Causality between High-Involvement Work Systems, Employee Attitudes and Organisational Performance: a Two-Wave Longitudinal Study

ALAINE GARMENDIA OCHOANTESANA

Supervisors:

Unai Elorza

Damian Madinabeitia

A thesis submitted for the degree of Doctor of Philosophy at

Mechanical and Manufacturing Department

Mondragon Unibertsitatea

September 2019

STATEMENT OF ORIGINALITY

Hereby I, Alaine Garmendia Ochoantesana, declare, that this thesis is my original authorial work, which I have worked out by my own. All sources, references and literature used or excerpted during elaboration of this work are properly cited and listed in complete reference to the due source.

ACKNOWLEDGEMENTS

Hasteko, eskerrak eman nahi dizkizuet Unai eta Damian, nigan hasiera hasieratik izan duzuen konfidantzagatik eta bide guztian zehar emandako orientazio eta babes guztiagatik. Asko ikasi dut zuengandik eta benetan, plazer bat izan da bide hau zuekin partekatzea. Honekin batera, datu bilketa guztian lagundu eta ikerketan aktiboki parte urte duzuen erakundeetako eta Bateratzen kontsortzioko kideoi ere eskerrak ematea gustatuko litzaidake.

Ez dela bidai erraza nire beste dakizuen antolakuntza departamentuko lankide guztioi eskerrak eman nahi dizkizuet. Egunerokotasunean, momentu on eta ez hain onetan nire ondoan egon zaretelako eta laneko ordu gogorretan irribarrea ateratzeko esfortzua egin dozuelako. Bereziki, Dorleta, Ander, Ane eta Alaitz.

This wouldn't have been the same without my international stay in Tilburg and the people I met there. Special thanks to Brigitte and Renee, Steven, all the PhD girls, Karen, Tina, Jeske, Daphne, Kelly… and of course, to Debbie for your support and friendship.

Unibertsitatetik kanpo izan dudan kuadrillakoen eta lagunen babes eta konfidantzak ez deko baliorik. Zuen adiskidetasun ona, eta nire beste momentu honen zain egon zarielako ez dekot bihotzez eskerrak emotie besterik.

Etxekuai, Joana, aita eta ama, eizuen esfortzo guztik atxik eta neuaz beti sinistu ixazuelako, hau zeuena da neuri beste. Eskerrik asko benetan.

Eta Ander, zerrendatu ezin dien arrazoi guzti horiengatik, mila esker bihotzez.

RESUMEN

En el cambiante mundo laboral de hoy en día, mantener una ventaja competitiva basada en las personas se ha convertido en algo fundamental para el éxito. Partiendo de esta premisa, son muchos los estudios que han analizado la relación entre las prácticas de gestión de personas y el rendimiento organizativo. En cambio, la gran mayoría de estos estudios han sido transversales y se han centrado en analizar el sistema de prácticas de gestión de personas como causa y el rendimiento organizativo como efecto. La ausencia de estudios longitudinales ha impedido un entendimiento completo del orden causal de dicha relación. Además, pocos estudios han resuelto cómo se materializa la relación y es actualmente conocido como Black Box. El objetivo principal de esta tesis es realizar un estudio longitudinal con el fin de entender la relación causal entre el sistema de gestión de personas (medido en términos de sistemas de alta involucración, HIWS), el rendimiento organizativo (productividad y absentismo) y su relación con las actitudes de las personas trabajadoras (satisfacción y compromiso). Se han analizado dos muestras longitudinales cada una con dos oleadas de datos. La primera muestra pertenece al sector de distribución al por menor e incluye 104 organizaciones con 6,016 respuestas en la primera oleada (año 2011) y 5,842 respuestas en la segunda oleada (año 2015). La segunda muestra pertenece al sector industrial e incluye 25 empresas con 3,591 respuestas en la primera oleada (año 2013) y 3,752 respuestas en la segunda oleada (año 2017). Ambas muestras han sido analizadas con una técnica de análisis longitudinal de modelos de ecuaciones estructurales (SEM), el Cross-Lagged Model (CLM). Los resultados de los análisis son inesperados : (i) en la primera muestra, no se valida ninguna hipótesis y (ii) en la segunda muestra, solo se valida el efecto positivo del sistema de alta involucración en el rendimiento organizativo y no se observa influencia de las actitudes de las personas trabajadoras. Con el fin de comprender la lógica que esconden estos números, se han complementado los resultados cuantitativos con entrevistas semiestructuradas con personas referentes de las organizaciones que comprende cada muestra. El enfoque cuanti-cualitativo empleado en la presente investigación sugiere que al analizar la relación causal entre las prácticas de gestión de personas y el rendimiento organizativo, los siguientes factores pueden estar influyendo: (i) las variables analizadas, (ii) el intervalo de tiempo entre las mediciones , (iii) el sector analizado, y (iv) las decisiones adoptadas en respuesta a dificultades económicas. Por tanto, estas evidencias apoyan la perspectiva contingente y refuerzan la idea de que la relación entre las prácticas de gestión de personas y el rendimiento organizativo depende tanto de cuestiones metodológicas como de condiciones externas del contexto.

LABURPENA

Gaur egungo lan ingurune aldakorrean, pertsonetan oinarritutako abantail lehikoarra mantentzea beharrezkoa da antolakuntzen jasangarritasuna bermatzeko. Aurrekari horretan oinarritua, hainbat dira pertsonen kudeaketako praktika eta antolakuntzen errendimenduaren arteko erlazioa aztertu dituzten ikerketak. Hala ere, ikerketa gehienek ez dute denborazko ikuspegia kontutan hartu eta pertsonen kudeaketako praktikak aztertu dituzte soilik kausa gisa beste noranzkoa kontutan hartu gabe. Guzti honek, erlazioaren kausalitatearen gaineko zalantzak azaleratu ditu. Horrez gain, erlazioa ze aldagaien bidez ematen den oraindik ez dago argitua eta Black Box bezala ezagutzen da. Ikerketa honen helburu nagusia ikerketa longitudinala egitea izan da, pertsonen inplikazioa bilatzen duten sistemen (HIWS), langileen jarreren (asebetetzea eta konpromisoa) eta antolakuntzako errendimenduaren (absentismo eta produktibitatea) arteko kausa-efektu erlazioak ulertze aldera. Denboran zehar bi neurketa jaso duten antolakuntzen bi lagin aztertu dira. 1.lagina banaketa sektorekoa da eta lehen. neurketan (2011 urtea) 6,016 erantzun jasotzen ditu eta 5,842 erantzun bigarren neurketan (2015 urtea). 2.lagina, industria sektorekoa da eta 25 erakunde jasotzen ditu, 3,591 erantzunekin lehen neurketan (2013 urtea) eta 3,752 erantzun bigarren neurketan (2017 urtea). Bi laginak ekuazio estrukturalen modeloen bidezko teknika longitudinalarekin aztertu dira, Cross-Lagged Model teknikarekin (CLM). Analisien emaitzak ustekabekoak izan dira: (i) 1. laginean ez da hipotesirik konfirmatu eta (ii) 2.laginean soilik sistemak errendimenduan duen eragina berretsi da. Zenbakiek atzetik duten logika ulertze aldera, analisi kuantitatiboak azterturiko bi laginetako erakundeetan erreferente diren pertsonak elkarrizketatu dira, datuak jaso ziren urteetako testuinguruaren informazioa jasotzeko asmoz. Ikerketa. honetan baliatu den ikusputu kuanti-kualitatiboak eman dituzten emaitzek pertsonen inplikazioa bilatzen duten sistemen eta antolakuntzen errendimenduaren arteko erlazioan ondorengo aldagaiek eragin dezaketela iradokitzen dute: (i) azterturiko aldagaiak, (ii) neurketa desberdinen arteko denbora tarteak, (iii) azterturiko sektorea eta (iv) zailtasun ekonomikoen aurrean hartutako erabakiak. Hortaz, ebidentzia horiek ikuspuntu kontingentea frogatzen dute, pertsonen eta errendimenduaren arteko erlazioa testuinguru eta alderdi metodologikoen menpekoa izan daitekeela erakutsiz.

ABSTRACT

In the ferocious and fast changing global workplace of today, maintaining competitive advantage has become paramount to success. Employees matter today more than ever since they become non-imitable sources of firm uniqueness that can deliver value to every stakeholder. Based on this, a wealth of studies have been conducted analysing the relationship between Human Resource Management (HRM) and Organisational Performance (OP), however, most of them have been cross-sectional and have tested the direction of causality from HRM towards performance. There is an absence of longitudinal studies within the field of Strategic Human Resource Management (SHRM), and conceptual and methodological ambiguity about time has prevented more accurate answers to the causality debate. In addition, few studies have elucidated how the relationship occurs (known as the Black Box). The main goal of this thesis was to conduct a longitudinal study to understand the causal relationships between HRM [High-Involvement Work Systems (HIWS)] and OP (productivity and absenteeism), and their relationship with employee attitudes (job satisfaction and organisational commitment). Two longitudinal two-wave samples were analysed using a longitudinal Structural Equation Modelling (SEM) technique, the Cross-Lagged Model (CLM). The first sample included 104 retail stores with 6,016 responses for the first wave (year 2011) and 5,842 responses for the second wave (year 2015). The second sample included 25 industrial companies with 3,591 responses for the first wave (year 2013) and 3,752 responses for the second wave (year 2017). The results were intriguing: (i) none of the hypothesised causal relationships were significant for sample 1, and (ii) the positive influence of HIWS on OP was supported for sample 2. Semi-structured interviews were conducted with relevant people in each sample to understand the contextual paradigm. Our quanti-qualitative research together with a thorough process of inquiry, showed that the following factors may have an influence on the HRM-OP relationship: (i) the choice of variables, (ii) time lags, (iii) sectors, and (iv) the managerial decisions taken under tough economic circumstances and the associated uncertainty. Hence, the presented evidence is congruent with contingency theory and indicate that the results of the HRM-OP link are contingent on methodological and external boundary conditions.

INDEX

LIST OF FIGURES

LIST OF TABLES

GLOSSARY OF ACRONYMS

ACRONYM	STAND FOR
AMO	Ability-Motivation-Opportunity (model)
CFA	Confirmatory Factor Analysis
EFA	Exploratory Factor Analysis
HIWS	High-Involvement-Work-Systems
HPWS	High-Performance-Work-Systems
HCWS	High-Commitment-Work-Systems
HR	Human Resources
HRM	Human Resource Management
KSA	Knowledge-Skills-Abilities
OP	Organisational Performance
RBV	Resource Based View
SET	Social Exchange Theory
SHRM	Strategic Human Resource Management
VRIO	Valuable-Rare-Inimitable-Organisational support

"One finds limits by pushing them."-Herbert Simon

"Achieving competitive success through people involves fundamentally altering how we think about the workforce and the employment relationship. It means achieving success by working with people, not by replacing them or limiting the scope of their activities."

Jeffrey Pfeffer.

Chapter 1

Building Competitive Advantage through People

1 Building Competitive Advantage through People

1.1 Introduction

Globalization has made the same competitive resources available to any company. Competition is unavoidable and thus, the need to find sources of advantages difficult to imitate by competitors has become imperative for organisations. A company is said to achieve sustainable competitive advantage when it is able to continuously outperform competitors due to its unique resources (Boselie, 2014). According to Pfeffer (1995) competitive advantage is something that: (i) distinguishes an organisation from its competitors, (ii) provides economic benefits and (iii) is not readily duplicated. Sources of competitive advantage have shifted over the years but what appears to remain as a crucial differentiating factor are the employees and how they work.

The field of Strategic Management pursues to understand how to gain and sustain a competitive advantage for the firm (Rothaermel, 2015). Within the field of Strategic Management, different theories have been developed throughout the years trying to demonstrate the best way to gain competitive advantage. Originally, this field was based on the belief that competitive advantage was obtained after an organisation achieved an ideal fit with its external environment. An example of this belief is Porter's (1985) Organisational Economics theory. According to Porter, a firm's ability to outperform competitors is determined by: (i) the entry of new competitors, (ii) the threat of substitutes, (iii) the bargaining power of buyers, (iv) the bargaining power of suppliers, and (v) the rivalry among current competitors. Considering this external approach, a company should find an industry with barriers to entry, low supplier and buyer bargaining powers, limited possibilities of substitution and a limited threat of new competitors.

Over time, other theoretical perspectives have emerged within the field of Strategic Management, for example, the Resource Based View (RBV) (Barney, 1991). The RBV focuses on the internal resources of a firm[1] and led to a change from an *outside-in* to an *inside-out* perspective. RBV states that the internal resources (i.e. assets, capabilities, organisational processes, attributes, information, knowledge, etc.) of a firm can provide sustained competitive advantage. Although the present research will be focused on the

[1] The words firm, company and organisation will be used interchangeably along the document.

inside-out approach, some researchers (e.g. Boxall and Purcell, 2011; Paauwe, 2004) have argued that both perspectives could be of relevance and could be combined.

Barney (1991) developed RBV based on the assumption that the resources of the firm are heterogeneous and immobile (Penrose, 1959). The heterogeneity refers to the fact that all resources are different across firms. The concept of firm resources immobility is related to the inability of competitors to obtain resources from other firms. These assumptions differentiate RBV from traditional strategy models where firm resources are seen as homogeneous and resources are considered mobile (Wright and McMahan, 1992).

Based on Barney`s (1991) work, Barney and Wright (1998) developed the **VRIO** framework**-V**alue, **R**areness, **I**nimitability and **O**rganisation- a hierarchical process through which an organisation could achieve a sustained competitive advantage from internal resources (see Figure 1). The lowest level of the VRIO framework, determines whether a resource is **Valuable** or not. Resources are considered of value, when they help the company to implement initiatives that improve its efficiency and effectiveness. According to the model, resources that are not valuable are a source of competitive disadvantage and thus, the company is likely to obtain below-average performance. On the contrary, when they are valuable, they can provide a competitive parity to the organisation resulting in normal performance. The next level in the model, in addition to valuable, is a **Rare** resource. A resource will be considered to be rare when several companies do not own it, that is to say, when it is scarce. When resources comply with these two requirements, they can provide temporary competitive advantage and an above-average performance. The third level is related to the difficulty of **Imitating** the resources. This is obtained when firms do not own these valuable and rare resources and furthermore, they cannot possess them. There are three different reasons (individually or in combination) why a resource can be imperfectly imitable: (i) a company's historical background or the path dependency; (ii) ambiguous causality in the relationship between the resources and the sustained competitive advantage; and (iii) the social complexity of the resource generating an advantage. When a resource is valuable, rare, costly to imitate in conjunction with intensive **Organisational** support, the highest level of the model is achieved. The company must be perfectly organized to exploit the resource. In summary, if there is no structural support, the three first qualities may not result in a sustained competitive advantage. Sustained competitive advantage therefore, is a result of the combination of these three qualities together with how the resources are acquired, managed, developed and supported by the organisation (Boselie, 2014).

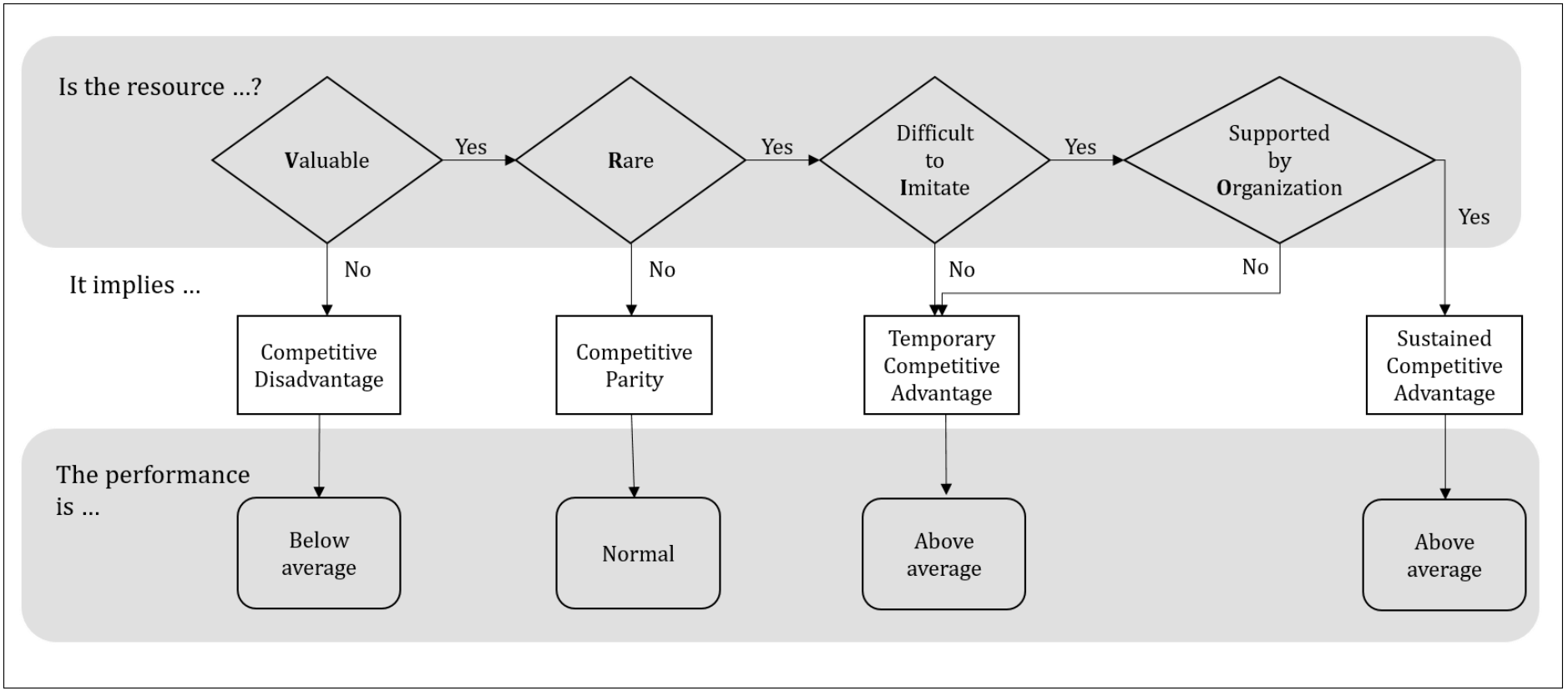

Figure 1: VRIO Framework.
[Adapted from Barney and Wright (1998) with author permission]

According to Barney and Wright (1998), three types of resources can be sources of competitive advantage: (i) physical capital resources including a firm's plant, equipment and finances, (ii) organisational capital resources consisting of the firm's structure, planning, controlling, coordinating, and HR systems and finally, (iii) human capital resources including the skills, judgment, and intelligence of the firm's employees.

Wright, McMahan and Mcwilliams (1994) discussed how human capital, considered as the Knowledge-Skills-Abilities (KSA) of employees, meets the criteria for sustained competitive advantage. First, as there is heterogeneous demand for labour, there is also a need for heterogeneous supply which makes the work of every employee valuable for the company. Due to the normal distribution of ability, the employees with high ability levels are considered to be rare. In addition, human resources are characterized by their unique historical conditions, causal ambiguity and social complexity, which makes them inimitable.

Macduffie (1995) stated that human resources could be a primary source for sustainable competitive advantage; the employee knowledge about products, processes or customers that is embedded in routines and the social interaction patterns create capabilities that are more difficult to imitate for competitors. In addition, Delery and Shaw (2001) emphasized that human capital can be a source of competitive advantage and that its complex nature makes it difficult for other organisations to imitate. Consequently, human resources, considered as the human capital pool, are considered to provide sustained competitive advantage to the company.

The field of Human Resource Management (HRM) has traditionally consisted of numerous practices to manage people and these practices have been grouped into different disciplines of selection, training, appraisal and rewards (Tichy, Fombrun and Devanna, 1984). Taking into account the fact that human capital can provide sustained competitive advantage to the company, RBV theory has been widely applied within the field of HRM (Paauwe, 2004). The convergence of HRM and RBV has resulted in a new field called Strategic Human Resource Management (SHRM) (Nyberg, Moliterno, Hale and Lepak, 2014). SHRM is a relatively young field, approximately 35 years old.

SHRM is based on a more macro (organisational) orientation and relates HRM to business objectives (Jackson, Schuler and Jiang, 2014). Wright and McMahan (1992) defined SHRM as *"the pattern of planned human resource deployments and activities intended to enable an*

organisation to achieve its goals" (p. 298). They highlighted two differences between traditional HRM and SHRM. The first difference was related to the vertical fit between the linkage of Human Resource (HR) practices and the strategy of the organisation. They concluded that in traditional HRM, HR practices evolved from a micro-perspective (individuals) with a specific focus on the particular function of people management. In contrast, in the SHRM field the practices are oriented towards strategic goals. The second difference referred to the horizontal fit, the coordination and congruence between the practices. They stated that in the field of traditional HRM, each practice had advanced in isolation with little coordination between them whereas in SHRM the practices are considered to work better in coherent and consistent bundles.

Based on the aforementioned, the field of SHRM has tried to shed light on how a coherent and consistent bundle of HRM practices can contribute to achieving sustained competitive advantage. A sustained effort has been made to both theoretically and empirically demonstrate the contribution of people to business competitiveness, and that contribution has been successfully demonstrated. In the next section, a brief review of the trajectory of the almost last 4 decades of the SHRM field is outlined.

1.2 SHRM: A 35 year trajectory

It is assumed that the birth year of SHRM was 1984 (Kaufman, 2015), 35 years ago, when two pioneering books were published: *Strategic Human Resource Management* by Tichy et al. (1984) and *Managing Human Assets* by Beer et al., (1984). These authors were motivated by the industrial situation at that time in the USA: (i) USA companies were losing competitiveness compared to their Japanese and German rivals, and (ii) the utilization of human resources was conceived as an area of inefficiency and missed opportunity in USA companies (Kaufman, 2015). In this context, a need for a strategic approach to HRM appeared.

SHRM is considered to be one of the subdomains of the broader HRM field (Boxall, Purcell and Wright, 2007). Based on the logic of the RBV, SHRM addresses how different HRM systems are shaped and how they affect Organisational Performance (OP) (Boxall, 2018). Immersed in the SHRM mainstream, USA researchers were focused on carrying out empirical studies, which would demonstrate the role of HR generating value for organisations (Paauwe, 2009). A turning point occurred when Huselid (1995) published a paper demonstrating a positive correlation between the degree of sophistication of HR practices and market value per employee. Building on this study, different authors started

conducting empirical research focusing mostly on HR practices bundles and performance relationships (e.g. Arthur, 1994; Macduffie, 1995).

One decade later, Paauwe and Richardson (1997) summarized the findings of the empirical studies conducted until that point and they concluded that these could be classified into two types. The first type of study analysed the association between HR practices (i.e. HRM activities) and employee related outcomes such as satisfaction, motivation, turnover, absenteeism and commitment. The second type of study, analysed the association between the aforementioned employee related outcomes and organisational outcomes such as productivity, quality, sales and market value. They concluded that HRM activities give rise to HRM outcomes, which in turn influence OP. This contributed to a call for more theoretical insights that could explain (i) what was understood by HRM activities (ii) what was understood by performance and (iii) what the linking variables between them were (Guest, 1997).

The unknown linking variables that explained the relationship between HRM and performance turned to be the so-called Black Box (see Figure 2).

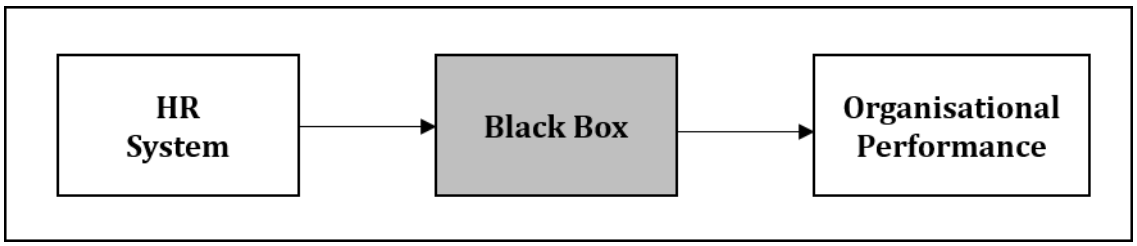

Figure 2: Black Box between HRM and Organisational Performance

To date, a great effort has been made to theoretically argue the paths through which HRM influences employee and organisational outcomes. On the basis of RBV (Barney, 1991), the most widely applied theories for explaining the Black Box have been the human capital theory (Snell and Dean, 1992; Wright et al., 1994) and the behavioural perspective (Jackson, Schuler and Rivero, 1989; Schuler and Jackson, 1987). The human capital theory assumes that HR systems have an impact on employee KSA, and that these attributes of the workforce will have a positive impact on OP. The behavioural perspective, on the other hand, assumes that the purpose of the practices are to elicit and control employee attitudes and behaviours (Wright and McMahan, 1992). It therefore concludes that employee behaviours act as mediators between the practices and the performance independently of their attributes (i. e. KSA). Wright et al. (1994) concluded that KSA are

necessary for carrying out different activities but that attitudes and behaviours are the key for taking the necessary actions and decisions aimed at improving performance. This last statement implies that both theories could be complemented in order to explain the Black Box (see Figure 3).

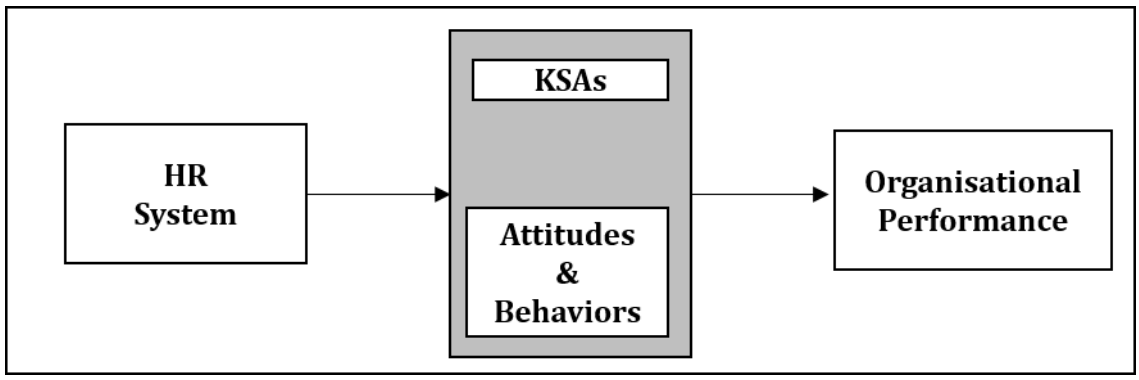

Figure 3: Human capital theory and behavioural perspective for explaining the Black Box

20 years after the birth of SHRM, Boselie et al. (2005) based on a revision of 104 empirical studies concluded that HRM had a positive impact on OP. By that time, scholars agreed that HR practices, either individually or in bundles (system) were at least weakly related to firm performance.

As SHRM theory evolved and empirical evidence grew, researchers identified the need of methodological rigor in empirical studies. First, Gerhart (2007) highlighted issues related to the quality of the measurements analysed in the studies, such as measurement error and construct validity. These were related to the data gathering phase where Interrater Reliability (IRR)[2], and the amount of respondents needed to be considered (multiple respondents are always preferred). In addition, he discussed that the way HR practices are measured is also a critical aspect. The lack of standardization makes objective comparison among different studies very complicated and therefore, identifying the specific bundles of practices that have the greater impact on HRM outcomes and firm performance remains unresolved (Boon, Hartog and Lepak, 2019; Guest, 2011; Wright and Ulrich, 2017).

Moreover, scholars have agreed that HR systems impact individuals and thus, influence organisational outcomes (Nishii and Wright, 2008). The Black Box issue contributed to developing more sophisticated frameworks in which variables related to employees (i.e.

[2] Interrater Reliability (IRR) is the degree of agreement among raters. It shows how much consensus exists among the ratings given by various raters (Lebreton and Senter, 2008).

individual level) and variables related to the organisation (i.e. organisational level) were included in the same model together (Paauwe, 2009). This brought some methodological challenges since a multilevel (i.e. an analysis combining both individual level responses and organisational level responses) analysis approach was needed in order to understand the complexity of these relationships (Ostroff and Bowen, 2000).

In summary, it can be stated that the field of SHRM has gone through different phases (Su, Wright and Ulrich, 2018; Wright and Ulrich, 2017); starting from the era of conceptual models, followed by empirical examinations and reaching the era of empirical critique.

1.3 Current situation

As a field of study, SHRM, has tried to understand how HRM influences OP and how this relationship varies in different contexts (Boselie, 2014; Boxall and Purcell, 2011; Paauwe, 2004). However, different aspects of both issues remain underexplored as is explained in the following sub-sections.

1.3.1 Still searching for causal inferences

Wright and Ulrich (2017) in their recent overview of the field of SHRM mentioned how the field has evolved from infancy and adolescence to a relative state of maturity with the considerable theoretical and empirical progress occurring over the almost past four decades. Paauwe and Farndale (2017) stated that there is definite evidence for the positive linkage between HRM and performance, but they also explained how some scholars (e.g. Guest, 2011; Kaufman, 2015) remain sceptical about this link. This scepticism is largely motivated by the over-reliance on cross-sectional designs[3] and poorly understood causal relationships. This implies both methodological and theoretical issues.

The assumption that HR systems influence employee related outcomes and therefore OP has an implicit causal arrow in which HR systems are seen as the cause and OP as the effect. The theory proposes a causal relationship between variables. Related to methodological aspects, cross-sectional designs do not allow the inference of causality since temporal precedence is a necessary condition for inferring causality (Antonakis, Bendahan, Jacquart and Lalive, 2010; Gollob and Reichardt, 1987; Shadish, Cook and Campbell, 2002). The preferred way of analysing causal relationships is conducting a

[3] Cross-sectional designs include measurements of both dependant and independent variables at the same moment

longitudinal study[4] (Jiang and Messersmith, 2018). Within longitudinal studies, one of the most powerful analytical techniques is Structural Equation Modelling (SEM), since it allows simultaneous estimation of causal relationships between variables (Zapf, Dormann and Frese, 1996). Nevertheless, the majority of the studies to date, have used cross-sectional designs due to the complexity of longitudinal models and attrition[5] problems (Saridakis, Lai and Cooper, 2017).

On the other hand, the aforementioned causal arrow (i.e. the effect of HRM on OP), is known as the forward causality arrow. However, several theoretical explanations for reverse causation (i.e. the effect of OP on HRM) have been proposed in literature such as investment in HRM related to slack resources (Katou, 2012; Paauwe and Boselie, 2005; Shin and Konrad, 2017) and signalling effects (Paauwe and Boselie, 2005; Schneider, Hanges, Smith and Salvaggio, 2003). Slack resources are related to organisational performance; the better performance indicators an organisation achieves, the more slack it will have to invest in social domains such as HRM (Shin and Konrad, 2017). On the other hand, signalling effects, are related to the signals that an organisation emits to their employees; good performance indicators are a signal of organisational health and therefore employees can interpret it as employment security (Paauwe and Boselie, 2005).

Based on these theoretical and methodological limitations, researchers remain unconvinced about the causal paths in the relationship between HR practices and OP. Therefore, shedding light on the causal model between HRM and OP is one of the main challenges of the current SHRM field (Chytiri, Panayotopoulou and Guest, 2017; Jiang and Messersmith, 2018; Saridakis et al., 2017; Wright and Ulrich, 2017).

1.3.2 Contextual factors

Farndale and Paauwe (2018) highlighted that organisations do not work in a "vacuum" and that context needs to be considered in both empirical testing and theory development. Therefore, the relationship between HR systems and OP in different contexts poses another challenge to SHRM and requires analysis to test the generalizations of the evidence found to date in the literature.

[4] A longitudinal study contains repeated measurements of data

[5] Attrition in the longitudinal context refers to participants abandoning the study

Scholars have shown interest in studying the HRM-OP relationship in European contexts (Brewster, 2007; Holt Larsen and Brewster, 2003), in countries hit by crisis (Chytiri et al., 2017; Roca-Puig, Bou-Llusar, Beltrán-Martín and García-Juan, 2018) and in employee-owned companies (Abando, Gallartegi and Rodriguez, 2007; Basterretxea and Storey, 2018; Kaarsemaker and Poutsma, 2006). In the following sections, these three contexts and how they influence the linkage are explained.

European context

Traditionally, SHRM models were derived using USA samples (Brewster, 2007). According to Brewster (1999) "*things are done differently in different countries"* (p. 46) so it may be the case that these kinds of working systems operate differently in non USA contexts. He noted differences in the approaches implemented in the USA and in Europe. USA researchers usually stick to the Universalist paradigm, in which they adopt the "best practice" approach and generalisations are tested assuming that "*more is better*". On the other hand, Europeans tend to stick to the contextual paradigm searching for contextually unique factors that influence HR systems. Europeans tend to believe that "*more is better*" but only "*under specific conditions*". Brewster (1999) mentioned that the scope of HR departments goes beyond the organisation, particularly in Europe where the role of the state and European Union bodies, unionisation and employee participation are extensive. For example, Boselie, Paauwe and Jansen (2001) argued that twelve of Pfeffer's (1995) sixteen "best practices" were implemented in almost every Dutch company due to the legislation and the role of work councils and trade unions. They therefore concluded that the institutional context had considerable influence in the shape of HRM in the Netherlands. In European countries, trade unions are influential and governments are involved in areas such as training and development whereas in the USA, there is a notion that the state should not interfere (Brewster, 1999).

In addition, SHRM models can be understood from two different perspectives: (i) the shareholder perspective and (ii) the stakeholder perspective (Paauwe, 2004). In the shareholder perspective, HR practices are aimed at improving economic and financial indicators. This perspective is more related to the USA in general. The stakeholder perspective, on the other hand, is more European. It is a more balanced approach in which the focus of HR practices is not just on the financial and economic indicators but also on other indicators important for other stakeholders like employees or customers. In Europe, the notion of stakeholder, rather than shareholder, is widespread and widely accepted.

This means that there are conceptual differences in the way HR is implemented in both continents (Brewster, 2007). Considering these differences, scholars have argued that there is a necessity for more research into European countries (Brewster, 2007; Van Veldhoven and Peccei, 2014). This could generate important insights for developing new theoretical understanding about the observed differences between HRM in different countries and continents. Testing the relationship in different cultural contexts is therefore important to understand the universality of the associations that has been demonstrated by the literature.

Market conditions

Economic decline is usually related to a decrease in customer trust and consumption and less willingness of banks and shareholders to invest in an organisation (Boselie, 2014).

Such economic difficulties cause downsizing and in many situations priorities shift towards the economic survival of the company. In times of economic recession, instead of having a long-term perspective managers focus on a short-term perspective. The lack of leeway or organisational slack negatively impacts recruitment and training budgets are reduced. One of the explanations for the underinvestment in HR practices is that the costs of HR investments are immediate and tangible but the benefits are future and intangible (Kaufman, 2012).

Empirical evidence has demonstrated that the economic situation matters and that changing economic and labour market conditions can be expected to act as HRM external drivers. Chytiri, Panayotopoulou and Guest (2017) analysed a sample of Greek companies during an economic recession period and concluded that within tough economic times, the relationship between HRM and firm performance is undermined. Datta, Guthrie and Wright (2003) also demonstrated that industry conditions matter, concluding that HR could produce stronger impacts in industries that are growing. Recently, Roca-Puig, Bou-Llusar, Beltrán-Martín and García-Juan (2018) tested a sample of Spanish industrial companies in a pre-crisis and post-crisis period, concluding that the relationship between HR investment and OP was moderated by the onset of recession. Moreover, Markovits, Boer and Van Dick (2014) showed that since the threatening event of an economic crisis deteriorates economic and employment conditions, it has a negative influence on work-related employee attitudes such as job satisfaction and organisational commitment.

Therefore, based on both theoretical arguments and empirical evidence, testing the relationship in difficult economic contexts has been recommended.

