues.

Figure 6.1 - View of Jakarta before (H-1) and after (H+1, +2) the end of Ramadan (Lebaran, H0) in 2017, when most of the city's population travels to rural areas to celebrate with the family – Source: https: reddit.com

From the conditions presented above, our argument is that developing countries, and in particular their megacities show all the necessary preconditions for the adoption of solutions that implement business models based on peers. Not only the requirements of digitalisation and physical proximity are met, but many of the peer economy principles are aligned with the needs of these cities and could perhaps be embraced by their governments. Continuing our argumentation, we look at possible economic impacts of the peer economy, referring to the existing literature on the peer economy first, and then to how these effects could have a beneficial impact on developing countries. Five major economic impacts have been selected:

Expansion in consumption: new forms of consumption have emerged with the rise of the peer economy. Commoditisation of goods and an access-based consumption have brought on the market a variety of service/products that has not only go side by side with existing ways of production but also created new ones. The accessibility of once inaccessible assets, for instance in the form of services, may result in an overall increase of consumption enabled by digital platforms.

Argument for expansion in consumption: achieving an expansion in consumption is a desirable goal in economy at every stage of development. The circulation of money in the market is a

precondition to increased economic activity and at last of economic growth. If these goals are important in a developed setting, less developed countries could benefit from this effect to a larger extent. Differently from traditional business models, the peer economy prompts users to exchange services at a local level, stimulating the internal economy instead of increasing the money flow directly to foreign production-intensive countries.

Productivity gains: two types of productivity gains may result from the adoption of peer-to-peer digital platforms. Firstly, underutilised assets can acquire a new value on the market. A more efficient use of assets such as cars or houses translates in a productivity gain, where more output is generated from the same level of input. Secondly, underutilised human capital can find new ways of flexible employment. Whether on a full-time or part-time base, people can make a more productive use of their time by engaging in activities in the realm of the peer economy. The application of technological advancements to enhance productivity is a historical pattern which the peer economy may be part of.

Argument for productivity gains: the level of productivity achieved by many developing countries is among the most relevant causes of their lethargic speed of development. Once more, while productivity gains are a relevant goal for every market, its impact on less developed ones can be more striking. On the assets side, societies characterised by resources constrains would highly benefit from the possibility to monetise on them, making the most economically effective use of their limited resources. On the labour side, unemployment and informal work could be tackled by solutions delivered via digital platforms. It is in fact the case that a number of activities now offered by peer-to-peer platforms once belonged to the informal sector, where the cost of transactions is the highest. Transforming by mean of digital technologies this low-productivity sector may have relevant impacts on the economy as a whole.

Entrepreneurship and innovation: the adoption of technological solution to create peer-to-peer marketplaces is a stimulus to entrepreneurship to find innovative ways of satisfying the needs of customers. The peer economy itself is the fruit of innovation, and the variety of new platforms that keep emerging is the sign that this innovative process is far from being over. Additionally, the peer providers of digital platform may take advantage of this form of employment to take a first step toward more advanced forms of entrepreneurship, acquiring capital and skills and expanding their professional network as micro-entrepreneurs, and perhaps employing them in the creation of new businesses.

Argument for entrepreneurship and innovation: as mentioned in the argument for *productivity gains*, the peer economy has already proven its innovative entrepreneurial power in developing countries by transforming the informal sector. This is the case of Go-Jek, platform object of this study, which has innovatively taken over a motorbike taxi-service that for decades belonged to the informal sector. Far from limiting its activities to this, the company is re-inventing everyday services on its digital platforms that are now available at the tap of a finger. While western countries have seen traditional industries being disrupted, more creative and localised solutions have been implemented in the south of the world, with effects that are yet to be measured.

Emergence of invisible work: the peer economy is creating a large labour market to provide services via digital platforms. As for the *productivity gain effect*, a workforce of individuals is tapping new market segments, engaging in activities that were not previously available or possible at all. This workforce, which is starting to constitute a relevant fraction of the total economy, is not yet accounted for by standard employment measures, and risks to slip behind regulations aimed at protecting workers.

Argument for emergence of invisible work: the informal sector transformations presented in the argument for *entrepreneurship and innovation* are often labour oriented. The large pool of people dwelling in emerging megacities is a potential workforce that can be employed on peer-to-peer markets. While employment measurements are not ready to assess the size and characteristics of labour markets created by the peer economy, pulling out workers from the informal sector represents a first step towards the final recognition of this labour force.

Shift in asset markets: the access over ownership paradigm central to the peer economy has the potential to shift consumers' purchasing and spending behaviours and, in turn, asset markets. On the one hand, the expansion in consumption may result in a decrease of manufactured assets being sold. Having the possibility to access a car (or just a lift) may induce customers to avoid its purchase and to opt for this newly available solution. On the other hand, assets that entailed high expenditures may become more accessible thanks to new ways of monetising on them. Having the possibility to rent out the car purchased (or using it to provide transportation service) may induce customers to purchase also in economic conditions that would have not allowed it before.

Argument for shift in the asset markets: while choosing to access an asset instead of purchasing it may contract the consumption, we have argued that accessing over buying can have a beneficial effect at a local level by increasing the circulation of money as opposed to its

stagnation. On the same line, choosing to purchase an asset thanks to the new possibilities of monetising on it offered by the peer economy may lead to the same increase in money circulation that add to the costs of buying and maintaining the assets. The two-sided nature of peer-to-peer markets imposes the necessity for both effects to take place, suggesting hence a positive impact for developing markets.

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Appendix 1 Literature review of informal sector theory

Author(s) & Year	Studied effect(s)	Data	Results
(Blau, 1986)	Wages and migration patterns of urban informal self-employed.	Malaysian Family Life Survey.	Rejects the hypothesis of lower earnings and migration in the informal sector for self-employed
(Bosch & Maloney, 2010)	Labour market dynamics in developing countries. Patterns of sectoral transition.	Panel data from Argentina, Brazil and Mexico.	Self-employment comes from voluntary entry, while informal salaried work may correspond more to "waiting" for a formal employment, especially for young.
(Carneiro & Henley, 2001)	Earnings in the formal and informal sectors. Model of informal sector choice.	Brazilian household survey.	Higher predicted earnings are associated with the probability to find employment in the informal sector.
(Fajnzylber, 2006)	Patterns of entry, exit and growth of microenterprises in the informal sector	National Urban Employment Survey and National Survey of Microenterprises in Mexico.	Self-employment is taken also by well-performing wage workers.
(Ferreira, 2016)	Relationship between informality and quality of employment in matter of job security.	Household Survey in Colombia.	Precarious work better describes the informal sector.
(Gong & van Soest, 2002)	Wage differentials and transition between the formal and informal sectors.	Panel data from Mexico's Urban Employment Survey.	Wage differentials increase with education level and so does the probability of formal employment. The choice between formal and informal employment is driven by the wage differentials.

(Günther & Launov, 2012)	Heterogeneity of the informal sector. Opportunity and necessity employment.	Household survey in Cote d'Ivoire	Econometric model development. Two segments of the informal sector with distinct wage equations, with one superior to the other in terms of earnings as returns to education and experience.
(Loayza & Rigolini, 2011)	Informal employment as safety net or growth engine. Trends and cycles of informal employment.	Annual observations of the self-employed of 54 countries.	Informal employment is a safety net in the short-run.
(Maloney, 1999)	Sector mobility, motives for choosing informality	National Urban Employment Survey in Mexico.	No rigid market segmentation, desirable characteristics of informal employment, low productivity of the formal sector.
(Maloney, 2004)	Nature of voluntary employment in the informal sector	National surveys in Brazil, Argentina and Mexico	Urban informal employment happens voluntarily to find the optimal degree
(D. C. Mead & Morrisson, 1996)	Definition of informal sector.	Data from seven OECD countries on micro-enterprises	Wide differences among countries in defining the degree of informality of the sector
(Williams, Shahid, & Martínez, 2016)	Determinants of the degree of informality of enterprises.	Survey of informal micro-enterprises in Pakistan	Characteristics of the entrepreneur are a predictor of the level of informality.
(Yamada, 1996)	Choice of occupation in urban informal self-employment, competitive income, and returns of entrepreneurial abilities in the sector	Dataset of the World Bank Living Standards in Peru	Support of the hypothesis of voluntary self-employment and higher earnings in the informal sector. Sector mobility in search for best employment sector. Only successful entrepreneurs remain in the informal sector permanently.

Appendix 2 Factor analysis

2.1 Income

Summary statistics:

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Inc_1	311	0	311	1.0000	7.0000	5.4662	1.6158
Inc_2	311	0	311	1.0000	7.0000	5.5338	1.6957
Inc_3	311	0	311	1.0000	7.0000	5.2765	1.6226

Correlation matrix (Pearson (n-1)):

Variables	Inc_1	Inc_2	Inc_3
Inc_1	**1**	**0.7224**	**0.5769**
Inc_2	**0.7224**	**1**	**0.7000**
Inc_3	**0.5769**	**0.7000**	**1**

Values in bold are different from 0 with a significance level alpha=0.05

Kaiser-Meyer-Olkin measure of sampling adequacy:

Inc_1	0.7282
Inc_2	0.6480
Inc_3	0.7513
KMO	0.7021

Cronbach's alpha:

	Cronbach's alpha
F1	0.8570

Factor pattern:

	F1	Initial communality	Final communality	Specific variance
Inc_1	**0.7716**	0.5318	0.5954	0.4046
Inc_2	**0.9361**	0.6421	0.8763	0.1237
Inc_3	**0.7477**	0.5006	0.5591	0.4409

Values in bold correspond for each variable to the factor for which the squared cosine is the largest

Correlations between variables and factors:

	F1
Inc_1	0.8100
Inc_2	0.9826
Inc_3	0.7849

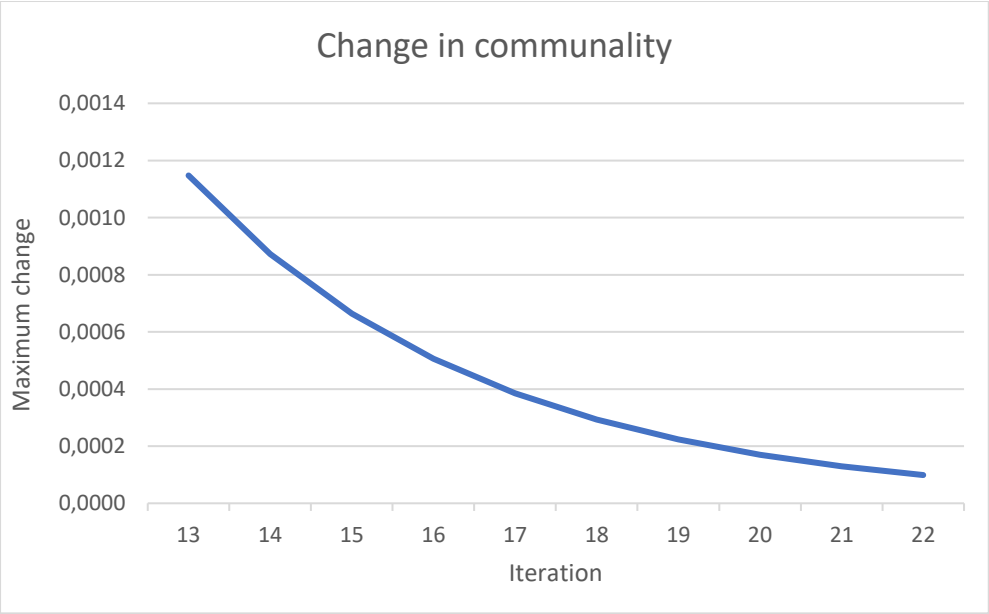
Residual correlation matrix:

	Inc_1	Inc_2	Inc_3
Inc_1	0.4046	0.0000	-0.0001
Inc_2	0.0000	0.1237	0.0001
Inc_3	-0.0001	0.0001	0.4409

Eigenvalues:

	F1	F2
Eigenvalue	2.0309	0.0001
Variability (%)	67.6950	0.0037
Cumulative %	67.6950	67.6987

Maximum change in communality at each iteration:



2.2 Autonomy

Summary statistics:

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Aut_1	311	0	311	1.0000	7.0000	5.7299	1.4628
Aut_2	311	0	311	1.0000	7.0000	5.7556	1.4407
Aut_3	311	0	311	1.0000	7.0000	5.9871	1.4368

Correlation matrix (Pearson (n-1)):

Variables	Aut_1	Aut_2	Aut_3
Aut_1	**1**	**0.6742**	**0.5401**
Aut_2	**0.6742**	**1**	**0.6468**
Aut_3	**0.5401**	**0.6468**	**1**

Values in bold are different from 0 with a significance level alpha=0.05

Kaiser-Meyer-Olkin measure of sampling adequacy:

Aut_1	0.7199
Aut_2	0.6535
Aut_3	0.7467
KMO	0.7009

Cronbach's alpha:

	Cronbach's alpha
F1	0.8306

Factor pattern:

	F1	Initial communality	Final communality	Specific variance
Aut_1	**0.7504**	0.4732	0.5632	0.4368
Aut_2	**0.8984**	0.5673	0.8071	0.1929
Aut_3	**0.7199**	0.4382	0.5182	0.4818

Values in bold correspond for each variable to the factor for which the squared cosine is the largest

Correlations between variables and factors:

	F1
Aut_1	0.8057
Aut_2	0.9646
Aut_3	0.7729

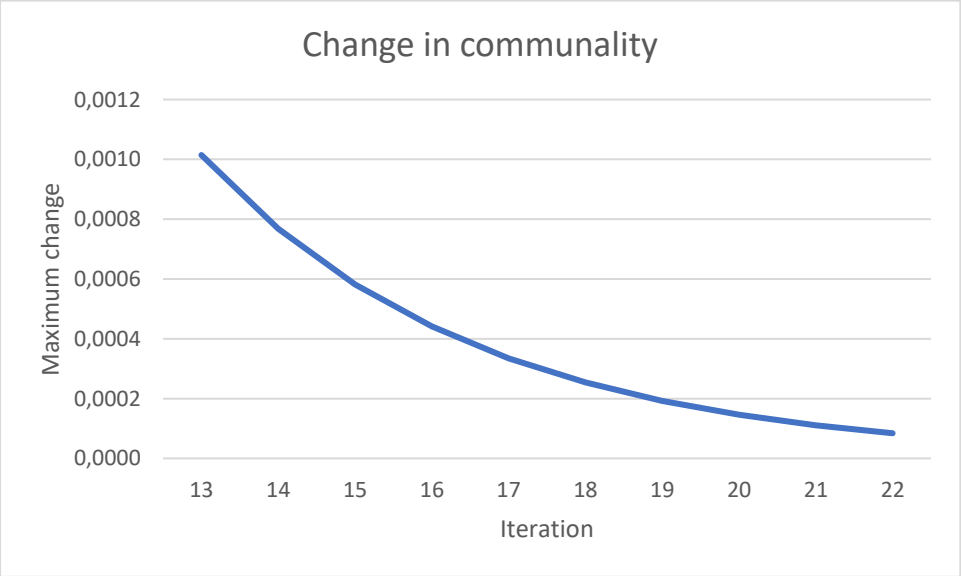
Residual correlation matrix:

	Aut_1	Aut_2	Aut_3
Aut_1	0.4368	0.0000	-0.0001
Aut_2	0.0000	0.1929	0.0000
Aut_3	-0.0001	0.0000	0.4818

Eigenvalues:

	F1	F2
Eigenvalue	1.8885	0.0001
Variability (%)	62.9497	0.0031
Cumulative %	62.9497	62.9528

Maximum change in communality at each iteration:



2.3 Flexibility

Summary statistics:

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Fle_1	311	0	311	1.0000	7.0000	6.2701	1.1491
Fle_2	311	0	311	1.0000	7.0000	6.3055	1.1444
Fle_3	311	0	311	1.0000	7.0000	6.2669	1.2086

Correlation matrix (Pearson (n-1)):

Variables	Fle_1	Fle_2	Fle_3
Fle_1	**1**	**0.6804**	**0.6192**
Fle_2	**0.6804**	**1**	**0.7525**
Fle_3	**0.6192**	**0.7525**	**1**

Values in bold are different from 0 with a significance level alpha=0.05

Kaiser-Meyer-Olkin measure of sampling adequacy:

Fle_1	0.7927
Fle_2	0.6716
Fle_3	0.7139
KMO	0.7188

Cronbach's alpha:

	Cronbach's alpha
F1	0.8666

Factor pattern:

	F1	Initial communality	Final communality	Specific variance
Fle_1	**0.7482**	0.4894	0.5599	0.4401
Fle_2	**0.9092**	0.6408	0.8266	0.1734
Fle_3	**0.8276**	0.5876	0.6849	0.3151

Values in bold correspond for each variable to the factor for which the squared cosine is the largest

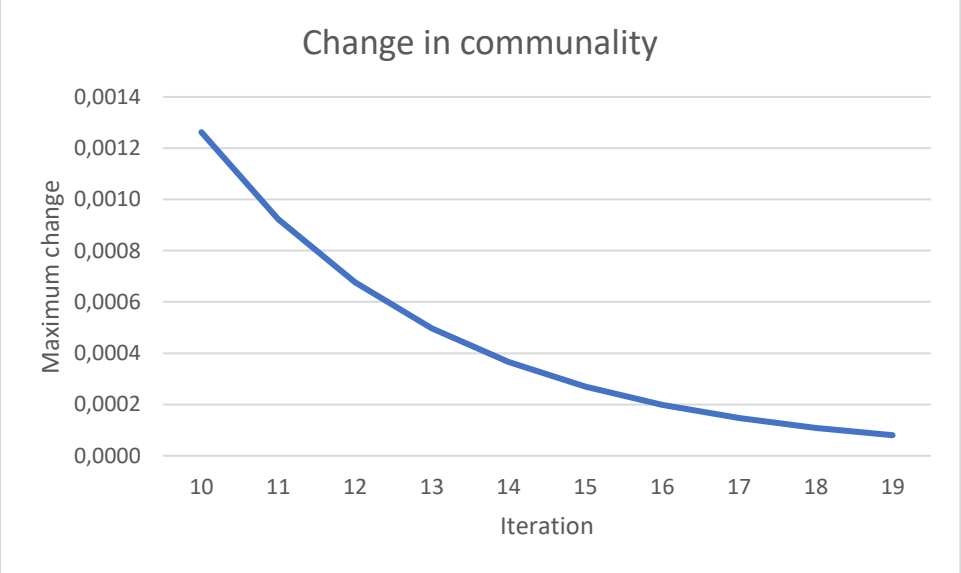
Correlations between variables and factors:

	F1
Fle_1	0.7925
Fle_2	0.9630
Fle_3	0.8765

Eigenvalues:

	F1	F2
Eigenvalue	2.0715	0.0001
Variability (%)	69.0485	0.0030
Cumulative %	69.0485	69.0516

Maximum change in communality at each iteration:



2.4 Sociability

Summary statistics:

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Soc_1	311	0	311	1.0000	7.0000	6.2701	1.1378
Soc_2	311	0	311	1.0000	7.0000	6.0900	1.2668
Soc_3	311	0	311	2.0000	7.0000	6.2379	1.1222

Correlation matrix (Pearson (n-1)):

Variables	Soc_1	Soc_2	Soc_3
Soc_1	**1**	**0.6567**	**0.6544**
Soc_2	**0.6567**	**1**	**0.6679**
Soc_3	**0.6544**	**0.6679**	**1**

Values in bold are different from 0 with a significance level alpha=0.05

Kaiser-Meyer-Olkin measure of sampling adequacy:

Soc_1	0.7412
Soc_2	0.7286
Soc_3	0.7307
KMO	0.7334

Cronbach's alpha:

	Cronbach's alpha
F1	0.8533

Factor pattern:

	F1	Initial communality	Final communality	Specific variance
Soc_1	**0.8022**	0.5153	0.6435	0.3565
Soc_2	**0.8187**	0.5305	0.6702	0.3298
Soc_3	**0.8158**	0.5279	0.6655	0.3345

Values in bold correspond for each variable to the factor for which the squared cosine is the largest

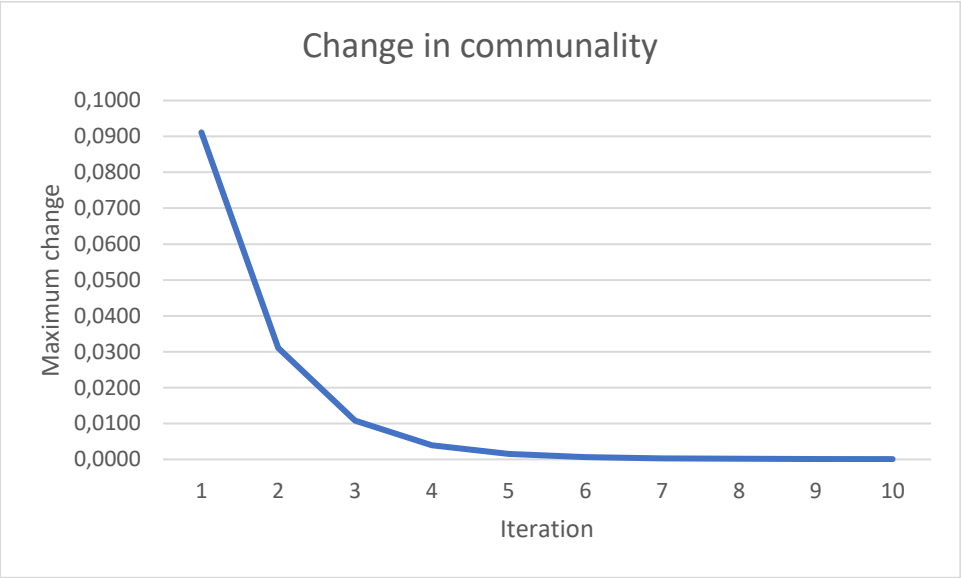
Correlations between variables and factors:

	F1
Soc_1	0.8683
Soc_2	0.8861
Soc_3	0.8830

Residual correlation matrix:

	Soc_1	Soc_2	Soc_3
Soc_1	0.3565	0.0000	0.0000
Soc_2	0.0000	0.3298	0.0001
Soc_3	0.0000	0.0001	0.3345

Maximum change in communality at each iteration:



Appendix 3 Correlation matrix

	FAC_INC	FAC_AUT	FAC_FLEX	FAC_SOC
FAC_INC	1	0.7182	0.5710	0.4501
p-value		0.0000	0.0000	0.0000
r2		0.5159	0.3261	0.2026
n	311	311	311	311
FAC_AUT	0.7182	1	0.6726	0.5924
p-value	0.0000		< 0.0001	< 0.0001
r2	0.5159		0.4524	0.3510
n	311	311	311	311
FAC_FLEX	0.5710	0.6726	1	0.5787
p-value	0.0000	< 0.0001		< 0.0001
r2	0.3261	0.4524		0.3349
n	311	311	311	311
FAC_SOC	0.4501	0.5924	0.5787	1
p-value	0.0000	< 0.0001	< 0.0001	
r2	0.2026	0.3510	0.3349	
n	311	311	311	311

Appendix 4 Multicollinearity statistics

Summary statistics:

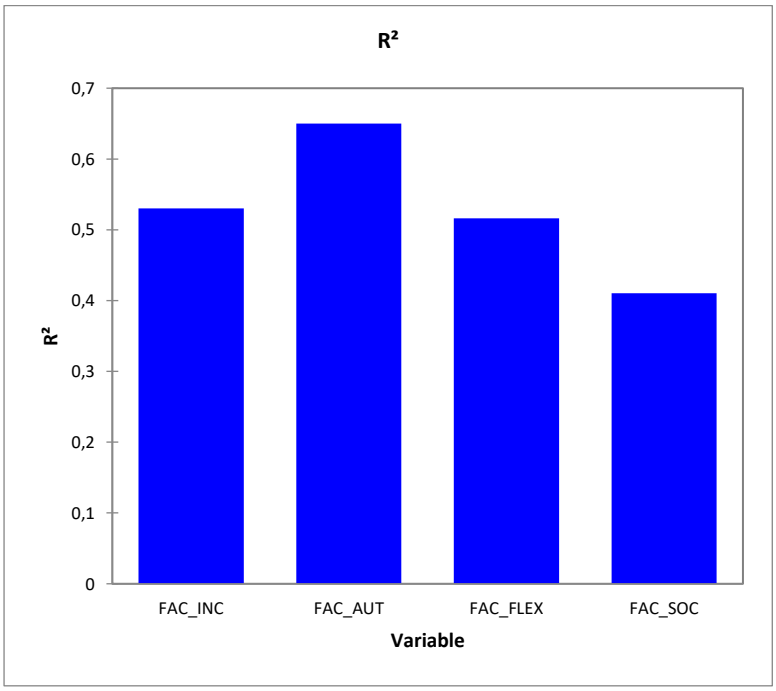
Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
FAC_INC	311	0	311	-2.6727	0.9382	0.0000	0.9527
FAC_AUT	311	0	311	-3.4594	0.8700	0.0000	0.9314
FAC_FLEX	311	0	311	-4.7272	0.6355	0.0000	0.9442
FAC_SOC	311	0	311	-4.0499	0.7152	0.0000	0.9239

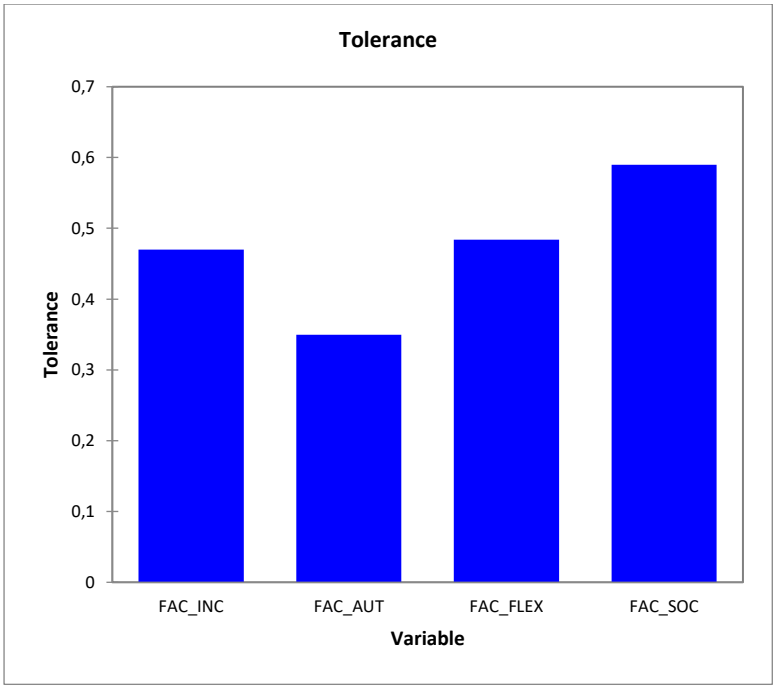
Correlation matrix:

Variables	FAC_INC	FAC_AUT	FAC_FLEX	FAC_SOC
FAC_INC	**1.0000**	0.7182	0.5710	0.4501
FAC_AUT	0.7182	**1.0000**	0.6726	0.5924
FAC_FLEX	0.5710	0.6726	**1.0000**	0.5787
FAC_SOC	0.4501	0.5924	0.5787	**1.0000**

Multicollinearity statistics:

Statistic	FAC_INC	FAC_AUT	FAC_FLEX	FAC_SOC
R^2	0.5300	0.6502	0.5160	0.4103
Tolerance	0.4700	0.3498	0.4840	0.5897
VIF	2.1277	2.8589	2.0662	1.6959

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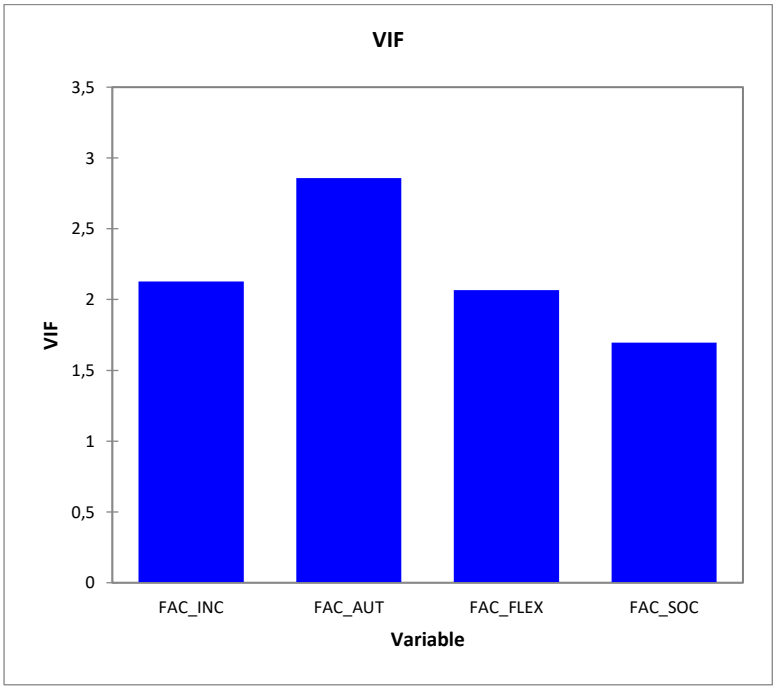
0,4
0,3
0,2
0,1
0
Tolerance
FAC_INC
FAC_AUT
FAC_FLEX
FAC_SOC
Variable