The internal organisational context

There has been a renewed interest in employee-owned or cooperative companies since the start of the global financial crisis in 2008 (Storey, Basterretxea and Salaman, 2014). Different forms of making business compared to conventional investor-owned companies have been considered very attractive as an alternative for recovering a period of economic recession. This is partly motivated by the fact that cooperatives have historically demonstrated better performance during recession times.

Cooperatives point to an alternative working style in which they offer employees: (i) the opportunity to participate in profits, (ii) more participation in management and (iii) employment security, among other aspects (Jones, 2007). In most cases, there is a general expectation that positive outcomes will result from such organisational structures. One of the argument behind this assumption is that employees are more engaged and thus, will be more productive (Basterretxea and Storey, 2018). The rationale behind this assumption is that workers are expected to act like "owners" seeing the customer as the source for their economic income, instead of their boss. In this context, cooperative workers are assumed to be more willing to make sacrifices in hard times.

According to Basterretxea and Storey (2018), empirical research has demonstrated that employee-owned companies achieve better employee well-being related results (e.g. satisfaction, motivation, commitment) and better Organisational Performance results (lower absenteeism and labour turnover rates and better productivity) (Bakan, Suseno, Pinnington and Money, 2004; Boyle, Patel and Gonzalez-mulé, 2016).

Nevertheless, contradictory results can also be found in which cooperatives achieve lower levels of satisfaction and higher levels of absenteeism (Arando, Gago, Jones and Kato, 2011; Basterretxea and Storey, 2018; Blasi, Freeman and Kruse, 2008). One of the reasons behind this inconsistent empirical evidence is that there is a lack of studies focusing on understanding what ownership may add to the HRM-OP relationship (Kaarsemaker and Poutsma, 2006). Kaarsemaker and Poutsma (2006) discussed that there was no empirical evidence to demonstrate the necessary conditions for positive effects of HRM within cooperative companies. In their article they proposed an ownership HR system that

included: (i) participation in decision-making, (ii) information sharing, (iii) training for business literacy and (iv) mediation. They argued that an HR system to work should send a consistent message to employees and make them feel like real owners where they have a say, they have the needed information and they are able to understand it, in order words, where employees are "business literates".

As a consequence, empirical evidence showing the HRM-OP linkage within cooperatives is of interest and could shed light on the fact that whether the relationship is universal.

1.4 Contribution of the current research

The overarching goal of this research is to elucidate the causal order challenge of the HRM-OP relationship. To this end, theoretical foundations for alternative and reciprocal causal paths are developed and a longitudinal SEM study is conducted.

Given that there is a paucity of longitudinal research in the SHRM field, analysing the chain of the relationship between HRM, employee attitudes and OP from a longitudinal perspective is called for. To this end, this study provides empirical evidence to shed light on the longitudinal challenge. One of the main contributions is to improve the methodological rigor and quality of HRM-OP research using a longitudinal SEM technique.

Following the multilevel framework, data was gathered at different levels. In this thesis, the perceptions of employees about the practices being implemented and attitudes were measured at the employee level. These measures help provide some evidence for the Black Box issue. Moreover, the Organisational Performance data is archival data and it was gathered at the organisational level. However, the analyses were not conducted with multilevel models since individual-level follow up was not available. Employee-level variables were aggregated at the company level for doing the statistical analysis.

This research is focused on cooperative companies from the industry and service sectors. Employees are co-owners of these companies combining financial ownership with extensive employee control over the organisation, making this business context unique (Forcadell, 2005). In companies where employees hold both control and return rights, it is assumed that this kind of ownership may lead to increased OP (Ben-Ner and Jones, 1995). The present research tests this assumption empirically.

There is considerable variety across cultures in terms of approaching HRM. The differences between the USA and Europe have been a source of study. However, even within the European boundaries there are differences to be explored (Brewster, 2007). The most analysed samples in Europe to date have been from the UK and there is little data from other countries. For this reason, the Spanish sample analysed in this thesis can add insightful contributions to the literature.

The evidence found in the literature suggest that further analysis of the HRM-OP relationship in countries hit by crisis could be insightful. Part of the data analysed in this research was gathered during a tough economic period in Spain providing evidence of the extent to which the external general market conditions might influence HRM.

This document is organized into ten chapters. The first chapter introduces the research. Then, in the second chapter, a literature review of the theoretical arguments developed in the SHRM field is described. The third chapter focuses on the causality challenge of the SHRM field from both theoretical and methodological perspectives. In the fourth chapter, based on the literature review and the identified challenges, the objective of this thesis is explained. The fifth chapter describes the research model and the hypotheses tested in the present research. The sixth chapter describes the methodology followed and the seventh chapter gathers the measurement information. Chapter eight summarises the conducted analysis and their results. The last part concludes with a discussion of the results in Chapter nine and conclusions in Chapter ten. Bibliographic references can be found at the end of the document.

"Human capital will go where it is wanted, and it will stay where it is well treated.
It cannot be driven; it can only be attracted."
Walter Wriston.

Chapter 2

Strategic Human Resource Management

2 Strategic Human Resource Management

The field of SHRM has been focused on studying HR systems and their influence on the long-term survival of the organisation (Jackson et al., 2014). The long-term survival or sustainability of the company is related to the ability to outperform competitors (Pfeffer, 1995). The better performance companies achieve, the more sustainable they will be.

Based on this assumption, SHRM researchers have been guided by the following two research questions:

(i) To what extent do HR systems influence Organisational Performance?

(ii) Assuming that the first question is true, that HR systems do influence Organisational Performance, how is this relationship materialised?

To date, the first question has been widely tested and scholars agree that empirical evidence has demonstrated that the relationship is "not only statistically significant but managerially relevant" (Combs et al., 2006: p. 454). The first empirical evidence that demonstrated the positive influence of HRM on OP is considered to be that published by Huselid in 1995. There is no doubt that since then, the field has been fed with evidence of positive relationships. Meta-analysing the research in SHRM supports the idea that HRM has a significant effect on OP (Combs et al., 2006; Jiang et al., 2012; Subramony, 2009).

Research related to the second question has appeared more recently in the literature. It involves understanding the underlying mediating mechanisms between HR systems and OP, referred to as the Black Box. Studies analysing this mediation appeared around the year 2000 (Jiang and Messersmith, 2018) and involved analysing the relationship from a multilevel perspective where individual and organisational level aspects were combined in the same analysis. However, empirical studies demonstrating this multilevel and complex relationships did not appear until around 2008 (Jiang and Messersmith, 2018).

In the following sections, the theoretical explanations that underpin the aforementioned research questions are described. First, Section 2.1 analyses under which strategy HR systems develop, how are they understood inside the field of SHRM and which are the approaches employed. Section 2.2 focuses on the second question and describes the theoretical aspects related to the Black Box.

2.1 HR systems

2.1.1 Control and commitment strategy

The way in which Human Resource Management (HRM) contributes to Organisational Performance (OP) has been considered as the Holy Grail of the SHRM field. Scholars have agreed that it is by the effective implementation of HR systems that a firm contributes to OP.

Advanced HR systems are known as High-Performance-Work-Systems (HPWS). HPWS are composed of practices like selective staffing, intensive training, development, performance appraisal, benefits, employee involvement, etc. (Napathom, 2018). According to a review of Boselie, Dietz and Boon (2005), the five key practices applied in research that compose HR systems are: (i) selective recruitment and selection, (ii) appraisal and performance management, (iii) compensation, (iv) training and development, and (v) employee participation or involvement. This is aligned with a recent review conducted by Boon et al (2019) in which they identified that in more than 58% of the 516 HR systems they reviewed, the analysed HR practices were: (i) training and development, (ii) participation and autonomy, (iii) incentive compensation, (iv) performance appraisal, and (v) selection.

Notwithstanding the fact that the most widely used term is High-Performance-Work-System, there are alternative HR system approaches including High-Involvement-Work-Systems (HIWS) (Lawler, 1986) and High-Commitment-Work-Systems (HCWS) (Walton, 1985). Both HCWS and HIWS can be understood as two variations of HPWS (Boxall, 2013). Walton (1985) referred to HCWS as a system of HR practices with verified effects on commitment and also associated with organisational goals. The term organisational commitment is treated as an umbrella for all the interrelated attitudes and employee orientations such as a flexible role orientation, strong group-orientation and a willingness to contribute to innovation (Wood, 1999). HIWS, on the other hand, are oriented towards high-involvement goals with a better use of employee skills for self-management, personal development and problem solving (Boxall and Macky, 2009). HIWS try to reverse the "Taylorist" process of centralising decision making and problem solving in the hands of management. In general terms, HPWS are generally conceptualized as the bundle of advanced HR systems associated with a high-commitment or high-involvement employment model (Kaufman, 2012).

HPWS fall under the **commitment strategy** approach. In its pure essence, companies that opt for this strategy try to keep a highly-committed staff by implementing practices like flexible job design, high-involvement in managerial decisions, long-term employment perspectives, training programs, team-based programs and job rotation (Arthur, 1994; Lepak and Snell, 2002; Walton, 1985; Xiao and Björkman, 2006). The main aim of such companies is to give to employees in order to receive from them, based on the norm of reciprocity (Gouldner, 1960). HR practices work as a form of communication between organisation and employees, which indicate the extent to which the organisation is investing in their employees (Bayraktar, Karacay, Araci and Calisir, 2018).

The commitment strategy approach is the opposite of the traditionally employed **control strategy** in which the main aim is to increase labour efficiency and decrease direct labour costs. Some of the practices implemented within the control context include very well-defined jobs with clear rules and procedures, no transparency of information, poor training and individual incentives (Arthur, 1994; Walton, 1985).

These two strategies (control and commitment) are in direct opposition but some authors have mentioned hybrid strategies in which both approaches could be combined (Hauff, Alewell and Hansen, 2014; Su et al., 2018). In a study conducted by Hauff et al. (2014) in German firms, they identified two more intermediate strategies: the long-term-oriented control system and the regulated commitment system. The former is an extension of the traditional control strategy but employees have a long-term view and career perspectives with training programs. The latter is an extension of the commitment strategy but more delimited and with well-defined jobs with clear rules and procedures. After analysing the impact that these four strategies had on HRM outcomes and OP, they concluded that purely commitment-oriented systems outperformed purely control-oriented systems in the majority dimensions. Therefore, they supported the idea of the positive contribution of commitment strategies. On the other hand, Su et al. (2018) in a study of Chinese companies, found that a hybrid approach combining both commitment-eliciting and high-compliance to rules, produced the best organisational results. It indicated that hybrid typology was better than solely focusing on one of the two approaches.

Control strategy has been treated as an outdated and exploitative strategy. Most theory and empirical studies have focused on commitment strategies and have revealed a positive association between commitment-based HR systems and OP (Su et al., 2018). For this reason, the current research is based on commitment strategy.

2.1.2 Three dimensions of HR systems

From a general perspective, HPWS is a concept that encompasses three different issues**:** (i) **Organisational Performance,** (ii) **systemic effects** and (iii) **work practices design** (Boxall and Macky, 2009)**.**

The dependant variable of interest is **Organisational Performance.** One of the most commonly used classifications in SHRM literature is the one developed by Dyer and Reeves (1995) in which different levels of performance are distinguished depending on their proximity to the external market. They classified performance outcomes into two groups; proximal and distal (Figure 4).

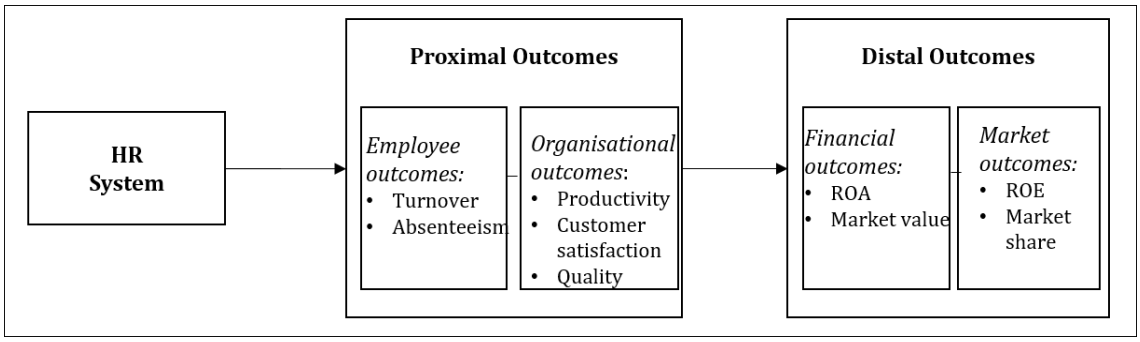

Figure 4: Outcomes classification by proximal and distal outcomes
Based on the classification of Dyer and Reeves (1995)

Proximal indicators are those that are more related to HRM and people and can be further broken down into employee and organisational indicators. Employee outcomes consist of aspects such as turnover and absenteeism. Organisational indicators reflect operational performance and may include productivity, quality and customer satisfaction measures.

Distal indicators, on the other hand, are those that are more related to the market. Within the distal group, there are financial and market indicators. Financial indicators, show the economic-financial situation of the firm with measurements such as profits or Return On Assets (ROA). Market measurements indicate the value of the firm according to the equity market.

Complementarity or **systemic effects** refer to the fact that HR bundles work better together than individual HR practices. According to MacDuffie (1995), HR practices contribute to performance when they are interrelated in an internally consistent bundle. This is supported by meta-analyses which have revealed that HR bundles have significantly more impact than individual practices (Combs et al., 2006; Subramony,

2009). Furthermore, single practices or inconsistent systems may have no effect or even negative effects on achievements (Jiang et al., 2012). Notwithstanding the abovementioned arguments however, most research has not focused on synergies between HR practices and to date, little is known about the "systems" element of HPWS (Boon et al., 2019).

The ultimate objective of HPWS is to elicit the desired attitudes and behaviours of employees (i.e. employee performance) so **work practices are designed** to this end. Taking into account that employee performance is a function of both ability and motivation (Campbell, McCloy, Oppler and Sager, 1993), the Ability-Motivation-Opportunity (AMO) model (Appelbaum, Bailey, Berg and Kalleberg, 2000) seems to be the basis of most of HR Systems and it has been widely used in HRM-OP research (Paauwe, 2009; Paauwe, Guest and Wright, 2013).

First, ability-enhancing HR practices (e.g. selective recruitment, extensive training) can promote human capital (KSA) of employees (Takeuchi, Lepak, Wang and Takeuchi, 2007). Human capital is considered to be essential for employee performance (e.g. Browne, 1956). HR systems can enhance employee KSA that are specific to the company, and allow the generated human capital pool (i.e. aggregated KSA) exploit it for the benefit of the company (Birdi et al., 2008). Therefore, certain development level of ability-enhancing practices should be necessary for high employee performance and high OP. Second, motivation-enhancing HR practices (e.g. work methods autonomy, incentives, job security) complement the ability-enhancing practices for more behavioural reasons (Hauff, Dul and Rhee, 2019). Motivation-enhancing HR practices are designed to motivate employees to obtain the desired work behaviours. For example, giving autonomy to employees are expected to work harder and more flexibly in order to get their job done since the autonomy prompts responsibility feelings for employees (Hackman and Oldham, 1976). Consequently, a minimum application level of motivation-enhancing HR practices is desirable for the beneficial (from an organisational point of view) behaviours. Finally, opportunity-enhancing HR practices (e.g. organisational participation, job design) include job design and employee empowerment practices so they do not only take into account individual aspects but also organisational aspects (Marin-Garcia and Tomas, 2016). Hence, opportunity-enhancing HR practices should also be present in order to provide employees the possibility to apply the acquired knowledge encouraged by the gained motivation.

In summary, according to the AMO model, people perform well (for the benefit of the organisation) when they are capable (i.e. they have the needed KSA), they have the adequate motivation, and their work environment provides opportunities to participate (Marin-Garcia and Tomas, 2016). Considering that the ultimate aim of a HR system is to elicit the desired attitudes and behaviours of employees, and that employee performance is a function of AMO, it is assumed that HR systems should be designed in a way that effectively enhance the three dimensions of the AMO model.

It is important to highlight that the three dimensions work in conjunction and they are seen as mutually reinforcing; i.e. the effectiveness of a HR practice will depend on other HR practices. One of the main contributions of the AMO model is in fact that it highlights the need of employing a systemic approach when determining the appropriate combination of different HR practices (Delery and Roumpi, 2017). It is the correct combination of at least one HR practice per each AMO dimension that can lead to higher performance (Bos-Nehles, Van Riemsdijk and Kees Looise, 2013). Delery and Gupta (2016) conducting an empirical study, also found that ability-enhancing, motivation-enhancing and opportunity-enhancing HR practices interact in a complex manner reinforcing this logic.

Based on the Social Exchange Theory (SET) (Blau, 1964) when employees perceive that the company treats them well, they reciprocate by increasing effort in order to make the exchange fair. The second dimension of the AMO model, motivation, reflects the direction of the efforts exerted by employees (Subramony, 2009). When organisations implement HPWS as an investment in employees and provide them with benefits such as development and participation opportunities, employees are more motivated to reciprocate with engagement and positive attitudes towards the organisation (Takeuchi et al., 2007). The underlying assumption of the different types of HPWS is that people perform "well" (i.e. serving organisational interests) when HR practices attend to employee interests, their skills requirements, motivation and the quality of their job. It can be concluded that a company develops a high quality and open-ended relationship with its employees through HPWS, which is characterized by mutuality and reciprocity (Sun, Aryee and Law, 2007).

In this study, the analysed High-Performance Work System is a High-Involvement Work System. It is composed of four practices based on the AMO model that foster employee involvement: (i) training, (ii) work methods autonomy, (iii) participation in strategic

decision making and (iv) information. More details for the theoretical rationale of the specific measurements employed in the current research can be found in chapter 5.
On the other hand, two performance indicators are measured. Following the aforementioned classification of Dyer and Reeves, (1995) absenteeism and productivity will be measured as more proximal indicators which are consistent with the view of SET (Sun et al., 2007). Finally, from the systemic perspective, the synergistic effects between practices of HIWS are not analysed empirically. Instead, the analysed practices are considered as mutually reinforcing, and the degree of such mutual interaction determines system effectiveness (Chadwick, 2010).

2.1.3 Different approaches of HR systems

Some scholars argue that depending on the pursued strategy in the company the approach followed in the design of the HR system should be different. Porter's (1985) generic strategies (i.e. cost minimization or differentiation), are an example of different contextual situations or strategies. It is argued that for a cost minimization strategy the control approach works better and that within these contexts HPWS may not work (Wood, 1999).

This argument is based on the **contingent perspective** where a strategic fit between HR practices and the competitive strategy of the business is followed. This approach adheres to the "best fit" logic. HPWS involve implementing practices such as extensive training or shared participation in decisions which are not compatible with the job intensification that usually accompany control strategies. Within this perspective, the cost minimization generic strategy fits the control approach and the differentiation generic strategy fits the commitment approach and thus, the implementation of the described HPWS.

The alternative to the contingent perspective is the **universalistic perspective**. Scholars that support universalism, argue that well-designed HPWS with synergistic effects among practices, foster employee involvement and human capital of the organisation and therefore, is the best way of managing employees (Wood, 1999). This perspective follows the "best practice" approach assuming that the more High-Performance-Work-Practices are implemented, better for the organisation (Boxall, 2013; Guest, 2011).

Most of the empirical work has applied the universalistic approach and different studies have validated it demonstrating that certain HR practices work better than others, and that these practices have a positive impact on OP (Kim, Kim, Kim, Han and Lepak, 2018). As a general rule, it can be stated that all the firms benefit from practices that help align

management interests with those of employees (Boxall and Purcell, 2011). Considering that, in this thesis, the universalistic perspective is followed.

2.2 Unravelling the Black Box

Considerable research has been conducted to demonstrate that HR systems are associated with OP. However, to date, little is known about how these systems contribute to performance and the mediating variables continue to be the Black Box of the relationship (Wright and Ulrich, 2017). Nevertheless, scholars have agreed that the variables involved in the Black Box are related to how employees perceive HR systems and how they react towards them (Jiang, Hu, Liu and Lepak, 2017). It is clear that people are a key aspect in this relationship since organisations do not perform, but people do.

Wright and Nishii (2013) proposed a SHRM implementation process model in which they distinguished different steps and different levels. The process starts with the intended HR practices, followed by actual HR practices, resulting in perceived HR practices, which influence posterior employee reactions and thus, OP (see Figure 5).

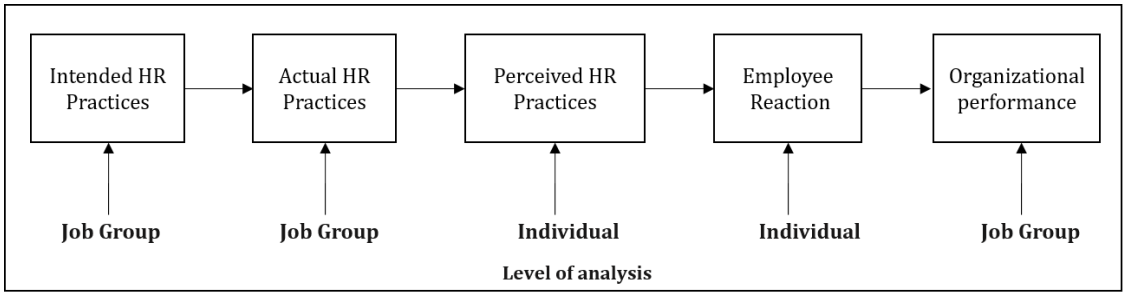

Figure 5: Process model of SHRM.
[Adapted from Wright and Nishii (2013) with author permission]

As Figure 5 suggests, there is some variability (depicted by several steps in the chain) within the practices that are implemented and the practices that are perceived. Individual implementers will not be uniform in their implementation efforts. The system is rarely perfectly applied by those in charge of implementing it. There might be a division between the intended and the actual practices due to political, institutional and rational factors (Mintzberg, 1978).

Similarly, the schemas that individuals employ when perceiving and interpreting the practices generate variability in the level of perception of these HR practices. The quality of the implementation is related to what employees perceive and interpret. Based on the

aforementioned SET, employee reaction depends on how they experience the practices. Individuals respond emotionally to environmental attributes as a function of the significance they perceive that these practices have for their personal well-being (James et al., 2008).

Employee reactions may be affective (attitudinal), cognitive (knowledge or skills) and/or behavioural (Wright and Nishii, 2013). These reactions are the last link of the chain (Figure 5) and they have a crucial impact on OP. HR systems are aimed at fostering positive attitudinal reactions, increased cognitive skills and improved productive tasks. Therefore, what employees perceive becomes vital and it needs to be considered in the equation. In order for the HR systems to bear fruit, they have to be positively perceived by employees in ways that will provoke desired attitudinal and behavioural reactions (Nishii, Lepak and Schneider, 2008).

There are different theories that explain the complex and dynamic mediating paths through which HR systems influence employee reactions and thus, OP. According to Jiang and Messersmith (2018) in a review conducted of prior conceptual reviews within the field of SHRM, the three most popular theories to explain these paths have been: (i) **RBV**, (ii) **human capital theory**, and (iii) **the behavioural perspective**.

First, according to **RBV** (Barney, 1991), for any resource to be a source of competitive advantage and provide a company with above-average performance, it must be valuable, rare, inimitable and must have the support of the organisation (see Figure 1). Based on RBV, different scholars (e.g. Lado and Wilson, 1994; Wright et al., 1994) have argued that HR systems meet the four criteria and for that reason, they can become a potential source of sustainable competitive advantage. Empirical studies (e.g. MacDuffie and Kochan, 1995; Snell and Dean, 1992) endorsed this rationale. In addition, several SHRM scholars have argued that real competitive advantage comes from the way companies implement HR systems rather than the design of the system (Becker and Huselid, 2006). The quality of the implementation process can be the source of competitive advantage since it is far more difficult to imitate than the design. Overall, it can be stated that the competitive advantage that emerges from HR systems is based on: (i) how the company focuses on developing firm-specific skills which are less imitable than generic skills; (ii) the investment in practices that foster team building since team outcomes are more causally ambiguous and more socially complex; and (iii) the coherence of the combination of HR

practices since highly integrated bundles of practices are more difficult to imitate (Delery and Roumpi, 2017).

Inside the RBV, another approach that the field of SHRM has applied is based on the assumption that the HR system does not affect OP, instead, it affects how people do their jobs which in turn influence OP. Within this second RBV-based stream, **Human Capital** resources (defined as employee KSA) are considered to constitute the main source of competitive advantage. HR systems can enhance employee knowledge, skills and abilities that are specific to the organisation, and the generated human capital pool (i.e. aggregated KSA) can lead to a competitive advantage (Barney, 1991; Wright and McMahan, 1992). This assumption is based on the fact that the development of a system of interrelated HR practices can leverage the potential of valuable, rare and inimitable human capital, which in turn positively affects OP (Arthur, 1994; Huselid, 1995). In addition, human capital is unevenly distributed among firms and is often in short supply. Therefore, knowledge embedded in people is considered to be a potential source of competitive advantage and firms that possess superior human capital will outperform others. In addition, meta-analysis results have empirically supported that human capital leads to superior OP (Crook, Todd, Combs and Woehr, 2011).

Both the RBV and human capital theory highlight the importance of Human Resources and Human Resource Management systems. **Behavioural perspective** builds on these theories, adding explanations about how HR systems can help organisations achieve strategic goals by incentivizing desirable employee behaviours (Jiang and Messersmith, 2018). According to Schuler and Jackson (1987) people can be a source of competitive advantage when their attitudes and behaviours are aligned with the firm strategy. Based on SET (Blau, 1964) and the norm of reciprocity (Gouldner, 1960) when companies implement HR systems that improve employee well-being, development and give them opportunities to participate, employees perceive it positively and reciprocate in kind. When organisations implement HR practices that invest in employees and provide them with benefits, employees respond to these offerings with effort, engagement, and positive attitudes towards the organisation (Takeuchi et al., 2007). Messersmith, Lepak and Gould-williams (2011) put forward the argument that attitudinal reactions such as organisational commitment elicit employees to exhibit proactive behaviours which positively influence OP, and several scholars have demonstrated this empirically (e.g. Gong, Law, Chang and Xin, 2009; Kehoe and Wright, 2013). Thus, HR systems can drive attitudes and behaviours that are valuable, rare, inimitable and non-substitutable (Wright,

Dunford and Snell, 2001) which convert these attitudes and behaviours into enhancers of OP (Becker and Huselid, 2006).

According to the behavioural perspective, KSA are considered the antecedents of the desired attitudes and behaviours since employees that feel "capable" can boost proactive and desirable behaviours (Barney, Wright and Ketchen, 2001; Gerhart, 2005). Wright et al. (1994) argued that although KSA are very important and necessary, what really makes an impact on OP are the attitudes and behaviours of employees. Based on this, behavioural perspective is one of the most recommended when explaining the mediating variables included in the Black Box. Therefore, the theory that will be applied in the present research regarding the analysis of the Black Box variables is the behavioural perspective.

2.3 Conclusions and current situation

Few would dispute that the abundant research examining the HRM-OP relationship has produced considerable theoretical foundations and empirical evidence for the linkage. However, several researchers remain sceptical about the research and have critiqued the conclusions and lack of methodological rigor (Wright and Ulrich, 2017).

Both research questions of the SHRM field – (i) to what extent do HR systems influence Organisational Performance? – and – (ii) how is this relationship materialised? – have an implicit causal inference. The first question assumes that HR systems are the cause and OP is the effect. The second question assumes that HR systems cause some mediating variables (i.e. the Black Box) and that these in turn behave as a cause for the resulting OP. However, most research to date is cross-sectional and directionality is often assumed rather than tested (Den Hartog, Boselie and Paauwe, 2004). Based on this, researchers have criticised poorly understood causal relationships and the over-reliance on cross-sectional studies (Boxall, Huo, Macky and Winterton, 2019; Guest, Michie, Conway and Sheehan, 2003; Jiang and Messersmith, 2018; Saridakis et al., 2017; Van De Voorde, 2010; Wright et al., 2005).

Causal inferences from cross-sectional studies are limited since directional influences need time to operate (Gollob and Reichardt, 1987). Several scholars have stated that an "increase in HR practices" is associated with an "increase in OP" (Wright and Ulrich, 2017), a statement that cannot be made unless longitudinal data is analysed (Gollob and Reichardt, 1991). Some researchers (e.g. Guest et al., 2003; Wright et al., 2005) found that

the relationship between HR practices and performance indicators were significantly altered and reduced after controlling for past performance. This suggested that conclusions could be different if longitudinal data were analysed. Wall and Wood (2005) noted that the assumption of HR practices having a causal influence on OP had infiltrated the SHRM literature, warning that researchers should be more cautious when making causal affirmations.

In addition, arguments such as prior performance determining the level of adoption of the HR system (Becker and Huselid, 2006; Wright et al., 2005) suggest a different (i.e. reverse) causal direction (i.e. the effect of OP on HRM). Motivated by this logic, reverse causality has been highlighted as a subject for further investigation (Boselie et al., 2005) but its strength compared to the forward causality still remains untested (Katou and Budhwar, 2014; Wright and Haggerty, 2005).

On the other hand, a more systemic perspective has provided explanations and empirical evidence for showing a more complex and bidirectional relationship between HRM and OP have appeared (e.g. Roca-Puig et al., 2018; Shin and Konrad, 2017). These studies, support the need to extend the research of SHRM literature by considering reciprocal causal paths.

Thus, it can be stated that to date, the causal order of the HRM-OP linkage remains underexplored (Chytiri et al., 2017; Katou and Budhwar, 2010). In the following chapter, a thorough analysis of the causal model between HRM and OP is described. It includes both theoretical explanations for alternative causal paths and the methodological implications for analysing the relationship appropriately. It also includes a review of the studies that have analysed alternative causal paths with longitudinal designs, in order to understand how the SHRM field is related to this causality debate.

"When people are financially invested, they want a return.
When people are emotionally invested, they want to contribute."
Simon Sinek.

Chapter 3

The Causal Model between HRM and Organisational Performance

3 The Causal Model between HRM and Organisational Performance

3.1 Theories for explaining alternative causal paths

Two conceptual models have been commonly applied in the field of SHRM. The first model (Figure 6), developed by Paauwe and Richardson (1997), included the three aspects previously mentioned in chapter 2: (i) HRM activities or the HR systems, (ii) HRM outcomes or employee related variables as mediators and (iii) OP as an outcome. In addition, they included control or contingency variables that could affect the relationship at both the organisational and individual levels.

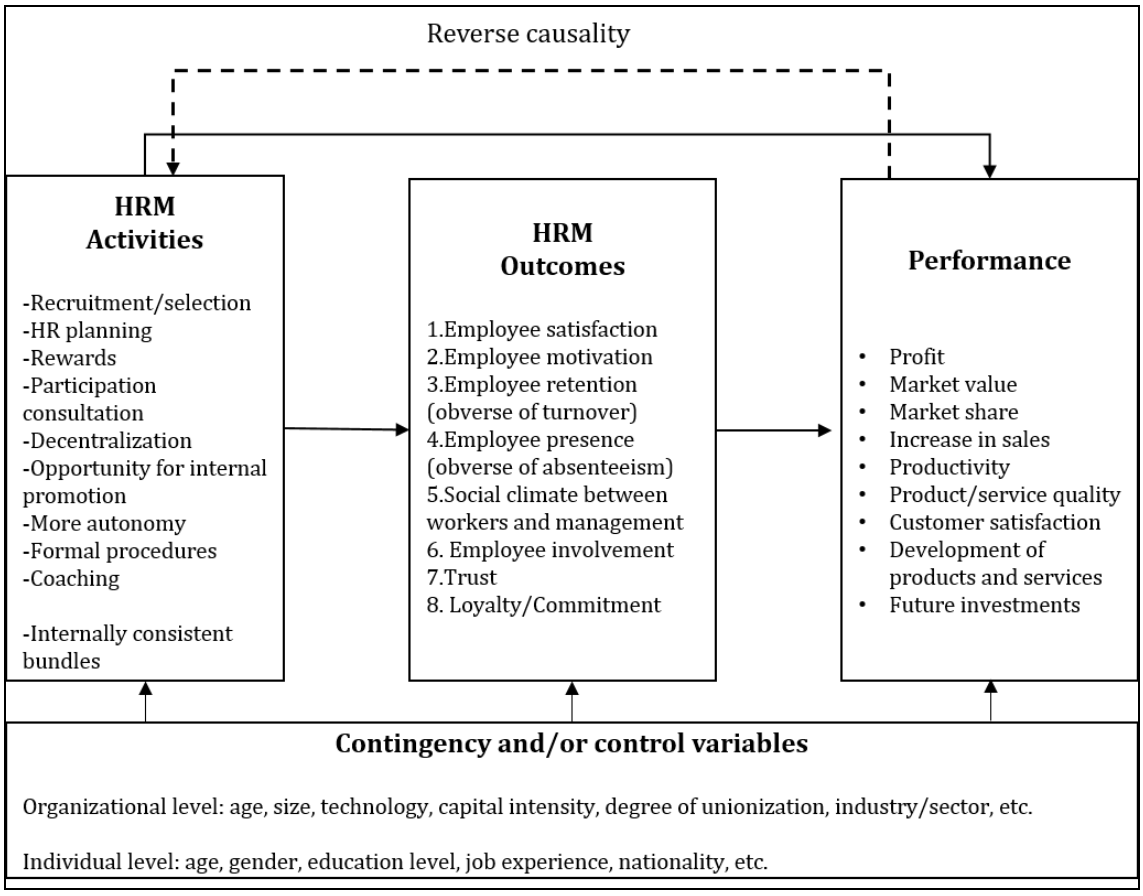

Figure 6: HRM activities in relation to HRM outcomes and performance.
[From Paauwe and Richardson (1997). Included with author permission.]

The second model (Figure 7) developed by Boselie et al. (2005) was very similar and included the same three aspects, but the performance was divided into two levels: (i) operational or internal performance and (ii) financial performance. In addition, they

added a contingent perspective including as antecedents of HR practices, the overall strategy and the HR strategy.

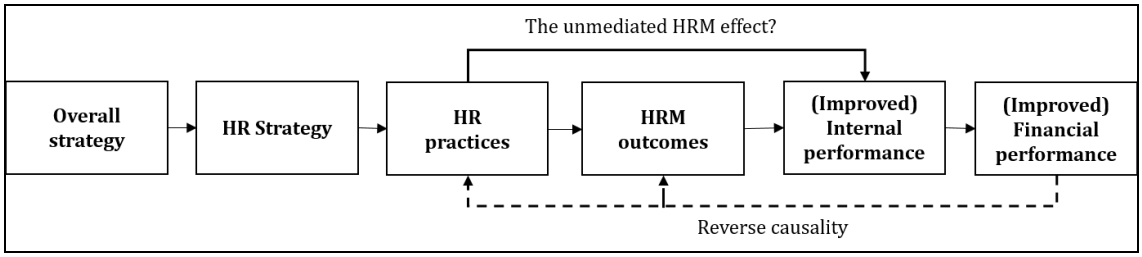

Figure 7: The standard causal model for HRM-performance relationship.
[From Boselie et al. (2005). Included with author permission.]

Both models follow the same logic mentioned in the previous chapter: HRM activities are shaped in order to impact positively on OP and this influence is materialised through people (named HRM outcomes in the models). This assumption follows the forward causality logic (depicted with continuous lines in the models).

However, in both models, the authors incorporated reverse causal arrows (depicted with discontinuous arrows) going from performance to HRM activities. The model developed by Boselie et al. (2005) also included the reverse causality from performance to HRM outcomes. With these proposals, it was clear that the relationship was not simplistic and that the reverse causality was also a variable that needed to be considered in the equation. However, despite the fact that conceptual models have included this reverse causal path, the majority of the empirical evidence has been focused on analysing forward causality.

In the following pages, theoretical explanations for the different causal paths shown in Figure 6 and Figure 7 are detailed.

Forward causality

As mentioned in Chapter 2, the field of SHRM assumes that properly configured HR practices can provide a direct and economically significant contribution to firm performance and thus, can help create a source of sustained competitive advantage. The relationship has been mostly analysed from a forward causality perspective (i.e. the effect going from HR systems towards performance). It has been assumed that HR systems influence people-related mediator variables and these in turn, influence OP (Jiang et al., 2017). In addition, it has also been assumed that properly configured HR systems can

provide a direct contribution to firm performance (Paauwe, 2004). Figure 8 shows the two forward causality arrows within the HRM-OP relationship.

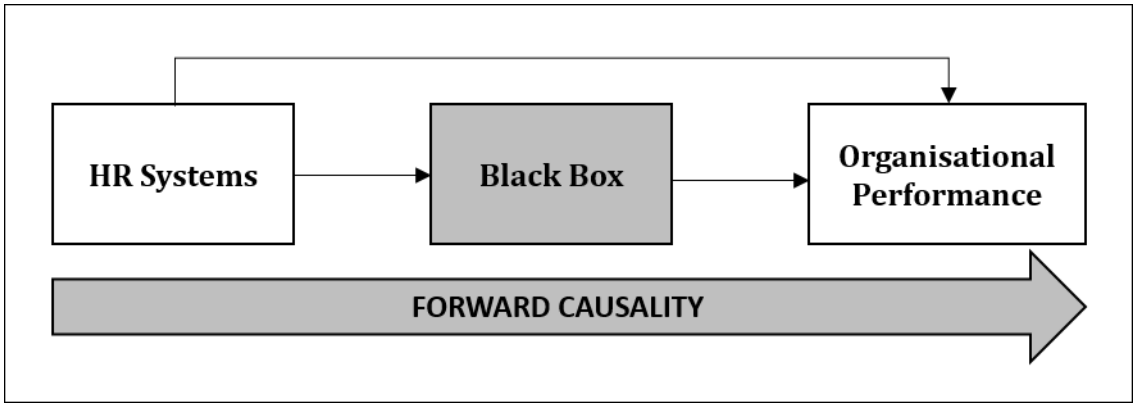

Figure 8: Forward causal paths in the HRM-OP relationship

In summary, the forward causality refers to the impact that goes from HRM to OP either directly or indirectly. The theories described in the previous chapters such as RBV, the AMO model, human capital theory, the behavioural perspective and SET are based on forward causality logic since HR systems are those expected to impact OP.

Reverse causality

The other causality that the conceptual models include is reverse causality (see Figure 6 and Figure 7). Within this approach, OP is considered as the cause and HRM is considered as the effect (depicted by discontinuous lines from OP towards HR systems in Figure 9). Scholars have argued that for example, high performing organisations are more likely to have slack resources that can be dedicated to HRM (Paauwe and Richardson, 1997; Van Iddekinge et al., 2009). Thus, slack Resources grow as OP increases. Previous OP determines the level of slack resources a company can invest in social domains such as employees (Shin and Konrad, 2017). Based on this logic, it is argued that rather than HRM leading to superior OP, it is the high performing organisation which can afford the implementation of advanced HR practices. High performing organisations are more likely to possess slack resources that can be dedicated to HRM such as the implementation of extensive training programs. Profitable firms can share benefits with employees in different ways: offering higher salaries, more training and development opportunities, participation in teams, etc. (Wright and Haggerty, 2005).

It was from this perspective that scholars called for further investigation into the alternative causality in the HRM-OP relationship (Boselie et al., 2005). Guest, Michie, Conway and Sheehan (2003) empirically demonstrated that profitability generated scope for more HRM than vice versa. In the same vein, Katou (2012) analysed a sample of small Greek firms and found that it was the high performing firms that could directly afford HRM implementation rather than the reverse. More recently, Bennett and Levinthal (2017) found that the growth rates of firms are significantly related to employee incentives.

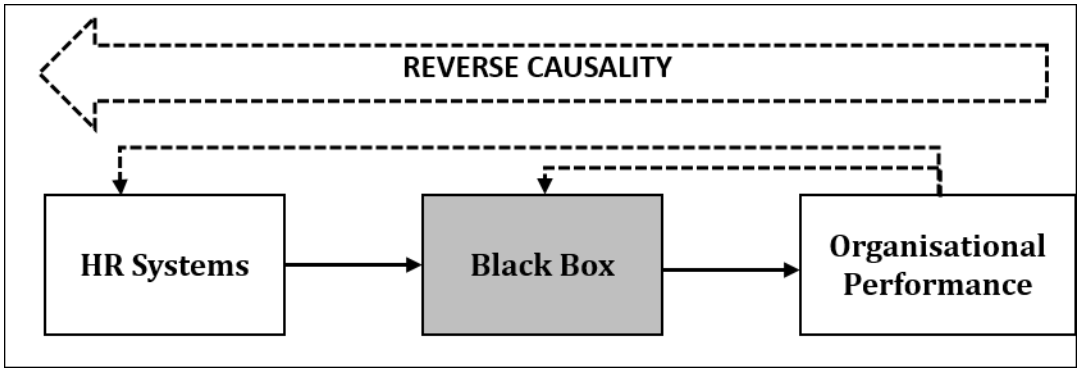

Figure 9: Reverse causal paths in the HRM-OP relationship

Related to mediator variables included in the Black Box analysis, Paauwe and Boselie (2005) identified some signalling effects that the high performance of a firm can have on employee attitudes (depicted by discontinuous lines from OP towards Black Box in Figure 9). High performance can be a sign of organisational health and therefore, employment security. In addition, most employees enjoy being members of a good or winning team. It is therefore argued that employees can be motivated by organisational success (Den Hartog et al., 2004) and that performance can affect employee attitudes to the same extent as the reverse (Locke and Latham, 2002). Piening, Baluch and Salge (2013) found that customer satisfaction can be a source of employee satisfaction (i.e. customer satisfaction has a rewarding effect on employees) concluding that the relationship between employee satisfaction and customer satisfaction is reciprocal rather than unidirectional. In the same vein, Schneider, Hanges, Smith and Salvaggio (2003) concluded that profitability was a stronger predictor of job satisfaction than the reverse arguing that: (i) high performing organisations provide superior benefits to employees yielding higher levels of satisfaction; (ii) employees are proud of working in high-performing organisations and they feel more attracted to and satisfied with the company; and (iii) the salaries are higher and therefore employees are more satisfied.

Therefore, the reverse causality refers to the impact that goes from OP to HRM and from OP to employee attitudes (see Figure 9). Some theories that serve to explain the reverse causality are the investments in HRM due to slack resources (Paauwe and Boselie, 2005; Paauwe and Richardson, 1997) and the signals that the organisational context sends to employees (Den Hartog et al., 2004; Paauwe and Boselie, 2005).

Reciprocal causality

It is possible that both causalities are present at the same time: (i) HRM influences OP and (ii) HRM is simultaneously influenced by OP (see Figure 10). Shin and Konrad (2017) provided strong arguments based on general systems theory (Von Bertalanffy, 1968) for justifying a more complex and two-way relationship between HRM and OP. They proposed a model which included feedback loops and the relationship was hypothesised as an open system where reciprocal influencing occurred. They stated (p. 3)*"…in order to understand the relationship between HPWS and performance, it is necessary to consider the feedback loop from performance to HPWS as well as the impact of HPWS as an input affecting performance outcomes…".*

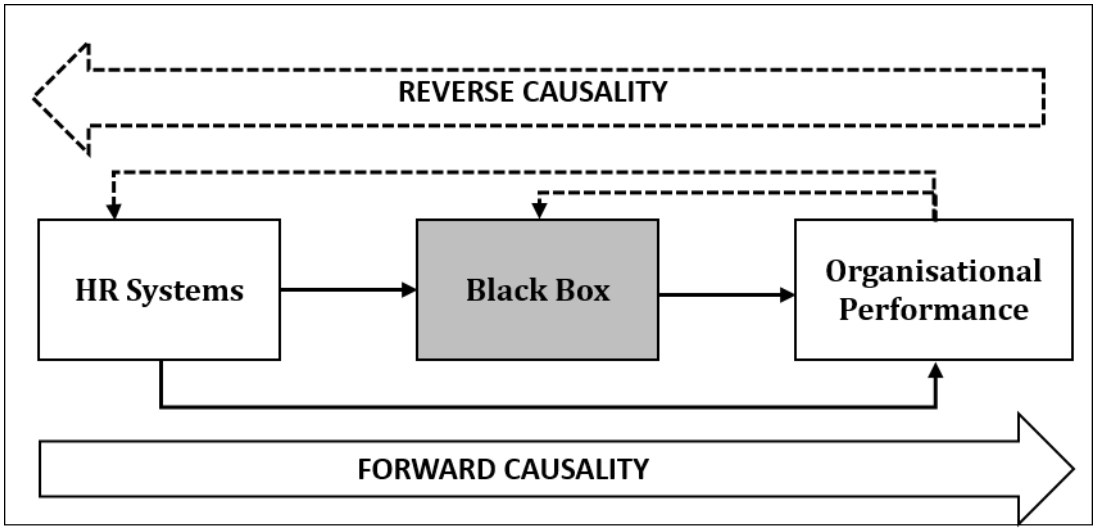

Figure 10: Reciprocal causal paths in the HRM-OP relationship

Within the general systems theory framework, a feedback loop occurs when the outputs generate the inputs that are necessary for the system maintenance (Katz and Kahn, 1978). HR systems are considered to be implemented through an adaptive process: productivity leads to ongoing investments in HRM, which in turn generates productivity gains. Organisations that invest in HRM are able to considerably increase their employee capabilities and capable employees are able to contribute to OP improvements, resulting

in more profit (Kwon, 2019). This increased profit can then be reinvested in the employees, resulting in a feedback loop between HRM and OP.

The linear perspective shown in the widely employed conceptual models (see Figure 6 and Figure 7) depicts the implicit forward causality directionality. However, considering the reverse and reciprocal causal paths it would be more appropriate to represent the relationship in a circular and systemic way in which all the variables are both cause and effect (Figure 11). Table 1 outlines a theoretical explanation for each causal path.

Thus, it is noteworthy that there are enough theoretical arguments to justify that a linear approach of the HRM-OP linkage is too simplistic to describe such a complex relationship. In addition, analysing the causal model has also methodological implications as described in the next section.

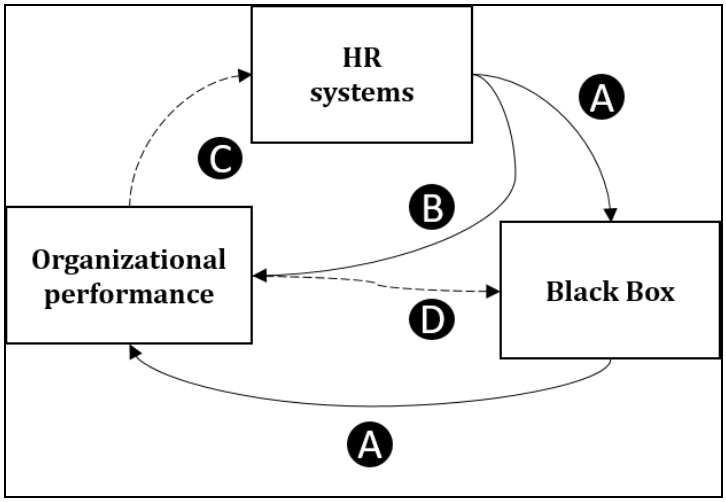

Figure 11: Circularity in the HRM-OP relationship

The continuous arrows (A and B) represent the forward causal paths and the discontinuous arrows (C and D) represent the reverse causal paths.

Table 1: Causal paths and theoretical foundations for the systemic general causal model

Causal Path	Causality type	Theory	Remarks
A	Forward	Social exchange theory (Blau, 1964). Behavioural perspective (Schuler and Jackson, 1987).	Mediated relationship. HRM-Black Box-OP.
B	Forward	RBV-Human capital theory (Barney, 1991). AMO model (Appelbaum et al., 2000).	HRM-OP relationship.
C	Reverse	Slack resources theory (Shin and Konrad, 2017). Norm of reciprocity (Gouldner, 1960).	High performing organisations have more slack resources to invest in HRM. Managers seeing good results invest in HRM.
D	Reverse	Signals and rewards (Paauwe and Boselie, 2005).	Well-being of employees in a high performing organisation due to intrinsic and extrinsic rewards.
All	Reciprocal	General systems theory (Von Bertalanffy, 1968).	Wholeness of the system Feedback loops.

3.2 Methodological implications: longitudinal study

There are three conditions that must be met in order to infer causality: (i) time precedence, (ii) covariation between variables and (iii) control of third factors that could influence the effect (Antonakis et al., 2010; Kenny, 1979; Shadish et al., 2002). The first condition involves measuring the dependent and independent variables at different time points. The lag is essential since the time precedence condition assumes that cause occurs prior in time to the effect. On the other hand, the second condition refers to covariation, how a change in the cause is related to a change in the effect. The third condition refers to the control of third factors that could influence the effect. While most research demonstrates covariation, few studies consider temporal precedence and rule out other

possible explanations (Wright et al., 2005). The omitted variable bias implies that strong causal statements cannot be made under a non-experimental study[6].

The time precedence condition clearly has an impact on the design of the methodology. Within the forward causality logic, the correct research design would be measuring HRM at an earlier time point and then, after an interval, OP should be measured. In this way the effects of HRM on OP could be analysed since the first condition for inferring causality would be met. On the other hand, in order to appropriately test the reverse causality, OP should be measured at an earlier time point and then, later in time, HRM should be measured. In this instance, the impact that OP may have on future HRM could be correctly assessed. The first condition means that using questionnaires at single time points (i.e. cross-sectional designs) is not valid for inferring causality, time lags are necessary in order to study both forward and reverse causality (Gollob and Reichardt, 1987). The lack of timing of the measurements in many studies prevents researchers from inferring causality (MacCallum and Austin, 2000) since having all the variables measured simultaneously prohibits demonstrating temporal precedence (Kline, 2012).

One of the preferred possibilities for testing causal relationships is therefore using a longitudinal research design (MacCallum and Austin, 2000). Longitudinal data compared to cross-sectional data makes it possible to study the dynamic relationships between subjects (Ployhart and Vandenberg, 2010) and longitudinal studies are suggested to overcome problems related to reverse causality and third variables (Zapf et al., 1996). According to Wall and Wood (2005), there are different alternatives within longitudinal

[6] Notwithstanding the fact that no statistical model can determine causality apart from solid research design (i.e. experimental) and strong theory (Selig and Little, 2011), non-experimental studies can test Granger causality (Granger, 1969). Granger causality refers to the fact that predictor variable values provide statistically significant information about future values of the outcome variables when past values of the outcome variables are controlled. In this situation, it is stated that the predictor variable evolves over time and Granger causes another evolving outcome variable. However, researchers who refrain from using the term causal, usually use terms such as impact, influence or exposure that imply causal mechanism (Hamaker et al., 2015). Considering that the driving force behind this thesis is an interest in causality, the term causal and causality will be used although it is acknowledged that using the concept of Granger causality would be more precise.

studies. The simplest approach would be conducting as they indicated a "quasi-longitudinal" study in which the independent variable is measured once and the dependent variable is measured twice, before and after the independent variables measurement point. In that way, the stability of the dependent variable could be controlled. Nevertheless, a stronger option as Wall and Wood (2005) pointed out, is following an "authentic longitudinal" design in which both the independent and dependent variables have been measured on two or more occasions. For a more accurate causal analysis all the analysed variables should be measured at all the analysed time points (Zapf et al., 1996). Therefore, since the main objective of this thesis is to shed light on the causality debate, the design that will be followed adheres to the "authentic longitudinal" design.

One of the most sophisticated and preferred methods for analysing longitudinal data is using Structural Equation Modelling (SEM). SEM analyses are preferable to bivariate correlation or regression analyses since they allow simultaneous estimation of causal relationships among variables (Zapf et al., 1996). Applying this logic means that using SEM in this thesis allows testing forward, reverse and reciprocal causalities among variables simultaneously.

Within the longitudinal SEM techniques, two of the most useful and popular techniques are the Latent Growth Model (LGM) and the Cross-Lagged Model (CLM) (Liu, Mo, Song and Wang, 2016). The main differences of these two techniques are outlined in Table 2. The former addresses questions about change and stability of time-varying constructs and models the internal change of each construct (Kelloway and Francis, 2013). This methodology is usually used to assess the form of change, the rate of change and also the relationship between the rate of change and the initial level of the outcome (Little, 2013; Liu et al., 2016). Duncan, Duncan and Strycker (2010) indicated that the simplest LGM includes one variable measured the same way twice in time. Nevertheless, two points in time are not enough for studying development since individual trajectories would be limited to a collection of straight lines. Although two observations can provide information about change, they tend to be considered very poor arguments. The LGM are suitable for analysing change trajectories of constructs (Ferrer and Mcardle, 2010) and therefore as a grounded recommendation for longitudinal analysis, three measurement points are needed (Chan, 1998).

Table 2: Key differences between LGM and CLM

LGM	CLM
Focused on analysing change: the rate and form of change.	Focused on causal influences.
Three measurement points are needed.	Two measurement points are enough.
Good for analysing internal change of each construct.	Good for testing stability and influences between variables over time.

The primary goal of the CLM on the other hand, is to examine causal influences between variables (Kearney, 2017). This technique can be used if two or more variables have been measured on at least two occasions. It is widely used to test the stability and relationships between variables over time and understand how they influence each other. An important aspect of the CLM is the desirability of including autoregressive influences. If the hypothesis is that variable A at time 1 (A1) influences variable B at time 2 (B2), B1 should also be measured and the influence of B1 on B2 as well as the correlation between A1 and B1 should be included (MacCallum and Austin, 2000). If these autoregressive effects are not controlled, the results could be biased and the researcher might conclude that there is a strong influence of A on B when this influence is in part due to the correlation of B1 and A1 and the influence of prior measurement of B (Gollob and Reichardt, 1991). The CLM controls for both contemporaneous effects and variance across time (Kearney, 2017). Causal predominance is tested comparing standardized coefficients of the cross-lagged paths.

Compared to the LGM, the CLM is limited when understanding the internal change of each construct. However, the CLM accounts for the lagged impact after controlling the history of the outcome, capturing the dynamics of the variable. Thus, the CLM is one of the most popular techniques when inferring causality and the parameters obtained with it are considered to be the most appropriate for causal inference with longitudinal data (Hamaker, Kuiper and Grasman, 2015; Kearney, 2017; Liu et al., 2016).

Since the aim of the current research is to test the causal relationship between HRM, employee attitudes (Black Box) and OP, and all of the variables have been measured at two occasions in time, this analysis is conducted using the CLM as a longitudinal SEM technique.

In the following section, a review of longitudinal empirical studies analysing the HRM-OP relationship is outlined.

3.3 Review of longitudinal empirical studies

A systematic literature review has been conducted in order to identify the current longitudinal empirical evidence available in the field of SHRM related to the HRM-OP linkage.

The review method is based on the methodology applied by Hohenstein, Feisel and Hartmann (2014) and consists of six process steps: (i) the definition of time horizon; (ii) database selection; (iii) journal selection; (iv) article selection; (v) article classification; and (vi) article analysis.

i. **Time horizon for paper selection**: As previously mentioned, a turning point occurred when Huselid first published empirical evidence in 1995. However, most of the empirical evidence to date has been cross-sectional and longitudinal studies are the most recent. According to a review conducted by Jiang and Messersmith (2018) time-lagged studies[7] started in 2002 and the first longitudinal studies were published in 2012. In order to capture as many studies as possible, it has been decided to include a larger time horizon: from 2002 to 2018.

ii. **The database selection:** two online primary databases have been used as search tools: Scopus and Web of Science. Furthermore, additional potential articles have been identified by searching Google Scholar.

iii. **Journal selection:** One of the focuses of this research is methodological rigor and to ensure the high quality of the studies only published journal articles have been evaluated. Considering that most journals have strict requirements for publication, restricting the review to such publications might lead to a better technical review. Journals were selected according to their relevance to HRM and on the basis of their Journal Citation Report (JCR) index. A total of 9 international journals were identified for database search: Journal of Management (JOM), Academy of Management (AOM), Journal of Human Resources (JHR), Human Resource

[7] A time-lagged design is done when the performance outcome has been collected after having collected the information of HR system

Management Journal (HRMJ), Journal of Applied Psychology (JOAP), Personnel Psychology (PP), Human Resource Management Review (HRMR), International Journal of Human Resource Management (IJHRM), and Personnel Review (PR).

iv. **Article selection:** Articles were selected following a systematic process. First, some keywords were defined as search criteria based on extant literature. The literature of SHRM is full of evidence of the relationship between HRM and OP. However, the interest was in those studies in which the focus was on the causality issue. In addition, as mentioned in the previous section the appropriate methodological approach is following a longitudinal research design. Therefore, the employed search string included aspects related to the HR system, the causality issue and longitudinal research design. The string was as follows:

"(high-performance-work-system OR high-involvement-work-systems OR strategic-human-resource-management OR "HRM System" OR "HR System") AND (performance OR profitability OR productivity) AND (longitudinal OR causal OR causality OR reverse OR reciprocal)"

As can be observed, synonyms were included for each of the three aspects in order to capture the maximum number of possible articles.

Then, every article in each of the 9 selected journals (from 2002 to 2018) was considered if any of the synonyms for the three aspects were included in the article title, keywords or abstract.

The final articles were selected according to some conceptual and methodological criteria. Conceptually, in order to capture the articles of interest for this thesis, two criteria were considered:

1st Criterion: Only the articles with a focus on the causal relationships were considered. Some articles focused on the causal mechanisms of the black box variables. However, the main interest in this study is to understand the systemic relationship between HRM and OP and therefore, the studies analysing both types of causalities (i.e. forward and reverse) and the interrelation between them were given priority.

2nd Criterion: Studies accounting for systems such as HPWS, HCWS and HIWS were given priority compared to practices in isolation. This was because the core rationale of the SHRM field is that practices work better in coherent and consistent bundles than in isolation. In addition, regarding Organisational Performance, both distal and proximal outcomes were considered of interest.

In order to assess the quality of the included studies two methodology-related criteria recognized for their relevance in the SHRM field were considered. Most studies state that their conducted analysis is a longitudinal study without fulfilling the conditions for capturing the dynamics of the variables. As Ployhart and Vandenberg (2010) stated, there seems to be confusion and discrepancy about what is and what is not a longitudinal study. Therefore, the accounted methodology-related criteria was as set out at the 3rd and 4th criteria.

3rd Criterion: Quality of the research design: the design had to include at least two measurement points of both independent and dependent variables in order to fulfil the authentic longitudinal study characteristics (Wall and Wood, 2005).

4th Criterion: The adequacy of the statistical test performed. SEM was given priority since as previously mentioned it allows simultaneous estimation of causal relationships among variables. After reviewing the articles which fulfilled the established criteria, the final sample consisted of 7 articles.

v. **Article classification:** In accordance with the two underexplored issues mentioned in Section 1.3, the selected 7 articles were classified according to their analysis of the causal relationships and contextual factors.

First, the descriptive information of these articles was reported: the study, the year of publication, the authorship, the journal where the article was published and the analysed sample.

Next, the causality dimension was considered. Notwithstanding the fact that all the articles fulfilled the established criteria for the selection process and that they were longitudinal studies, whether the studies include the systemic perspective of the two-way relationships was evaluated. In addition, the number of waves

considered and the time-lag between these waves was evaluated to determine whether there is an agreement in the literature about the precise time interval.

As previously mentioned, the analysis of causality based on longitudinal data is closely related to the methodological rigor. The preferred technique is longitudinal SEM but in order to capture as many articles as possible, other studies with complex techniques were also considered. Apart from the employed statistical technique, the analysed measurements were reported to see to which extent researchers employ the same variables and if they control for third variables that could affect the outcome variable.

Lastly, the contextual factors were studied. The country where the study was conducted was considered important as it allowed us to identify the most exploited samples and the extent to which conclusions are generalizable. On the other hand, if the selected studies analysed other contextual aspects such as the economic recession or the company type, they were also included for consideration.

The article analysis considering this classification criteria is described in Table 3.

vi. Article analysis:

Table 3: Summary of the classification of the selected empirical studies

Descriptive Information			Causality		Methodological rigor		Context
Authors (Year)	**Study/ Journal**	**Sector/ Sample**	**Causal paths analysed**	**Nº waves/lag between waves**	**Technique**	**Measurements**	**Country/ other aspects**
Van Iddekinge, Ferris, Perrewé, Perryman, Blas and Heedtderks (2009)	Effects of Selection and Training on Unit-Level Performance Over Time: A Latent Growth Modelling Approach /JOAP	Fast-food / 861 units	Forward and reverse	6 waves/ 2 months-lag	SEM: Multiple indicator Latent Growth Model and cross-lagged model	-Selection and training practices	United States /No
						-Customer Service Performance (CSP)	
						-Retention	
						-Profits	

Razouk (2011)	High-performance work systems and performance of French small- and medium-sized enterprises: examining causal order/ IJHRM	Industry/ 275 SMEs	Forward	2 waves/ 7 year-lag	Logistic regression analysis controlling for past performance	-PWS (appraisal, participation, sharing information, compensation, communication) -Profitability -Innovation -Social climate -Controls: market, structure, strategy and stock exchange	France/No
Piening, Baluch and Salge (2013)	The Relationship Between Employees' Perceptions of Human Resource Systems and Organisational Performance: Examining Mediating Mechanisms and Temporal Dynamics /JOAP	Public hospital services/ 169 National Health Services	Forward and reverse	5 waves/1 year-lag	General method of moments and mixture growth model (SEM)	-HPWS (employee involvement, personnel development, performance appraisal, supervisor support, job design) -Job satisfaction -Customer satisfaction -Financial performance -Controls: size, caseload, median duration of patient, trust status, university affiliation, regional rurality, population health status, time effects.	England/No
Kim and Ployhart (2014)	The Effects of Staffing and Training on Firm Productivity		Forward	4 waves/ 2 year-lag	SEM: Random coefficient growth model	-Selective staffing -Internal training	Korea/ Economic recession

	and Profit Growth Before, During, and After the Great Recession/ JOAP	Manuf. and service / 359 firms				-Labour productivity -Profit growth -Controls: size, industry	
Shin and Konrad (2017)	Causality Between High-Performance Work Systems and Organisational Performance/ JOM	Manuf. and service/ 2.228 firms	Forward and reverse	3 waves/ 2 year-lag	SEM: Cross-lagged model	-HPWS (training, empowerment, compensation, benefits and work design) -Productivity -Controls: size, industry, unionization	Canada/No
Schmidt and Pohler (2018)	Making stronger causal inferences: Accounting for selection bias in associations between high performance work systems, leadership, and employee and customer satisfaction/ JOAP	Financial services/ 79 business units	Forward and reverse	8 waves/ 1 year-lag	Covariate Balanced Propensity Score (CBPS)	-HPWS (compensation, job design, training and development opportunities) -Employee satisfaction -Customer satisfaction -Leader behaviour -Controls: time, demographic diversity, tenure	Canada/No
Roca-Puig, Bou-Llusar, Beltrán-Martín and García-Juan (2018)	The virtuous circle of human resource investments: A pre-crisis and post-crisis analysis/ HRMJ	Industry/ 2.497 firms	Forward and reverse	7 waves/ 1 year-lag	SEM:CLM	-HPWS (remuneration, training, permanent contracts) -Labour productivity -Profitability -Organisational Slack -Controls: size and capital intensity	Spain/ Economic recession

3.4 Summary and related challenges

It can be concluded that to date few empirical studies have analysed the causal relationships between HRM and OP from a longitudinal perspective. There is considerable evidence demonstrating the association between variables but there is not enough evidence for causal relationships between constructs (Den Hartog et al., 2004; Guest, 2011; Shin and Konrad, 2017). In this research and based on the established criteria, only seven studies were found. It is advisable that more studies are conducted since considering the scope of the SHRM field, seven studies are very few in order to draw general conclusions. In this section, as a guidance for the current research, the conclusions extracted from the identified seven empirical longitudinal studies are outlined.

First, related to the hypothesised causal paths in the reviewed seven studies, 71% analysed both forward and reverse causalities. Only two studies (i.e. Razouk, 2011; Kim and Ployhart, 2014) considered just forward causal paths. This serves as evidence that scholars have started to investigate alternative causal paths apart from the grounded forward causality.

The scholars have drawn mixed conclusions about the relationships. To start, Schmidt and Pohler (2018) found support only for reverse causality where HPWS resulted from customer satisfaction due to organisational slack rather than vice versa. Razouk (2011) and Kim and Ployhart (2014) in contrast, supported just the forward causality perspective (the only perspective they analysed). The former confirmed that companies that adopt HPWS were able to obtain good current and future performance. The latter showed how selective staffing and internal training positively influenced firm profit growth through productivity. The rest of the researchers (i.e. Piening et al., 2013; Roca-Puig et al., 2018; Shin and Konrad, 2017; Van Iddekinge et al., 2009) however, found support for both causalities simultaneously concluding that OP could be both the end and starting point of the HRM-OP causal chain. In summary, 57% agreed that the relationship is reciprocal, 29% supported forward causality and 14% supported reverse causality.

These mixed results cannot be attributed to the sector, sample size or the country analysed. No associations or patterns were identified for these demographic characteristics. However, in the case of OP measurements, there are some interesting issues. Piening et al. (2013) for example demonstrated a forward association (from HRM towards OP) when the analysed OP measurement was customer satisfaction but they

supported the reverse causality (from OP towards HRM) when the analysed OP measurement was financial performance. Van Iddekinge et al. (2009) on the other hand, supported forward causality for the relationship between training and three OP measurements, and supported reverse causality for selection and three OP measurements. The rest of the studies that supported reciprocal causality (i.e. Roca-Puig et al., 2018; Shin and Konrad, 2017) found evidence for both directionalities in all the analysed indicators. Such diverse results highlight the need to further investigate the causal relationships with different OP measurements.

The majority of the studies (86%) analysed a time lag between 1 and 2 years. Thus, it can be concluded that there seems to be a common understanding that 1 or 2 year-lag is the most appropriate when analysing the relationship. However, some scholars criticise the lack of more rigor when analysing temporality in the HRM-OP relationship. Zapf et al. (1996) recommended that time lags should be planned thoroughly and they noted that "too long" time lags are preferable to "too short" time lags since short time lags may lead to the conclusion of no causal effects, whereas a long time lag could just underestimate the effect. In addition, Wright and Haggerty (2005) argued that time lags were different for the different links In the causal chain and that it could take up to 3 or 4 years for HRM to impact OP. In relation to the studies reviewed in this section, Piening et al. (2013) and Kim and Ployhart (2014) also called for a greater emphasis and careful consideration of the role of time in the relationship. Therefore, it can be concluded that research should focus on developing theory in order to understand how much time is needed for the cause to bear fruit and how much time the relationship can endure. Furthermore, analysing the relationship with different time lags would add empirical evidence that would help developing that theory.

Related to the methodological rigor employed in the studies, all of them used complex statistical analysis techniques. Two studies applied logistic regression and quite a new technique, the Covariate Balanced Propensity Score (CBPS). The remaining 71% of the studies however employed SEM, which is as discussed previously, the preferred technique in this type of investigations and there is more documentation available. Within the studies that employed SEM, the most applied techniques were the abovementioned CLM and LGM. Schmidt and Pohler (2018) highlighted how different conclusions could result from non-rigorous causal designs resulting in biased conclusions and called for more rigorous empirical studies. In summary, based on the review and in line with the

conclusion of Zapf et al. (1996) it can be stated that there is a lack of common standard procedure to analyse longitudinal data.

In the case of employee-related measurements, 71% of the studies took a systemic perspective of HR practices in configurations such as HPWS. Nevertheless, none of them measured the same practices and it can be confirmed that to date, there is no consensus about the specific practices that make up a HPWS are. In addition, most of the studies (86%) employed broad/employer-rated/yes/no HPWS indices. Only Piening et al. (2013) gathered employee perception about HR systems, which is considered to be the most reliable predecessor of employee reactions (see Figure 5). Furthermore, the only study that considered mediator variables related to employees was the study of Piening et al. (2013). They analysed the relationship between employee perceptions about HR systems and OP mediated by employee job satisfaction, and empirically supported the mediating effect of employee attitudes. Although the rest of the studies did not analyse mediation they acknowledged this fact as a limitation of their study (e.g. Van Iddekinge et al., 2009).

Although OP measurements were very diverse, profitability and productivity were the most employed. According to Van Iddekinge et al. (2009) productivity is a proximal indicator and can be more suitable to evaluate the potential value of HR systems since failure to do so (i.e. analysing distal outcomes such as profitability) can underestimate their effect. In fact, most of the researchers analysed the effect of HR systems on proximal indicators and the subsequent effect on more distal indicators. Kim and Ployhart (2014) for example, found that the effect of HR systems on profit growth is through productivity. In the same vein, Roca-Puig et al., (2018) demonstrated that HR investment impacts on profitability through productivity. This is in line with previous research. Guest (1997) questioned the "causal distance" between HR systems and distal indicators since this linkage can be weakened due to the combinations of internal and external factors (Boselie et al., 2005). In addition, meta-analytic research has also supported that HR systems are more likely to influence HR-related and organisational performance rather than financial performance (Jiang et al., 2012).

Company size and industry were the two most utilized controls. Control variables are mostly related to organisational factors and this is due to the fact that all the studies (with the exception of Schmidt and Pohler 's multilevel study) are conducted at the organisational level. This might be related to the difficulty of obtaining both multilevel and longitudinal data. Indeed, the studies with the largest sample sizes (e.g. Roca-Puig et al.,

2018; Shin and Konrad, 2017) obtained their data from national public institutions. Such databases have advantages in terms of providing large amounts of data but there is a trade off since the data quality cannot be ensured as in a purposely designed survey questionnaire.

Finally, regarding the contextual factors, the analysed seven studies were carried out in different countries and only Canada is repeated. As previously mentioned, no differences or patterns were identified related to specific countries. On the other hand, the other contextual factor that was considered by scholars was the economic recession, analysed in two of the seven studies. These two studies (i.e. Kim and Ployhart, 2014; Roca-Puig et al., 2018) agreed that the recession moderated in some way the HRM-OP relationship. Roca-Puig et al. (2018) concluded that both the forward and reverse causality between HR investment and profitability was higher in a pre-crisis or economic growth period rather than in a recession or post-crisis period. Kim and Ployhart (2014) in contrast, found that training could be more beneficial in a pre-recession period and that staffing was more beneficial for a post-recession period. These results suggest a need to focus on boundary conditions that may influence the effect of HRM.

In summary, scholars agree that causal inference in the HRM-OP linkage remains elusive and that the accumulated empirical evidence needs to be complemented by: (i) including more models considering both causal directions, (ii) analysing the relationship with different time lags, (ii) studying employee-related mediator variables in the relationship, (iii) analysing the relationship in an unusual social or economic situation, (iv) examining the effect of HR systems on proximal indicators rather than distal indicators and (v) analysing the relationship with a rigorous research design.

"Time, space, and causality are only metaphors of knowledge,
with which we explain things to ourselves."
Nietzsche

Chapter 4

Objective of this Study

4 Objective of this Study

Based on the theoretical overview mentioned in Chapters 2 and 3, and the analysis of the available longitudinal empirical evidence of the SHRM field explained in Chapter 3, the objective of this study is to:

Conduct a longitudinal study in order to understand the causal relationships between HR systems and OP (proximal outcomes) and their relationship with employee attitudes.

The attainment of this goal will help elucidate whether:

- HR systems are the cause and OP is the effect (i.e. forward causality).
- OP is the cause and HR systems are the effect (i.e. reverse causality).
- Both variables are interrelated and there exists a two-way dynamic relationship (i.e. reciprocal causality).
- How employee attitudes are related to both HR systems and OP.