VIF
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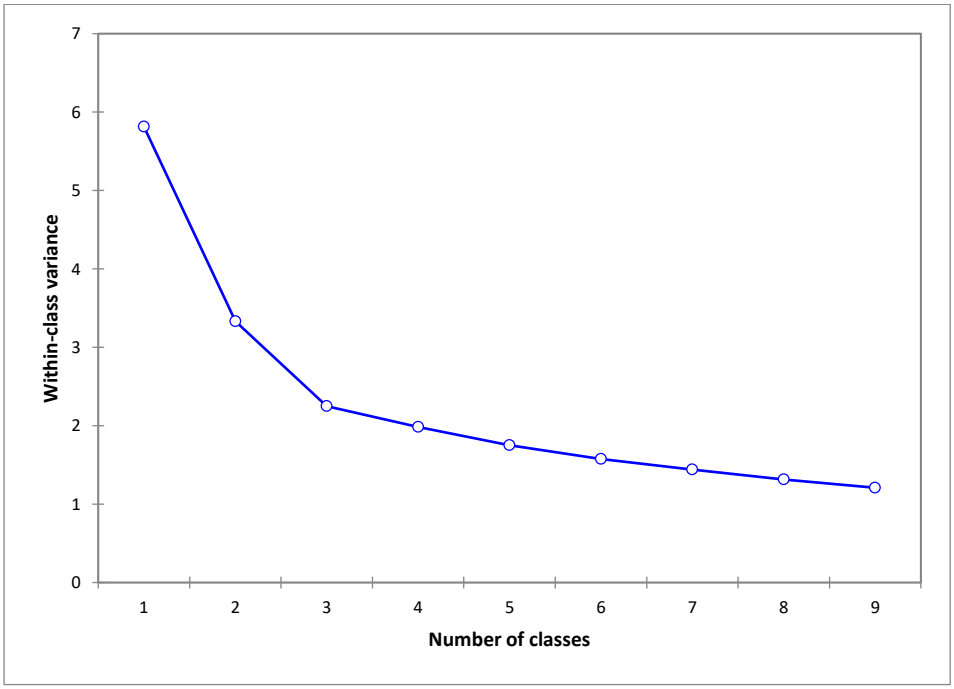
3
2,5
2
1,5
1
0,5
0
VIF
FAC_INC
FAC_AUT
FAC_FLEX
FAC_SOC
Variable

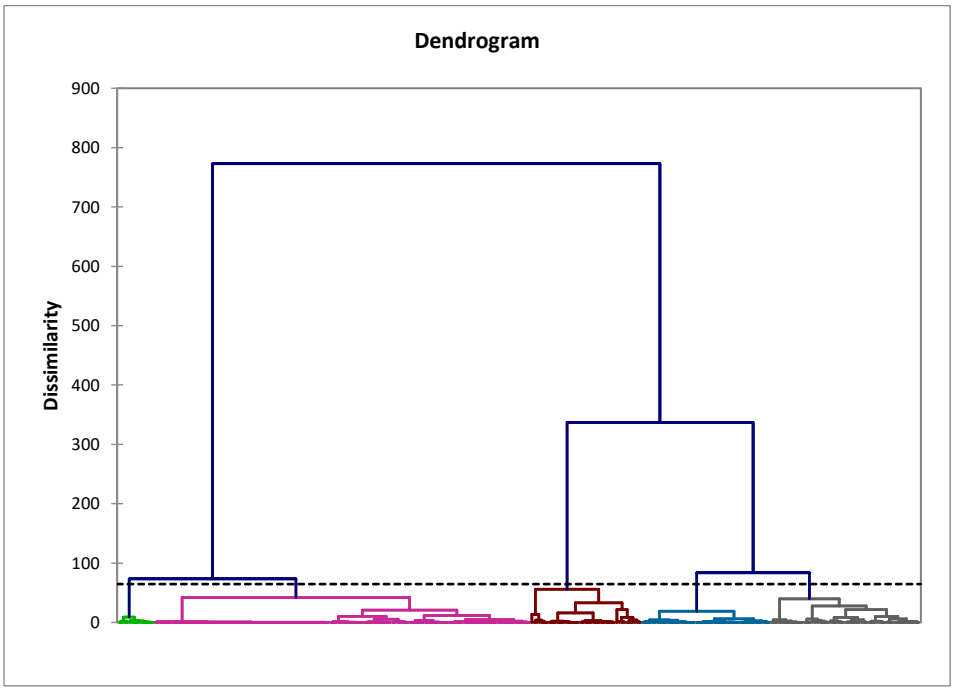
Appendix 5 Cluster analysis

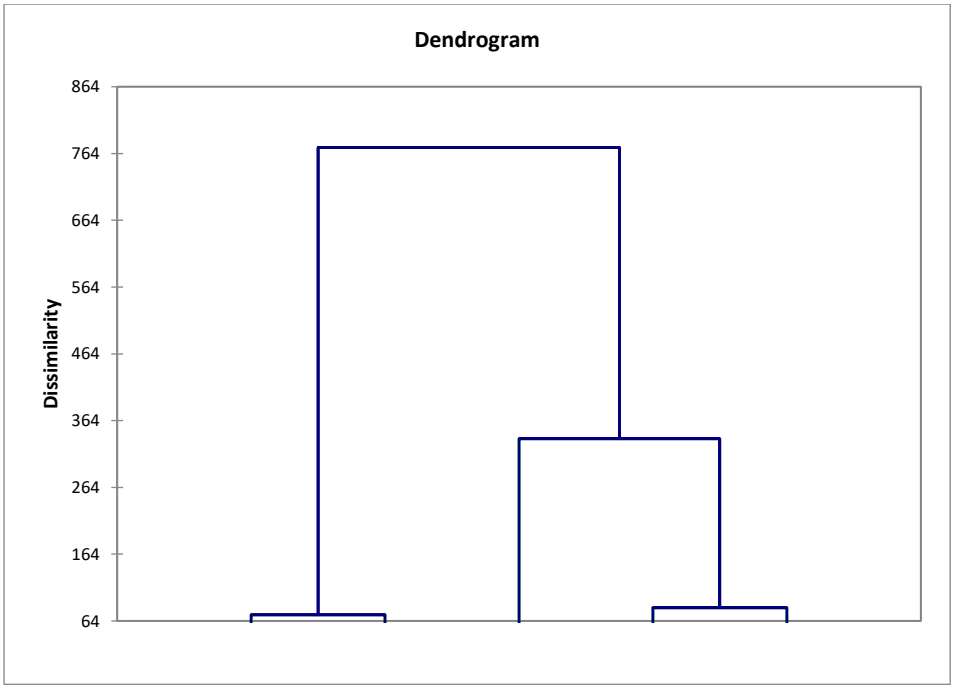
Evolution of variances:

Variance\Classes	1	2	3	4	5	6	7	8	9
Within-class	5.8143	3.3320	2.2490	1.9841	1.7511	1.5735	1.4405	1.3141	1.2090
Between-classes	0.0000	2.4822	3.5652	3.8301	4.0631	4.2408	4.3738	4.5002	4.6053
Total	5.8143	5.8143	5.8143	5.8143	5.8143	5.8143	5.8143	5.8143	5.8143



Agglomerative hierarchical clustering (AHC) (Number of classes = 5):





Variance decomposition for the optimal classification:

	Absolute	Percent
Within-class	1.7511	30.12%
Between-classes	4.0631	69.88%
Total	5.8143	100.00%

Class centroids:

Class	MI	MA	MF	MS
1	6.6301	6.6553	6.8128	6.7169
2	3.2868	3.5659	4.5969	4.6744
3	6.4524	5.6667	6.6667	4.5476
4	4.4885	5.1034	5.6379	6.0000
5	4.5467	6.2200	6.8133	6.6933

Distances between the class centroids:

	1	2	3	4	5
1	0	5.4593	2.3950	2.9814	2.1286
2	5.4593	0	4.3283	2.5786	4.1976
3	2.3950	4.3283	0	2.7096	2.9264
4	2.9814	2.5786	2.7096	0	1.7642

5	2.1286	4.1976	2.9264	1.7642	0

Central objects:

Class	MI	MA	MF	MS
1 (Obs63)	6.6667	6.6667	7.0000	7.0000
2 (Obs99)	3.3333	3.3333	5.0000	5.0000
3 (Obs40)	6.6667	6.0000	6.3333	5.0000
4 (Obs10)	4.3333	5.0000	5.3333	6.0000
5 (Obs127)	4.6667	6.3333	7.0000	6.6667

Distances between the central objects:

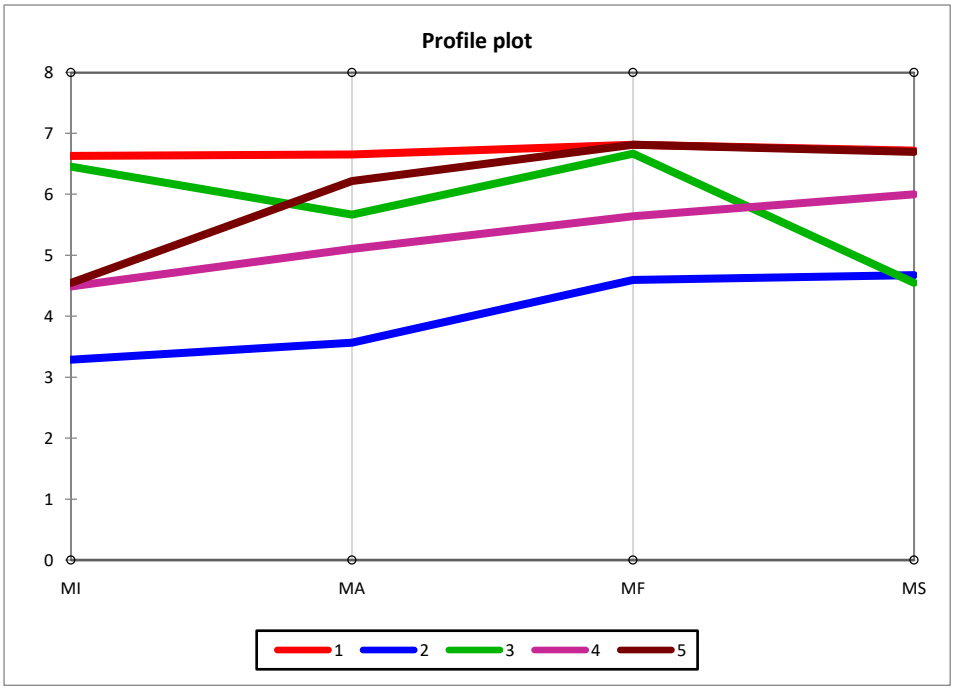
	1 (Obs63)	2 (Obs99)	3 (Obs40)	4 (Obs10)	5 (Obs127)
1 (Obs63)	0	5.4975	2.2111	3.4641	2.0548
2 (Obs99)	5.4975	0	4.4721	2.2111	4.1899
3 (Obs40)	2.2111	4.4721	0	2.9059	2.7080
4 (Obs10)	3.4641	2.2111	2.9059	0	2.2608
5 (Obs127)	2.0548	4.1899	2.7080	2.2608	0

Results by class:

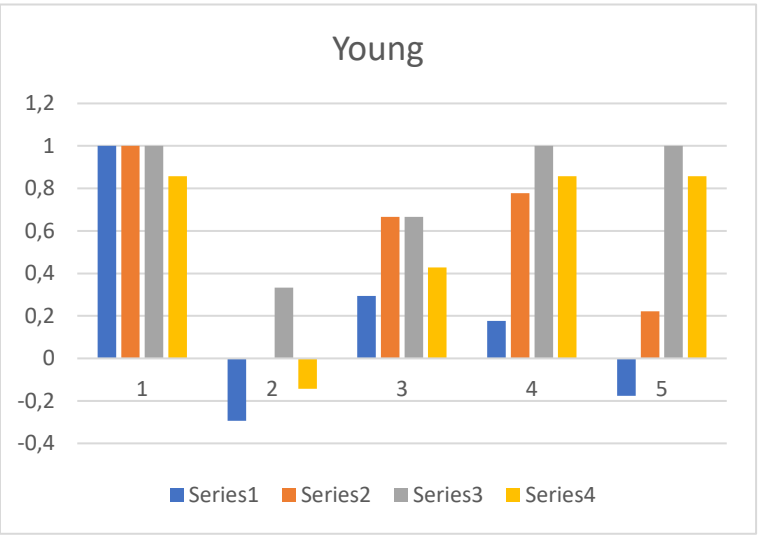
Class	1	2	3	4	5
Objects	146	43	14	58	50
Sum of weights	146	43	14	58	50
Within-class variance	0.8350	4.3289	1.6618	2.8137	1.0402
Minimum distance to centroid	0.3416	0.5699	0.6876	0.3572	0.2506
Average distance to centroid	0.8305	1.8494	1.1754	1.5794	0.9376
Maximum distance to centroid	2.0554	4.6856	1.8678	2.8273	1.9957

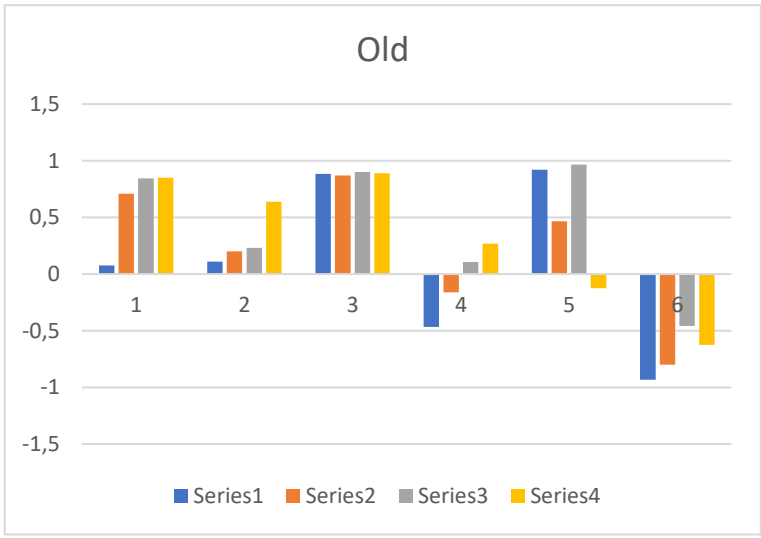
Transformation matrix:

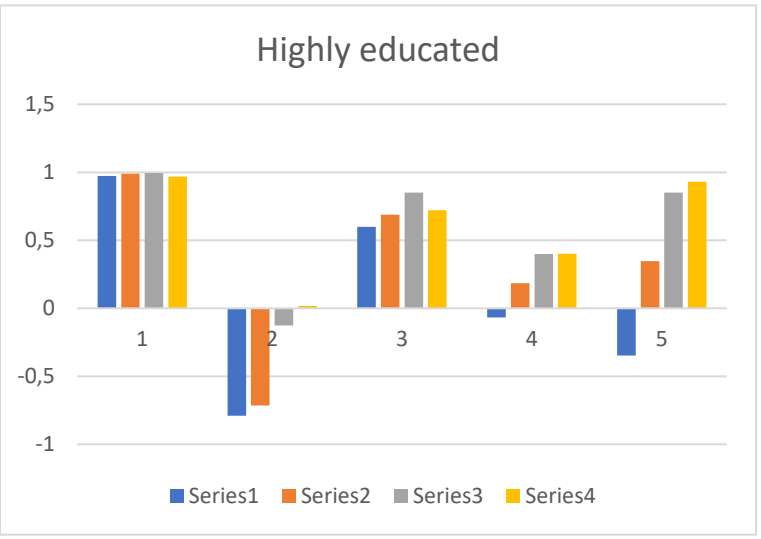
	Income	Autonomy	Flexibility	Sociability
Cluster 1	0.8182	0.8182	1.0000	1.0000
Cluster 2	-1.0000	-1.0000	-0.0909	-0.0909
Cluster 3	0.8182	0.4545	0.6364	-0.0909
Cluster 4	-0.4545	-0.0909	0.0909	0.4545
Cluster 5	-0.2727	0.6364	1.0000	0.8182