These main objectives are complemented with the following secondary objectives:

- Analysis of the relationship within an economic recession period.
- Analysis of the relationship within employee-owned companies.
- Analysis of the relationship in the context of Spanish (Basque) companies.

The three secondary objectives can shed light on the challenge of analysing the HRM-OP linkage in different contexts. The first one is related to market conditions. The analysed data was gathered during a pre-recovery (wave 1) and recovery phase (wave 2) for both samples so by analysing differences between waves it is possible to understand the influence of this contextual effect. The second aims to see whether there are differences when analysing the HRM-OP relationship in employee-owned companies compared to traditional companies. The third objective seeks to analyse the HRM-OP linkage in a European context, specifically in the Basque Country. Considering that HR systems were developed in the USA, analysing their effectiveness in another continent and in a country less explored like the Basque Country, this study intends to test the generalizations or universalism of the supported evidence.

"So, what is a system? A system is a set of things—people, cells, molecules, or whatever—interconnected in such a way that they produce their own pattern of behaviour over time."

Donella H. Meadows.

Chapter 5

Research Model and Hypotheses

5 Research Model and Hypotheses

The theoretical overview described in Chapters 2 and 3 lays the foundations for the research model applied in the present study. It is inspired by the model of Boselie et al. (2005) (see Figure 7). Nevertheless, their representation seems to be strongly conditioned by the forward causality logic, since the linkage is represented in a linear way in which the main input is HRM and the main output is performance. In order to answer the research question – *which is the causal direction in the HRM-OP chain?* – the approach followed in this study is based on a systemic perspective (circular perspective) as shown in Figure 12.

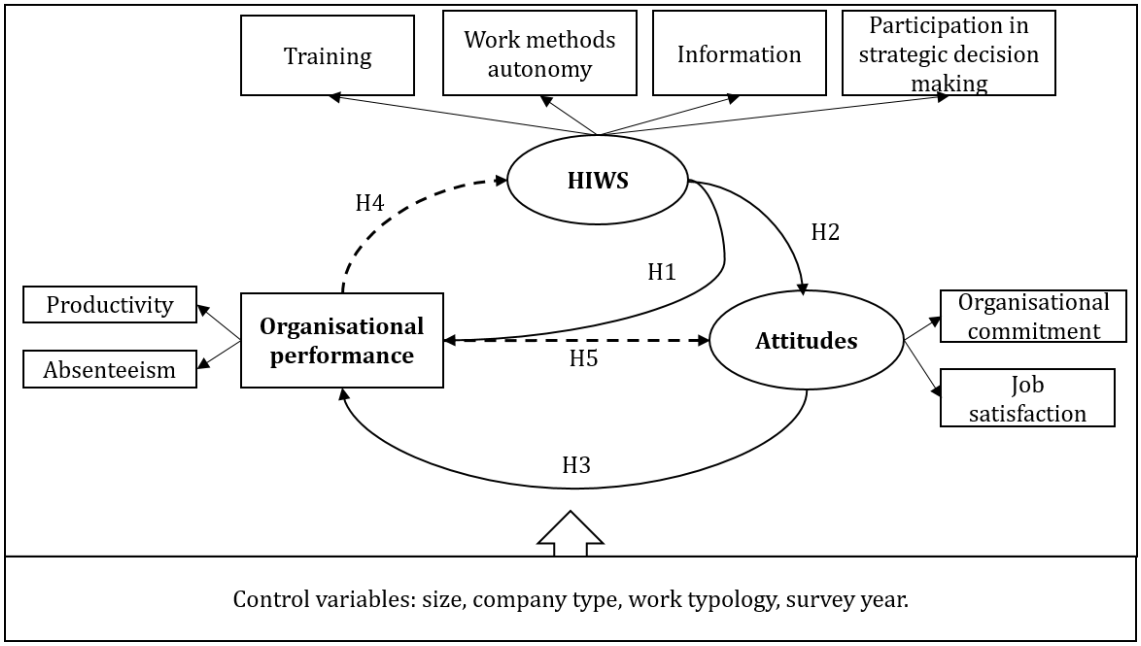

Figure 12: Proposed conceptual model for the current research

These relationships in Figure 12 are analysed in a holistic way and the representation of the figure depicts the wholeness of a system in which every variable is interrelated. The circles represent Causal Loop Diagrams (CLD). A CLD is a graphic representation of the understanding of a system structure, the thinking about how it is constructed and how it behaves (Kim, 1999).

Every variable is both a cause (an arrow emerging from it) and an effect (an arrow going into it). Each of the arrows depicted in Figure 12 are allocated to a different hypothesis. The continuous lines refer to the forward causality hypotheses and the discontinuous arrows are related to the reverse causality hypotheses.

The following sub-sections outline the formulated hypotheses for the current research. The hypotheses are organized depending on the direction of causal paths. First, forward causal paths are hypothesised (Section 5.1) and then reverse causal paths are described (Section 5.2).

5.1 Forward causality hypotheses

The forward causal hypotheses are divided into three categories: (i) the effect of HRM on OP, (ii) the effect of HRM on employee attitudes, and (iii) the effect of employee attitudes on OP.

5.1.1 The effect of HIWS on OP: Hypothesis 1

One of the most applied models when understanding the HRM-OP relationship has been the AMO model (Paauwe, 2009; Paauwe et al., 2013). AMO-enhancing HR systems are considered to impact employee performance and therefore OP (Hauff et al., 2019).

In this thesis, an AMO-enhancing HR system was employed. Specifically, we examined four HR practices: (i) training, (ii) work methods autonomy, (iii) information, and (iv) participation in strategic decision making. These HR practices are related to the AMO model as follows. The first HR practice – training – refers to the investment of the company in the professional development of employees through the learning process. Training is related to the ability dimension of the AMO model and this ability is commonly known as the KSA of employees (Marin-Garcia and Tomas, 2016). When employers provide training, they are investing in employee KSA specific to the company, which enhances the value added by employees, increasing their earnings, development, performance and advancement opportunities (Ng, Eby, Sorensen and Feldman, 2005).

The second HR practice – the work methods autonomy – refers to the extent to which employees can determine what they do and how to do it. Autonomy provides employees with areas of authority to determine their own activities, which may generate increased workplace motivation (Gagné and Deci, 2005). When people feel they have the opportunity to choose and they have an endorsement of an activity their intrinsic motivation can flourish (Deci and Ryan, 2008).

The third HR practice was information. When employers provide information, they increase employee understanding of the job, how it creates value, and how it fits into workplace operations, which increases motivation and reduces hindrance stressors

(LePine, Podsakoff and LePine, 2005). In addition, greater information might enhance the opportunity to perform (Boxall et al., 2019). Therefore, both work methods autonomy and information can refer to both motivation and opportunity dimensions of the AMO model.

The fourth HR practice – participation in strategic decision-making – concerns the amount of discretion employees might have to determine important decisions and targets for the department/section they work for. Participation in decision-making provides employees with opportunities to leverage their KSA to add value, which extends and showcases employee capabilities in ways that may advance their status and careers (Konrad, Yang and Maurer, 2016). Therefore, participation in decision making is related to the Opportunity dimension of the AMO model.

Table 4: Measured HR practices

HR practices	Refers to the AMO dimension:
Training	Ability
Information	Motivation/Opportunity
Work methods autonomy	Motivation/Opportunity
Participation in strategic decision making	Opportunity

Together, training, information, work methods autonomy and participation in strategic decision making combine skill and motivation-building with opportunities for engagement in higher-level decision-making. All of these may empower and involve employees by building efficacy, meaning and impact in the workplace (Spreitzer, 1995). These four practices together form a bundle of practices which are commonly associated with high-involvement work systems (HIWS) (Lawler, 1986; Vandenberg, Richardson and Eastman, 1999).

HIWS are considered to be made up of synergistic and mutually reinforcing HR practices that are designed to increase employee ability, motivation, and opportunities to enable their contribution to OP (Zatzick and Iverson, 2011). It has been argued that bundles of practices work better than practices in isolation due to synergistic effects between practices (e.g. Combs et al., 2006). Practices that enhance employee involvement in decision-making create opportunities to perform, encourage a better utilization of abilities, increase employee motivation and therefore, they generate an improvement in

organisational and employee outcomes (Boxall et al., 2019). In the same vein, skills and abilities might be ensured by formal training, but they would never bear fruit without the proper motivation or the opportunity to employ them. Therefore, the HR system employed in this thesis, namely HIWS, refers to the HR system that included the combination of these four HR practices: training, information, work methods autonomy and participation in strategic decision making.

On the other hand, there is no consensus about what the core OP indicators are, and researchers have demonstrated HRM effect on both financial and operational outcomes. Several authors noted that the influence HIWS on financial indicators (e.g. profits, market share) should be analysed since these are a reflection of organisational success (Boselie et al., 2005). In contrast, other scholars pointed out that outcomes like operational indicators (e.g. productivity, absenteeism) are more proximal to employees (Guest, 1997) and as mentioned in Chapter 3, analysing more proximal indicators is currently recommended. In this research therefore, two proximal indicators organisational productivity and organisational absenteeism level were analysed (Table 5).

Table 5: Measured OP proximal outcomes

Organisational Performance proximal outcomes	Measurements
Employee outcomes	Absenteeism
Organisational outcomes	Productivity

In addition, the influence that these HR practices have on performance is more complicated than expected; it does not just depend on the mere existence of a set of practices, but also on what employees perceive about these practices (Boxall and Macky, 2009; Nishii and Wright, 2008). As described in the process model of SHRM (see Figure 5), employer efforts to build HIWS may vary in effectiveness due to differences in the strength of the link between bundles of formalized practices and employee workplace experiences. Differences across organisational units in the implementation generate variation in employee experiences within the same organisation. For this reason, employee performance is more proximally associated with their workplace experiences than with formalized practices intended to generate a particular work environment (Jiang, Takeuchi and Lepak, 2013). Therefore, gathering data of what employees perceive about the HR system has been firmly recommended since employee perceptions about the practices are

considered to be stronger predictors of future attitudes and behaviours than implemented practices (Jiang, Hu, Liu and Lepak, 2017). Based on this, several researchers have noted that employee perceptions play a crucial role in the HRM-OP link (e.g. Bowen and Ostroff, 2004; Boxall and Purcell, 2011; Nishii and Wright, 2008; Purcell and Kinnie, 2007) and in this thesis employee perceptions about HIWS were considered.

Hence, based on the mentioned theoretical supports, we assumed that under a HIWS environment, skilled employees may perform in a more productive way since they were better "equipped" to accomplish their job effectively and that they were more motivated to "go the extra mile". If employees perceive that they have opportunities to participate and get involved in the organisation, their abilities and motivations can thrive and after a while these can generate an increase in company productivity. The association between AMO based HIWS and OP has been empirically demonstrated in the literature (Elorza, 2008), However, the majority of these studies have been cross-sectional and this study design does not allow testing of the causal impact that HIWS might have on OP (Marin-Garcia and Tomas, 2016). In order to add to the empirical evidence we hypothesize[8]:

H1A: Perceived HIWS at T1 is positively related to productivity at T2

On the other hand, employees are pivotal in companies that adopt HIWS because information and decision making power are scattered throughout the organisation. Employees are involved and they take more responsibility for operational success (Guthrie, 2001) and therefore, firms become much more dependent on employee knowledge and actions. It can be concluded then, that employees are more valued within companies that adopt HR systems like HIWS.

Employee absenteeism is understood as a way for employees to escape from stressful or aversive work environments (Deery, Iverson and Walsh, 2006; Harrison and Martocchio, 1998). Employee involvement has been considered as an important motivating element to prevent absenteeism since employees experience job enrichment, greater autonomy and responsibility in their work (Zatzick and Iverson, 2011). Harrison and Martocchio (1998), reviewing a 20-year absenteeism study, demonstrated a negative relationship between work autonomy and involvement and absenteeism. In addition, they expressed their

[8] T1 refers to the prior measurement point and T2 refers to the subsequent measurement point in all the hypotheses.

concern about the lack of lagged relationships, arguing that absenteeism research was in a unique position to help elucidate questions about affect-behaviour versus behaviour-affect mechanisms. However, without sufficient longitudinal studies, this concern remains unaddressed and to shed some light on it, we hypothesize:

H1B: Perceived HIWS at T1 is negatively related to absenteeism at T2

Figure 13 depicts the first hypothesis of the current thesis.

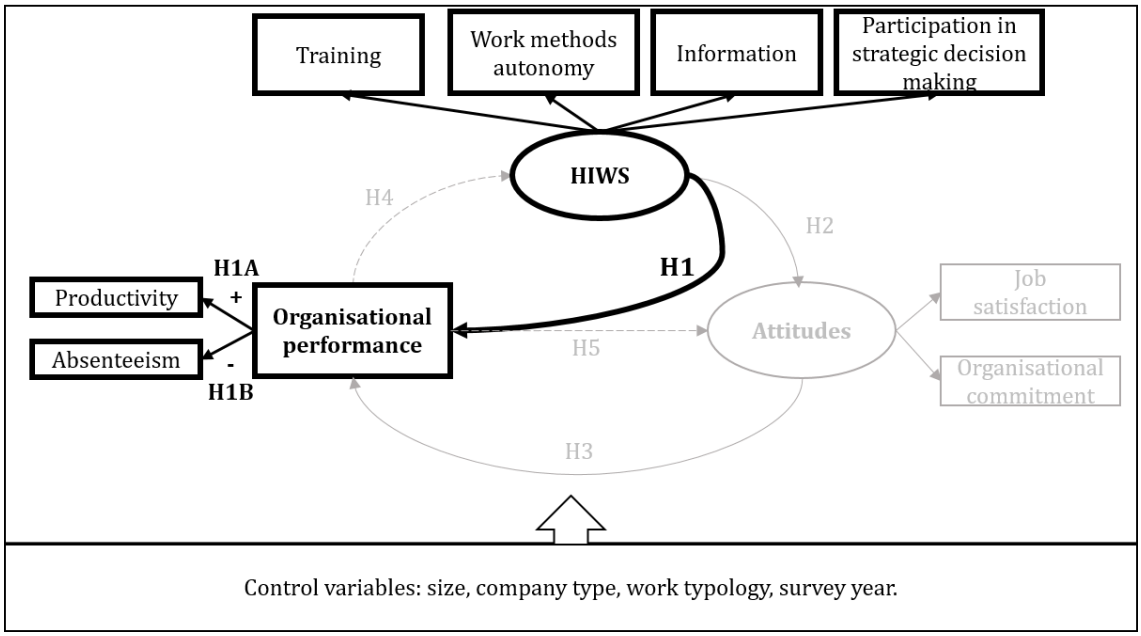

Figure 13: Hypothesis 1A and 1B

5.1.2 The effect of HIWS on employee attitudes: Hypothesis 2

Although the AMO model has been considered by many authors as a helpful tool for understanding the HRM-OP linkage (Boselie et al., 2005; Knies and Leisink, 2014) other scholars suggest that a more comprehensive perspective by integrating mediating variables should be adopted when analysing the relationship to better understand the "Black Box" (Jiang et al., 2017). In other words, from this perspective: (i) the effect that HRM has on mediator variables should be analysed first, and then (ii) the effect of these mediator variables on OP should be analysed. In the current section, the effect that HRM has on mediator variables is analysed.

Based on the behavioural perspective, examples of mediating variables are employee attitudes. The behavioural perspective, suggests that HR systems encourage employees to

engage in productive attitudes and behaviours, which in turn affect OP. This is considered to be one of the most precise ways of explaining the mediating mechanisms in the HRM-OP linkage. There are several explanatory models that have included attitudes and behaviours in the link between HRM and performance (e.g. Appelbaum et al., 2000; Becker, Huselid, Pickus and Spratt, 1997; Paauwe and Richardson, 1997; Vandenberg et al., 1999; Wright and Snell, 1998).

Job satisfaction and organisational commitment are the two overall components of attitude (Bryson and White, 2018; Harrison, Newman and Roth, 2006; Judge and Kammeyer-Mueller, 2012). Therefore, these were analysed in the current thesis (Table 6).

Table 6: Measured employee attitudes

Black Box mediators	Measurements
Employee attitudes	Job satisfaction
	Organisational commitment

Researchers usually analyse five facets of job satisfaction: satisfaction with work, supervision, co-workers, pay, and promotions (Judge and Kammeyer-Mueller, 2012). Although they are interrelated they also show discriminant validity. Empirical evidence has suggested that the facet of job satisfaction that is related to OP measurements is the satisfaction with the work itself. Therefore, considering that the focus of this thesis is the field of SHRM and the influence of job satisfaction on OP measurements, the measured job satisfaction is related to the facet of satisfaction with the work itself.

On the other hand, research has examined three types of commitment: affective, normative, and continuance commitment. However, most research in SHRM has been focused on affective commitment (Judge and Kammeyer-Mueller, 2012) since it seems to have the most predicting power for work performance of employees (Dunham, Grube and Castaneda, 1994). Affective commitment scales require employees to describe the extent to which they feel attached to the organisation (Meyer, Allen and Smith, 1993). The employed organisational commitment measurement represented the affective attachment to the organisation, the feeling of loyalty towards it and an intention to remain as part of it.

Affective reactions such as job satisfaction and organisational commitment are often based on principles of social exchange theory (Blau, 1987) and the norm of reciprocity (Gouldner, 1960). These theories suggest that people feel they have to help people who have already helped them. Thus, individuals who perceive greater levels of HIWS will tend to respond in kind. For example, if employees feel that managers are more committed to them, their attitude will be more directed towards organisational goals. This means that when HIWS are implemented, employees will perceive these systems as an investment in their well-being and they may reciprocate with positive attitudes towards the organisation (Elorza, Harris, Aritzeta and Balluerka, 2016).

In line with this, some researchers have pointed out that HR systems play an important role when developing employee attachment to the organisation (Paré and Tremblay, 2007). One reason is that investment in HR systems demonstrates to employees that the company values them as a source of competitive advantage and this in turn might generate a greater sense of organisational attachment (Fiorito, Bozeman, Young and Meurs, 2007). In addition, HIWS are likely to be perceived by employees as a signal of company trust and commitment towards employees, and therefore employees may reciprocate with commitment towards the organisation (Kehoe and Wright, 2013). In addition, work is considered to be enriched when employees have more autonomy and decision-making authority (Zatzick and Iverson, 2011). Job enrichment provides employees opportunities to have responsibilities in their work and a meaning for what they do, therefore contributing to increased job satisfaction (Wood and De Menezes, 2011; Zatzick and Iverson, 2011).

Several researchers have empirically demonstrated that HIWS are positively related to both organisational commitment (e.g. Gould-Williams, 2003; Riordan, Vandenberg and Richardson, 2005) and to job satisfaction (e.g. Boxall and Macky, 2014; Wood and De Menezes, 2011; Zatzick and Iverson, 2011). However, as Peccei, Van De Voorde and Van Veldhoven (2013) concluded in their systematic literature review about the HRM-mediators-OP relationship, in spite of the available empirical evidence, the understanding of how these mediating variables are affected remains limited. One of the reasons is that although the relationship between HR systems and mediator variables is causal (e.g. Higher perception of HIWS causes higher employee attitudes) the majority of the studies have been cross-sectional and have not allowed testing of causality (Boxall, Guthrie and Paauwe, 2016).

Consequently and in order to better understand the limited knowledge of the causal chain, we hypothesize:

H2A: Perceived HIWS at T1 is positively related to job satisfaction at T2

H2B: Perceived HIWS at T1 is positively related to organisational commitment at T2

The second hypothesis is shown in Figure 14.

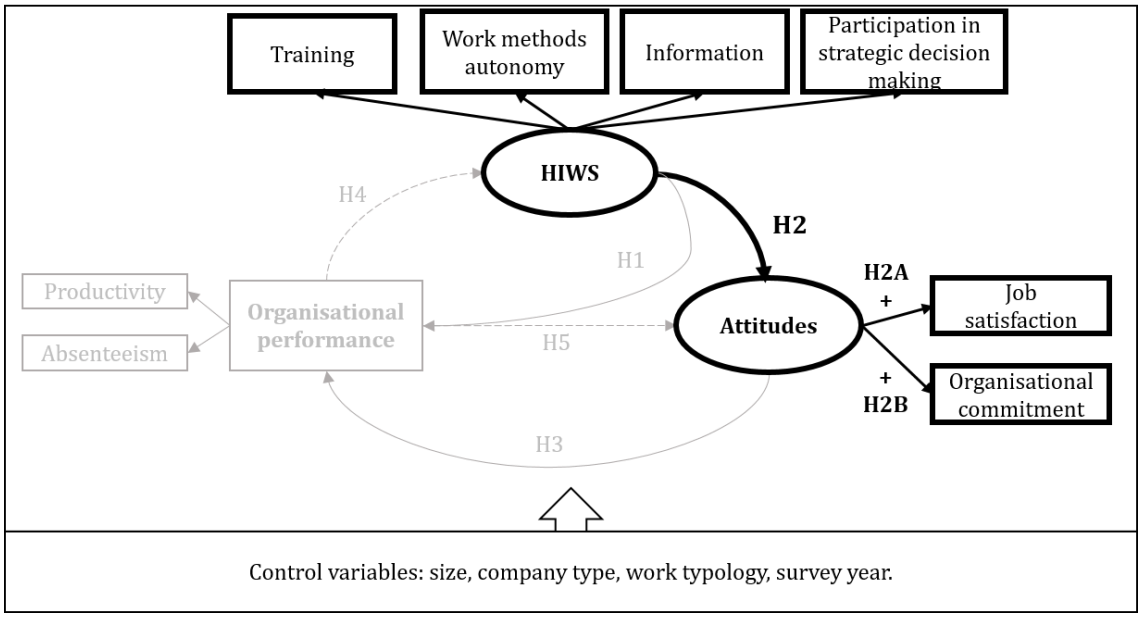

Figure 14: Hypothesis 2A and 2B

5.1.3 The effect of employee attitudes on OP: Hypothesis 3

As previously mentioned in hypothesis 2, to better understand the "Black Box" of the HRM-OP relationship, based on the behavioural perspective: (i) the effect of HRM on employee attitudes should be analysed, and then (ii) the effect of these attitudes on OP should be analysed. This section focuses on the second aspect, the effect of employee attitudes on OP.

According to attitude theory, job satisfaction and organisational commitment should ignite a general force to engage in proactive behaviours that serve to express those attitudes (Harrison et al., 2006). In the previous section, it has been argued that when HIWS are implemented, employees will perceive these systems as an investment in their well-being and their job satisfaction and organisational commitment are expected to increase. The attitudes of employees are very important factors for determining their responses, and it

is through these responses that OP is improved (Ostroff, 1992). Kopelman, Brief and Guzzo (1990) suggested three kinds of behaviours through which the workforce might contribute to superior OP: attachment behaviours[9], performance behaviours[10] and citizenship behaviours[11]. In this thesis, we focus on performance behaviours related to productivity and attachment behaviours regarding absenteeism.

Employees experiencing job satisfaction may feel the need to reciprocate, for example increasing their productivity levels. Satisfied employees are more cooperative, more helpful and less aggressive therefore improving productivity in collaborative work contexts (Zelenski, Murphy and Jenkins, 2008). In addition, satisfaction may enhance creative problem solving, contributing to better employee performance (Madjar, Oldham and Pratt, 2002). Furthermore, satisfaction may also reduce employee shirking which goes against productivity (Böckerman and Ilmakunnas, 2012). Other kinds of undesirable behaviours like sabotage, doing work badly on purpose, spreading rumours or gossip to cause trouble are also negatively related to job satisfaction (Argyle, 1989). In summary, it can be concluded that satisfied employees with notable productive behaviours can result in increased organisational productivity.

In addition, organisational commitment might affect the working environment, facilitating interdependent working and improving the performance of co-workers, which might in turn enhance organisational productivity (Conway and Briner, 2012). It has been argued that organisational commitment helps ensure smooth work processes, enhances stability and reduces disruption for more productive purposes (Podsakoff, Whiting, Podsakoff and Blume, 2009). Highly committed employees are more productive and flexible due to their eagerness to learn different functions through job rotations for example (Boselie, 2014). Committed employees believe in the goals and values of their organisation and are expected to exert substantial effort on behalf of the company (Meyer, Paunonen, Gellatly, Goffin and Jackson, 1989). Furthermore, committed employees have been found to be more creative and consequently, more productive (Duxut and Bhati, 2012). Therefore, aggregated workforce efforts may have a potential impact on organisational productivity.

[9] Examples of attachment behaviours include attending and staying in the company

[10] Examples of performance behaviours include performing the tasks in role in an effective way

[11] Examples of citizenship behaviours include helpful actions that are not obligatory

Despite considerable empirical evidence between employee job satisfaction and productivity, researchers remain uncertain about the relationship (Zelenski et al., 2008). One of the reasons is the lack of suitable data. Available cross-sectional studies (e.g. Judge, Thoresen, Bono and Patton, 2001) provide scant opportunities to test the underlying causal relationships and thus, the empirical evidence is considered to be insufficient (Böckerman and Ilmakunnas, 2012). In the same vein, there are few studies that analyse the relationship between organisational commitment and organisational performance and the available studies are limited because of the cross-sectional data, limiting any possibility to make causal inferences (Conway and Briner, 2012).

Hence, based on the aforementioned rationale and with the aim of adding empirical evidence that demonstrates the theoretically argued causal relationships, we hypothesize:

H3A: Job satisfaction at T1 is positively related to productivity at T2

H3B: Organisational commitment at T1 is positively related to productivity at T2

In the same vein, it can be expected that satisfied employees enjoy work and that they may turn up more often than dissatisfied employees. Indeed, it has been suggested that one of the antecedents of absenteeism can be the low job satisfaction of employees (Hausknecht, Hiller and Vance, 2008). Low job satisfaction has been related to anxiety, depression, coronary heart disease and poor mental health, therefore we can assume that job satisfaction acts as an antecedent of employee absence (Argyle, 1989). Job satisfaction is related to enjoyment of employees derived from their experiences on their job. In organisations where there is a collective sense of satisfaction, this is generally associated with stronger ties among employees, greater sense of belonging and stronger norms of cooperation and collaboration (Dineen, Noe, Shaw, Duffy and Wiethoff, 2007). Lower absenteeism is expected in high-satisfaction organisations since opportunities for belonging and support are more attractive to employees (Hausknecht et al., 2008).

Secondly, employees with higher organisational commitment tend to be more strongly identified with the vision and values of their organisation and they tend to have better work attendance (Meyer and Allen, 1997). High organisational commitment is reflected in a strong collective attachment to the organisation including the continued attendance at work (Hausknecht et al., 2008). Thus, it can be concluded that high-commitment organisations will have lower levels of absenteeism.

Scholars that have studied the relationship between employee attitudes and absenteeism at the organisational level have found mixed results related to the direction of the relationship (Hausknecht et al., 2008). According to a recent systematic literature review conducted by Čikeš, Maškarin Ribarić and Črnjar (2018) about the determinants and outcomes of absenteeism, the literature suggests that employee attitudes are the most important antecedents of absenteeism, in particular job satisfaction. However, within the 100 articles they reviewed, only 5% employed a longitudinal design for analysing employee attitudes as antecedents. Related to this, researchers have highlighted the importance of paying attention to temporal issues in order to better understand absenteeism and its causes (Hausknecht et al., 2008). Therefore, based on the arguments explained above and as a response to their call, it is hypothesised:

H3C: Job satisfaction at T1 is negatively related to absenteeism at T2

H3D: Organisational commitment at T1 is negatively related to absenteeism at T2

Hypothesis 3 is sets out in Figure 15.

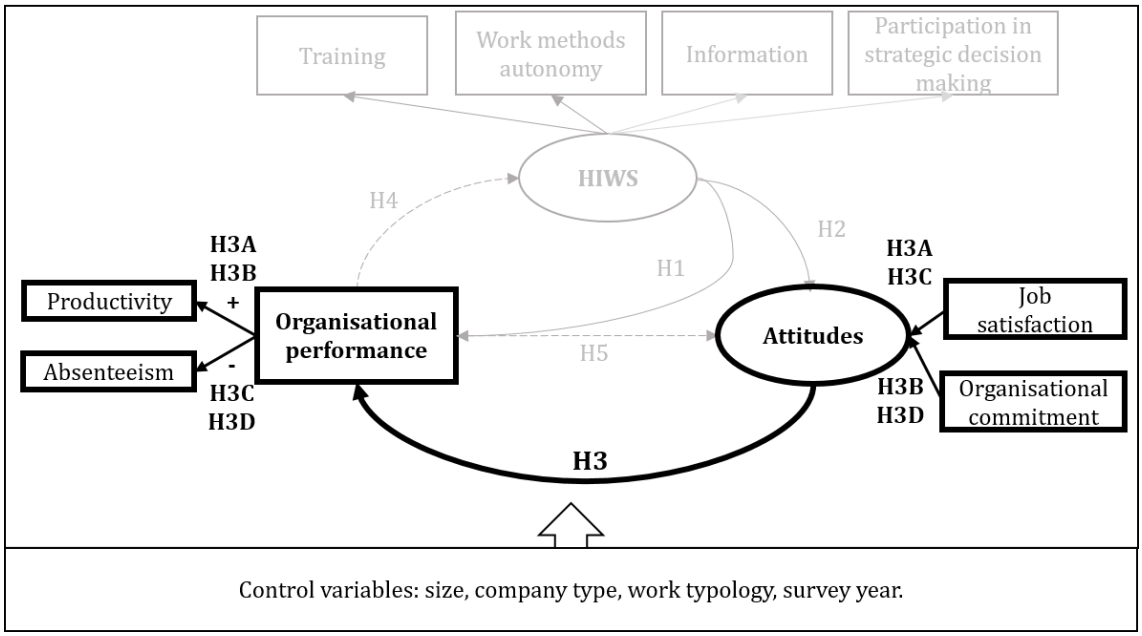

Figure 15: Hypothesis 3A, 3B, 3C and 3D

5.2 Reverse causality hypotheses

The reverse causal hypotheses are divided into two categories: (i) the effect of OP on HRM and (ii) the effect of OP on employee attitudes.

5.2.1 The effect of OP on HIWS: Hypothesis 4

Godard (2004) noted that investing in HRM could be costly for companies from a short-term perspective. Benefits of HIWS rely on human capital, which is a long-term investment aimed at contributing to the future profitability of a firm (Lepak and Snell, 1999). Firms that are facing financial problems are focused on cost-cutting policies and therefore, they are less likely to invest in people (Boselie, 2014).

The tenet of the reverse causality is that investment in HRM is related to the slack resources of the company; the more slack resources a company has, the more likely is that it will invest in systems like HIWS. Slack resources are related to prior OP, therefore, the better OP a company has, the more slack resources it will have. Increased OP might mean that the company has sufficient resources and financial buffer for investments in social domains such as High-involvement practices (Shin and Konrad, 2017).

As for the OP measurements employed in the current research, higher productivity ratios serve as evidence of the efficiency of the company. The more productive a company is, the more effective is the process used to transform the inputs into outputs (Tangen, 2005). Therefore, companies with higher productivity ratios are more likely to have organisational slack that can be dedicated to HIWS (Shin and Konrad, 2017).

On the other hand, absenteeism incurs a very high cost for organisations every year (Hausknecht et al., 2008). The direct costs of absenteeism have been estimated in terms of billions, and indirect costs such as those associated with hiring staff for absent employee replacement have also been identified (Mason and Griffin, 2003). Absenteeism can also lead to a drop in productivity due to the delays in the schedules resulting from lost work hours (Dansereau, Alutto and Markham, 1978). In addition, since others have to perform the work of absent employees, they might be less productive in their jobs (Cascio and Boudreau, 2011). Therefore, it can be concluded that companies with a high absenteeism level are likely to face more financial problems than companies with lower absenteeism, and are less likely to invest in HIWS.

Some researchers have empirically demonstrated the strength of reverse causality. Boselie et al.(2005) for example, demonstrated that organisations with plenty of resources tend to adopt more advanced HR practices. Katou (2012) found that instead of HR practices leading to higher OP, it was the high performing companies that could afford HR practices.

However, most of the researchers that have included the reverse causality in their analysis have done it with control purposes to demonstrate the forward causal effect of HRM on OP without considering the potential of the reverse causal path (Shin and Konrad, 2017). In addition, most studies base the reverse causality hypothesis on economic indicators. No studies have been found analysing absenteeism as a possible predecessor for future investments in HR systems. Considering that, we hypothesize:

H4A: Organisational productivity at T1 is positively related to perceived HIWS at T2

H4B: Organisational absenteeism at T1 is negatively related to perceived HIWS at T2

Figure 16 shows Hypothesis 4.

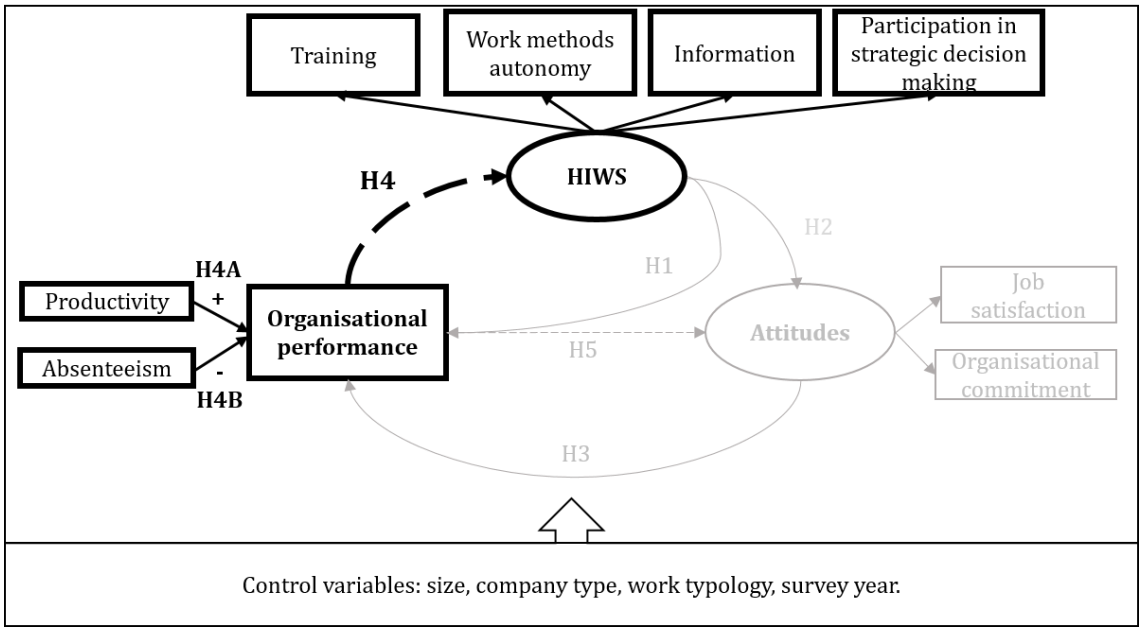

Figure 16: Hypothesis 4A and 4B

5.2.2 The effect of OP on employee attitudes: Hypothesis 5

Several researchers have noted how organisational context in terms of performance can have a positive or negative impact on employee attitudes (e.g. Paauwe and Boselie, 2005; Schneider et al., 2003). Indeed, the model developed by Boselie et al. (2005) for explaining the HRM-OP relationship included the reverse causal path going from OP to HRM outcomes (see Figure 7).

High-performing organisations are expected to have more slack resources which can be dedicated to social domains providing more benefits to their employees. High performance is an organisational health signal which may lead to both extrinsic and intrinsic rewards. On the one hand, organisations with higher performance may have more resources to provide employees with economic benefits (Paauwe and Boselie, 2005; Schneider et al., 2003). On the other hand, high productivity signals that the company is performing well and that it is achieving the desired objectives (Van De Voorde, 2010). This signal of good performance, in this case good productivity ratios, can motivate employees and contribute to making workers proud of being part of the organisation (Paauwe and Boselie, 2005). Therefore, it can be concluded that employees in more productive organisations would be more satisfied and committed due to the extrinsic and intrinsic rewards these companies would provide.