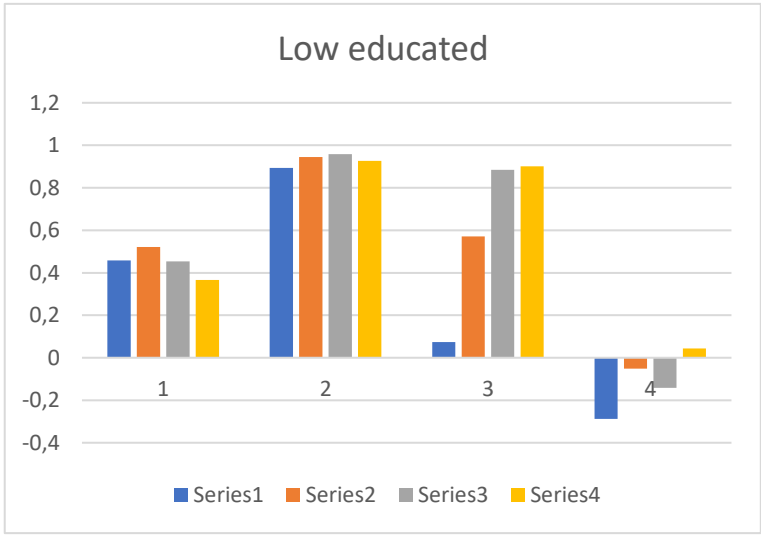

Profile plot
8
7
6
5
4
3
2
1
0
MI
MA
MF
MS
1
2
3
4
5

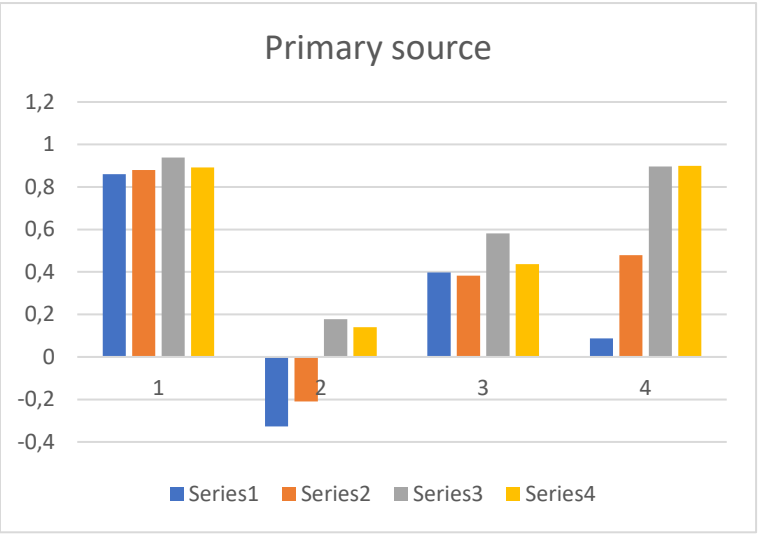
Appendix 6 Cluster segregated variables

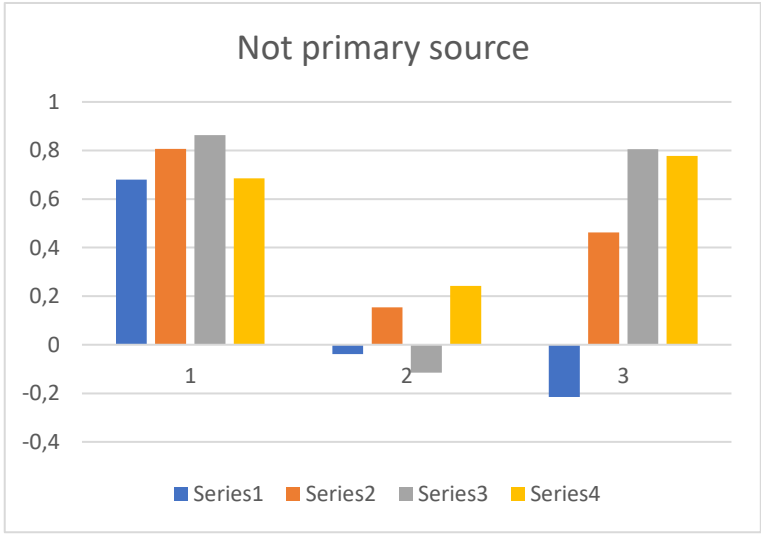


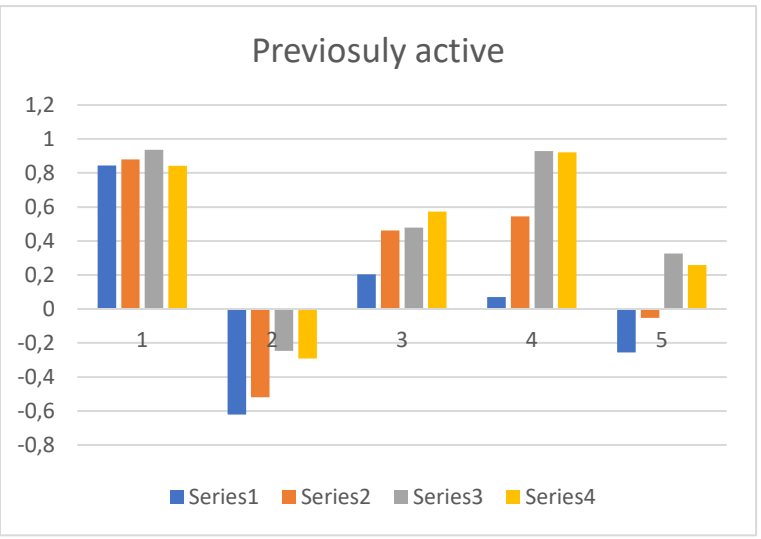








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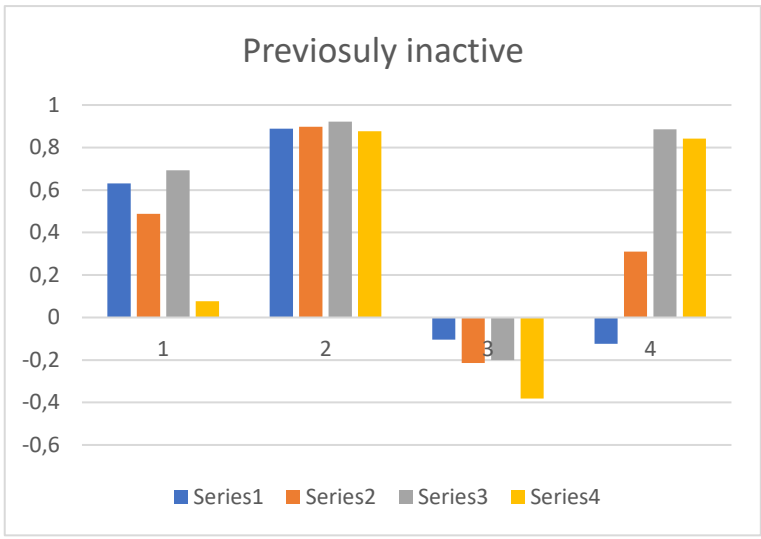
0,6
0,4
0,2
0
-0,2
-0,4
-0,6
-0,8
1
2
3
4
5
Series1
Series2
Series3
Series4


Previosuly inactive
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0,6
0,4
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1
2
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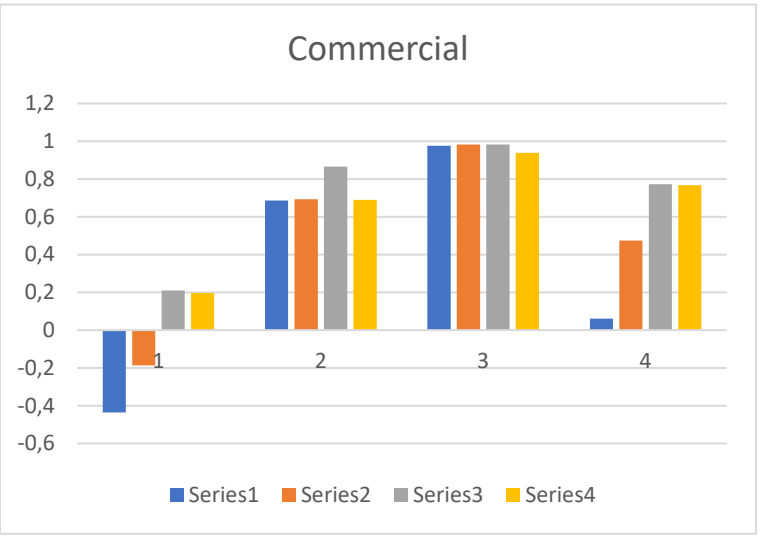
Series1
Series2
Series3
Series4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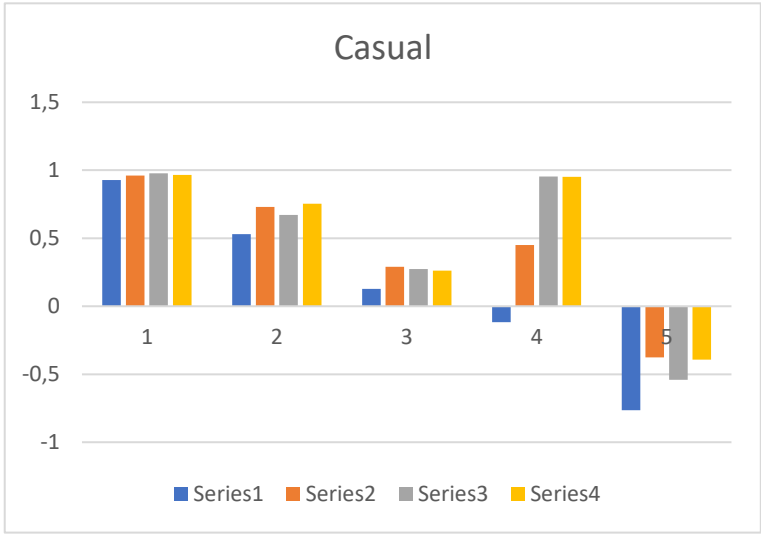
Series1
Series2
Series3
Series4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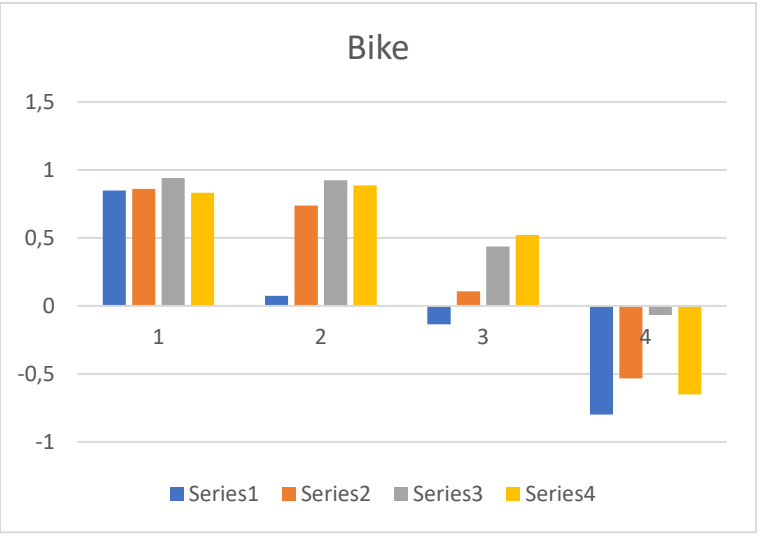
4
5
Series1
Series2
Series3
Series4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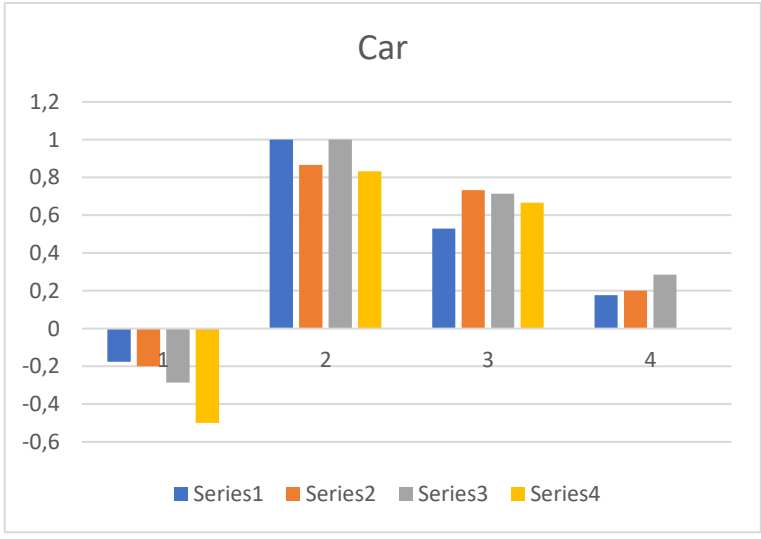
2
3
4
Series1
Series2
Series3
Series4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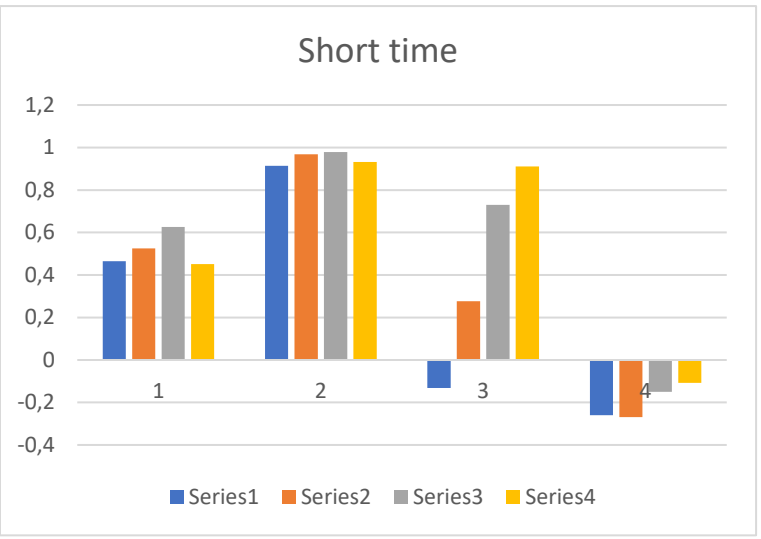
-0,4
-0,6
1
2
3
4
Series1
Series2
Series3
Series4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1
2
3
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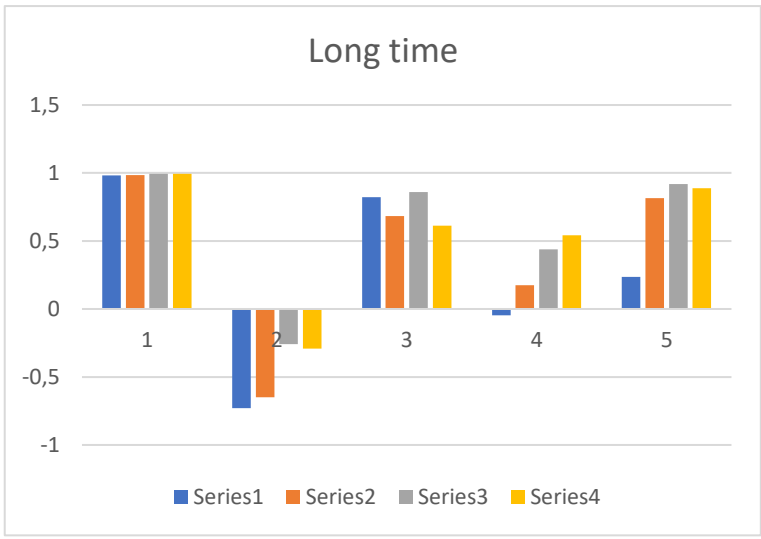
Series1
Series2
Series3
Series4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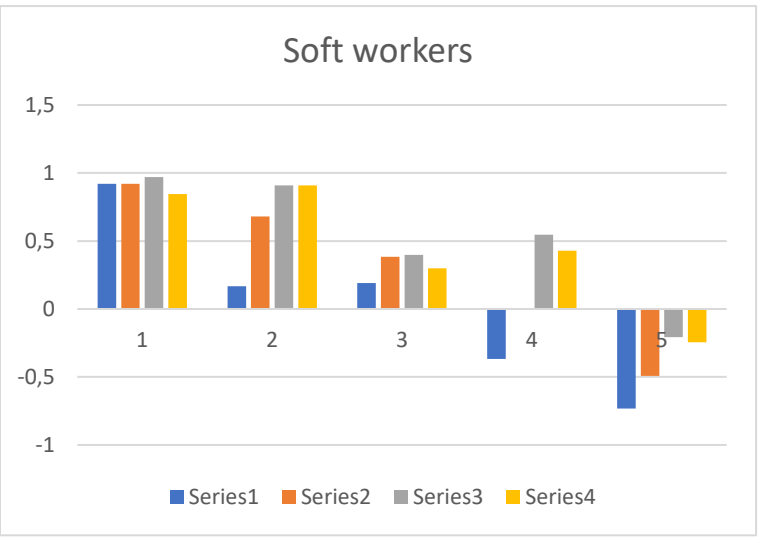
1
2
3
4
5
Series1
Series2
Series3
Series4