The effect of OP on employee attitudes is the less explored relationship within the HRM-OP linkage but it is not less important than the others. As previously mentioned, there are theoretical foundations and some empirical evidence that support this linkage (e.g. Bakotić, 2016; Schneider et al., 2003). Therefore, in order to add to the available evidence and test this possible causal reverse relationship, we hypothesize:

H5A: Organisational Productivity at T1 is positively related to employee job satisfaction at T2

H5B: Organisational Productivity at T1 is positively related to employee organisational commitment at T2

In addition and related to the second OP measurement analysed in the current thesis – absenteeism – although the most widely tested directionality has been from attitudes towards absenteeism, there are some theories and empirical evidence that support the reverse effect. First, absent employees may feel the need to justify their absence and therefore, external attributions to problems in the work environment might emerge (Tharenou, 1993). For example, employees might attribute their absence to low commitment or low satisfaction with their job. Second, absence is usually followed by responses (in the form of sanctions) from co-workers or managers which might influence the subsequent affective state of the absent employees (Clegg, 1983). Finally, the mere fact of being absent is also considered to influence the affection of employees towards the

organisation (Tharenou, 1993). Therefore, drawing on these authors and with the aim of contributing with empirical evidence, we hypothesize:

H5C: Organisational Absenteeism at T1 is negatively related to employee job satisfaction at T2

H5D: Organisational Absenteeism at T1 is negatively related to employee organisational commitment at T2

Figure 17 depicts Hypothesis 5.

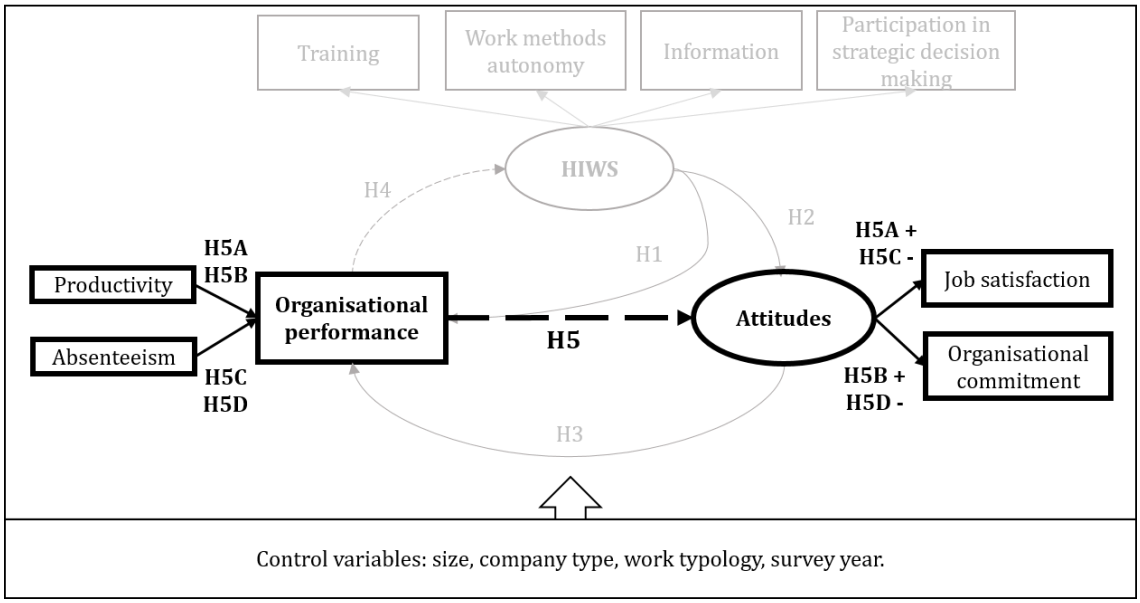

Figure 17: Hypothesis 5A, 5B, 5C and 5D

"There is nothing so practical as a good theory."

Kurt Lewin.

Chapter 6

Methodology

6 Methodology

6.1 Sample

In this study, two different longitudinal samples were analysed including a total of 19,201 employee responses from 129 companies. All the analysed companies are located in Spain, and most of them are located in the Basque country. The two samples differ in size, in sector and in the work typology of the companies. The demographic characteristics of the samples are outlined in Table 7.

The first sample belongs to the retail sector drawing on data from a large retail chain based in the Basque Country. The sample is comprised of two waves of data with a 4 year-lag between waves. The first wave data, gathered in 2011, includes 6,016 employee responses from 104 stores and the second wave data, gathered in 2015, includes 5,842 employee responses from 94 stores. All the stores analysed in the present research fall under the Small and Medium-sized Enterprises (SME) category with an average headcount of 100 people per store. The stores are located in Spain and those that are specifically located in the Basque country have the singular characteristic of being cooperatives, i.e. employees are co-owners.

The second sample belongs to the industrial sector. All the companies analysed in this sample are cooperative companies. The sample is also comprised of two waves of data with an average of 3.5 year-lag between waves. The first wave data, gathered around 2013, includes 3,752 employee responses from 25 companies and the second wave data, gathered around 2017, includes 3,591 employee responses from 25 companies. The average company size for this sample is about 250, positioning them in the large enterprises category. The majority of the companies of the second sample are located in the Basque Country. The sample includes companies that work in a more "rich" environment and companies with "poorer" work designs[12]. The companies categorised as

[12] Within "poor" work environments the employee is repeating the same job automatically, it is very repetitive, employees do not necessarily have to apply new knowledge for tasks and the workforce is usually low-skilled. In contrast, within "rich" work environments the job is more diverse, employees have to apply their knowledge and creativity more usually and the workforce is more skilled. Employees might have more autonomy, more voice and might contribute more to increasing OP in rich work environments due to the mere design of the work.

"rich" work are those in which employees add value to the work being accomplished, for example, machine tool companies. The companies in which the work is more simple and automated are categorised as "poor" work companies, for example, those that work for the automotive sector.

Table 7: Demographic characteristics of the samples analysed in the present research

Sample/ Sector	Homogeneity	Nº Companies	Nº Responses	Participation percentage	Staff Stability
Sample 1/ Retail	**Company type:** Basque stores are cooperatives and the subsidiaries not. **Work typology:** "poor" **Company size:** SME.	104 for the first wave. 94 for the second wave.	6,016 for the first wave. 5,842 for the second wave.	63% for the first wave. 66% for the second wave.	80% (on avg.) of the staff remained stable according to archival data.
Sample 2/ Industry	**Company type:** 100% cooperatives. **Work typology:** 40% "rich" 60% "poor" **Company size:** 72% SME 28% large enterprise.	25 for both waves.	3,591 for the first wave. 3,752 for the second wave.	68% for the first wave. 69% for the second wave.	82% (on avg.) of the staff remained stable according to archival data.

6.2 Procedure

Data collection was done at different stages for both samples. The first stage was focused on gathering employee-related individual level data. This data was obtained through survey questionnaires that were completed voluntarily by employees. In these questionnaires employees reported their perception level of the High-Involvement Working System and their job attitudes: organisational commitment and job satisfaction. In the second stage, OP measurements were gathered for the companies that participated in answering the survey questionnaire. OP measurements were archival data provided by the headquarters of the companies.

This study is longitudinal so all the companies analysed completed the survey at least twice. The time-lag between the surveys differed for the two samples. Related to sample 1, as all the stores belong to the same retail-chain, they completed the survey simultaneously

in June 2011. The second wave for sample 1 was gathered in November 2015 and again, all the stores completed the survey simultaneously. In sample 2, each company completed the survey in a different year and month. First wave data was gathered from 2010 until 2015. Second wave data was gathered from 2015 until 2018.

On the other hand, data was gathered through surveys completed both on paper and electronically (i.e. employees received the survey through the email). In sample 1, first wave data was gathered on paper but second wave data was collected electronically. In sample 2, depending on the company type and if employees had an e-mail address or not they completed it both on paper and electronically. In both formats (i.e. paper or email) subjects were briefly informed that the study pertained to how they felt about their job environment, their supervisors and the company they worked for. They were asked to answer with sincerity and absolute anonymity was guaranteed. On the occasions where employees completed the survey on paper, specific dates and schedules were agreed with the companies and suitable rooms were made available. Once employees completed the survey on paper they were sent to an external company to digitalize.

With regards to the OP measurements, in sample 1, the headquarters of the retail-chain provided both the productivity and absenteeism levels (of all the stores that completed the survey) at the end of the years 2011 and 2015.

In contrast, for sample 2, the service offices of the cooperatives network sent the productivity measurements. As the productivity measurement of the 25 companies was from the same source, this ensured the objectivity and comparison between companies. The absenteeism level of the cooperatives was provided by the insurance company of the cooperatives. Both sources sent the OP measurements at the end of the each year (from 2010 until 2018). We decided to ask for this period since it covered the years in which the companies of sample 2 had completed the two surveys. However, they did not have data for some companies at some dates and there are some missing values in the dataset.

Once both types of data were available for both waves in each sample, data was pre-processed before doing the statistical analysis. The pre-processing phase was to ensure that the data analysed in the study was of good quality. This was done with the IBM software SPSS. Once the data was of quality, a specific software for analysing SEM, Mplus Version 8, was applied for modelling the Cross-Lagged Models. Technical specification of the pre-processing phase and the modelling of CLM is described in Chapter 8, Section 8.1.

"Theory, no matter how logical in the mind of the scientist, must be able to reconcile deviations that are found between model and data."

James B. Grace.

Chapter 7

Measurements

7 Measurements

7.1 Employee-related measurements

All the employee-related measurements were gathered through a survey questionnaire at the employee level. These measurements were related to the perception of the High-Involvement Work System (HIWS) and employee attitudes: organisational commitment and job satisfaction. As previously mentioned in chapter 5, HIWS is a second order latent variable[13] which is measured by four first order latent variables: work methods autonomy, training, participation in strategic decision making and information levels perceived by employees. Table 8 details the items that make up each variable.

Table 8: Items for the employee-related measurements

Second order latent variable	First order latent variable	Code	Item
HIWS	Training	SF1	I feel that the company dedicates sufficient resources to foster my professional development.
		SF2	I feel that the company provides me enough training to perform my job.
		SF3	I think that the company values and promotes my training.
	Participation in strategic decision making	SP1	I participate in the definition of the annual targets for my department/section.
		SP2	I participate in the definition, control and monitoring of the business plan on an annual basis.
		SP3	I have the chance to participate in important decisions about the future of my department/section.
	Work methods autonomy	SA1	My job allows me a chance to use my personal initiative or judgement in carrying out work.
		SA2	The job allows me to make a lot of decisions on my own.
		SA3	The job provides me with significant autonomy in making decisions.
	Information	SI0	I am informed about our company's plans for the future (challenges, targets, investments, etc.).
		SI1	I have frequently updated information about the performance of my department/section (sales, results, project status, etc.).
		SI2	I have enough information to do my job properly.

[13] A second order latent variable is a latent variable whose indicators are themselves latent variables (Kenny, 2016)

Attitudes	Job satisfaction	RS1	Overall, I am satisfied with the kind of work I do.
		RS2	Overall, I am satisfied with the organisation in which I work.
		RS3	Overall, I am satisfied with my job.
	Organisational commitment	RC1	I am proud to be working for this company.
		RC2	I feel a strong sense of belonging to this organisation.
		RC3	I really feel as if this organisation's problems are my own.
		RC4	I would refer to a friend to come work at this organisation.

The survey questionnaire was designed following a Likert Scale and for each item (i.e. 19 items for the variables of this research), the participants had six options to choose from 1 ("strongly disagree") to 6 ("strongly agree"). These measurements were based on the scales of several researchers that are summarized in Table 9.

Table 9: Sources of the scales employed in the present research

Concept	**Source**
Training	Elorza et al. (2011)
Participation in strategic decision making	Elorza et al. (2011)
Work methods autonomy	Morgeson and Humphrey (2006)
Information	Elorza et al. (2011)
Job Satisfaction	Rafferty and Griffin (2006)
Organisational Commitment	Cook, Hepworth, Wall and Warr (1981)

The psychometric properties of these specific scales analysed together were previously validated by researchers in investigations and a dissertation (i.e. Elorza et al., 2011; Elorza, Harris, Aritzeta and Balluerka, 2016; Madinabeitia, 2016). Nevertheless, in order to ensure the quality of the data analysed in each sample of the current research, psychometric properties were calculated.

First, in order to evaluate the dimensionality of a set of multiple indicators an Exploratory Factor Analysis (EFA) was conducted (Section 7.1.1). Second, to see whether the results of the scales were consistent, the reliability of the constructs was tested calculating: (i) Cronbach's alpha (α) and (ii) Composite Reliability (CR) (Section 7.1.2). Third, so as to verify the extent to which the measurements measured what was intended, the validity of the measurements was tested conducting: (i) a Confirmatory Factor Analysis (CFA), (ii) a test for Convergent validity, and (iii) a test for discriminant validity (Section 7.1.3). Finally, in order to assess the psychometric equivalence of the constructs over time, measurement

invariance was tested following three steps (Little, 2013): (i) configural invariance test, (ii) metric or weak invariance test, and (iii) scalar or strong invariance test (Section 7.1.4).

Before presenting the results of each analysis, it is important to note that related to organisational commitment, the two samples analysed in the current research did not follow the same item structure shown in Table 8. In sample 1, organisational commitment was composed of the items RC1, RC3 and RC4. In contrast, in sample 2, it was comprised of RC1, RC2 and RC3. RC1 and RC3 remained stable for both samples. This distinction was based on several statistical arguments. In sample 1, when analysing psychometric equivalence of the constructs among waves, the item RC2 was problematic and therefore, it was decided to dispense with it since measurement invariance was not assured if the item was included. For sample 2, when doing the Exploratory Factor Analysis, we realized that including RC4 distorted all the loadings and data structure, and for that reason it was removed. In both cases, the construct measured organisational commitment but the appropriate statistical composition of the items was different for each sample. Therefore, the results of the psychometric properties shown in the following sections (i.e. 7.1.2, 7.1.2 and 7.1.4) are based on this logic for simplicity and comprehensibility reasons. RC2 and RC4 are depicted with asterisks in the figures to indicate this difference.

7.1.1 Exploratory Factor Analysis-EFA

The aim of an EFA is to evaluate the dimensionality of a set of multiple indicators (i.e. the items from the survey questionnaires) to define the smallest number of explicable factors needed to uncover the model that best explains the data structure (Brown, 2006). The Exploratory Factor Analyses were conducted using the software SPSS for each wave of each analysed sample. Table 10 to Table 13 show the results for the conducted EFAs.

The results were satisfactory and consistent among the different samples. In applied research, factor loadings greater than 0.4 are considered to be salient (Brown, 2006). In this case, all the loadings were above 0.4 (except RS2 for the second wave of sample 1 which was very close to this value) and the conclusion was that the same three items composed each indicator in each wave and in sample. There were some random items with high loadings in some indicators but the patterns were not consistent among the samples and waves. Table 10 and Table 11 show the results for sample 1 and Table 12 and Table 13 show the results for sample 2.

Table 10: Results for the EFA for sample 1, wave 1

Sample 1: Wave 1	Factor					
Items	**1**	**2**	**3**	**4**	**5**	**6**
RC1				0.74		
RC3				0.78		
RC4				0.73		
RS1			0.87			
RS2			0.6	0.41		
RS3			0.85			
SA1	0.8					
SA2	0.89					
SA3	0.88					
SF1		0.81				
SF2		0.87				
SF3		0.83				
SI0						0.64
SI1						0.83
SI2		0.51				0.57
SP1					0.76	
SP2					0.8	
SP3	0.52				0.55	

Note: Values lower than 0.4 are removed from the table.

Table 11: Results for the EFA for sample 1, wave 2

Sample 1: Wave 2	Factor					
Items	**1**	**2**	**3**	**4**	**5**	**6**
RC1			0.79			
RC3			0.73			
RC4			0.8			
RS1					0.86	
RS2					0.37	
RS3					0.85	
SA1		0.82				
SA2		0.89				
SA3		0.88				
SF1	0.8					
SF2	0.87					
SF3	0.84					
SI0						0.65
SI1						0.83
SI2	0.53					0.52
SP1				0.8		
SP2				0.82		
SP3				0.55		

Note: Values lower than 0.4 are removed from the table.

Table 12: Results for the EFA for sample 2, wave 1

Sample 2: Wave 1	Factor					
Items	**1**	**2**	**3**	**4**	**5**	**6**
RC1			0.47		0.64	
RC2					0.82	
RC3					0.82	
RS1			0.86			
RS2			0.63			
RS3			0.89			
SA1		0.8				
SA2		0.89				
SA3		0.86				
SF1	0.82					
SF2	0.87					
SF3	0.85					
SI0						0.89
SI1						0.53
SI2						0.43
SP1				0.83		
SP2				0.86		
SP3				0.68		

Note: Values lower than 0.4 are removed from the table.

Table 13: Results for the EFA for sample 2, wave 2

Sample 2: Wave 2	Factor					
Items	**1**	**2**	**3**	**4**	**5**	**6**
RC1		0.46		0.79		
RC2				0.84		
RC3				0.84		
RS1		0.91				
RS2		0.89				
RS3		0.92				
SA1	0.66					0.41
SA2	0.56					0.61
SA3						0.8
SF1			0.82			
SF2			0.86			
SF3			0.86			
SI0	0.83		0.13			
SI1	0.86					
SI2	0.85					
SP1					0.85	
SP2					0.85	
SP3	0.51				0.62	

Note: Values lower than 0.4 are removed from the table.

Based on the results of the EFAs (Table 10 to Table 13), the data structure was depicted in Figure 18 and Figure 19. Following the conventions of factor analysis and SEM, the latent factors are depicted with ovals whereas the indicators or items are represented by squares.

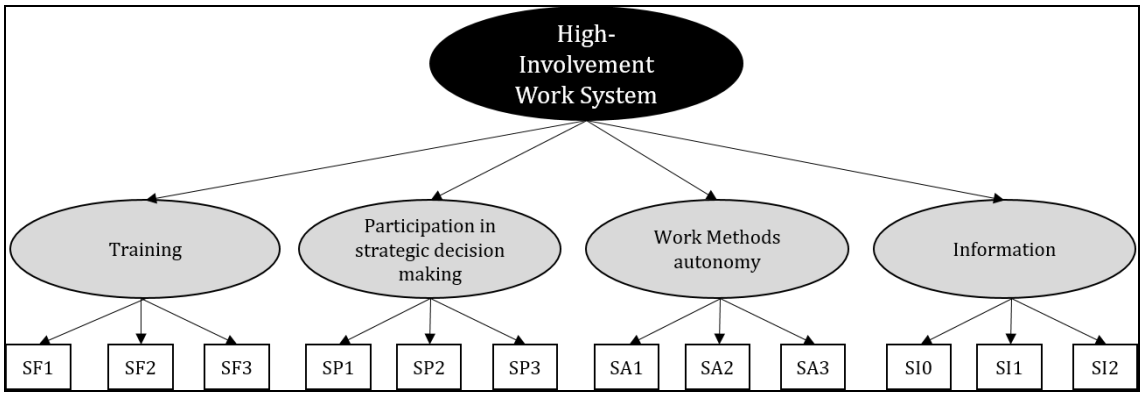

Figure 18: Data structure for the items of HIWS

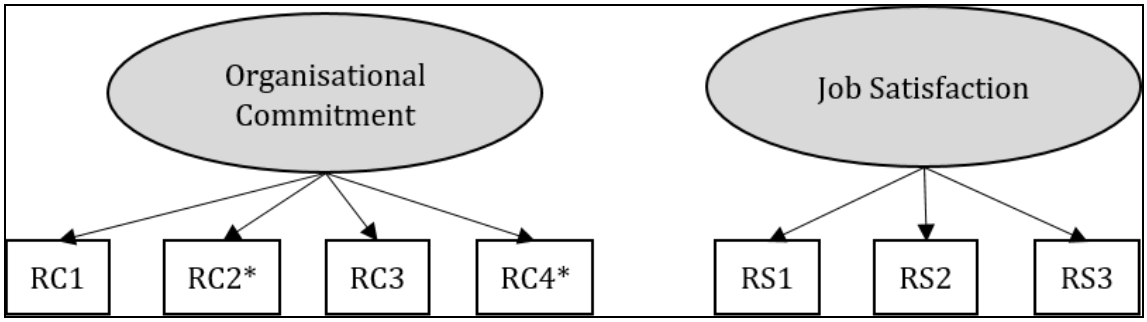

Figure 19: Data structure for the items of attitudes

7.1.2 Reliability of the measurements

Reliability of the measurements can be understood as the internal consistency of the factors (Aldas and Uriel, 2017). Cronbach's α and Composite Reliability (CR) provide evidence for the reliability or internal consistency of the defined factors. Cronbach's α was calculated conducting a reliability analysis in the software SPSS. CR was calculated based on the factor loadings of the CFA explained in Section 7.1.3.

The cut off value is of 0.7 for both measurements so the internal consistency of the factors analysed in this research was validated. Table 14 outlines the values for the analysed samples. As can be seen, all the values were above 0.75 with the exception of information in sample 2 at wave 1. In relation to the information construct, it was identified that the doubtful item for information was SI0 (see Table 18). However, after removing SI0 the

values of the statistics did not improve so it was decided to maintain it. In addition, the factor of information exceeded the cut off value for the rest of the samples so overall it was considered an adequate construct.

Table 14: Cronbach α and Composite Reliability values at the individual level

Variables	Sample 1. Wave 1		Sample 1. Wave 2		Sample 2. Wave 1		Sample 2. Wave 2	
	Cronbach α	CR	Cronbach α	CR	Cronbach α	CR	Cronbach α	CR
Training	0.92	0.9	0.93	0.92	0.93	0.92	0.87	0.92
Participation	0.86	0.85	0.85	0.86	0.88	0.88	0.81	0.88
Autonomy	0.93	0.93	0.94	0.93	0.93	0.92	0.82	0.92
Information	0.77	0.76	0.76	0.74	0.66	0.67	0.88	0.79
Job satisfaction	0.83	0.84	0.81	0.84	0.86	0.87	0.97	0.86
Organisational commitment	0.93	0.93	0.94	0.93	0.93	0.92	0.82	0.92

Participation and Autonomy in Table 14 refer to the same variables Participation in strategic decision making and Work methods autonomy detailed in Table 8. However, for simplicity reasons in some figures and tables these abbreviate forms are employed along the document.

7.1.3 Validity of the measurements

Once the underlying structure was established using EFA, the CFA served to confirm those results and ensure the fit, interpretability and validity of the scale. In this case, Confirmatory Factor Analyses were conducted using the software Mplus. Three different CFAs were conducted: (i) one for the HIWS (Figure 20), (ii) one for organisational commitment (Figure 21), and (iii) another for job satisfaction (Figure 22). The employee attitudes were analysed separately since they were considered independently in the hypothesis testing.

Data was gathered at the employee level but since these employees belonged to different companies, data included both levels: individual and organisational. All the CFAs were multilevel which helped validate the fit not only at the individual level but also at the organisational level (Geldhof, Preacher and Zyphur, 2014) which was the main focus of the present research. Although the items were the same each individual level constructs had their corresponding organisational level constructs (i.e. those shaded grey).

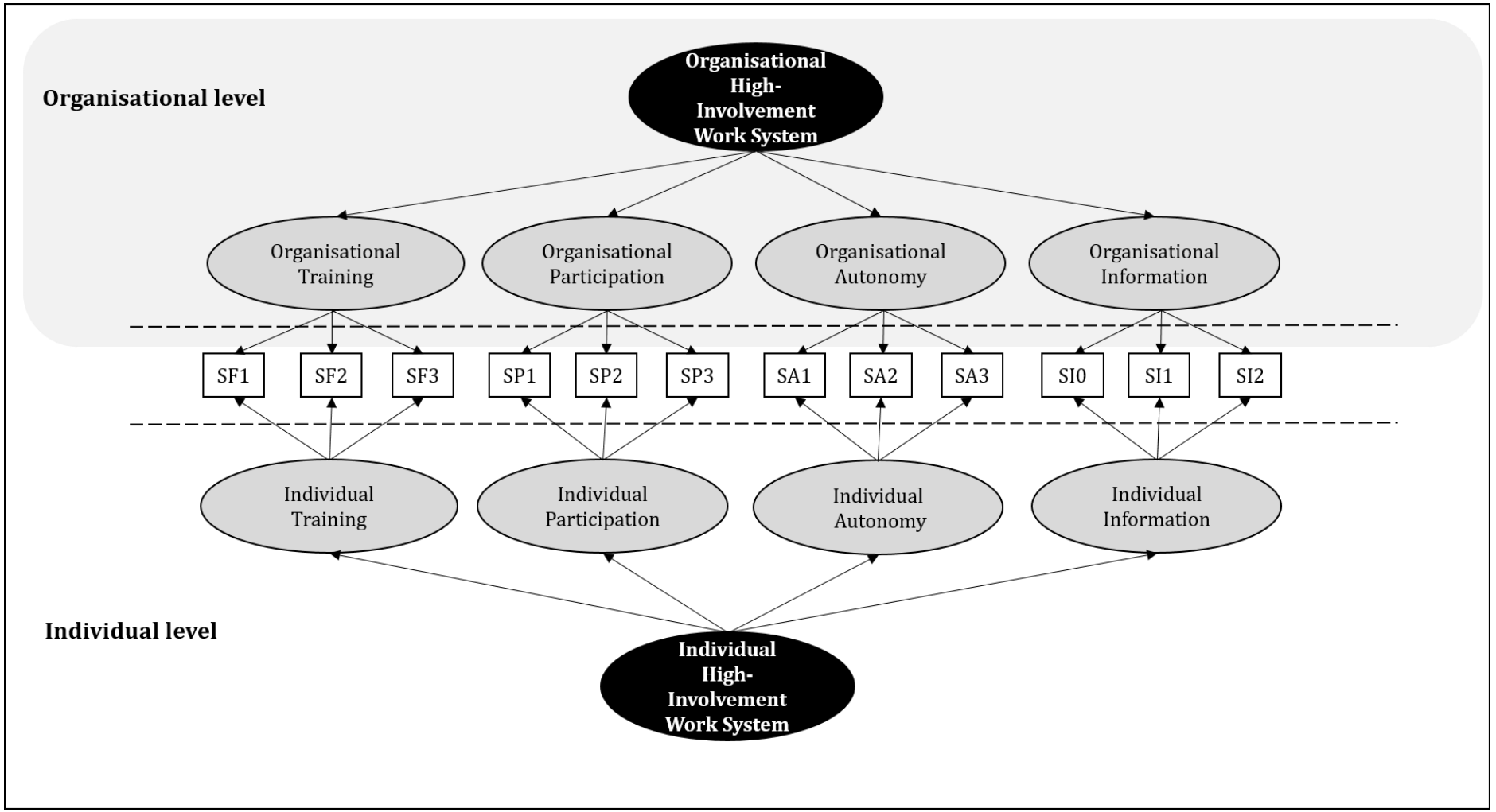

Figure 20: Multilevel CFA for HIWS

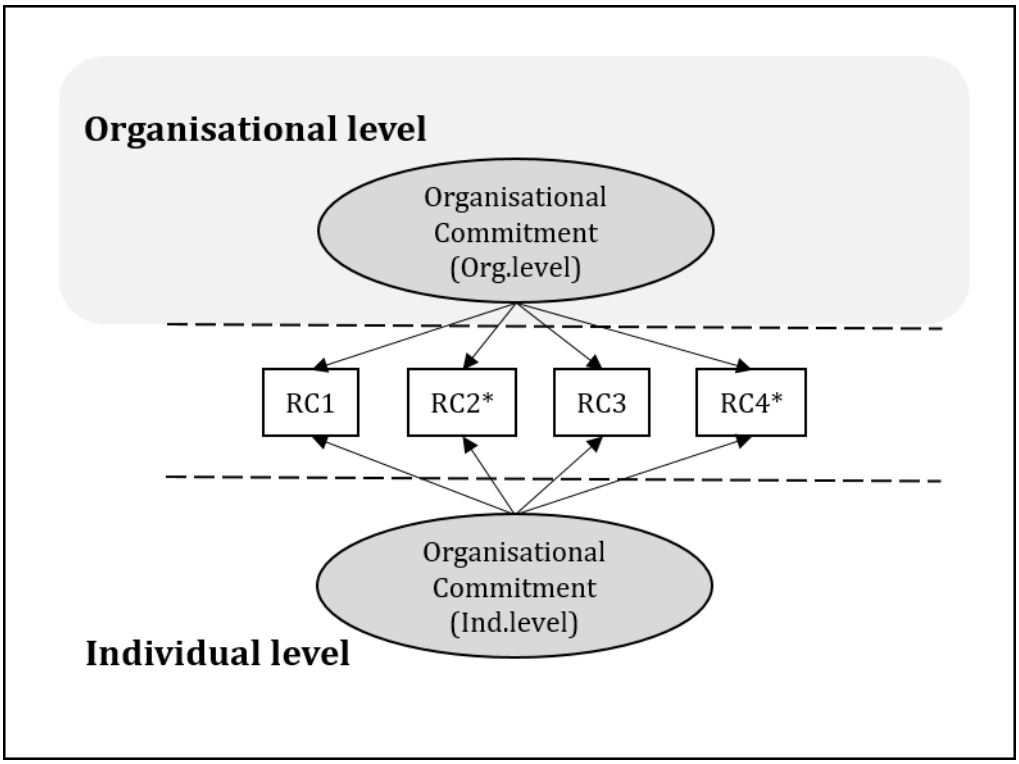

Figure 21: Multilevel CFA for organisational commitment

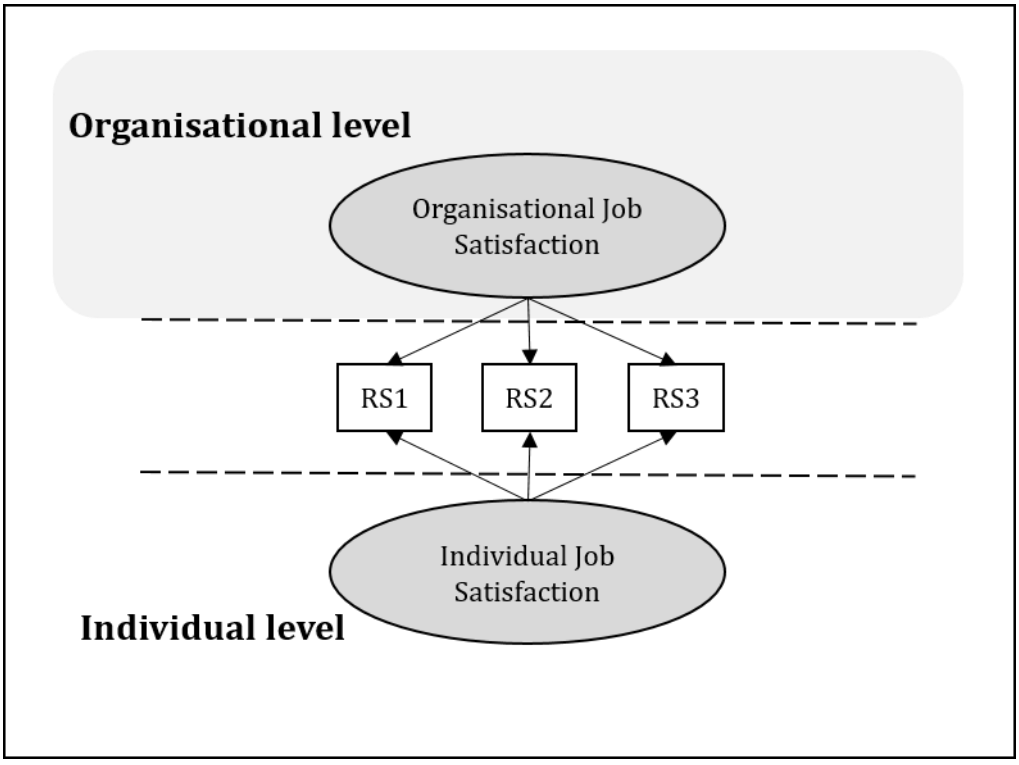

Figure 22: Multilevel CFA for job satisfaction

The CFAs were analysed twice per sample since a multilevel CFA was tested for each wave of data separately. MLR[14] estimator was employed to do these analyses, which is an evolution of the traditionally employed ML[15] estimator. MLR was chosen due to its robust estimators for non-normality which makes it recommendable for multilevel models (Asparouhov and Muthen, 2006).

Goodness of fit indices evaluated the acceptability of the CFA model (see Table 16and Table 17). These fit indices (see Table 15) can be classified into three categories (Brown, 2006): (i) absolute fit indices, (ii) parsimony fit indices, and (iii) incremental or comparative fit indices. Since each type of index provides important information, it is advisable to report at least one index of each typology.

Table 15: Fit indices categories according to Brown (2006)

Fit indices categories	Examples
Absolute Fit Indices	SRMR, χ^2
Parsimony Fit Indices	RMSEA
Comparative Fit Indices	CFI, TLI

Absolute fit indices, assess model fit at an absolute level comparing the modelled covariance matrix (Σ) to the observed covariance matrix (S) (Brown, 2006). Chi Square (χ^2 is one of the examples of an absolute fit index. Nevertheless, it is rarely employed in applied research due to some limitations with non-normal data and its sensitivity to large sample sizes. Another absolute fit index, which is traditionally used by researchers, is the standardized root mean square residual (SRMR). The SRMR accounts for the discrepancy between the correlations observed in the input matrix and the correlations predicted by the specified model. A model with a zero value of SRMR would indicate a perfect fit. The smaller the SRMR value, the better the fit. A value equal to or below 0.08 is usually considered an optimal fitting value (Hu and Bentler, 1998) and some researchers provide a threshold value of 0.11 (Ziegler and Buehner, 2009).

[14] MLR: An estimation that provides Maximum Likelihood parameter estimates with standard errors and a chi-square test statistic with robustness to non-normality.

[15] ML: Maximum Likelihood estimation. The most used one when conducting CFA (Brown, 2006).

Parsimony fit indices are based on the absolute fit indices and they incorporate a penalty function for poor parsimony (Brown, 2006). A widely employed parsimony fit index is the root mean square error of approximation (RMSEA). An optimal value for RMSEA is considered to be lower than 0.05 and a value equal to or below 0.08 is considered to be acceptable (Browne and Cudeck, 1992).

The last category of fit indices refer to the comparative fit indices. These indices evaluate the specified model solution in relation to a more restricted nested baseline model (Brown, 2006). The baseline models tend to be the null model in which the covariance among all the indicators are fixed to zero. Two of the most commonly applied comparative or incremental fit indices are the comparative fit index (CFI) and the Tucker-Lewis index (TLI). Values between 0.95 and 0.99 are considered to account for very good fit, and values above 0.99 indicate outstanding fit (Little, 2013). Values between 0.90 and 0.95 can be considered as acceptable model fit values (Bentler, 1990; Little, 2013).

In this research, different fit indices from the three typologies were selected according to their popularity in applied research and their satisfactory performance in Hu and Bentler simulations (Hu and Bentler, 1998; Hu and Bentler, 1999). The selected indices were: (i) SRMR, (ii) RMSEA, (iii) CFI and (iv) TLI. Table 16 and Table 17 outline the results for the multilevel CFAs depicted in Figure 18 and Figure 19 for each sample and each wave. All fit indices were between the optimal values for the different typologies for both samples in both waves, demonstrating the validity of the measurements.