Soft workers
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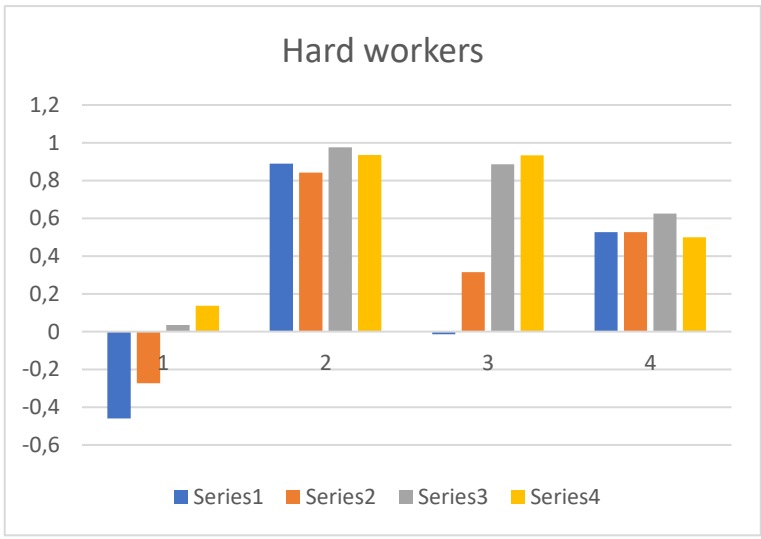
-1
1
2
3
4
5
Series1
Series2
Series3
Series4


Hard workers
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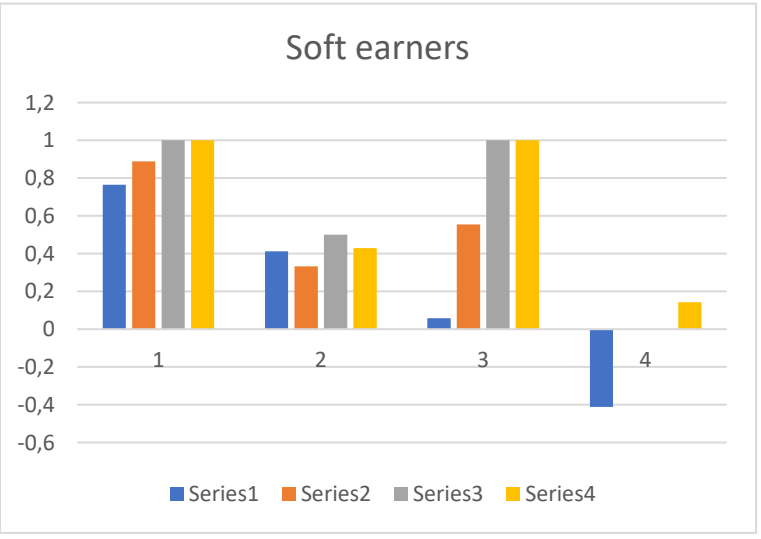
0,8
0,6
0,4
0,2
0
-0,2
-0,4
-0,6
1
2
3
4
Series1
Series2
Series3
Series4


Soft earners
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0,4
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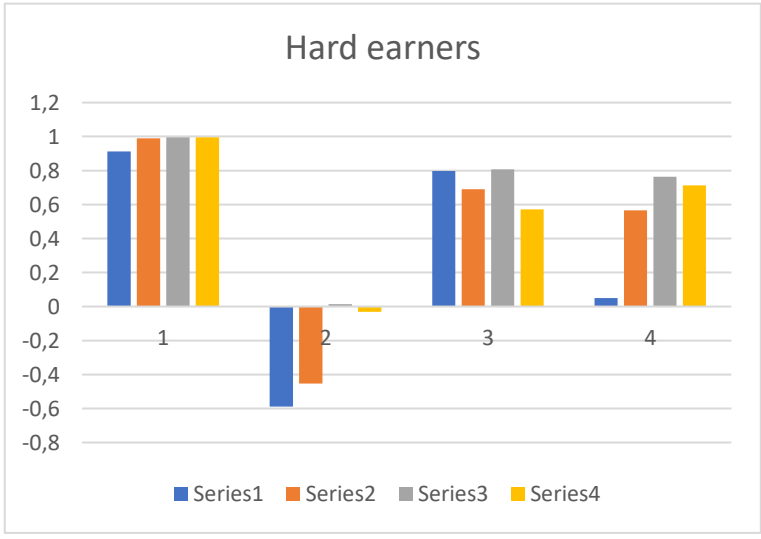
-0,2
-0,4
-0,6
1
2
3
4
Series1
Series2
Series3
Series4


Hard earners
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0,6
0,4
0,2
0
-0,2
-0,4
-0,6
-0,8
1
2
3
4
Series1
Series2
Series3
Series4

Appendix 7 PLS-PM Complete dataset

Model specification (Measurement model):

Latent variable	INC	FLEX	SOC	AUT	SAT	FI
Number of manifest variables	3	3	3	3	3	3
Mode	Mode A	Mode A	Mode A	Mode A	Mode A	Mode A
Type	Exogenous	Exogenous	Exogenous	Exogenous	Endogenous	Endogenous
Invert sign	No	No	No	No	No	No
Deflation	External	External	External	External	External	External
Manifest variable	Inc_1	Fle_1	Soc_1	Aut_1	Sat_1	Fut_1
	Inc_2	Fle_2	Soc_2	Aut_2	Sat_3	Fut_2
	Inc_3	Fle_3	Soc_3	Aut_3	Sat_4	Fut_3

Composite reliability (Monofactorial manifest variables):

Latent variable	Dimensions	Cronbach's alpha	D.G. rho (PCA)	Condition number	Critical value	Eigenvalues
INC	3	0.857	0.913	3.111	1.000	2.335
						0.424
						0.241
FLEX	3	0.867	0.918	3.153	1.000	2.369
						0.392
						0.238
SOC	3	0.853	0.911	2.643	1.000	2.319
						0.349
						0.332
AUT	3	0.831	0.899	2.751	1.000	2.242
						0.461
						0.296
SAT	3	0.870	0.920	3.065	1.000	2.383
						0.364
						0.254
FI	3	0.934	0.958	4.367	1.000	2.653
						0.208
						0.139

Correlation matrix:

Variables	Inc_1	Inc_2	Inc_3	Fle_1	Fle_2	Fle_3	Soc_1	Soc_2	Soc_3	Aut_1	Aut_2	Aut_3	Sat_1	Sat_3	Sat_4	Fut_1	Fut_2	Fut_3
Inc_1	**1.000**	0.722	0.577	0.519	0.500	0.471	0.380	0.343	0.398	0.605	0.549	0.501	0.367	0.319	0.453	0.384	0.332	0.341
Inc_2	0.722	**1.000**	0.700	0.437	0.551	0.402	0.402	0.341	0.413	0.668	0.628	0.510	0.408	0.366	0.458	0.363	0.386	0.320
Inc_3	0.577	0.700	**1.000**	0.439	0.444	0.332	0.291	0.217	0.309	0.567	0.549	0.478	0.276	0.271	0.310	0.277	0.324	0.264
Fle_1	0.519	0.437	0.439	**1.000**	0.680	0.619	0.425	0.446	0.463	0.475	0.424	0.522	0.340	0.140	0.245	0.207	0.263	0.179
Fle_2	0.500	0.551	0.444	0.680	**1.000**	0.752	0.489	0.439	0.518	0.577	0.597	0.575	0.443	0.214	0.341	0.278	0.335	0.274
Fle_3	0.471	0.402	0.332	0.619	0.752	**1.000**	0.463	0.389	0.457	0.497	0.536	0.504	0.367	0.163	0.286	0.210	0.255	0.244
Soc_1	0.380	0.402	0.291	0.425	0.489	0.463	**1.000**	0.657	0.654	0.468	0.479	0.472	0.345	0.196	0.306	0.234	0.232	0.162
Soc_2	0.343	0.341	0.217	0.446	0.439	0.389	0.657	**1.000**	0.668	0.499	0.392	0.355	0.294	0.176	0.264	0.202	0.160	0.105
Soc_3	0.398	0.413	0.309	0.463	0.518	0.457	0.654	0.668	**1.000**	0.572	0.509	0.466	0.352	0.218	0.318	0.251	0.244	0.193
Aut_1	0.605	0.668	0.567	0.475	0.577	0.497	0.468	0.499	0.572	**1.000**	0.674	0.540	0.447	0.355	0.456	0.365	0.397	0.318
Aut_2	0.549	0.628	0.549	0.424	0.597	0.536	0.479	0.392	0.509	0.674	**1.000**	0.647	0.477	0.372	0.486	0.385	0.446	0.395
Aut_3	0.501	0.510	0.478	0.522	0.575	0.504	0.472	0.355	0.466	0.540	0.647	**1.000**	0.459	0.283	0.358	0.280	0.323	0.300
Sat_1	0.367	0.408	0.276	0.340	0.443	0.367	0.345	0.294	0.352	0.447	0.477	0.459	**1.000**	0.640	0.700	0.402	0.432	0.422
Sat_3	0.319	0.366	0.271	0.140	0.214	0.163	0.196	0.176	0.218	0.355	0.372	0.283	0.640	**1.000**	0.734	0.391	0.441	0.431
Sat_4	0.453	0.458	0.310	0.245	0.341	0.286	0.306	0.264	0.318	0.456	0.486	0.358	0.700	0.734	**1.000**	0.482	0.528	0.523
Fut_1	0.384	0.363	0.277	0.207	0.278	0.210	0.234	0.202	0.251	0.365	0.385	0.280	0.402	0.391	0.482	**1.000**	0.835	0.793
Fut_2	0.332	0.386	0.324	0.263	0.335	0.255	0.232	0.160	0.244	0.397	0.446	0.323	0.432	0.441	0.528	0.835	**1.000**	0.851
Fut_3	0.341	0.320	0.264	0.179	0.274	0.244	0.162	0.105	0.193	0.318	0.395	0.300	0.422	0.431	0.523	0.793	0.851	**1.000**

Goodness of fit index
(Monofactorial manifest variables):

	GoF	GoF (Bootstrap)	Standard error	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)	Minimum	1st Quartile	Median	3rd Quartile	Maximum
Absolute	0.503	0.515	0.040	12.602	0.415	0.588	0.410	0.487	0.517	0.541	0.589
Relative	0.945	0.918	0.030	31.263	0.843	0.985	0.837	0.902	0.922	0.935	0.986
Outer model	0.998	0.999	0.022	44.952	0.952	1.000	0.942	0.987	0.999	1.014	1.050
Inner model	0.948	0.919	0.020	46.770	0.865	0.955	0.853	0.906	0.922	0.933	0.959

Goodness of fit indexes(PLS-SEM):

Index	Baseline model	Saturated model	Model
SRMR	0.420	0.056	0.278
d_ULS	30.166	0.532	13.247
d_G	5.355	3.183	3.363
Likelihood	13.169	5.659	6.386
Chi-square	4082.248	1754.423	1979.736
DF	171.000	138.000	156.000
Chi-square/DF	23.873	12.713	12.691

Cross-loadings (Monofactorial manifest variables):

	INC	FLEX	SOC	AUT	SAT	FI
Inc_1	**0.882**	0.557	0.428	0.639	0.431	0.374
Inc_2	**0.925**	0.528	0.442	0.700	0.465	0.380
Inc_3	**0.835**	0.456	0.315	0.616	0.322	0.308
Fle_1	0.527	**0.844**	0.506	0.542	0.281	0.232
Fle_2	0.569	**0.929**	0.552	0.674	0.385	0.316
Fle_3	0.460	**0.889**	0.500	0.592	0.316	0.252
Soc_1	0.411	0.518	**0.881**	0.546	0.325	0.224
Soc_2	0.348	0.477	**0.861**	0.482	0.281	0.166
Soc_3	0.428	0.541	**0.893**	0.597	0.340	0.245
Aut_1	0.698	0.586	0.586	**0.860**	0.477	0.385
Aut_2	0.654	0.592	0.529	**0.908**	0.506	0.436
Aut_3	0.563	0.602	0.496	**0.823**	0.420	0.320
Sat_1	0.403	0.436	0.378	0.533	**0.889**	0.446
Sat_3	0.365	0.198	0.226	0.392	**0.864**	0.448
Sat_4	0.469	0.331	0.339	0.506	**0.917**	0.543
Fut_1	0.392	0.265	0.263	0.401	0.480	**0.931**
Fut_2	0.395	0.324	0.245	0.454	0.526	**0.955**
Fut_3	0.352	0.266	0.179	0.394	0.516	**0.934**

Outer model:

Weights:

Latent variable	Manifest variables	Outer weight	Outer weight (normalized)	Outer weight (Bootstrap)	Standard error	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
INC	Inc_1	0.399		0.397	0.022	18.540	0.356	0.448
	Inc_2	0.419		0.416	0.022	18.687	0.367	0.469
	Inc_3	0.312		0.314	0.024	12.909	0.259	0.365
FLEX	Fle_1	0.323		0.320	0.034	9.636	0.231	0.382
	Fle_2	0.441		0.434	0.034	13.073	0.376	0.524
	Fle_3	0.357		0.361	0.030	11.806	0.290	0.434
SOC	Soc_1	0.395		0.390	0.045	8.866	0.262	0.485
	Soc_2	0.322		0.322	0.030	10.759	0.269	0.387
	Soc_3	0.420		0.419	0.046	9.088	0.336	0.510
AUT	Aut_1	0.391		0.391	0.026	15.192	0.342	0.454
	Aut_2	0.427		0.428	0.021	20.591	0.388	0.480
	Aut_3	0.336		0.332	0.033	10.087	0.237	0.393
SAT	Sat_1	0.409		0.409	0.019	22.103	0.374	0.450
	Sat_3	0.303		0.303	0.018	16.414	0.250	0.336
	Sat_4	0.408		0.406	0.017	23.681	0.377	0.451
FI	Fut_1	0.351		0.352	0.015	23.479	0.318	0.387
	Fut_2	0.379		0.379	0.014	26.424	0.349	0.415
	Fut_3	0.333		0.331	0.014	24.391	0.302	0.357

Correlations:

Latent variable	Manifest variables	Standardized loadings	Loadings	Location	Communalities	Redundancies	Standardized loadings (Bootstrap)	Standard error	Critical ratio (CR)	Lower bound (95 %)	Upper bound (95 %)
INC	Inc_1	0.882	0.882	0.000	0.777		0.884	0.019	47.365	0.830	0.924
	Inc_2	0.925	0.925	0.000	0.856		0.925	0.011	86.008	0.900	0.949
	Inc_3	0.835	0.835	0.000	0.698		0.839	0.028	29.911	0.767	0.892
FLEX	Fle_1	0.844	0.844	0.000	0.713		0.845	0.051	16.624	0.729	0.940
	Fle_2	0.929	0.929	0.000	0.864		0.932	0.011	86.608	0.906	0.952
	Fle_3	0.889	0.889	0.000	0.790		0.893	0.026	34.071	0.835	0.946
SOC	Soc_1	0.881	0.881	0.000	0.776		0.878	0.032	27.210	0.768	0.930
	Soc_2	0.861	0.861	0.000	0.742		0.867	0.028	30.393	0.796	0.914
	Soc_3	0.893	0.893	0.000	0.798		0.896	0.020	44.894	0.837	0.933
AUT	Aut_1	0.860	0.860	0.000	0.740		0.860	0.029	29.849	0.781	0.911
	Aut_2	0.908	0.908	0.000	0.824		0.910	0.012	75.853	0.884	0.935
	Aut_3	0.823	0.823	0.000	0.677		0.819	0.035	23.223	0.717	0.876
SAT	Sat_1	0.889	0.889	0.000	0.790	0.242	0.890	0.015	59.747	0.858	0.918
	Sat_3	0.864	0.864	0.000	0.747	0.229	0.864	0.024	35.749	0.809	0.911
	Sat_4	0.917	0.917	0.000	0.841	0.257	0.919	0.010	89.229	0.897	0.938
FI	Fut_1	0.931	0.931	0.000	0.868	0.288	0.932	0.012	79.107	0.906	0.954
	Fut_2	0.955	0.955	0.000	0.913	0.303	0.955	0.008	119.175	0.935	0.971
	Fut_3	0.934	0.934	0.000	0.872	0.289	0.934	0.011	82.164	0.907	0.956

Inner model:

R^2 (SAT / 1):

R^2	F	Pr > F	R^2(Bootstrap)	Standard error	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
0.306	33.724	0.000	0.319	0.054	5.645	0.182	0.427

Path coefficients (SAT / 1):

Latent variable	Value	Standard error	t	Pr > |t|	f^2	Value(Bootstrap)	Standard error(Bootstrap)	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
INC	0.150	0.072	2.085	0.038	0.014	0.162	0.067	2.248	0.023	0.291
FLEX	-0.033	0.069	-0.479	0.632	0.001	-0.027	0.067	-0.496	-0.184	0.138
SOC	0.049	0.063	0.778	0.437	0.002	0.045	0.061	0.806	-0.087	0.206
AUT	0.424	0.085	4.992	0.000	0.081	0.416	0.078	5.451	0.234	0.598

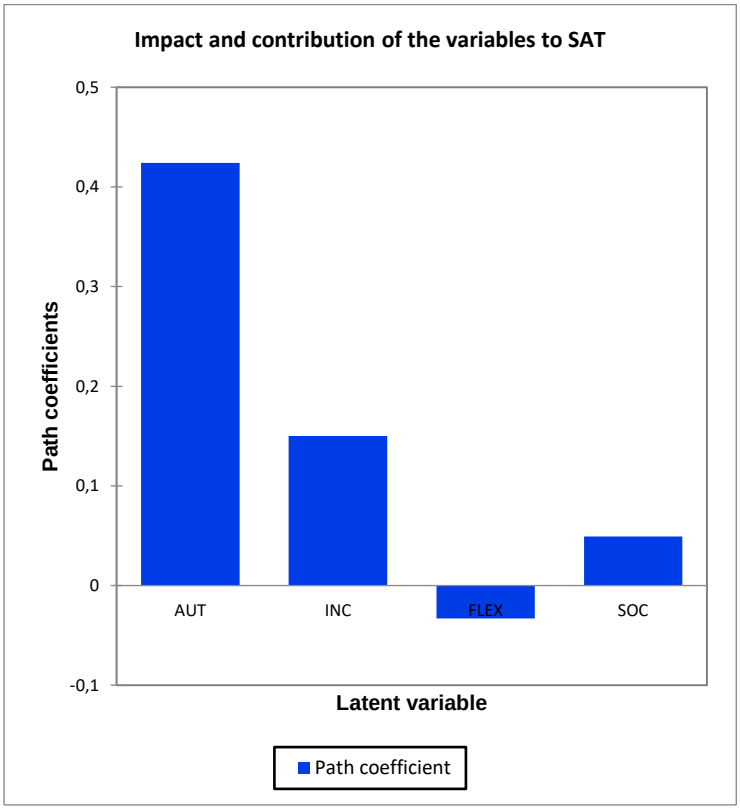
Equation of the model:

SAT = 0.150051678285245*INC-3.30599892702513E-02*FLEX+4.93344529515317E-02*SOC+0.424049711687173*AUT

Impact and contribution of the variables to SAT (1):

	AUT	INC	FLEX	SOC
Correlation	0.543	0.467	0.374	0.362

Path coefficient	0.424	0.150	-0.033	0.049
Correlation * path coefficient	0.230	0.070	-0.012	0.018
Contribution to R^2 (%)				
Cumulative %				



R^2 (FI / 1):

R^2	F	Pr > F	R^2(Bootstrap)	Standard error	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
0.331	30.247	0.000	0.346	0.055	5.987	0.228	0.457

Path coefficients (FI / 1):

Latent variable	Value	Standard error	t	Pr > |t|	f^2	Value(Bootstrap)	Standard error(Bootstrap)	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
INC	0.107	0.071	1.495	0.136	0.007	0.105	0.081	1.311	-0.060	0.315
FLEX	0.004	0.068	0.058	0.954	0.000	-0.007	0.078	0.051	-0.175	0.141

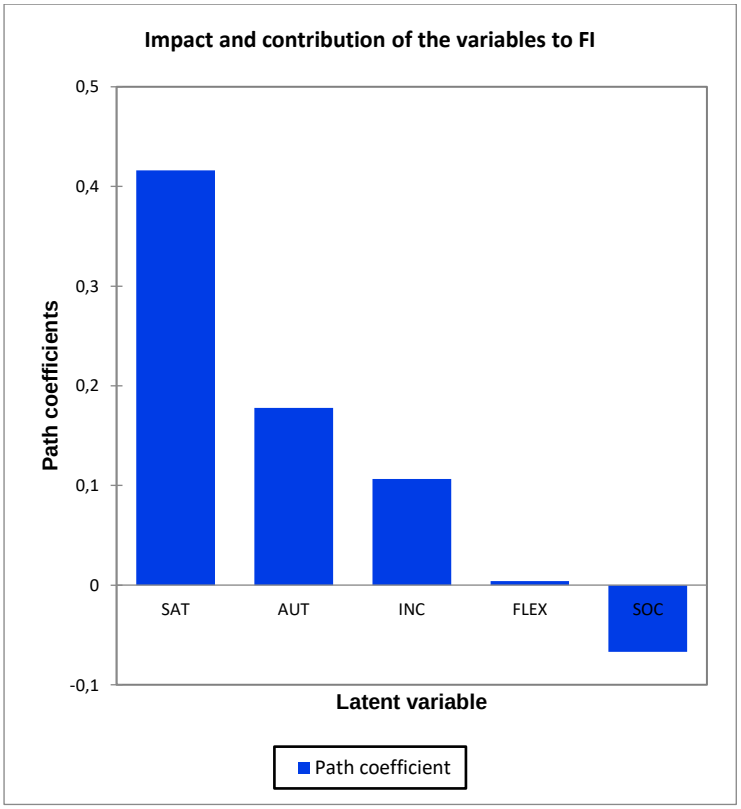
SOC	-0.067	0.062	-1.071	0.285	0.004	-0.061	0.065	-1.036	-0.200	0.105
AUT	0.178	0.087	2.048	0.041	0.014	0.181	0.090	1.977	0.004	0.348
SAT	0.416	0.056	7.404	0.000	0.180	0.419	0.071	5.873	0.265	0.570

Equation of the model:

FI = 0.10650513260591*INC+3.95609234587312E-03*FLEX-6.68463690955826E-02*SOC+0.177875379065696*AUT+0.416061050486243*SAT

Impact and contribution of the variables to FI (1):

	SAT	AUT	INC	FLEX	SOC
Correlation	0.540	0.444	0.405	0.304	0.245
Path coefficient	0.416	0.178	0.107	0.004	-0.067
Correlation * path coefficient	0.225	0.079	0.043	0.001	-0.016
Contribution to R^2 (%)					
Cumulative %					



Latent variable	Type	R^2	Adjusted R^2	Mean Communalities (AVE)	Mean Redundancies	D.G. rho	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
INC	Exogenous			0.777		0.913		0.000	0.000
FLEX	Exogenous			0.789		0.918		0.000	0.000
SOC	Exogenous			0.772		0.910		0.000	0.000
AUT	Exogenous			0.747		0.898		0.000	0.000
SAT	Endogenous	0.306	0.299	0.793	0.242	0.920		0.000	0.000
FI	Endogenous	0.331	0.323	0.884	0.293	0.958		0.000	0.000
Mean		0.319		0.794	0.268				

Correlations (Latent variable):

	INC	FLEX	SOC	AUT	SAT	FI
INC	**1.000**	0.586	0.454	0.741	0.467	0.405
FLEX	0.586	**1.000**	0.585	0.684	0.374	0.304
SOC	0.454	0.585	**1.000**	0.621	0.362	0.245
AUT	0.741	0.684	0.621	**1.000**	0.543	0.444
SAT	0.467	0.374	0.362	0.543	**1.000**	0.540
FI	0.405	0.304	0.245	0.444	0.540	**1.000**

Partial correlations (Latent variable):

	INC	FLEX	SOC	AUT	SAT	FI
INC	**1.000**	0.173	-0.060	0.488	0.075	0.085
FLEX	0.173	**1.000**	0.287	0.307	-0.027	0.003
SOC	-0.060	0.287	**1.000**	0.322	0.065	-0.061
AUT	0.488	0.307	0.322	**1.000**	0.205	0.116
SAT	0.075	-0.027	0.065	0.205	**1.000**	0.390
FI	0.085	0.003	-0.061	0.116	0.390	**1.000**

Discriminant validity (Squared correlations < AVE):

	INC	FLEX	SOC	AUT	SAT	FI	Mean Communalities (AVE)
INC	**1**	0.343	0.206	0.549	0.218	0.164	0.777
FLEX	0.343	**1**	0.343	0.467	0.140	0.093	0.789
SOC	0.206	0.343	**1**	0.386	0.131	0.060	0.772
AUT	0.549	0.467	0.386	**1**	0.295	0.197	0.747
SAT	0.218	0.140	0.131	0.295	**1**	0.291	0.793
FI	0.164	0.093	0.060	0.197	0.291	**1**	0.884
Mean Communalities (AVE)	0.777	0.789	0.772	0.747	0.793	0.884	**0**

Appendix 8 PLS-PM Previously economically active

Goodness of fit index (1):

	GoF	GoF (Bootstrap)	Standard error	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)	Minimum	1st Quartile	Median	3rd Quartile	Maximum
Absolute	0.4975	0.5089	0.0413	12.0595	0.4208	0.5959	0.4178	0.4778	0.5082	0.5341	0.6066
Relative	0.9383	0.9039	0.0357	26.2748	0.8246	0.9812	0.8240	0.8838	0.9040	0.9272	0.9936
Outer model	0.9976	0.9951	0.0294	33.9068	0.9471	1.0000	0.8915	0.9762	0.9977	1.0102	1.1028
Inner model	0.9406	0.9083	0.0219	42.8556	0.8564	0.9498	0.8471	0.8914	0.9115	0.9243	0.9573

Inner model (Dimension 1):

R^2 (SAT / 1):

R^2	F	Pr > F	R^2(Bootstrap)	Standard error	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
0.3050	30.6030	0.0000	0.3253	0.0586	5.2006	0.2024	0.4673

Path coefficients (SAT / 1):

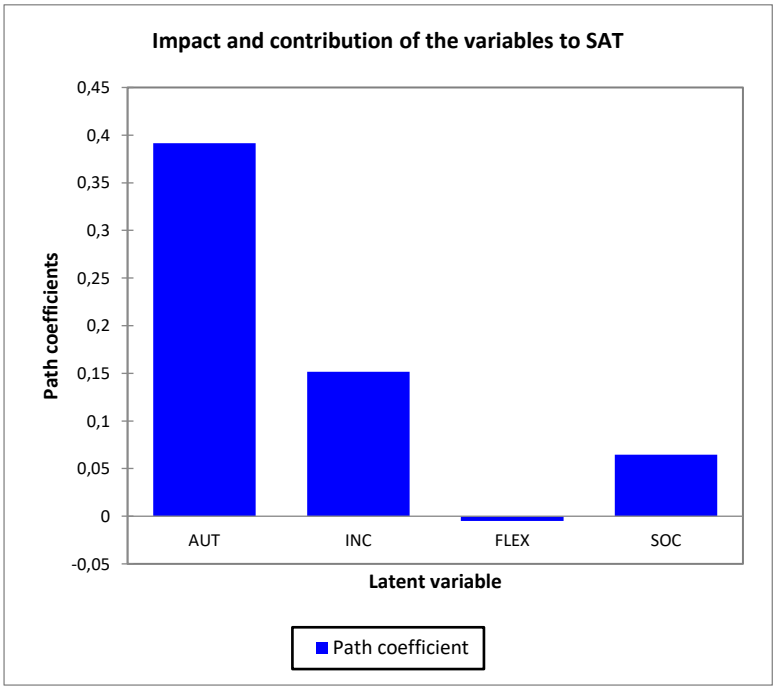
Latent variable	Value	Standard error	t	Pr > |t|	f^2	Value(Bootstrap)	Standard error(Bootstrap)	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
INC	0.1518	0.0748	2.0298	0.0433	0.0148	0.1622	0.0719	2.1122	-0.0003	0.3214
FLEX	-0.0049	0.0731	-0.0665	0.9470	0.0000	0.0077	0.0597	-0.0813	-0.0984	0.1286
SOC	0.0647	0.0660	0.9805	0.3277	0.0034	0.0660	0.0583	1.1103	-0.0835	0.2019
AUT	0.3915	0.0901	4.3465	0.0000	0.0677	0.3833	0.0824	4.7493	0.2288	0.5841