Table 16: Fit indices for the CFAs of sample 1

Fit indices	Optimal Values	Sample 1					
		Wave 1			**Wave 2**		
		HIWS	Org. Commit.	Job Sat.	HIWS	Org. Commit.	Job Sat.
SRMR	<0.08	0.053	0.02	0.015	0.06	0.02	0.01
RMSEA	<0.05/<0.08	0.061	0.05	0.084	0.063	0.06	0.035
CFI	>0.95/>0.9	0.943	0.987	0.981	0.943	0.987	0.996
TLI	>0.95/>0.9	0.925	0.962	0.944	0.925	0.96	0.988

Table 17: Fit indices for the CFAs of sample 2

Fit indices	Optimal Values	Sample 1					
		Wave 1			**Wave 2**		
		HIWS	Org. Commit.	Job Sat.	HIWS	Org. Commit.	Job Sat.
SRMR	<0.08	0.047	0.036	0	0.054	0.049	0
RMSEA	<0.05/<0.08	0.057	0.069	0	0.058	0.02	0
CFI	>0.95/>0.9	0.94	0.947	1	0.946	0.977	1
TLI	>0.95/>0.9	0.92	0.92	1	0.93	0.931	1

Once the model was accepted, convergent and discriminant validity were calculated as construct validity subcategories (Aldás, 2013). Convergent validity is used to demonstrate the fact that the items that should be measuring the same construct are in fact related. Discriminant validity on the other hand, shows that the measurements that should not be related are not related. Evidence for both convergent and discriminant validity in conjunction serve to demonstrate that the identified constructs are valid.

Related to convergent validity, there are two test approaches that the researcher can adopt (Aldas and Uriel, 2017); (i) verification of the loadings and their significance level, and (ii) the calculation of Average Extracted Variance (AVE).

Table 18 provides the loadings of the items for the six factors. It is recommended that the loadings should be above 0.6 (Bagozzi and Yi, 1988). In this case, all the loadings were above 0.63 (except SI0 for sample 2 at wave 1) and their significance level (i.e. p value) was lower than 0.01. As mentioned above (see Section 7.1.2), SI0 was identified as a dubious indicator for the information construct of the first wave of sample 2. However, removing SI0 did not improve the Cronbach alpha and composite reliability indices in the first wave of sample 2 and worsened the statistics of the rest of the samples. Therefore, it was decided to maintain it as an exception considering that its loading was above the minimum 0.4 and the Cronbach alpha and composite reliability values were very close to 0.7.

Table 19 provides the AVE which corresponds to the amount of variance in indicator variables that a factor can explain, and values above 0.5 are recommended (Aldas and Uriel, 2017). The only factor that did not fulfil this requirement was the information in sample 2 at wave 1 due to the aforementioned SI0 item.

Table 18: Convergent validity test 1; Loadings of the items on the factors

Factor/Items	Sample 1. Wave 1	Sample 1. Wave 2	Sample 2. Wave 1	Sample 2. Wave 2
	Std. loading	Std. loading	Std. loading	Std. loading
Training				
SF1	0.86	0.86	0.87	0.87
SF2	0.86	0.89	0.88	0.88
SF3	0.92	0.92	0.92	0.92
Participation in strategic decision making				
SP1	0.79	0.87	0.86	0.87
SP2	0.82	0.88	0.87	0.86
SP3	0.8	0.7	0.81	0.78
Work Methods Autonomy				
SA1	0.84	0.85	0.84	0.84
SA2	0.94	0.95	0.93	0.93
SA3	0.93	0.93	0.91	0.91
Information				
SI0	0.73	0.7	0.44	0.76
SI1	0.73	0.69	0.69	0.78
SI2	0.7	0.72	0.76	0.69
Job Satisfaction				
RS1	0.8	0.83	0.89	0.86
RS2	0.65	0.63	0.68	0.67
RS3	0.9	0.91	0.91	0.9
Organisational Commitment				
RC1	0.85	0.83	0.78	0.79
RC2			0.72	0.72
RC3	0.8	0.86	0.76	0.74
RC4	0.68	0.67		

Table 19: Convergent validity test 2; AVE of the factors at the individual level

	Average Extracted Variance (AVE)			
	Sample 1		Sample 2	
	Wave 1	Wave 2	Wave 1	Wave 2
Training	0.77	0.79	0.79	0.79
Participation in strategic decision making	0.65	0.67	0.72	0.7
Work methods autonomy	0.82	0.83	0.8	0.8
Information	0.52	0.5	0.42	0.55
Job satisfaction	0.62	0.64	0.69	0.66
Organisational commitment	0.6	0.63	0.57	0.56

Considering the factor loadings and their significance level (see Table 18) and the AVE values (see Table 19) convergent validity was demonstrated for the samples of the current research.

On the other hand and to ensure that the number of factors identified in the CFA were correct, and that they were not excessively related to each other, discriminant validity was evaluated. Table 20 and Table 21 show the correlations among the factors for each sample analysed. Correlations that exceed the value of 0.85 are considered as an indicator of poor discriminant validity (Cohen, Cohen, West and Aiken, 2003). In this case, the highest correlation coefficient was 0.667, so the discriminant validity was fulfilled.

Table 20: Correlations among all the factors at the individual level for sample 1

Sample 1. Wave 1						
Variables	**1**	**2**	**3**	**4**	**5**	**6**
Training	1					
Participation	0.590**	1				
Autonomy	0.460**	0.667**	1			
Information	0.580**	0.662**	0.585**	1		
Job satisfaction	0.489**	0.455**	0.402**	0.447**	1	
Organisational commitment	0.512**	0.502**	0.442**	0.487**	0.645**	1
Sample 1. Wave 2						
Variables	**1**	**2**	**3**	**4**	**5**	**6**
Training	1					
Participation	0.613**	1				
Autonomy	0.458**	0.587**	1			
Information	0.589**	0.649**	0.578**	1		
Job satisfaction	0.506**	0.464**	0.428**	0.445**	1	
Organisational commitment	0.502**	0.501**	0.407**	0.472**	0.687**	1

Table 21: Correlations among all the factors at the individual level for sample 2

Sample 2. Wave 1						
Variables	**1**	**2**	**3**	**4**	**5**	**6**
Training	1					
Participation	0.569**	1				
Autonomy	0.479**	0.566**	1			
Information	0.561**	0.544**	0.519**	1		
Job satisfaction	0.563**	0.443**	0.472**	0.474**	1	
Organisational commitment	0.483**	0.506**	0.487**	0.454**	0.558**	1
Sample 2. Wave 2						
Variables	**1**	**2**	**3**	**4**	**5**	**6**
Training	1					
Participation	0.493**	1				
Autonomy	0.428**	0.490**	1			
Information	0.548**	0.494**	0.479**	1		
Job satisfaction	0.547**	0.386**	0.484**	0.497**	1	
Organisational commitment	0.430**	0.408**	0.434**	0.473**	0.573**	1

7.1.4 Measurement invariance

Testing measurement invariance is one of the most important questions to answer in any analysis that involves different time points (Little, 2013). Construct invariance is assured when the pattern across different time points is shown to be the same. This assumption is crucial and if it is not accurate, the conclusions drawn about the changes in the constructs within longitudinal designs may be dubious or invalid (Little, 2013).

A process of testing three nested models[16] (i.e. configural invariance model, weak invariance model and strong invariance model) was followed to test measurement invariance. This process has been recommended by several statisticians (e.g. Brown, 2006; Hair, Black, Babin and Anderson, 2010; Little, 2013).

Table 22 outlines each invariance level. The terms employed in this research are based on Little's (2013) terminology but alternative terms used by other researchers such as Brown (2006) or Hair et al. (2010) are also described for comprehensibility reasons.

[16] Nested model: Model B is nested within Model A when Model B is derived by placing one (or more) constraints on Model A (Little, 2013).

Table 22: Measurement invariance types and their explanation

Invariance type/level	Alternative terms	Definition
Configural Invariance	Equal Form	The relationship between the indicators and constructs follow the same pattern of fixed and free loadings at each measurement time point.
Weak Factorial Invariance	Equal Factor Loading /Metric Invariance	The loadings of the corresponding indicators on the latent constructs are constrained to be the same across different time points.
Strong Factorial Invariance	Equal intercepts/ Scalar Invariance	The loadings of the indicators are equated and each corresponding intercept is specified to be mathematically equal across time.

Figure 23 depicts the visual representation of each level of measurement invariance. Two measurement occasions of the HIWS (i.e. T1 representing an earlier measurement point and T2 a later measurement point) analysed in the present study is visualized as an example. Following SEM conventions, the ovals represent the latent variables, the squares represent the indicators, λ indicates the loadings of the indicators on the latent variable, and the triangles containing a number 1 represent the mean structures used to calculate the intercepts (τ) for the factorial invariance models (Little, 2013).

As can be observed, all the observed residuals of the variables (i.e. the residuals of the items) are correlated with their corresponding later indicator at T2. These residuals are correlated because the indicator-specific variance is likely to correlate with itself over time (Little, 2013).

For the configural invariance model, constraints are not imposed. As shown in Figure 23 (A), it is a baseline model in which evaluates whether the pattern of loadings and intercepts is consistent. In Figure 23 (B), the weak factorial invariance model is depicted. In this case, the loadings (λ) are equated for the two measurement occasions. Finally, in Figure 23 (C), the strong factorial invariance model is depicted with equated loadings (λ) and intercepts (τ).

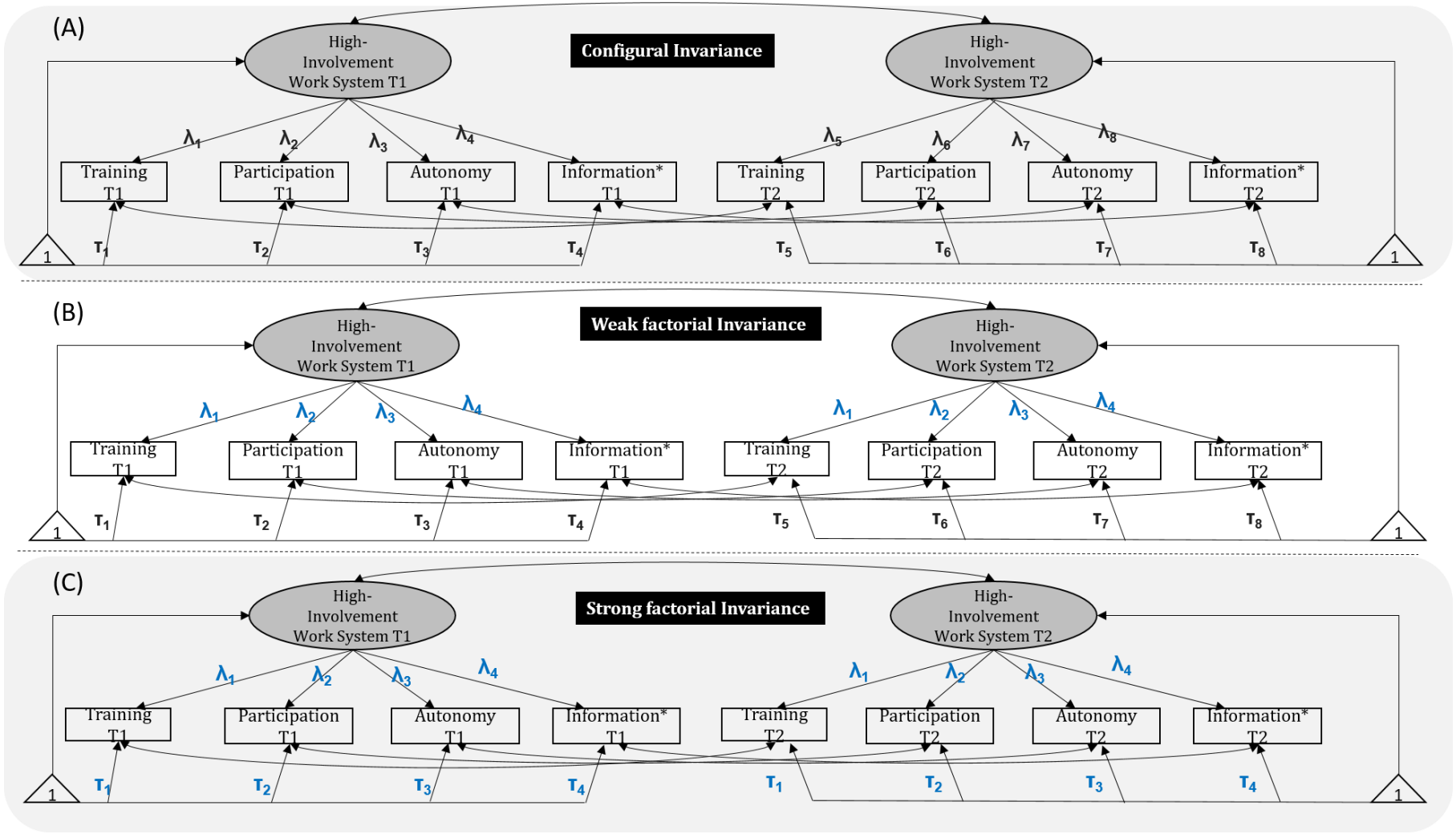

Figure 23: Representation of measurement invariance tests exemplified by HIWS
[The variables highlighted in blue are equated in each level]

The level of restriction is increased in each type of invariance: the less restrictive model is the configural invariance model and the most restrictive one the strong factorial invariance model. Measurement invariance is present when evaluating the different invariance models, model fit remains in the same range with negligible loss (Chan, 1998). Since CFA analyses are very sensitive to detecting small differences, Byrne, Shavelson and Muthén (1989) recommended continuing with the analysis when partial invariance is present. Partial invariance occurs when at least two indicators have equal loadings (partial weak factorial invariance) or when at least two indicators have equal intercepts (partial strong factorial invariance) (Aldás, 2013).

The minimum level of invariance data should reach depends on the research question that the researcher is answering. According to Hair et al. (2010) if the interest is analysing whether the construct is perceived and used in a similar manner in both waves of data, achieving a full configural invariance and a partial weak factorial invariance is enough. In contrast, if the aim is to compare the amount of latent means between waves, the data should fulfil full configural invariance and partial weak and strong factorial invariance.

In the present research, the aim of the measurement invariance test was to ensure that the latent constructs (i.e. HIWS, job satisfaction and organisational commitment) represented the same construct for both waves of data so achieving a full configural invariance and partial weak factorial invariance was enough.

Measurement invariance is evaluated by testing how well the specified model fits the observed data. As mentioned in the previous section (see Section 7.1.3), using multiple fit statistics is recommended in the literature to assess model fit. The configural invariance model is tested by evaluating the overall fit of the model. The weak factorial invariance and strong factorial invariance are two nested models of the configural invariance model (i.e. they are identical except for a target set of restrictions) and therefore, differences between these models can be attributed to the imposed constraints (Putnick and Bornstein, 2016). Nested model comparisons involve computing differences between fit statistics for the two models. Reporting deltas of the Comparative Fit Index (ΔCFI) has been suggested by several authors (Little, 2013; Putnick and Bornstein, 2016). Meade, Johnson and Braddy (2008) suggest a value of 0.002 for ΔCFI whereas Cheung and Rensvold (2002) propose a ΔCFI of 0.01 as a threshold for invariance. Little (2013) argued that the threshold of Meade et al (2008) is very restrictive for real world data and in the

present research, the threshold of Cheung and Rensvold (2002) was considered as a reference.

Table 23 shows the model fit indices for the configural invariance models for the data analysed in the present research. In this case, in contrast to the multilevel CFAs, the RMSEA was not reported due to its limitations with small sample sizes and models with small degrees of freedom *(df).* Since the hypothesis testing analyses were conducted at the organisational level, the measurement invariance tests were also conducted at the organisational level resulting in a considerable reduction of the sample size. For example, in sample 1 we gathered 6,000 responses (on avg.) from employees at the individual level, but the sample size was reduced to 100 (on avg.) at the organisational level. In addition, in the configural invariance model, each element of the SEM equation was estimated uniquely for each occasion, and since there are only two waves of data, these models had small *df.* Some researchers (e.g. Kenny, Kaniskan and Mccoach, 2014; Taasoobshirazi and Wang, 2016) have demonstrated the poor performance of RMSEA index under these conditions (i.e. small sample size and small *df*) and have recommended not reporting RMSEA since it could be potentially misleading.

Following these recommendations, SRMR, CFI and TLI were reported for the configural invariance models (Table 23) and ΔCFI was reported for the weak and strong factorial invariance models (Table 24).

Table 23: Configural measurement invariance tests results

Configural Invariance Model		**SRMR**	**TLI**	**CFI**
Sample 1	HIWS	0.1	0.94	0.97
	Job Satisfaction	0.05	0.99	0.99
	Organisational Commitment	0.11	0.93	0.99
Sample 2	HIWS	0.31	0.85	0.92
	HIWS (Without information)	0.13	1	1
	Job Satisfaction	0.06	0.94	0.97
	Organisational Commitment	0.06	0.89	0.96

Table 24: Nested model comparisons for weak and strong factorial invariance tests

Nested models		Weak Factorial Invariance ΔCFI	Strong Factorial Invariance ΔCFI	Partial Strong Factorial Invariance ΔCFI	Pass?
Sample 1	HIWS	0	0.094	0	Yes. Full Configural, full weak and partial strong invariance
	Job Satisfaction	0	0.06	0.01	Yes. Full Configural, full weak and partial strong invariance
	Organisational Commitment	0.002	0.025	0.002	Yes. Full Configural, full weak and partial strong invariance
Sample 2	HIWS (Without information)	0	0.13	0.01	Yes. Full Configural, full weak and partial strong invariance
	Job Satisfaction	0	0	-	Yes. Full Configural, full weak and full strong invariance
	Organisational Commitment	0.01	0.005	-	Yes. Full Configural, full weak and full strong invariance

From the results, it can be concluded that the three latent variables were configurally invariant for sample 1 (Table 21). The values of the fit indices were within the optimal values for all of them. In addition, in the case of the weak factorial invariance, the ΔCFI was negligible for all the cases confirming that the variables were fully weak invariant. This level of invariance is as previously mentioned enough for the current research. Regarding the last level of strong invariance, the ΔCFI was above the limit of Cheung and Rensvold (2002) of 0.01 and therefore, at least partially strong invariant was tested. Equalling two indicators instead of three (i.e. for attitudes) or four (i.e. for HIWS) the ΔCFI were within the limits and the variables were demonstrated to be partially strong invariant (Table 24).

On the other hand, related to the variables in sample 2, the fit indices for the configural invariance model of the HIWS were out of the limits questioning the invariance of the measurement. Previous tests shown in Sections 7.1.2 and 7.1.3 showed that psychometric properties of the information construct for the first wave of sample 2 had several limitations. Therefore, it was decided to test the configural invariance model without considering the information variable and the results for the new configural invariance model were satisfactory. Since the HIWS without information passed the test for the configural invariance model, the weak and strong invariance models were tested and they passed the full weak and partial strong invariance tests. This is why the information variable is depicted with an asterisk in Figure 23. Regarding the attitudes, both job satisfaction and organisational commitment passed the three invariance tests and achieved the highest level of invariance demonstrating their robustness.

It is true that removing the information variable from the HIWS has theoretical implications. However, the composition of the practices that make up the HIWS was based on the AMO model and the three practices that made up the "new HIWS" for sample 2, still represented each of the dimensions of the AMO; training referred to ability, work methods autonomy referred to motivation and participation in strategic decision making referred to opportunity. For this reason, having a reliable and robust construct that was invariant over time was prioritised over the theoretical rationale. In summary, the HIWS analysed for the first sample was made up of four variables including training, participation in strategic decision making, information and autonomy whereas the HIWS analysed for the second sample was made up of the abovementioned variables, excluding information.

7.2 Performance and control measurements

7.2.1 Organisational Performance measurements

In this thesis, two OP measurements were analysed. One of them, productivity, is undoubtedly one of the most employed in the SHRM literature (Boselie et al., 2005; Boselie, 2014; Combs et al., 2006). Productivity indicates the effective use of the resources of the firm when transforming inputs into outputs (Tangen, 2005). It measures the amount of output per unit of input (labour, equipment or capital) (Boselie, 2014). Since our samples differed in sector, the productivity indicator used in each sample was different. For the retail sector (sample 1) productivity was determined by the sales per hour of each store. The hours were calculated on the basis of the total working hours of full-time employees. For the industry sector (sample 2) on the other hand, the

productivity ratio was calculated on the basis of the added value per full-time employee. Added value is understood as what the company adds to the product after deducting the expenses of the external factors such as suppliers, transport, electricity, etc. Added value as a productivity indicator is a more reliable indicator when comparing several companies that do not carry out the same activity.

The second performance measurement was the absenteeism level. According to the classification of Dyer and Reeves (1995) (see Figure 4) absenteeism is one of the most proximal indicators to HRM. Absenteeism is defined as the failure to show up at work as scheduled and is relevant to those employees that are scheduled to report to a central location such as a retail store (sample 1) or a factory (sample 2) (Cascio and Boudreau, 2011). In addition, employee absence has been argued to be closely related to productivity loses (Hausknecht et al., 2008) due to the costs associated with the substitution of the absent employee or the consequently delayed/missed tasks (Cascio and Boudreau, 2011). The absenteeism indicator used in this research reflected the % of lost hours (from the projected hours) derived from common illnesses and work accidents.

Both performance measurements were based on archival data and were collected at the end of the year. The companies involved in the analysed samples provided the performance measurement values at the end of the specific year when the survey questionnaires were completed.

Normality tests were conducted in order to ensure the validity of the performance measurements. The normality was evaluated through (i) Kolmogorov-Sminorv and Shapiro Wilk tests, and (ii) calculating the z values of skewness and kurtosis. When data follows a normal distribution the possibilities for biased patterns of results (due to outliers for example) are reduced, and results are more reliable and accurate.

Kolmogorov-Sminorv and Shapiro Wilk tests compare the scores of the sample to a normally distributed set of scores (with the same mean and standard deviation). If the test is non-significant (i.e. $p>0.5$) it indicates that the distribution is probably normal (Field, 2009). Nevertheless, these tests are very sensitive to sample sizes. With small sample sizes (e.g. less than 30) the results should be considered with caution and with large sample sizes, it is easy to obtain significant values from small deviations from normality, and the results may not be necessarily accurate (Field, 2009). Taking that into account, it is usually suggested to plot the data using gauss bells in order to test visually if the data is normally

distributed. On the other hand, related to kurtosis and skewness, z values should be between the values of -1.96 and 1.96.

After doing the first normality tests, if the variables did not follow a normal distribution, they were transformed in order to do so. Depending on what the researcher is trying to correct for, the data can be transformed applying one formula or another (Field, 2009). In the present research, each sample had different characteristics related to the normality of performance indicators and different transformations were done.

In sample 1, the productivity indicator did not follow a normal distribution so a natural logarithm to achieve normality was applied. Absenteeism in contrast was more volatile and there were 3 stores with high values (for both waves) which made them outliers in the distribution. The outliers were removed and the remaining values were transformed with the square root formula to achieve normality.

Related to sample 2, the productivity indicator followed a normal distribution for the first wave but two outliers were deleted (identified with a boxplot diagram in SPSS) for the second wave so as to achieve normality. Absenteeism followed a normal distribution for both waves so no transformation was needed.

Table 25 and Table 26 gather the z values for both OP measurements (once transformed) in each wave of the two analysed samples. The available number of valid cases varied for each indicator and each wave and in some cases they did not coincide with the number of analysed companies. This was due to the fact that companies did not provide us with all the required data (mostly for absenteeism and the elimination of outliers).

All the z values were within the limits of normality for both OP measurements in each wave of sample 1 (Table 25). On the contrary, in sample 2 (Table 26), the z value for kurtosis of the productivity of the first wave was slightly above the limit. However, other tests such as and normality tests (Table 27) and the distribution histogram (Figure 24) confirmed the normality of this indicator.

Table 25: Skewness and kurtosis z values for OP measurements of sample 1

Sample 1		Productivity W1	Productivity W2	Absenteeism W1	Absenteeism W2
N	Valid	97	89	94	87
	Lost	8	16	11	18
Skewness		-0.09	-0.31	0.28	-0.06
Standard error of skewness		0.24	0.26	0.25	0.26
z value of skewness		-0.38	-1.21	1.12	-0.22
Kurtosis		-0.48	-0.33	-0.74	-0.35
Standard error of kurtosis		0.49	0.51	0.49	0.51
z value for kurtosis		-0.98	-0.65	-1.51	-0.68

Table 26: Skewness and kurtosis z values for OP measurements of sample 2

Sample 2		Productivity W1	Productivity W2	Absenteeism W1	Absenteeism W2
N	Valid	25	22	18	17
	Lost	0	3	7	8
Skewness		0.87	0.2	0.85	0.63
Standard error of skewness		0.46	0.49	0.54	0.55
z value of skewness		1.87	0.4	1.59	1.15
Kurtosis		1.8	-0.01	0.38	-0.39
Standard error of kurtosis		0.9	0.95	1.04	1.06
z value for kurtosis		1.99	-0.01	0.37	-0.37

Table 27: Normality tests results for the productivity of the first wave in sample 2

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Stat.	*df*	Sig.	Stat.	*df*	Sig.
Productivity Sample 2, Wave 1	0.125	25	0.200*	0.942	25	0.169

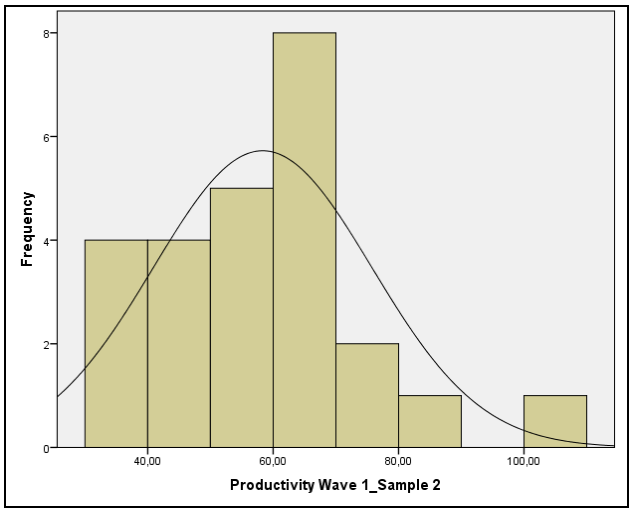

Figure 24: Productivity distribution histogram for the first wave in sample 2

Thus, it can be concluded that after doing the corresponding transformations, OP measurements analysed in the present research followed a normal distribution.

7.2.2 Control measurements

Considering that the analyses were conducted at the organisational level, the control variables that were employed belonged to the organisation.
Table 28 summarises the control variables applied to each sample.

Table 28: Control variables per sample

	Sample 1	Sample 2
Organisational control variables	-Company size -Company type (coop)	-Company size -Work typology -Survey year

Control variables depended on the specific characteristic of each sample. Company size was however common in both samples. Company size, is one of the most widely used control variables in the SHRM field since it can affect all the variables of interest. First, in large companies the implementation of HR systems is more likely due to economies of scale (Huselid, 1995). For example, Kroon, Van de Voorde and Timmers (2012) analysing

45 small organisations found that resource poverty[17] is related to the uptake of advanced HR practices. Second, researchers have demonstrated that employee attitudes are more positive in small firms compared to large firms (Bryson and White, 2018). Finally, large firms tend to be more profitable than small ones; one of the reasons they become large is in fact their profitability.

Apart from the company size, in sample 1, company type was also controlled. Sample 1 included cooperative stores and subsidiary stores. In the first category workers are the co-owners whereas in the second category they are ordinary employees. In addition, the control variable of company type also controlled for geographical localization. All the cooperative stores were located in the Basque Country where the retail-chain is the leader in sales. Therefore, controlling for company type two different aspects were controlled: (i) the unique context that can be generated due to employee ownership, and (ii) the geographical localization and its relationship to sales.

In the case of sample 2, all the companies were cooperatives. However, as mentioned in Chapter 6, sample 2 included companies with different work environments. The control variable of "work typology" thus accounted for the differences related to more enriched or poorer work environments. There are HR practices that are more viable in rich work environments such as the participation in strategic decision making since the level of education of employees may be higher and they may be more willing to participate. Finally, in contrast to sample 1, data for each wave of sample 2 was gathered at different time points. For the first wave, the sample included a time period from 2010 to 2015 and for the second wave, the sample included a time period from 2015 until 2018. Therefore, the year when the survey was completed was also controlled for each wave of the second sample.

[17] Resource poverty refers to the fact that compared to large firms, small firms are constrained to limited resources.

"As with medicine, management is and will likely always be a craft that can be learned only through practice and experience. Yet we believe that managers (like doctors) can practice their craft more effectively if they are routinely guided by the best logic and evidence."

Jeffrey Pfeffer.

Chapter 8

Analysis and results

8 Analysis and Results

8.1 Analysis procedure

Figure 25 describes the procedure that was followed for the analysis conducted in this thesis. The procedure consisted of two phases: (i) the pre-processing or data preparation phase, and (ii) the data analysis phase. Although two different samples were analysed, both followed the same process with the exception of one step (i.e. calculate residuals). In sample 1, control variables were introduced to the model as exogenous variables. In contrast, since the size of sample 2 was smaller, adding control variables as exogenous variables complicated the model. To keep the analysis simple, a residualised procedure (highlighted with asterisks in Figure 25) was employed for control variables (Cohen, Cohen, West and Aiken, 1983).

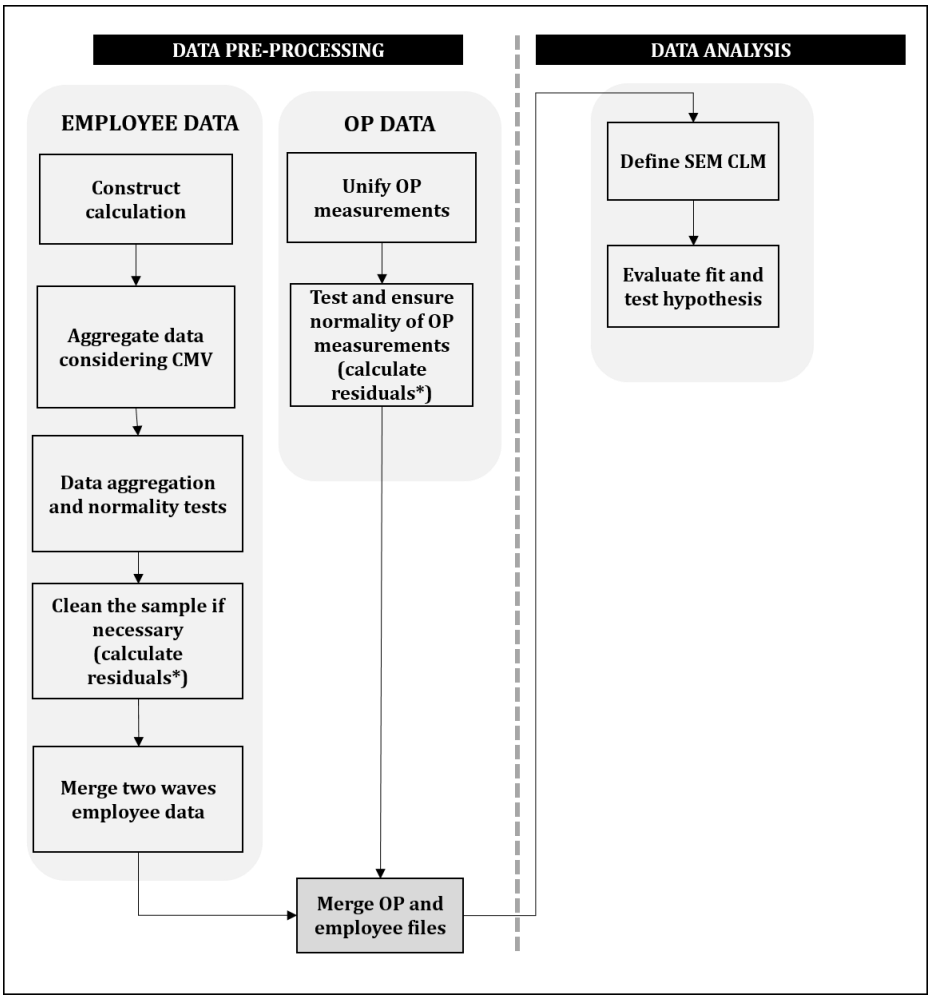

Figure 25: Data analysis procedure followed in the present research

The rest of the steps were the same for both samples. In the following sections, each phase is explained in detail.

8.1.1 Data pre-processing

First of all, employee-related constructs (i.e. HIWS, job satisfaction and organisational commitment) were calculated considering the criteria established in Chapter 7. Since sample size was relatively small in both samples and considering that in SEM simple models are preferred (Bagozzi and Baumgartner, 1994), average values representing each construct rather than latent variables were used for the analysis. The construct validity process described in Chapter 7 supported this procedure.

After that, individual level data was aggregated to the company level. The anonymous nature of the survey questionnaire did not allow matching individual responses over time and therefore, organisational data was of interest for this research. In addition, the research questions posed in this thesis are at the organisational level.

During the aggregation process, Common Method Variance (CMV) was considered since the HIWS and employee attitudes data was gathered with same tool from the same source (Podsakoff, Mackenzie, Lee and Podsakoff, 2003). In order to minimize CMV, the sample was randomly split into two subsamples; half the employee responses were used for HIWS and the other half for employee attitudes (Wright et al., 2005). Once it was ensured that the same employee did not report for both variables (i.e. HIWS and attitudes), responses were aggregated at the organisational level.

Although the variables employed in the current research have their theoretical foundation in the cognition and behaviour of individuals (Nishii and Wright, 2008), it is argued that through social interaction, exchange and amplification, they emerge as organisational level constructs (Klein and Kozlowski, 2000). On top of that, HR systems are implemented to build collective capabilities and collective employee attitudes. These systems communicate values that result in shared perceptions of employees (Boxall and Purcell, 2011) which emerge from social interaction between employees since they use information from others to form judgments about the working environment (Salancik and Pfeffer, 1978). In the same vein, considering that the perception of work environment is shared among employees it is likely that the experiences and attitudes of employees are also shared (Mason and Griffin, 2002). Empirical studies have also supported this logic, demonstrating that employee perceptions of HR systems and their attitudes are related to

OP at organisational level rather than at the individual level (Van De Voorde, 2010). As an example, Ostroff (1992) argued that a dissatisfied employee might reduce their performance but that a dissatisfied workforce could lead to a strike or sabotage that would directly and negatively influence organisational results. Therefore, their aggregation is theoretically supported.

In addition, a second aspect of aggregation is related to methodology; the appropriateness of the aggregated value is evaluated based on several statistical procedures (Biemann, Cole and Voelpel, 2012; Klein and Kozlowski, 2000; Lebreton and Senter, 2008). Following the same procedure suggested by Van De Voorde (2010) in her dissertation, two sets of indices were calculated: (i) group level reliability indices, and (ii) interrater agreement indices. The first type of indices refer to ICC-(1) and ICC-(2) indices which account for the consistency in responses of members within the same group compared to members of other groups (Bartko, 1976; James, 1982). The second type refers to the Rwg (J)[18] statistic which considers the similarity within the ratings of the members of the same group (James, Demaree and Wolf, 1984).

ICC-(1) accounts for the amount of variance attributable to group membership and to justify aggregation, an F-test (of the ANOVA) should yield significant values indicating that between group variance is larger than within group variance (Bliese, 2000). ICC-(2) can be defined as the group score reliability and to justify aggregation should yield higher values than 0.7 (Klein and Kozlowski, 2000). Rwg (J) compares the observed variance within a group with the expected variance of randomly assigned group members (James et al., 1984) and its scores should also be above 0.7 in order to justify aggregation (Klein and Kozlowski, 2000). Table 29 and Table 30 show the results for the different indices in each sample and each wave (T1 refers to the first wave and T2 refers to the second wave).

[18] J index after Rwg refers to the fact that it is designed for multi-item scales which is of interest in the present research since constructs are made up of 3 items (see Table 8)

Table 29: Statistical tests for aggregation appropriateness in sample 1

Sample 1	ICC-(1) (values)		ICC-(1) (F-Test)		ICC-(2) (values)		Rwg (J) (mean values)	
	T1	T2	T1	T2	T1	T2	T1	T2
Information	0.09	0.1	6.83***	8.11***	0.85	0.88	0.88	0.85
Training	0.09	0.08	7.25***	6.54***	0.86	0.85	0.81	0.76
Autonomy	0.07	0.06	5.46***	5.53***	0.82	0.82	0.76	0.76
Participation	0.09	0.1	7.14***	8.22***	0.86	0.88	0.82	0.78
HIWS	0.11	0.1	8.28***	8.92***	0.88	0.89	0.92	0.91
Organisational commitment	0.12	0.08	9.74***	6.58***	0.9	0.85	0.86	0.79
Job satisfaction	0.06	0.06	5.07***	5.44***	0.8	0.82	0.91	0.89

*** p<0.01

Table 30: Statistical tests for aggregation appropriateness in sample 2

Sample 2	ICC-(1) (values)		ICC-(1) (F-Test)		ICC-(2) (values)		Rwg (J) (mean values)	
	T1	T2	T1	T2	T1	T2	T1	T2
Training	0.14	0.05	24.2***	8.45***	0.96	0.88	0.79	0.77
Autonomy	0.13	0.07	22.3***	11.7***	0.96	0.92	0.79	0.8
Participation	0.08	0.03	13.24***	5.33***	0.92	0.81	0.76	0.7
HIWS	0.14	0.04	24.7***	7.17***	0.96	0.86	0.88	0.88
Organisational commitment	0.13	0.13	22.6***	23.47***	0.96	0.96	0.84	0.84
Job satisfaction	0.07	0.04	12.1***	6.76***	0.92	0.85	0.88	0.88

*** p<0.01

All the analysed waves passed the statistical tests successfully: (i) F tests for ICC-(1) were significant in all the cases with p values lower than 0.01, (ii) all the ICC-(2) indices were above 0.7, and (iii) the Rwg (J) values were at or above 0.7. Thus, these results and the abovementioned theoretical arguments supported the use of aggregated survey scales in this thesis.

After the data was aggregated, normality tests were conducted for employee-related data in order to ensure that employee responses were normally distributed. The same procedure as described for OP measurements in Section 7.2.1 was followed, and all of them passed the tests successfully. There were two employee-related variables that did not pass the normality tests: job satisfaction and HIWS of the second wave of sample 1. However, by eliminating one outlier value in each case, normality for these two variables

was also ensured. Kurtosis and skewness values were within the limits (i.e. ±1.96) and Kolmogorov-Smirnov and the p values of Shapiro-Wilk tests were above 0.5.

When the employee-related data was prepared at the organisational level, representativeness of the samples was analysed. In sample 1 (N_{Wave1}=104 and N_{Wave2}=94), only those stores with a participation higher than 40% were included and the rest were excluded (resulting in a final sample of N_{Wave1}=97 and N_{Wave2}=85). The threshold was established at 40%, since below that participation, the sampling error was higher and setting the threshold at a higher cut-off value (e.g. 60% of participation) reduced the final sample considerably). In contrast, in sample 2, this "cleaning" process was not done since the sample size was small (N=25) and excluding companies was not optimal. The minimum % of participation was 30% for the first wave and 35% for the second wave.

At that stage and in contrast to sample 1, residuals for the variables of sample 2 were calculated (i.e. residuals were employed in sample 2 due to the limitation of sample size when including controls as independent variables). Regression analyses were used to calculate the residual values of HIWS and employee attitudes (treated as dependant variables) taking into account company size, the year of the survey and work typology (treated as independent variables). Once regression analyses were conducted, the non-standardized residuals were saved (Cohen et al., 1983). Normality was also tested (i.e. kurtosis and skewness values, Kolmogorov-Smirnov and Shapiro-Wilk tests) for the residual values and the results were satisfactory.

The whole process was repeated twice for each sample and for each wave of data. Once both waves passed through all the stages, two files (one per sample) including both waves of data were generated.

The pre-processing of OP data was simpler. First, since OP measurements were gathered from different sources for sample 2, it was necessary to merge both types of measurements (i.e. productivity and absenteeism) into one file. This was not necessary for sample 1. Once all the OP data of interest was in the same file, normality tests were conducted (see results in Section 7.2.1). As with the employee-related data, residuals of the controls (i.e. company type, survey year and work typology) were calculated for both productivity and absenteeism of sample 2 using regression analysis and saving the non-standardized residual values.

After finishing the data preparation phase, employee responses and OP measurements files were merged. These files were organized in a wide format[19] as suggested for longitudinal models (Little, 2013).

The software employed for the pre-processing of data was SPSS version 21 from IBM.

8.1.2 Data analysis phase

In this thesis, a longitudinal SEM technique was employed for data analysis, the Cross-Lagged Model (CLM). SEM applied to longitudinal data helps to understand the unfolding of processes over time (Little, 2013). Since the focus of this thesis is in causality and time is implicit, longitudinal SEM is the most appropriate for this study.

The CLM was designed following the standard guidelines for longitudinal SEM models: (i) the autoregressive effects (stability coefficients) of each variables were modelled, (ii) variables were enabled to covary in the same measurement point (cross-sectional correlations), and (iii) hypothesised lagged effects were included (MacCallum and Austin, 2000).

All the hypotheses were causal hypotheses so in order to test them, time precedence was a *sine qua non* condition. This meant that when studying the relationships, the variables analysed as a cause occurred prior in time than the variables analysed as effects (Shadish et al., 2002). Moreover, when analysing the relationships depicted in the conceptual model shown in Figure 12, the causal hypothesis testing should fulfil the other two conditions for inferring causality: (i) autoregressive effects (Gollob and Reichardt, 1987), and (ii) control for third variables (Shadish et al., 2002). This supposed that two measurements of the same variable needed to be included, and that third variables that could influence the relationship should also be considered (Zapf et al., 1996).

As the model that was used to test the hypothesised relationships had to fulfil the methodological requirements, the conceptual model in Figure 12 was translated into the following hypothesis testing model shown in Figure 26. For simplicity, the variables that make up the HIWS have been removed from the diagram.

[19] Wide format has variables measured at different time points organised in columns rather than in rows

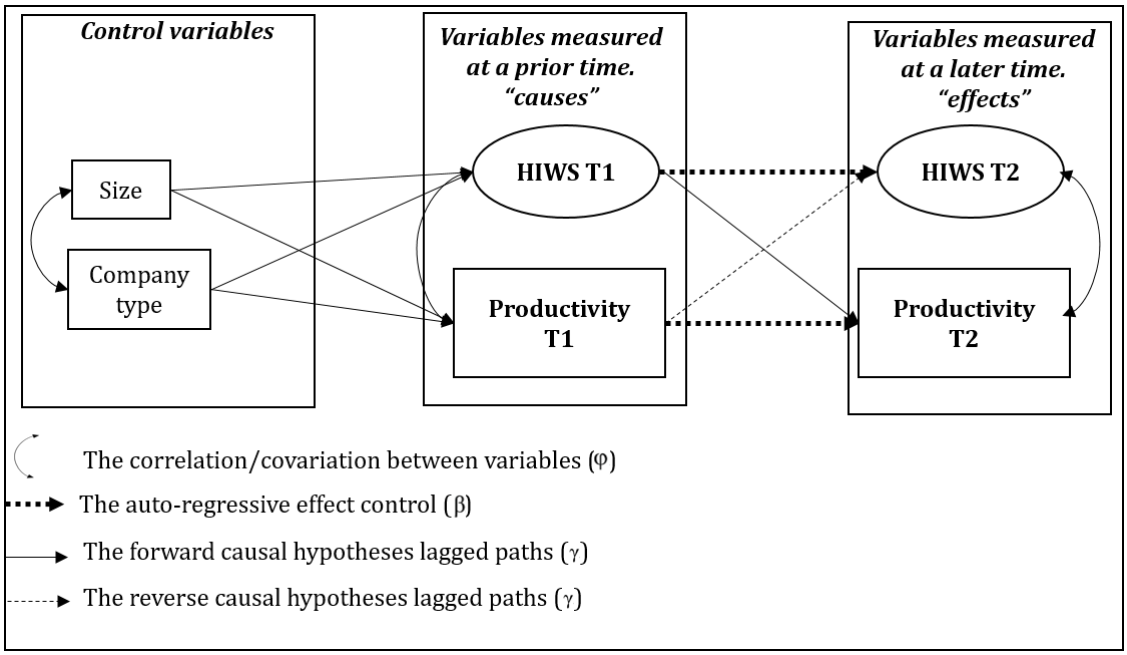

Figure 26: Hypothesis testing model exemplified by HIWS-productivity linkage.
[Greek symbols are in accordance with Little (2013)]

Models like the one shown in Figure 26 were employed for each analysed link in Figure 12: (i) HIWS-productivity, (ii) HIWS-absenteeism, (iii) HIWS-job satisfaction, (iv) HIWS-organisational commitment, (v) job satisfaction-productivity, (vi) job satisfaction-absenteeism, (vii) organisational commitment-productivity, and (viii) organisational commitment-absenteeism.

In order to achieve a reliable model it is essential to be methodologically rigorous when building it. The specification process is critical because the model needs to fit the observed data. Once estimated, the model needs to be evaluated and this evaluation serves to question whether there is an alternative model that would be a better model for this data. The ideal scenario is testing a good model against another good model to provide statistical evidence about which is the better model (Little, 2013). Based on this logic, four competing CLMs (Figure 27) with alternative lagged effects were progressively built and compared (Zapf et al., 1996).

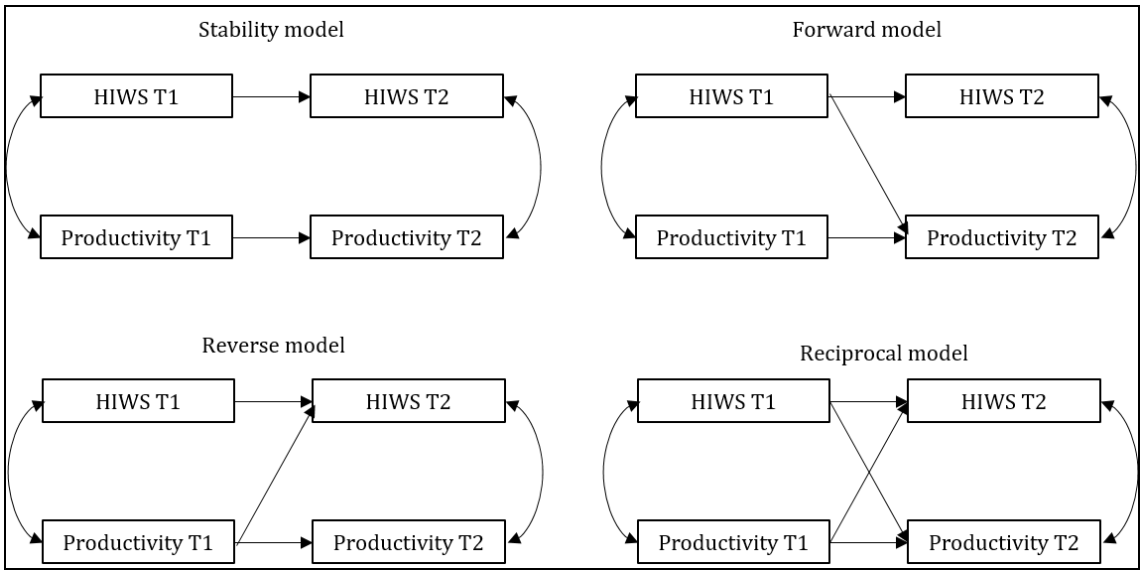

Figure 27: Four competing CLMs (exemplified by HIWS and productivity)

The first competing model or the first possible model was a stability model without cross-lagged effects. The second possible model was a model including only forward causal cross-lagged effects (e.g. path from prior HIWS towards later productivity). The third possible model was a model including only the reverse causality as a cross-lagged effect (e.g. path from prior productivity towards later HIWS). Reciprocal causal paths were included in the fourth possible model. Chi-square (χ^2) difference tests were carried out in order to identify the preferred model in terms of statistical fit. In addition, apart from χ^2, other Goodness of Fit indices were also considered for analysing the overall model fit. The employed indices were the same as in the measurement invariance tests: SRMR, TLI and CFI (see Section 7.1.4).

The main difference in the data analysis phase comparing the two samples was as previously mentioned, the inclusion of control variables. For sample 1, control variables (i.e. company type and size) were included in the model as two exogenous variables prior to the first wave variables. The effect of these control variables was estimated only on the constructs of the first wave, and the effect of them were controlled downstream as indirect effects (Little, 2013). In sample 2, the construct values were residualised so no exogenous variables prior to wave 1 were included in the models.

The software employed for testing the CLMs was Mplus version 8 from Statmodel.

8.2 Hypothesis testing results

First, descriptive statistics, correlations and covariance matrices for both samples are shown in Table 31 (sample 1) and Table 32 (sample 2). These matrices show the relationships between variables.

Related to HIWS and employee attitudes relationships, the bivariate correlations were cross-sectionally significant and positive for both waves in both samples. In sample 1, the first measurement of HIWS showed a positive correlation with the second measurements of job satisfaction and organisational commitment. In contrast, in sample 2, the first measurement of HIWS only showed a positive correlation (weaker than in sample 1) with job satisfaction of the second wave.

The correlations between HIWS and OP measurements differed significantly in both samples. In sample 1, cross-sectional correlations were significant and negative for productivity. That is, in those stores with higher perceptions of HIWS, the productivity levels were the lowest ones, or in those stores with higher rates of productivity, the perceived levels of HIWS were the lowest ones. These negative associations were present for both waves of data analysed in sample 1. In addition, the HIWS of wave 1 was negatively correlated with the productivity of wave 2.

The results were different for sample 2. The cross-sectional correlations between HIWS and productivity were not significant in either of the analysed waves. The only correlation which was significant and, contrary to the first sample was positive, was the correlation between HIWS of the first wave and productivity of the second wave. In terms of absenteeism, in sample 1, the cross-sectional correlations between HIWS and absenteeism were significant and negative. In sample 2, the cross-sectional correlations between HIWS and absenteeism were not significant, but the HIWS of the first wave was negatively correlated to the absenteeism of the second wave.

With regards to employee attitudes and OP measurements correlations, the observed pattern was very similar for both samples. Cross-sectional correlations between attitudes and both OP measurements were not significant in either of the samples for the first wave. Similarly, the correlations between organisational commitment and both OP measurements were not significant in the second wave for either of the samples.

Table 31: Descriptive statistics, correlations, variance and covariance matrix for sample 1

Variables	N	Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12
1. HIWS 2011	97	4.1	0.36	3.23	4.88	0.13	0.06	0.1	0.03	0.03	0.05	-0.03	-0.06	-0.04	-0.02	-0.05	-0.03
2.Job satisfaction 2011	97	4.87	0.28	4.17	5.5	0.55***	0.08	0.1	0.08	0.03	0.1	-0.02	-0.03	-0.03	-0.02	-0.05	-0.03
3.Org. commitment 2011	97	4.48	0.43	3.41	5.41	0.65***	0.803***	0.18	0.04	0.05	0.1	-0.03	-0.06	-0.05	-0.04	-0.07	-0.03
4.HIWS 2015	85	3.87	0.34	3.04	4.76	0.20*	0.20*	0.226**	0.12	0.05	0.08	0	-0.02	0.01	-0.49	-0.01	-0.03
5.Job satisfaction 2015	85	4.75	0.3	3.84	5.4	0.27**	.341***	.398***	0.508***	0.09	0.1	-0.01	-0.02	-0.01	-0.05	-0.02	-0.05
6. Org. commitment 2015	86	4.38	0.43	3.42	5.36	0.29***	0.440***	0.512***	0.510***	0.815***	0.19	0	-0.01	-0.01	-0.06	-0.03	-0.03
7.Productivity[a] 2011	97	4.9	0.27	4.26	5.49	-0.32***	-0.27**	-0.26**	-0.03	-0.16	-0.14	0.07	0.04	0.07	0	0.08	0.07
8.Absenteeism[a] 2011	94	2.2	0.51	1.29	3.3	-0.28***	-0.18*	-0.28***	-0.12	-0.1	-0.02	0.295***	0.26	0.05	0.1	0.1	0.04
9.Productivity[a] 2015	89	4.74	0.3	3.89	5.34	-0.40***	-0.42***	-0.47***	0.05	-0.17	-0.13	0.897***	0.485***	0.09	0.01	0.09	0.07
10.Absenteeism[a] 2015	87	2.28	0.5	1.11	3.24	-0.06	-0.13	-0.14	-0.28**	-0.32***	-0.30***	0.06	0.348***	0.1	0.25	0.03	0
11.Coop	104	-	-	0	1	-0.31***	-0.35***	-0.33***	-0.09	-0.21	-0.19*	0.700***	0.460***	0.700***	0.18*	0.18	0.1
12. Size[a]	104	4.42	0.55	3.26	5.63	-0.12	-0.14	-0.1	-0.17	-0.39***	-0.23**	0.484***	0.18*	0.391***	0.07	0.448***	0.29

Note: Values below the diagonal are correlations, the diagonal represents the variances and values above refer to covariance.
[a] transformed for normality.
*p<0.1 (bilateral correlation significant at 90%);** p<0.05 (bilateral correlation significant at 95%); ** p<0.01 (bilateral correlation significant at 99%).

Table 32: Descriptive statistics, correlations, variance and covariance matrix for sample 2

Variables (residuals)	N	Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9	10
1.HIWS w1	25	0	0.27	-0.69	0.43	0.07	0.03	0.06	0.02	0.03	0.01	0.48	-0.01	1.6	-0.09
2.Job satisfaction w1	25	0	0.23	-0.37	0.43	0.504**	0.05	0.06	0	0.01	0.02	0.38	-0.01	0.67	0.017
3.Org. commitment w1	25	0	0.33	-0.59	0.59	0.67***	0.83***	0.11	0.02	0.02	0.04	0.07	-0.05	0.922	0.06
4.HIWS w2	25	0	0.2	-0.44	0.37	0.39*	0.05	0.33	0.04	0.02	0.03	-0.26	0.00	0.62	-0.03
5.Job satisfaction w2	25	0	0.21	-0.42	0.39	0.47**	0.24	0.23	0.50**	0.04	0.03	0.11	-0.11	1.03	-0.09
6.Org. commitment w2	25	0	0.32	-0.83	0.75	0.15	0.25	0.38*	0.41**	0.53***	0.1	0.37	-0.17	0.36	-0.01
7.Productivity w1	25	0	13.79	-23.4	35.9	0.13	0.12	0.02	-0.1	0.04	0.09	182.66	-12.985	35.79	-0.35
8. Absenteeism w1	17	0.08	1.5	-3.31	2.22	0.09	0.27	0.24	0.26	-0.06	0.12	-0.52**	2.91	1.88	-0.32
9. Productivity w2	22	-1.04	9.88	-21.6	17.28	0.54***	0.23	0.13	0.24	0.44**	0.03	0.57***	-0.26	100.61	-5.69
10. Absenteeism w2	18	-0.32	0.99	-2.04	1.35	-0.53**	0.07	0.14	-0.42*	-0.72***	-0.15	-0.13	-0.14	-0.71***	0.79

Note: Values below the diagonal are correlations, the diagonal represents the variances and values above refer to covariance.
[a] transformed for normality. w1 refer to the variables of the first wave and w2 refer to the variables of the second wave. *p<0.1 (bilateral correlation significant at 90%);** p<0.05 (bilateral correlation significant at 95%); ** p<0.01 (bilateral correlation significant at 99%)

However, job satisfaction presented a negative association with absenteeism for both samples and was positively related to productivity in sample 2.

Related to the controls treated as exogenous variables in sample 1, the coop variable (1 if employee owned and 0 if not) showed a negative association with employee attitudes and perception of HIWS of the first wave. This indicated that perceived HIWS levels, job satisfaction and organisational commitment were lower in employee owned stores in 2011. This association was not present with the second wave employee attitudes (only weak negative association for commitment) and perception of HIWS. The coop variable was also positively associated with productivity of 2011 and 2015. In addition and in line with the negative associations presented with employee-related variables in 2011, the coop variable was positively related to absenteeism in 2011 and this positive association was weaker in 2015.

Finally, the store size was negatively related to employee attitudes in 2015 and positively related to productivity and coop variables. The biggest stores were the most productive ones, and they were employee-owned.

On the other hand, Table 33 through Table 40 display the $\chi 2$ difference tests for the analysed four competing Cross-Lagged models tested for each hypothesis. The preferred model according to the statistical fit is highlighted in these tables. Those highlighted in green indicate that the preferred model was in accordance with the hypothesis and those marked in blue indicate that the preferred model was an unexpected one (i.e. the preferred model was not in line with the hypothesis).

The models were compared to each other and the p value of the difference was calculated according to their difference in $\chi 2$ and *df.* Considering that for sample 2 control variables were not included as exogenous variables, the models only contained 4 variables (two measurements of both variables) and therefore, the stability model had 2 *df.* As previously mentioned, the comparison between models was done comparing the differences of *df.* Since adding paths to the model decreases the number of *df*, the minimum *df* that the stability model needs to have to compare the four competing models is 3. To solve this and be able to compare the four models in sample 2, one constraint was imposed for the models of sample 2: the correlations between the variables measured at the same time point were equalled for both waves of data.

If the p value of the difference was not significant, it meant that adding paths to the model did not improve statistical fit and that therefore, the estimate of the hypothesised extra path was not significant. In the occasions where statistical fit did not improve with the inclusion of forward, reverse or reciprocal paths, the stability model was identified as the preferred model assuming that the variables analysed in that model did not influence each other over time.

The results were similar but not the same for both samples. For the HIWS-OP links (see Table 33 for productivity and Table 34 for absenteeism) stability models were preferred for sample 1 and forward causality models were preferred for sample 2. This meant that HIWS had a significant forward effect on later OP for sample 2 but that HIWS and OP were not related over time for sample 1. Section 8.2.1 shows these results visually.

As regards to HIWS-employee attitudes links (see Table 35 for job satisfaction and Table 36 for organisational commitment), the results of both samples were the same for commitment but different for satisfaction. In sample 1, contrary to the hypothesised path, the preferred model explaining the relationship between HIWS and job satisfaction was the reverse causality model, indicating that job satisfaction of the first wave had a significant effect on the subsequent perceived HIWS level. This effect was stronger than the effect of prior HIWS on subsequent job satisfaction. In contrast, in sample 2, the preferred model was the forward causality model indicating that prior HIWS had a significant effect on subsequent job satisfaction. Related to commitment, neither of the samples provided significant lagged effects so the stability models were preferred in both cases.

Finally, neither of the attitudes was associated with absenteeism in either of the samples (see Table 38 for job satisfaction and Table 40 for organisational commitment) and stability models were the preferred models. In contrast, for sample 1, both job satisfaction (see Table 37) and organisational commitment (see Table 39) provided better results for the forward causality models but these are highlighted in blue since their effect was negative. In sample 2, none of the attitudes were related to any of the OP measurements and therefore stability models were preferred in all cases. Section 8.2.3 sets out these relationships.

Table 33: Four competing models analysing HIWS-productivity link

	Model: HIWS-Productivity													
	Sample 1							Sample 2						
Competing Model	χ2	*df*	Comparison	Δχ2	A*df*	p value	Preferred Model	χ2	*df*	Comparison	Δχ2	A*df*	p value	Preferred Model
1.Stability	7.256	6	-	-	-	-	X	4.433	3	-	-	-	-	
2.Forward	7.247	5	1 vs 2	0.009	1	0.92442	-	0.843	2	1 vs 2	3.59**	1	0.05813	X
3.Reverse	6.915	5	1 vs 3	0.341	1	0.55925	-	3.78	2	1 vs 3	0.653	1	0.41904	-
4.Reciprocal	6.912	4	1 vs 4	0.344	2	0.84198	-	0.151	1	1 vs 4	4.282	2	0.11754	-
			2 vs 4	0.335	1	0.56273	-			2 vs 4	0.692	1	0.40548	-
			3 vs 4	0.003	1	0.95632	-			3 vs 4	3.629	1	0.05678	Reciprocal

Table 34: Four competing models analysing HIWS-absenteeism link

	Model: HIWS-Absenteeism													
	Sample 1							Sample 2						
Competing Model	χ2	*df*	Comparison	Δχ2	A*df*	p value	Preferred Model	χ2	*df*	Comparison	Δχ2	A*df*	p value	Preferred Model
1.Stability	1.562	6	-	-	-	-	X	8.385	3	-	-	-	-	
2.Forward	1.469	5	1 vs 2	0.093	1	0.7604	-	1.709	2	1 vs 2	7.33***	1	0.00977	X
3.Reverse	1.35	5	1 vs 3	0.212	1	0.6452	-	7.589	2	1 vs 3	0.796	1	0.37229	-
4.Reciprocal	1.234	4	1 vs 4	0.328	2	0.84874	-	1.026	1	1 vs 4	7.359	2	0.02524	Reciprocal
			2 vs 4	0.235	1	0.62784	-			2 vs 4	1.055	1	0.19112	-
			3 vs 4	0.116	1	0.73341	-			3 vs 4	7.589	1	0.00587	Reciprocal

Table 35: Four competing models analysing HIWS-job satisfaction link

	Model: HIWS-Job satisfaction													
	Sample 1							Sample 2						
Competing Model	χ2	*df*	Comparison	Δχ2	A*df*	p value	Preferred Model	χ2	*df*	Comparison	Δχ2	Adf	p value	Preferred Model
1.Stability	12.281	6	-	-	-	-		6.18	3	-	-	-	-	-
2.Forward	10.036	5	1 vs 2	2.245	1	0.13405	-	2.543	2	1 vs 2	3.637**	1	0.05651	X
3.Reverse	9.423	5	1 vs 3	2.858	1	0.09092	X	6.061	2	1 vs 3	0.119	1	0.73012	-
4.Reciprocal	8.337	4	1 vs 4	3.944	2	0.13918	-	1.791	1	1 vs 4	4.389	2	0.11141	-
			2 vs 4	1.699	1	0.19242	-			2 vs 4	0.752	1	0.38584	-
			3 vs 4	1.086	1	0.29736	-			3 vs 4	4.27	1	0.03879	Reciprocal

Table 36: Four competing models analysing HIWS-organisational commitment link

	Model: HIWS-Organisational commitment													
	Sample 1							Sample 2						
Competing Model	χ2	*df*	Comparison	Δχ2	A*df*	p value	Preferred Model	χ2	*df*	Comparison	Δχ2	A*df*	p value	Preferred Model
1.Stability	3.513	6	-	-	-	-	X	3.75	3	-	-	-	-	X
2.Forward	3.505	5	1 vs 2	0.008	1	0.92873	-	3.45	2	1 vs 2	0.3	1	0.58388	-
3.Reverse	1.555	5	1 vs 3	1.958	1	0.16173	-	3.72	2	1 vs 3	0.03	1	0.86249	-
4.Reciprocal	1.214	4	1 vs 4	2.299	2	0.3168	-	3.27	1	1 vs 4	0.48	2	0.78663	-
			2 vs 4	2.291	1	0.13013	-			2 vs 4	0.18	1	0.67137	-
			3 vs 4	0.341	1	0.55925	-			3 vs 4	0.45	1	0.50233	-

Table 37: Four competing models analysing job satisfaction-productivity link

	Model: Job satisfaction-Productivity													
	Sample 1							Sample 2						
Competing Model	χ2	*df*	Comparison	Δχ2	A*df*	p value	Preferred Model	χ2	*df*	Comparison	Δχ2	A*df*	p value	Preferred Model
1.Stability	15.86	6	-	-	-	-		0.746	3	-	-	-	-	X
2.Forward	11.839	5	1 vs 2	4.021	1	0.04494	X	0.172	2	1 vs 2	0.574	1	0.44867	-
3.Reverse	15.86	5	1 vs 3	0	1	1	-	0.74	2	1 vs 3	0.006	1	0.93826	-
4.Reciprocal	11.839	4	1 vs 4	4.021	2	0.13392	-	0.17	1	1 vs 4	0.576	2	0.74976	-
			2 vs 4	0	1	1	-			2 vs 4	0.002	1	0.96433	-
			3 vs 4	4.021	1	0.04494	Reciprocal			3 vs 4	0.57	1	0.45026	-

Table 38: Four competing models analysing job satisfaction-absenteeism link

	Model: Job satisfaction-Absenteeism													
	Sample 1							Sample 2						
Competing Model	χ2	*df*	Comparison	Δχ2	A*df*	p value	Preferred Model	χ2	*df*	Comparison	Δχ2	A*df*	p value	Preferred Model
1.Stability	10.235	6	-	-	-	-	X	5.472	3	-	-	-	-	X
2.Forward	9.565	5	1 vs 2	0.67	1	0.41305	-	5.439	2	1 vs 2	0.033	1	0.85585	-
3.Reverse	10.002	5	1 vs 3	0.233	1	0.62931	-	4.839	2	1 vs 3	0.633	1	0.42626	-
4.Reciprocal	9.382	4	1 vs 4	0.853	2	0.65279	-	4.829	1	1 vs 4	0.643	2	0.72506	-
			2 vs 4	0.183	1	0.66881	-			2 vs 4	0.61	1	0.43479	-
			3 vs 4	0.62	1	0.43105	-			3 vs 4	0.01	1	0.92034	-

Table 39: Four competing models analysing organisational commitment-productivity link

	Model: Organisational commitment-Productivity													
	Sample 1							Sample 2						
Competing Model	χ2	*df*	Comparison	Δχ2	A*df*	p value	Preferred Model	χ2	*df*	Comparison	Δχ2	A*df*	p value	Preferred Model
1.Stability	9.71	6	-	-	-	-	-	0.26	3	-	-	-	-	X
2.Forward	5.586	5	1 vs 2	4.124	1	0.04228	X	0.187	2	1 vs 2	0.073	1	0.78702	-
3.Reverse	7.781	5	1 vs 3	1.929	1	0.16487	-	0.073	2	1 vs 3	0.187	1	0.66543	-
4.Reciprocal	3.785	4	1 vs 4	5.925	2	0.05169	Reciprocal	0	1	1 vs 4	0.26	2	0.8781	-
			2 vs 4	1.801	1	0.17959	-			2 vs 4	0.187	1	0.66543	-
			3 vs 4	3.996	1	0.04561	Reciprocal			3 vs 4	0.073	1	0.78702	-

Table 40: Four competing models analysing organisational commitment-absenteeism link

	Model: Organisational commitment-Absenteeism													
	Sample 1							Sample 2						
Competing Model	χ2	*df*	Comparison	Δχ2	A*df*	p value	Preferred Model	χ2	*df*	Comparison	Δχ2	A*df*	p value	Preferred Model
1.Stability	2.594	6	-	-	-	-	X	2.644	3	-	-	-	-	X
2.Forward	2.291	5	1 vs 2	0.303	1	0.58201	-	2.073	2	1 vs 2	0.571	1	0.44986	-
3.Reverse	1.198	5	1 vs 3	1.396	1	0.23739	-	2.642	2	1 vs 3	0.002	1	0.96433	-
4.Reciprocal	0.769	4	1 vs 4	1.825	2	0.40152	-	2.069	1	1 vs 4	0.575	2	0.75014	-
			2 vs 4	1.522	1	0.21732	-			2 vs 4	0.004	1	0.94957	-
			3 vs 4	0.429	1	0.51248	-			3 vs 4	0.573	1	0.44907	-

Goodness of Fit indices for the preferred models are shown in Table 41. All the indices were within the optimal values (with the exception of TLI for sample 1 in the model analysing job satisfaction and absenteeism link, which had a mediocre fit) and it was concluded that the results could be interpreted since the models represented the data in an appropriate way. In addition, most of the TLI values were above 1 which is common when small simple sizes are analysed. Following the recommendations of Anderson and Gerbing (1984) when reporting TLI values for small sample sizes, the TLI values higher than 1 were truncated into the value of 1 (mostly for sample 2).

Table 41: Goodness of Fit Indices for the hypotheses testing models

Hypothesised relationships		Preferred Model		Goodness of Fit indices (Preferred Models)					
				Sample 1			Sample 2		
		Sample 1	Sample 2	SRMR	CFI	TLI	SRMR	CFI	TLI
H1 and H4	HIWS-Productivity link	Stability	Forward	0.04	0.99	0.99	0.05	1	1.12
	HIWS-Absenteeism link	Stability	Forward	0.03	1	1.23	0.07	0.99	0.97
H2	HIWS- Job satisfaction link	Reverse	Forward	0.08	0.95	0.85	0.04	1	1.06
	HIWS- Org. commitment link	Stability	Stability	0.05	1	1.06	0.03	1	1.43
H3 and H5	Job satisfaction-Productivity link	Forward	Stability	0.08	0.97	0.92	0.04	1	1.37
	Job satisfaction-Absenteeism link	Stability	Stability	0.07	0.93	0.84	0.03	1	1.45
	Org. commitment-Productivity link	Forward	Stability	0.04	0.99	0.99	0.03	1	1.55
	Org. commitment-Absenteeism link	Stability	Stability	0.03	1	1.16	0.11	1	1.7

The following sections set out the pictures that depict the hypothesised models. Results for all the estimated paths of the preferred models are detailed in each model. It is important to highlight that the two exogenous control variables were only included in sample 1 models and therefore, for differentiation, they are depicted in grey and only results for sample 1 are outlined for these paths. The models for sample 2 were identical with the exception of these two control variables.

In all the pictures the significance level of the estimate is depicted with asterisks. The meaning is as follows: * $p<0.1$; ** $p<0.05$; *** $p<0.01$. The results are organised into three

sections according to the hypothesised relationships: (i) HIWS-OP relationships (Hypothesis 1 and 4), (ii) HIWS-employee attitudes relationships (Hypothesis 2), and (iii) Employee attitudes-OP relationships (Hypothesis 3 and 5). When explaining the results, the subscript S1 means sample 1 and S2 means sample 2. T1 means wave 1 and T2 means wave 2. β coefficients are used to indicate the autoregressive effects, γ refers to the lagged effects and φ indicates the cross-sectional correlations (see Figure 26).

8.2.1 HIWS-OP relationships

H1A stated that perceived HIWS at T1 was positively related to productivity at T2, and H1B stated that perceived HIWS at T1 was negatively related to absenteeism at T2. Based on these statements, it was expected that the lagged path from HIWS at T1 would have a positive and significant influence on productivity of T2 and a negative and significant influence on absenteeism of T2. Looking at Figure 28 and Figure 29, the H1A and HAB were confirmed for sample 2 for both OP measurements (preferred models were the forward causal models for sample 2 in Table 33 and Table 34). The HIWS of T1 had a positive influence on productivity of T2 (γ=0.41) and the HIWS of T1 had a negative influence on absenteeism of T2 (γ=-0.54). The forward lagged relationships were not significant for either of the OP measurements in sample 1 and therefore, the hypothesis was not confirmed for sample 1 (the preferred models were the stability models for sample 1 in Table 33 and Table 34).

On the other hand, H4A stated that productivity at T1 was positively related to perceived HIWS at T2, and H4B stated that the absenteeism level of T1 was negatively related to perceived HIWS at T2. In this case, neither of the reverse causal hypotheses were significant so the fourth hypothesis was not supported for either of the samples or the OP measurements (in neither of the cases the reverse causal model was preferred in Table 33 and Table 34). So, hypothesis HA4 and H4B were not confirmed.