Equation of the model:

SAT = 0.15177*INC-0.00486*FLEX+0.06475*SOC+0.39148*AUT

Impact and contribution of the variables to SAT (Dimension 1):

	AUT	INC	FLEX	SOC
Correlation	0.5404	0.4668	0.3969	0.3778
Path coefficient	0.3915	0.1518	-0.0049	0.0647
Correlation * path coefficient	0.2116	0.0709	-0.0019	0.0245
Contribution to R^2 (%)				
Cumulative %				



R^2 (FI / 1):

R^2	F	Pr > F	R^2(Bootstrap)	Standard error	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
0.3215	26.3493	0.0000	0.3359	0.0479	6.7065	0.2374	0.4249

Path coefficients (FI / 1):

Latent variable	Value	Standard error	t	Pr > |t|	f^2	Value(Bootstrap)	Standard error(Bootstrap)	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
INC	0.0635	0.0746	0.8520	0.3949	0.0026	0.0560	0.0889	0.7147	-0.1445	0.2335

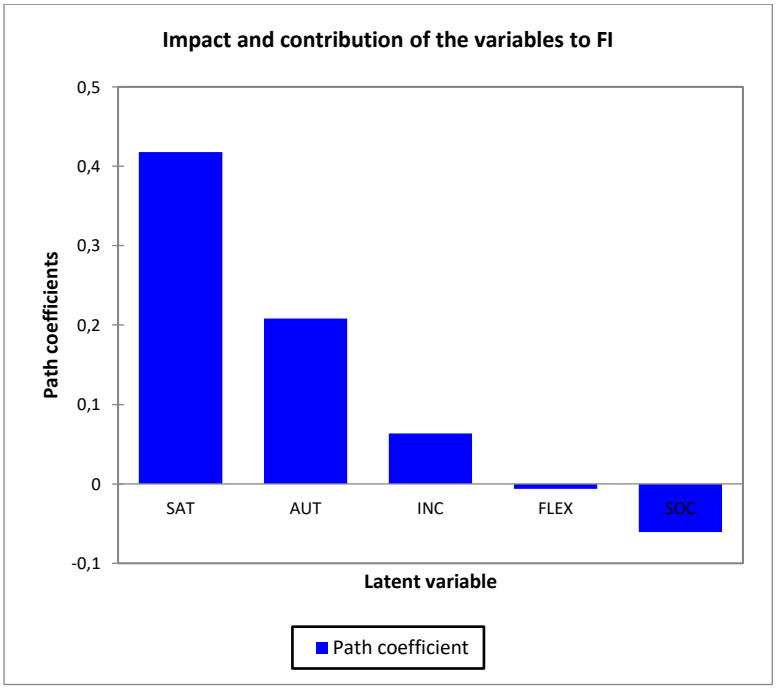
FLEX	-0.0061	0.0723	-0.0844	0.9328	0.0000	-0.0035	0.0910	-0.0671	-0.2063	0.2257
SOC	-0.0606	0.0655	-0.9262	0.3552	0.0031	-0.0472	0.0640	-0.9472	-0.2048	0.1058
AUT	0.2083	0.0921	2.2608	0.0245	0.0184	0.1977	0.0958	2.1740	0.0392	0.4229
SAT	0.4178	0.0593	7.0501	0.0000	0.1788	0.4225	0.0696	5.9983	0.2624	0.5682

Equation of the model:

FI = 0.06352*INC-0.00610*FLEX-
0.06064*SOC+0.20826*AUT+0.41777*SAT

Impact and contribution of the variables to FI (Dimension 1):

	SAT	AUT	INC	FLEX	SOC
Correlation	0.5346	0.4384	0.3803	0.3090	0.2538
Path coefficient	0.4178	0.2083	0.0635	-0.0061	-0.0606
Correlation * path coefficient	0.2234	0.0913	0.0242	-0.0019	-0.0154
Contribution to R^2 (%)					
Cumulative %					



Model assessment (Dimension 1):

Latent variable	Type	Mean (Manifest variables)	R^2	Adjusted R^2	Mean Communalities (AVE)	Mean Redundancies	D.G. rho
INC	Exogenous	3.6958			0.7720		0.9102
FLEX	Exogenous	6.0602			0.7798		0.9138
SOC	Exogenous	6.1100			0.7767		0.9125
AUT	Exogenous	4.5421			0.7570		0.9032
SAT	Endogenous	3.5328	0.3050	0.2975	0.7896	0.2408	0.9184
FI	Endogenous	3.1090	0.3215	0.3118	0.8825	0.2837	0.9575
Mean			0.3132		0.7929	0.2623	

Appendix 9 PLS-PM Previously economically inactive

Model assessment (Dimension 1):

Latent variable	Type	Mean (Manifest variables)	R^2	Adjusted R^2	Mean Communalities (AVE)	Mean Redundancies	D.G. rho
INC	Exogenous	3.6958			0.7720		0.9102
FLEX	Exogenous	6.0602			0.7798		0.9138
SOC	Exogenous	6.1100			0.7767		0.9125
AUT	Exogenous	4.5421			0.7570		0.9032
SAT	Endogenous	3.5328	0.3050	0.2975	0.7896	0.2408	0.9184
FI	Endogenous	3.1090	0.3215	0.3118	0.8825	0.2837	0.9575
Mean			0.3132		0.7929	0.2623	

Discriminant validity (Squared correlations < AVE) (Dimension 1):

	INC	FLEX	SOC	AUT	SAT	FI	Mean Communalities (AVE)
INC	**1**	0.3530	0.2122	0.5417	0.2179	0.1446	0.7720
FLEX	0.3530	**1**	0.3254	0.4922	0.1575	0.0955	0.7798
SOC	0.2122	0.3254	**1**	0.3946	0.1427	0.0644	0.7767
AUT	0.5417	0.4922	0.3946	**1**	0.2921	0.1922	0.7570
SAT	0.2179	0.1575	0.1427	0.2921	**1**	0.2858	0.7896
FI	0.1446	0.0955	0.0644	0.1922	0.2858	**1**	0.8825
Mean Communalities (AVE)	0.7720	0.7798	0.7767	0.7570	0.7896	0.8825	**0**

Goodness of fit index (1):

	GoF	GoF (Bootstrap)	Standard error	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)	Minimum	1st Quartile	Median	3rd Quartile	Maximum
Absolute	0.6591	0.6955	0.0841	7.8408	0.5185	0.8547	0.4764	0.6291	0.6952	0.7496	0.8556
Relative	0.7658	0.7682	0.0843	9.0817	0.5736	0.9194	0.5664	0.7071	0.7707	0.8173	0.9500
Outer model	0.9807	0.9496	0.0505	19.4205	0.8485	1.0000	0.8165	0.9154	0.9524	0.9912	1.0510
Inner model	0.7809	0.8080	0.0674	11.5914	0.6760	0.9237	0.6462	0.7647	0.8095	0.8611	0.9245

Inner model (Dimension 1):

R^2 (SAT / 1):

R^2	F	Pr > F	R^2(Bootstrap)	Standard error	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
0.3984	3.6425	0.0201	0.5331	0.1825	2.1831	0.2097	0.8776

Path coefficients (SAT / 1):

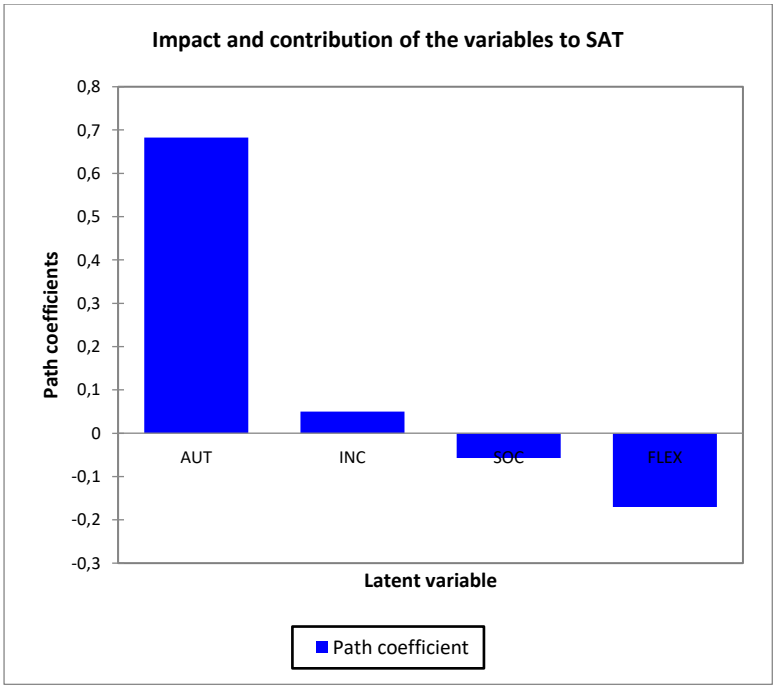
Latent variable	Value	Standard error	t	Pr > |t|	f^2	Value(Bootstrap)	Standard error(Bootstrap)	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
INC	0.0502	0.3251	0.1544	0.8787	0.0011	0.0216	0.2513	0.1997	-0.6537	0.5526
FLEX	-0.1701	0.2596	-0.6555	0.5190	0.0195	-0.1046	0.2126	-0.8001	-0.5818	0.4067
SOC	-0.0575	0.2786	-0.2064	0.8384	0.0019	-0.1293	0.2351	-0.2446	-0.7102	0.2352
AUT	0.6824	0.3511	1.9436	0.0648	0.1717	0.7562	0.2504	2.7253	0.2210	1.3214

Equation of the model:

SAT = 0.05020*INC-0.17014*FLEX-0.05751*SOC+0.68242*AUT

Impact and contribution of the variables to SAT (Dimension 1):

	AUT	INC	SOC	FLEX
Correlation	0.6052	0.5108	0.2403	-0.1550
Path coefficient	0.6824	0.0502	-0.0575	-0.1701
Correlation * path coefficient	0.4130	0.0256	-0.0138	0.0264
Contribution to R^2 (%)				
Cumulative %				



R² (FI / 1):

R²	F	Pr > F	R²(Bootstrap)	Standard error	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
0.7138	10.4726	0.0000	0.7762	0.1003	7.1140	0.5707	0.9402

Path coefficients (FI / 1):

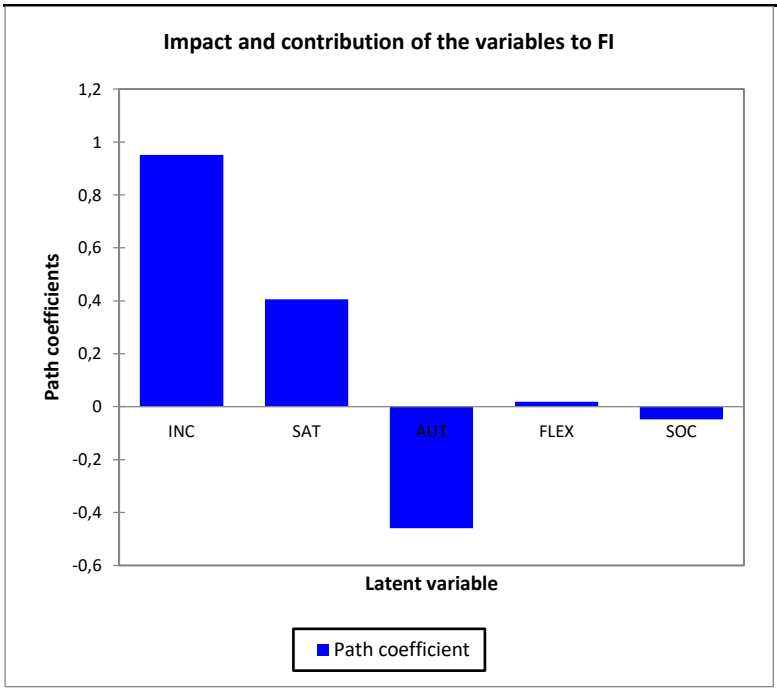
Latent variable	Value	Standard error	t	Pr > |t|	f²	Value(Bootstrap)	Standard error(Bootstrap)	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
INC	0.9508	0.2296	4.1406	0.0005	0.8164	0.8777	0.2312	4.1116	0.2579	1.4636
FLEX	0.0189	0.1850	0.1022	0.9196	0.0005	0.0566	0.1789	0.1057	-0.2876	0.7570
SOC	-0.0476	0.1969	-0.2417	0.8114	0.0028	-0.0761	0.2040	-0.2333	-0.5319	0.3385
AUT	-0.4587	0.2683	-1.7093	0.1021	0.1391	-0.3623	0.2603	-1.7619	-1.0465	0.2059
SAT	0.4055	0.1505	2.6939	0.0136	0.3456	0.4042	0.1694	2.3937	0.1045	0.7110

Equation of the model:

FI = 0.95080*INC+0.01891*FLEX-0.04759*SOC-0.45866*AUT+0.40550*SAT

Impact and contribution of the variables to FI (Dimension 1):

	INC	SAT	AUT	FLEX	SOC
Correlation	0.7660	0.6051	0.5600	0.2879	0.1807
Path coefficient	0.9508	0.4055	-0.4587	0.0189	-0.0476
Correlation * path coefficient	0.7283	0.2454	-0.2568	0.0054	-0.0086
Contribution to R^2 (%)					
Cumulative %					



Model assessment (Dimension 1):

Latent variable	Type	Mean (Manifest variables)	R^2	Adjusted R^2	Mean Communalities (AVE)	Mean Redundancies	D.G. rho
INC	Exogenous	4.1305			0.8674		0.9515
FLEX	Exogenous	5.8264			0.9013		0.9648
SOC	Exogenous	5.5646			0.7415		0.8959
AUT	Exogenous	6.1434			0.6044		0.8197
SAT	Endogenous	4.5107	0.3984	0.3199	0.8431	0.3359	0.9415
FI	Endogenous	3.7639	0.7138	0.6617	0.9093	0.6490	0.9678
Mean			0.5561		0.8111	0.4925	

Appendix 10 PLS-PM Bike-based peer providers

Goodness of fit index (1):

	GoF	GoF (Bootstrap)	Standard error	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)	Minimum	1st Quartile	Median	3rd Quartile	Maximum
Absolute	0.4985	0.5107	0.0520	9.5803	0.3929	0.6126	0.3812	0.4808	0.5112	0.5449	0.6645
Relative	0.9377	0.8924	0.0451	20.8014	0.7823	0.9894	0.7763	0.8627	0.8955	0.9206	0.9952
Outer model	0.9970	0.9904	0.0332	30.0749	0.9156	1.0000	0.9148	0.9675	0.9901	1.0126	1.0853
Inner model	0.9405	0.9009	0.0288	32.6228	0.8224	0.9537	0.8152	0.8806	0.9049	0.9214	0.9677

Inner model (Dimension 1):

R^2 (SAT / 1):

R^2	F	Pr > F	R^2(Bootstrap)	Standard error	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
0.3024	24.2797	0.0000	0.3224	0.0712	4.2482	0.1510	0.4868

Path coefficients (SAT / 1):

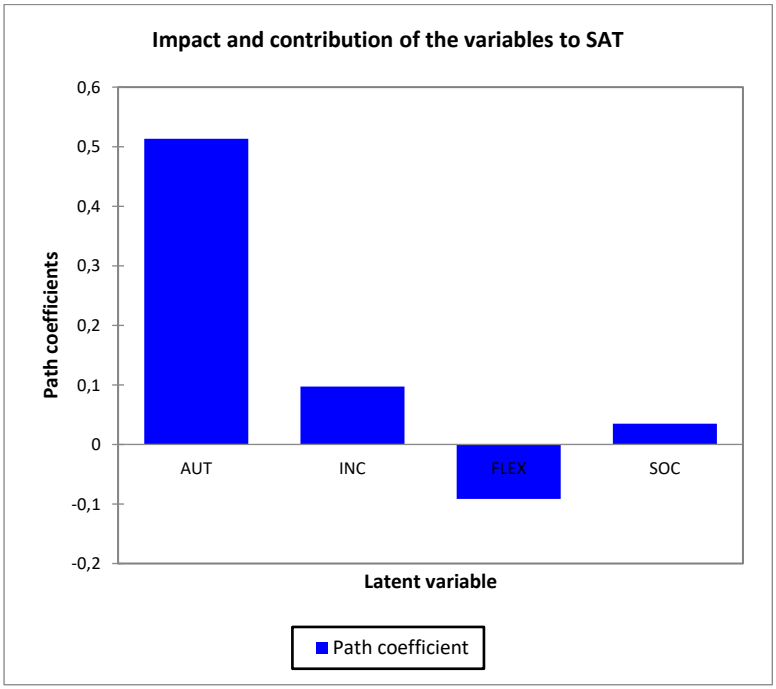
Latent variable	Value	Standard error	t	Pr > |t|	f^2	Value(Bootstrap)	Standard error(Bootstrap)	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
INC	0.0972	0.0836	1.1621	0.2464	0.0060	0.1036	0.0804	1.2088	-0.0702	0.2818
FLEX	-0.0913	0.0807	-1.1312	0.2592	0.0057	-0.0722	0.0710	-1.2854	-0.2307	0.1210
SOC	0.0349	0.0726	0.4809	0.6311	0.0010	0.0251	0.0738	0.4732	-0.1690	0.1704
AUT	0.5134	0.0986	5.2045	0.0000	0.1209	0.5098	0.0731	7.0213	0.3748	0.6621

Equation of the model:

SAT = 0.09718*INC-0.09132*FLEX+0.03492*SOC+0.51341*AUT

Impact and contribution of the variables to SAT (Dimension 1):

	AUT	INC	FLEX	SOC
Correlation	0.5434	0.4377	0.3329	-0.3235
Path coefficient	0.5134	0.0972	-0.0913	-0.0349
Correlation * path coefficient	0.2790	0.0425	-0.0304	-0.0113
Contribution to R^2 (%)				
Cumulative %				



R^2 (FI / 1):

R^2	F	Pr > F	R^2(Bootstrap)	Standard error	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
0.3234	21.3139	0.0000	0.3448	0.0584	5.5400	0.2150	0.4693

Path coefficients (FI / 1):

Latent variable	Value	Standard error	t	Pr > |t|	f^2	Value(Bootstrap)	Standard error(Bootstrap)	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
INC	0.1655	0.0828	1.9988	0.0468	0.0179	0.1741	0.1100	1.5037	-0.0570	0.4158
FLEX	-0.0344	0.0799	-0.4306	0.6672	0.0008	-0.0337	0.0927	-0.3713	-0.3064	0.1181
SOC	-0.0339	0.0717	-0.4720	0.6374	0.0010	-0.0322	0.0886	-0.3821	-0.1926	0.2122

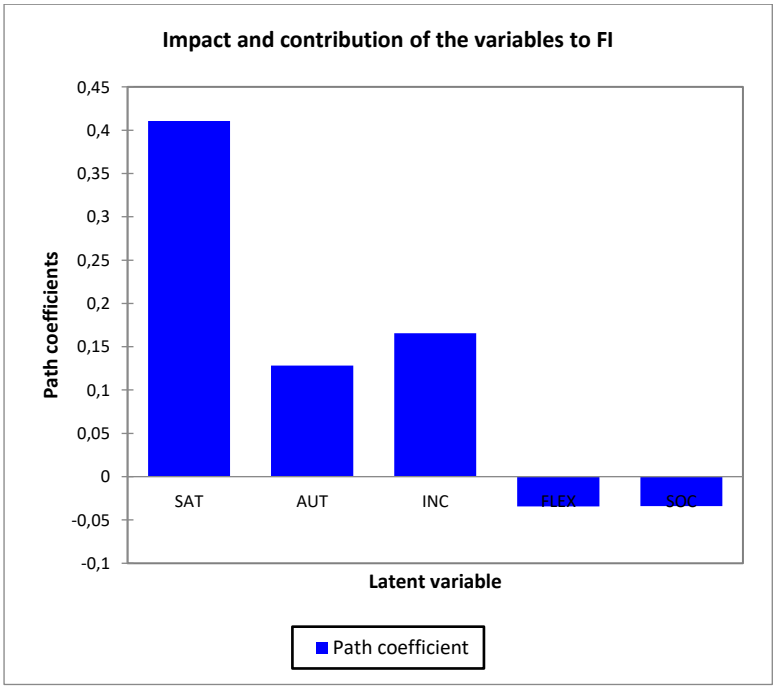
AUT	0.1281	0.1031	1.2428	0.2153	0.0069	0.1214	0.1242	1.0313	-0.1360	0.3673
SAT	0.4105	0.0660	6.2244	0.0000	0.1737	0.4106	0.0720	5.7041	0.2579	0.5781

Equation of the model:

FI = 0.16548*INC-0.03441*FLEX-
0.03386*SOC+0.12812*AUT+0.41052*SAT

Impact and contribution of the variables to FI (Dimension 1):

	SAT	AUT	INC	FLEX	SOC
Correlation	0.5302	0.4298	0.4062	0.2637	0.2217
Path coefficient	0.4105	0.1281	0.1655	-0.0344	-0.0339
Correlation * path coefficient	0.2176	0.0551	0.0672	-0.0091	-0.0075
Contribution to R^2 (%)					
Cumulative %					



Model assessment (Dimension 1):

Latent variable	Type	Mean (Manifest variables)	R^2	Adjusted R^2	Mean Communalities (AVE)	Mean Redundancies	D.G. rho
INC	Exogenous	3.6751			0.7694		0.9090
FLEX	Exogenous	6.0797			0.8151		0.9296
SOC	Exogenous	6.1636			0.7837		0.9157
AUT	Exogenous	4.4994			0.7394		0.8947
SAT	Endogenous	3.5441	0.3024	0.2931	0.7916	0.2394	0.9193

FI	Endogenous	2.9798	0.3234	0.3113	0.8876	0.2870	0.9595
Mean			0.3129		0.7978	0.2632	

Appendix 11 PLS-PM Car-based peer providers

Goodness of fit index (1):

	GoF	GoF (Bootstrap)	Standard error	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)	Minimum	1st Quartile	Median	3rd Quartile	Maximum
Absolute	0.5643	0.5913	0.0791	7.1322	0.4318	0.7553	0.4201	0.5358	0.5944	0.6416	0.8333
Relative	0.8773	0.8263	0.0788	11.1288	0.6549	0.9798	0.6379	0.7731	0.8306	0.8822	1.0201
Outer model	0.9933	0.9786	0.0525	18.9319	0.8879	1.0000	0.8724	0.9367	0.9765	1.0203	1.1205
Inner model	0.8833	0.8432	0.0507	17.4212	0.7088	0.9242	0.7076	0.8122	0.8427	0.8844	0.9285

Inner model (Dimension 1):

R^2 (SAT / 1):

R^2	F	Pr > F	R^2(Bootstrap)	Standard error	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
0.3723	11.4176	0.0000	0.4283	0.1259	2.9575	0.2262	0.7040

Path coefficients (SAT / 1):

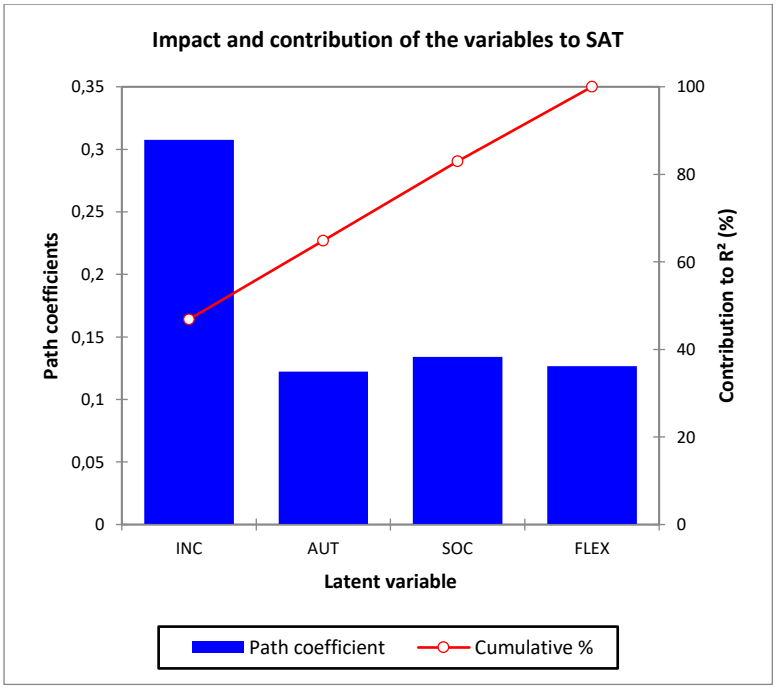
Latent variable	Value	Standard error	t	Pr > |t|	f^2	Value(Bootstrap)	Standard error(Bootstrap)	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
INC	0.3077	0.1413	2.1771	0.0325	0.0616	0.3345	0.1267	2.4290	0.1185	0.6396
FLEX	0.1265	0.1361	0.9297	0.3554	0.0112	0.0804	0.1315	0.9622	-0.1906	0.4056
SOC	0.1342	0.1444	0.9287	0.3559	0.0112	0.1753	0.1202	1.1164	-0.0660	0.4241
AUT	0.1222	0.1772	0.6897	0.4924	0.0062	0.1234	0.1620	0.7543	-0.1778	0.4828

Equation of the model:

SAT = 0.30765*INC+0.12653*FLEX+0.13415*SOC+0.12222*AUT

Impact and contribution of the variables to SAT (Dimension 1):

	INC	AUT	SOC	FLEX
Correlation	0.5672	0.5476	0.5033	0.5006
Path coefficient	0.3077	0.1222	0.1342	0.1265
Correlation * path coefficient	0.1745	0.0669	0.0675	0.0633
Contribution to R^2 (%)	46.8735	17.9779	18.1365	17.0121
Cumulative %	46.8735	64.8514	82.9879	100.0000



R^2 (FI / 1):

R^2	F	Pr > F	R^2(Bootstrap)	Standard error	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
0.4434	12.1096	0.0000	0.4926	0.0976	4.5455	0.3042	0.7117

Path coefficients (FI / 1):

Latent variable	Value	Standard error	t	Pr > |t|	f^2	Value(Bootstrap)	Standard error(Bootstrap)	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
INC	-0.1785	0.1380	-1.2935	0.1997	0.0220	-0.1802	0.1744	-1.0233	-0.5527	0.1051
FLEX	0.2485	0.1297	1.9153	0.0592	0.0483	0.2460	0.1273	1.9522	0.0116	0.5461

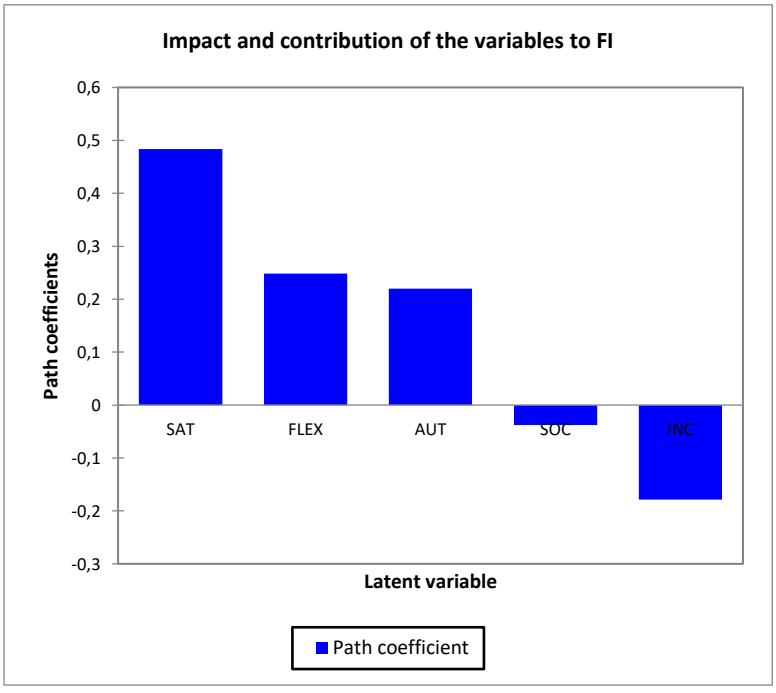
SOC	-0.0379	0.1377	-0.2756	0.7836	0.0010	-0.0289	0.1349	-0.2812	-0.3298	0.2477
AUT	0.2196	0.1685	1.3035	0.1963	0.0224	0.2526	0.1530	1.4354	-0.0536	0.5964
SAT	0.4836	0.1080	4.4771	0.0000	0.2637	0.4628	0.1377	3.5112	0.1572	0.7350

Equation of the model:

FI = -0.17851*INC+0.24846*FLEX-
0.03794*SOC+0.21961*AUT+0.48359*SAT

Impact and contribution of the variables to FI (Dimension 1):

	SAT	FLEX	AUT	SOC	INC
Correlation	0.6079	0.5087	0.5012	0.4174	0.3988
Path coefficient	0.4836	0.2485	0.2196	-0.0379	-0.1785
Correlation * path coefficient	0.2940	0.1264	0.1101	-0.0158	-0.0712
Contribution to R^2 (%)					
Cumulative %					



Model assessment (Dimension 1):

Latent variable	Type	Mean (Manifest variables)	R^2	Adjusted R^2	Mean Communalities (AVE)	Mean Redundancies	D.G. rho
INC	Exogenous	3.9112			0.8078		0.9264
FLEX	Exogenous	6.0765			0.7563		0.9027
SOC	Exogenous	5.9383			0.7448		0.8974
AUT	Exogenous	5.0481			0.7760		0.9121
SAT	Endogenous	3.7196	0.3723	0.3482	0.7967	0.2966	0.9216
FI	Endogenous	3.9175	0.4434	0.4145	0.8615	0.3820	0.9491
Mean			0.4079		0.7905	0.3393	