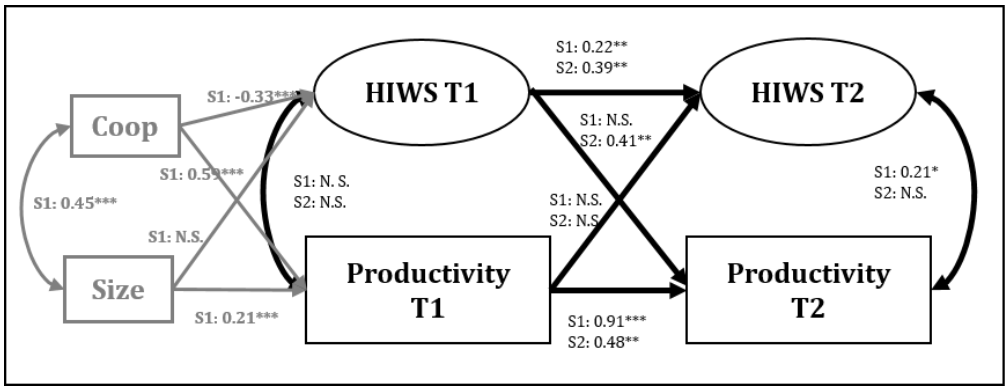

Figure 28: H1A and H4A results

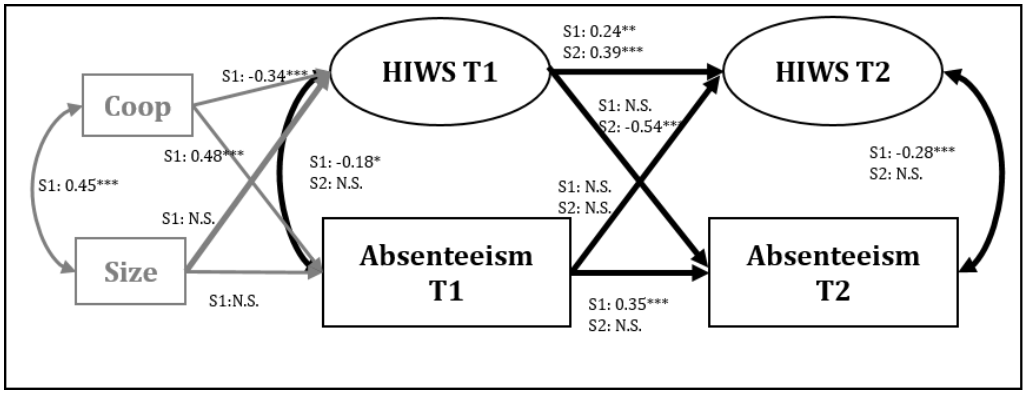

Figure 29: H1B and H4B results

Apart from the hypothesised paths, the models in Figure 28 and Figure 29, showed other interesting and significant results. The stability relationships were significant for HIWS for sample 1 (β_{s1}=0.22; β_{s1}=0.24) and for sample 2 (β_{s2}=0.39). The stability estimates were also significant for productivity in both samples (β_{s1}=0.91; β_{s2}=0.48). Absenteeism was less stable than productivity and the stability estimate was only significant for sample 1 (β_{s1}=0.35).

The cross-sectional correlations between HIWS and productivity were not significant in either of the samples for the first wave. However, in the second wave, sample 1 showed a positive and significant correlation between HIWS and productivity (φ_{s1T2}=0.21). In absenteeism the cross-sectional correlations were significant and negative for both waves in sample 1 (φ_{s1w1}=-0.18; φ_{s1w2}=-0.28). There were no significant associations for sample 2.

Related to controls in sample 1, the coop variable was negatively related to HIWS (β_{s1}=-0.33; β_{s1}=-0.34), and positively related to productivity (β_{s1}=0.59) and absenteeism

(β_{s1}=0.48). The store size was only associated positively with productivity (β_{s1}=0.21) and the coop variable (φ_{s1}=0.45).

8.2.2 HIWS-employee attitude relationships

H2A stated that perceived HIWS at T1 was positively related to job satisfaction at T2, and H2B stated that perceived HIWS at T1 was positively related to organisational commitment at T2. Based on this, it was expected that HIWS measured at T1 would have a positive and estimate value in the lagged forward path. Looking at the results in Figure 30 and Figure 31, it can be concluded that this hypothesis was only supported for job satisfaction and just for sample 2, since the rest of the lagged paths were not significant (preferred model for sample 2 was the forward causal for job satisfaction in Table 35 and for commitment the preferred model was the stability model in Table 36).Therefore, H2A was partially supported and H2B was not confirmed.

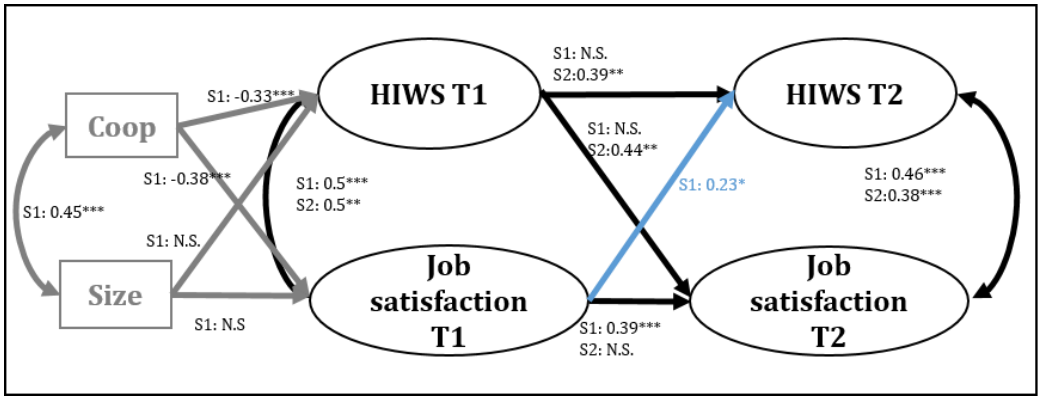

Figure 30: H2A results

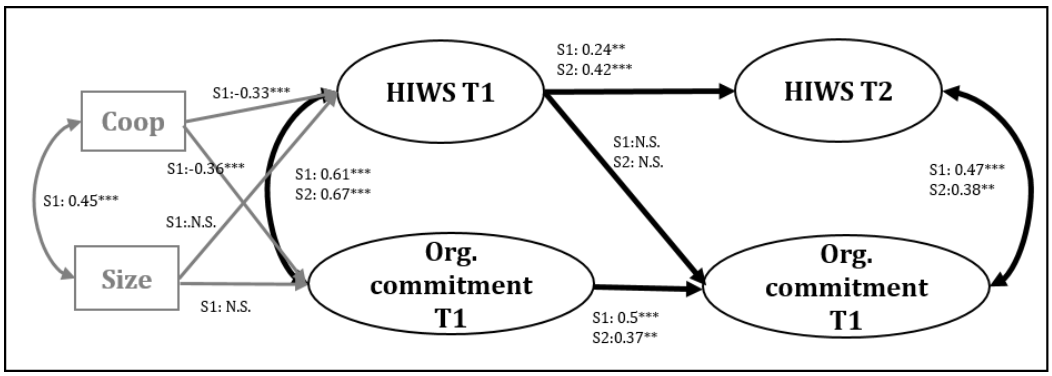

Figure 31: H2B results

However, in both samples, the cross-sectional correlations between HIWS and job satisfaction were positive and significant for both waves (φ_{s1T1}=0.5; φ_{s1T2}=0.46; φ_{s2T1}=0.5;

φ_{s2T2}=0.38), as were the cross-sectional correlations between HIWS and organisational commitment (φ_{s1T1}=0.61; φ_{s1T2}=0.47; φ_{s2T1}=0.67; φ_{s2T2}=0.38).

The autoregressive coefficients were significant in the model analysing the relationship between HIWS and organisational commitment (Figure 31) for both samples for HIWS (β_{S1}=0.24; β_{s2}=0.52) and for organisational commitment (β_{S1}=0.5; β_{s2}=0.37). The HIWS was not stable for sample 1 in the model analysing the relationship between HIWS and job satisfaction, but it was stable for sample 2 ($\beta_{s2=}$0.39). The job satisfaction autoregressive coefficient in contrast, was not significant for sample 2, but it was for sample 1 ($\beta_{s1=}$0.39).

The model analysing the relationship between HIWS and job satisfaction showed counterintuitive results. As the preferred model was the one which included the reverse path (see Table 35), the estimate of the path going from job satisfaction at T1 towards HIWS at T2 was significant and positive (γ_{s1}=0.23).

Related to controls, store size was not directly related to either of the variables but the coop variable negatively influenced the perception of HIWS ($\beta_{s1=}$-0.33), job satisfaction ($\beta_{s1=}$-0.38) and organisational commitment ($\beta_{s1=}$-0.36). The store size and coop variable were positively correlated (φ_{s1}=0.45).

8.2.3 Employee attitudes-OP relationships

H3A stated that job satisfaction at T1 was positively related to productivity at T2, and H3C stated that job satisfaction at T1 was negatively related to absenteeism at T2. The lagged path from job satisfaction towards productivity (Figure 32) was not significant for sample 2 and it was significant but negative (γs1=-0.1) for sample 1 (the preferred models in Table 37 were the forward causal model for sample 1 and the stability model for sample 2). Therefore, H3A was not supported for either of the samples. On the other hand, the lagged path from job satisfaction towards absenteeism (Figure 33) was not significant in either of the samples so H3C was not supported in any sample (the preferred models in Table 38 were the stability models in both cases).

In the same vein, H5A stated that productivity at T1 was positively related to job satisfaction at T2 (Figure 32) and H5C stated that absenteeism at T1 was negatively related to job satisfaction at T2 (Figure 33). None of the reverse lagged paths were significant in Table 37 and Table 38,therefore H5A and H5C were not supported.

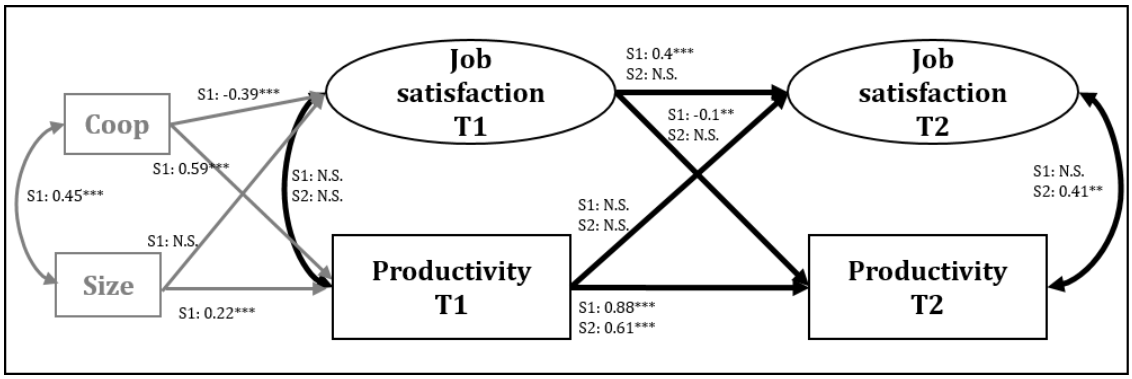

Figure 32: H3A and H5A results

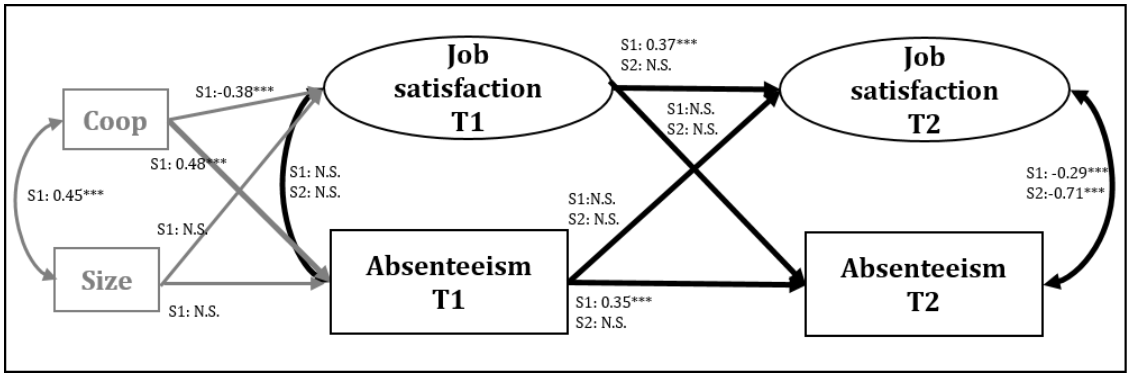

Figure 33: H3C and H5C results

The autoregressive coefficients were positive and significant in sample 1 for all the variables: job satisfaction ($\beta_{s1=}$0.4; $\beta_{s1=}$0.37), productivity (β_{s1}=0.88) and absenteeism ($\beta_{s1=}$0.35). However, in sample 2, job satisfaction and absenteeism turned out to be more volatile and only the productivity presented a significant stability coefficient (β_{s2}=0.61).

Cross-sectional correlations were not significant either between job satisfaction and productivity or job satisfaction and absenteeism for the first wave in any of the samples. The correlation between job satisfaction and productivity was significant for sample 2, wave 2 (φ_{s2T2}=0.41). The cross-sectional correlations were significant and negative for wave 2 for the job satisfaction-absenteeism linkage (φ_{s1T2}=-0.29; φ_{s2T2}=-0.71).

With reference to controls, store size was not directly related to job satisfaction and absenteeism but it was positively related to productivity (β_{s1}=0.22). The coop variable was negatively related to job satisfaction (β_{s1}=-0.39; β_{s1}=-0.38), and positively related to absenteeism (β_{s1}=0.48) and productivity (β_{s1}=0.59). The store size and coop variable were positively correlated (φ_{s1}=0.45).

By contrast, H3B stated that organisational commitment at T1 was positively related to productivity at T2 (Figure 34), and H3D stated that organisational commitment at T1 was negatively related to absenteeism at T2 (Figure 35). The lagged path from organisational commitment towards productivity (Figure 34) was not significant for sample 2, and it was significant but negative (γ_{s1}=-0.11) for sample 1 (the preferred models in Table 39 were the forward causal model for sample 1 and stability model for sample 2). Therefore, H3B was not supported for either of the samples. On the other hand, the lagged path from organisational commitment towards absenteeism (Figure 35) was not significant in either of the samples so H3D was not supported in any sample (the preferred models in Table 40 were the stability models for both samples).

Finally, H5B stated that productivity at T1 was positively related to organisational commitment at T2 (Figure 34), and H5D stated that absenteeism at T1 was negatively related to organisational commitment at T2 (Figure 35). None of the reverse lagged paths were preferred in Table 39 and Table 40., therefore H5B and H5D were not supported.

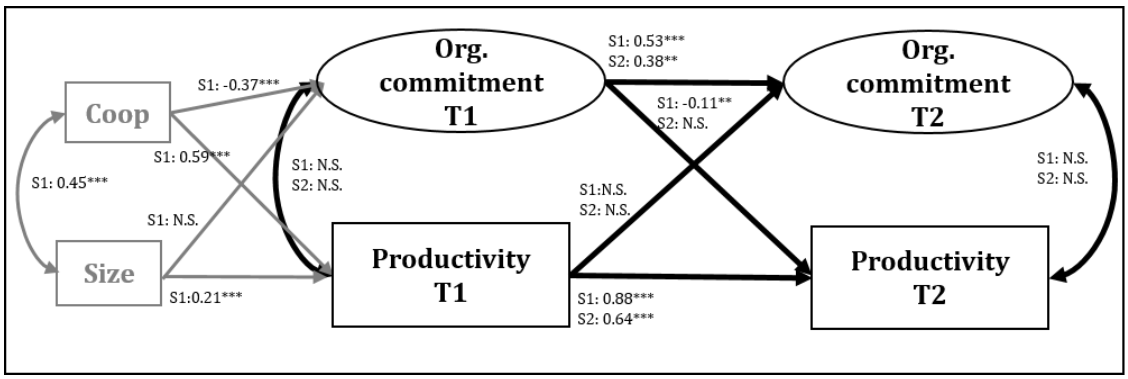

Figure 34: H3B and H5B results

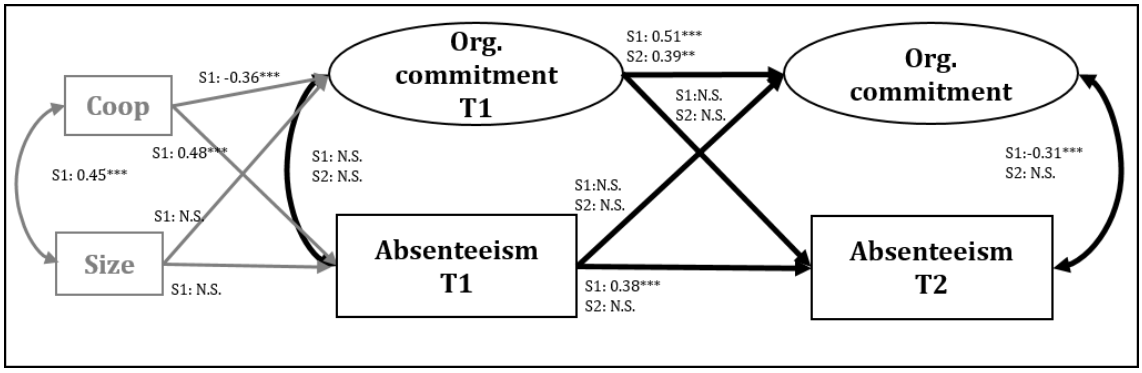

Figure 35: H3D and H5D results

The autoregressive coefficients were positive and significant in sample 1 for all the variables: organisational commitment (β_{s1}=0.53; β_{s1}=0.51), productivity (β_{s1}=0.88) and absenteeism (β_{s1}=0.38). However, productivity presented a significant stability coefficient (β_{s2}=0.64) and organisational commitment (β_{s2}=0.38; β_{s2}=0.39), whereas absenteeism turned out to be more volatile.

Cross-sectional correlations were not significant either between organisational commitment and productivity or between organisational commitment and absenteeism for the first wave in any of the samples. Similarly, the correlation between organisational commitment and productivity was not significant for any of the samples in wave 2. However, the cross-sectional correlation was significant and negative for sample 1, wave 2 between organisational commitment and absenteeism (φ_{s1T2}=-0.31).

With regards to controls, store size was not directly related to organisational commitment and absenteeism, but it was positively related to productivity (β_{s1}=0.22). The coop variable was negatively related to organisational commitment (β_{s1}=-0.37; β_{s1}=-0.36), and positively related to absenteeism (β_{s1}=0.48) and productivity (β_{s1}=0.59). The store size and coop variable were positively correlated (φ_{s1}=0.45).

Table 42: Estimate values and their significance level for hypothesised causal paths

		Sample 1	Sample 2
Hypothesised relationships		Estimate (p value)	Estimate (p value)
H1	H1A)HIWS T1-->Productivity T2	-0.005 (0.924)	**0.41** (0.044)**
	H1B)HIWS T1-->Absenteeism T2	0.033 (0.76)	**-0.542*** (0.001)**
H2	H2A)HIWS T1-->Job satisfaction T2	0.19 (0.125)	**0.44*** (0.02)**
	H2B)HIWS T1-->Org. commitment T2	-0.01 (0.929)	-0.162 (0.503)
H3	H3A)Job satisfaction T1-->Productivity T2	**-0.101**(0.05)**	0.14 (0.435)
	H3B)Org. commitment T1-->Productivity T2	**-0.11** (0.05)**	-0.049 (0.785)
	H3C)Job satisfaction T1-->Absenteeism T2	-0.089 (0.41)	0.038(0.864)
	H3D)Org. commitment T1-->Absenteeism T2	-0.062 (0.58)	0.181 (0.433)
H4	H4A)Productivity T1--> HIWS T2	0.076 (0.56)	-0.15 (0.409)
	H4B)Absenteeism T1--> HIWS T2	-0.051 (0.644)	0.207 (0.363)
H5	H5A)Productivity T1-->Job satisfaction T2	-0.001 (0.99)	0.016 (0.938)
	H5B)Productivity T1-->Org. commitment T2	0.158 (0.152)	0.08 (0.664)
	H5C)Absenteeism T1-->Job satisfaction T2	-0.051(0.629)	0.08 (0.736)
	H5D)Absenteeism T1-->Org. commitment T2	0.117 (0.233)	0.045 (0.894)

As a summary, Table 42 outlines the empirical results of all the hypothesised relationships. Those that are significant are highlighted in bold and colour (i.e. green meaning that it is in line with the hypothesis and blue meaning an unexpected link). The cells that are not highlighted were not significant. As can be observed, only H1 and part of H2 are supported for sample 2 and none of the hypotheses are supported for sample 1.

"It is not the strongest of the species that survives,
nor the most intelligent, but the one most responsive to change."
Charles Darwin.

Chapter 9

Discussion

9 Discussion

Based on the extant literature and the available empirical evidence, the conceptual model proposed for the current research (see Figure 12) included all the hypothesised relationships in the HRM-OP link as positive associations. We hypothesised that the more companies invested in mechanisms such as HIWS, the better OP they would achieve in terms of higher productivity and lower levels of absenteeism (H1). We also considered the role of individuals in these relationships, contemplating how these systems affected employee attitudes (job satisfaction and organisational commitment) (H2), and how these attitudes in turn influenced the measured OP (H3). In addition, we posited that the relationship was a two-way relationship in which high-performing companies (with better OP values) were more likely to invest in HIWS (H4), and that in high-performing organisations employee attitudes tended to be more positive (H5).

The results however, were unexpected (see Table 43):

Table 43: Summary of hypothesis results

Causal directionality	Hypothesised relationship		Sample 1	Sample 2
Forward	H1	HIWS T1--> Productivity T2	✗	✓
		HIWS T1--> Absenteeism T2	✗	✓
Forward	H2	HIWS T1--> Satisfaction T2	✗	✓
		HIWS T1-->Commitment T2	✗	✗
Forward	H3	Satisfaction T1-->Productivity T2	✗	✗
		Satisfaction T1-->Absenteeism T2	✗	✗
		Commitment T1-->Productivity T2	✗	✗
		Commitment T1-->Absenteeism T2	✗	✗
Reverse	H4	Productivity T1--> HIWS T2	✗	✗
		Absenteeism T1--> HIWS T2	✗	✗
Reverse	H5	Productivity T1-->Satisfaction T2	✗	✗
		Absenteeism T1-->Satisfaction T2	✗	✗
		Productivity T1-->Commitment T2	✗	✗
		Absenteeism T1-->Commitment T2	✗	✗

✗means not supported hypothesis and ✓means supported hypothesis.

Findings showed support for forward causality between HIWS and OP in the sample including industrial companies. Those industrial companies where employees perceived

higher levels of work methods autonomy, training and opportunities to participate in strategic decision making, resulted to be more productive and had lower levels of absenteeism after 3.5 years. These findings suggest that the enrichment of work environment (in terms of involvement practices), had a positive influence on future OP measurements after controlling for prior OP values. It seems that employees became more productive and less absentees as a result of their higher involvement in the organisation. This fact reinforces the idea posited by Social Exchange Theory (Blau, 1964): employees response in kind to the benefits provided by the organisation. In line with this, the results also showed the positive influence of HIWS on future job satisfaction in sample 2. The higher perception levels of the aforementioned involvement practices, resulted in a higher level of job satisfaction of employees. Some relationships were positive and significant for industrial companies (not all of them) but the retail companies did not show significant HIWS-Employee attitude-OP relationships. These intriguing findings led us to further investigate the observed relationships and the following sections explain the findings from the analysed different angles.

9.1 The choice of variables

9.1.1 Different variables for different causal directionalities

Looking at the results, one relationship of forward causality was partially supported (HIWS at T1 on OP at T2 in sample 2) and no evidence (either cross-sectionally or longitudinally) was found for reverse causality. One possible explanation for the lack of lagged reverse relationships could be the inappropriateness of the analysed variables. It might be that the same variables do not serve to test both forward and reverse causalities simultaneously.

The theories that support reverse causality are based on the slack resources of a firm and such resources are more related to economic and financial performance, that is to say, the more distal outcomes of the firm (e.g. profitability). Although the analysed proximal outcomes (i.e. productivity and absenteeism) are related to more distal outcomes, most of the empirical research that has supported reverse causality has been conducted using distal indicators such as profits (e.g. Piening et al., 2013; Van Iddekinge et al., 2009). The more productive an organisation is, the more profits it will achieve and the more slack resources it will have. More profits (in terms of excess of financial resources) are closer to the slack resources in the causal chain and therefore, they have more to say about the

investment in HIWS than proximal indicators. Therefore, it could be concluded that analysing proximal outcomes to test reverse causality could undermine the effect that OP might have on HRM, and that testing it with distal outcomes would be more precise as suggested by Boselie et al. (2005) (see Figure 7).

Furthermore, in the present study, we measured the perception level of HIWS of employees. The reverse causality logic is related to investment in HIWS so, it might be the case that implemented HIWS (informed by managers) better reflects this investment than perceived HIWS (experienced by employees). The causal distance between the investment capacity (in terms of slack resources) in HR and the perceived HIWS is higher than the causal distance between the investment capacity in HR and the implemented HIWS. A company with more slack resources might decide to invest in systems like HIWS due to its good financial performance, however, the employees may not perceive them as beneficial due to several reasons such as inefficacy in the implementation process or negative attributions towards them (Nishii et al., 2008). Therefore, testing reverse causality with implemented HR practices rather than perceived practices could be a more accurate strategy.

9.1.2 Differences between employee attitudes

First, both attitudes did not present the same evolution longitudinally: the auto-regressive coefficients were higher and more significant for organisational commitment than for job satisfaction (i.e. job satisfaction was more volatile). This meant that there was more variance to be explained in the job satisfaction of employees. The used job satisfaction scale referred mostly to the job, whereas the organisational commitment scale included items about the organisation in general. The effect that systems like HIWS have on both might be different or may take different time-lags to bear fruit: it is possible that practices like training or work methods autonomy directly (or in a short period of time) affect employee job satisfaction but it is the continuity of such practices (in a longer period of time) which might increase organisational commitment. These differences suggest that organisational commitment and job satisfaction should be analysed separately.

In addition, another important insight looking at the cross-sectional results was that job satisfaction was related to both OP measurements, whereas organisational commitment was related to absenteeism in sample 1 (not in sample 2). Both samples include organisations in which employees are co-owners. The mere fact of being a co-owner could bias the employed organisational commitment scale. For example, item 2-"*I feel a strong*

sense of belonging to this organisation"- and item 3-"*I really feel as if this organisation's problems are my own"*- might be potentially biased since cooperative workers might punctuate quite high in both items. Co-owners in these cooperatives have dominant control rights (employee power) and the majority of the returns. Prevalent control rights suppose that employees are involved in the decision making of a wide range of issues and having shared return rights might generate a dependence on the firm's well-being increasing the organisational commitment and the identification with the firm (Ben-Ner and Jones, 1995). Therefore, employees could report to be committed (according to the measured scale) but not necessarily in the same terms as the hypothesised social exchange relationship. Employees in this case are not necessarily ready to go the extra mile because they might have not perceived something "extra" from their organisations, they just take such benefits for granted. It would be interesting to further investigate this relationship and the potential bias that could exist when analysing organisational commitment within the cooperative context.

9.2 Time-lags

The temporal issue in the HRM-OP relationship is something that has been commonly assumed or considered in a very trivial way (Wright and Haggerty, 2005). However, the hypothesised links are supposed to be causal and therefore time consideration becomes a *sine qua non* condition. The causal models show implicit causal arrows but do not specify temporal lags within the relationships. In this thesis, the analysed time lags were of 4 years for sample 1 and 3.5 years for sample 2. Despite the fact that most of the analysed lagged relationships were not significant, cross-sectional correlations were. Looking at the results from a transversal point of view, some patterns could be identified: cross-sectional correlations were significant for the variables that are supposed to be close to each other in the causal chain.

The causal hypothesis that was significant was that going from HIWS towards OP (H1) for sample 2. Analysing the causal chain, it can be said that these two variables are not next to each other, they have some variables in between (i.e. the Black Box) and therefore the causal distance is supposed to be longer. In this specific case, the time lag between the variables was 3.5 years on average. There was another lagged relationship that was partially supported for sample 2, the effect going from HIWS towards job satisfaction (H2A). However this effect was not significant for organisational commitment (H2B).

On the contrary, both samples showed cross-sectional significant correlations between HIWS and both employee attitudes in both waves (see Figure 30 and Figure 31). In addition, job satisfaction although not longitudinally related to absenteeism, was negatively correlated in the second wave in both samples (see Figure 33). These cross-sectional relationships had something in common: the correlated variables were next to each other in the causal chain. These findings supported the idea posited by Wright and Haggerty (2005) that time lags may be different for the different links in the causal chain. Although the time that HR systems need to influence both HRM outcomes and OP is still unknown (Boxall and Purcell, 2011), these findings support the idea that the time for the relationship to materialise between the variables that are next to each other in the causal chain is shorter than for those variables that are further from each other.

First, a time lag of 3.5 years was demonstrated to be significant for industrial companies when analysing two variables (i.e. HIWS and OP) that are supposed to be quite close to each other in the causal chain but with some variables in between. Other scholars have supported time lags of similar duration. Wright and Haggerty (2005) for example, based on study conducted by Wright, Dyer and Takla (1999) argued that it could take up to 3 or 4 years for HRM to impact OP. Chytiri et al. (2017) on the other hand, empirically demonstrated that 3 year-lagged relationships were stronger than 1 or 2 year-lagged relationships between HRM and OP (measuring ROE, sales and productivity).

However, the 4 year lagged relationship between HIWS and OP was not significant for the retail stores analysed in sample 1 of this research. After an inquiry process and looking at the auto-regressive effects of variables we concluded that it could be a sectorial aspect that acted as a boundary condition, rather than the time lag and this rationale is more deeply explained in the following Section 9.3.

In addition, 3.5 and 4 year lags appeared to be too long to test relationships (i) between HIWS and employee attitudes, and (ii) between employee attitudes and OP measurements. Time lags that are too long tend to underestimate the causal impact (Zapf et al., 1996) and looking at the results it is likely that these hypothesised causal paths were underestimated since cross-sectional correlations were significant. Based on the logic that 3.5 or 4 years would be appropriate to test the whole link, it is likely that 1.5 and 2 years would be appropriate to test the relationship between variables that are closer to each other (e.g. between HIWS and employee attitudes). Indeed, a 1 to 2 year time lag between measurements has been recommended by researchers as appropriate to test causal

associations (Shin and Konrad, 2017) and most of the studies in the literature review (see Section 3.3) considered these time lags.

One interesting aspect of the link between employee attitudes and OP measurements was that they were only significant for the second wave and in a cross-sectional way for both samples. The qualitative study led us to understand that managerial decisions taken under tough economic circumstances (wave 1 for both samples) are very oriented towards organisational outcomes and therefore, the relationship between employee-related variables and OP measurements are undermined. This is one explanation for the lack of significant cross-sectional correlations between employee attitudes and OP in the first wave and more detail can be found in Section 9.4.

To conclude, it can be said that time-lags should be thoroughly planned in accordance with the research question that the researcher is trying to answer (Zapf et al., 1996). This study showed that having a general time lag of 3.5 or 4 years might be appropriate to test the whole causal link going from HIWS to OP. However, shorter time lags like 1 or 2 years between (i) HIWS and employee attitudes and, (ii) employee attitudes and OP measurements may be more accurate and might provide insightful empirical longitudinal evidence. The ideal scenario would be to measure all the variables frequently (e.g. every year) and conduct multiwave tests to know what the precise time lags between each variables are. However, in practice, gathering longitudinal data is very costly and such frequency might not viable (Marin-Garcia and Tomas, 2016). A balance should be found between practitioners and researchers where both parties would benefit.

9.3 Sectorial influence

Each analysed sample in the current thesis belongs to a different sector. Sample 1 included retail stores which belong to the service sector and sample 2 included companies that produce automotive components and machine tools and thus belong to the industrial or manufacturing sector. The hypothesis that HIWS at T1 contributed to better OP measurements at T2 was supported for the industrial sector but it was not supported for the retail chain stores.

Most of the research analysing HRM-OP has been conducted using industrial samples (Combs et al., 2006) following the steps of the first published empirical evidence (e.g. Huselid, 1995; Macduffie, 1995). However, this link has aroused special interest within the service sector since employees are considered to be key to company success. Employee

attitudes towards their organisation have a significant effect on how they treat customers which is in fact the "production system" of the service sector (Kumar and Pansari, 2015).

Scholars have noted that there are idiosyncratic aspects in each sector that questions the universalism of the HRM-OP link for both sectors. Batt (2002) for example noted some caveats for the service sector that may not permit the extrapolation of the results of the manufacturing sector. She argued that customers are different, the technical level of workers is different and that the used "technologies" are also different. Combs et al. (2006) on the other hand, presented four reasons to argue the differences between these sectors: (i) manufacturers depend more on workforce flexibility than services, (ii) manufacturers rely more on their HR system to deliver valuable outcomes than service organisations, (iii) in service settings the customer participation in production process causes a ceiling effect[20] in the situations where HR systems or employee satisfaction work, and (iv) the design of systems like HIWS is better aligned to manufacturing settings.

Related to the ceiling effect mentioned by Combs et al. (2006), our quantitative results (shown in Figure 28) supported this idea. The auto-regressive effects of productivity in sample 1 (i.e. β=0.91) were higher (almost double) compared to the auto-regressive effects of productivity in sample 2 (i.e. β=0.48). This means that the productivity values for the retail stores changed very little over time (Selig and Little, 2011). The most productive stores in 2011 continued being the most productive stores in 2015, and past productivity strongly predicted future productivity of the stores. In addition, the mean values of productivity of the stores hardly changed from one wave to the other, and neither did the minimum and maximum values (see Table 31). In contrast, the auto-regressive effects of productivity in sample 2 were lower (i.e. β=0.48) and the maximum and minimum values were also more volatile (see Table 32). This volatility can give more leeway to HRM to influence productivity.

Based on Porter's (1985) generic strategies, retailers may be competent because they are cheap (i.e. cost minimization strategy) or because they offer something different such as excellent customer service or better quality (i.e. differentiation strategy). Every retail chain knows what their customer profile is, and customers are usually loyal to a specific

[20] The ceiling effect refers to the situation where the independent variable no longer has an effect on the dependent variable.

brand because they look for what that specific retail store offers (e.g. cheap products, the experience and relationship with the brand, the good quality of the products, etc.).

The retail store chain analysed in the present research seeks differentiation by providing excellent customer service and therefore they put the customers in the centre of their strategy. It is a Basque cooperative retail chain that was founded 50 years ago and there exists a feeling of belonging of Basque people to these stores. Indeed, the market share of this company is 5.4% in Spain, whereas the market share in the Basque Country is almost 6 times higher, 32.2% (Kantar WorldPanel, 2018). It can also be observed that the variable that defined if the store was cooperative, was positively related to productivity. All the cooperative stores are located in the Basque Country and the results show that Basque people bought more in this company in 2011 and that they continued buying more in 2015. Thus, it can be concluded that the productivity level of the stores was stabilised by these external factors (i.e. tradition, feeling of belonging, branding) and that those factors caused a kind of ceiling effect on productivity levels. Hence, the influence that HRM can have is limited by external factors.

Meta analysing HRM-OP research, scholars have concluded that the effect of HR systems on OP is stronger in manufacturing settings than in service settings (Combs et al., 2006; Subramony, 2009). The auto-regressive coefficients explained above support this conclusion. However, it is undeniable that the service sector is defined by singular characteristics whereby customer behaviours are designated by the attitudes and behaviours of the service provider employees (Bayraktar et al., 2018). Customer satisfaction highly depends on direct interaction of front-line employees and these interactions determine whether the customer will quit or return to the service offered (Peccei and Rosenthal, 1997). For example, employee sabotage could have a tremendous negative influence in retail. Customers tend to go to a specific brand of retail stores because it offers what they are looking for and employees are the main drivers for maintaining brand identity and ensuring company survival and sustainability. Satisfied employees tend to be aligned with the company strategy and more willing to satisfy customer needs. In this sense, investment in HRM becomes crucial since employee job satisfaction has shown to be positively related to it regardless of the context.

9.4 The effect of managerial decisions and uncertainties under difficult economic circumstances

The findings were not coherent and consistent for the analysed waves suggesting that there were contextual factors specific to the measurement points that were influencing the results. Researchers have argued that HRM is located in and influenced by its context and therefore considering it is crucial for the correct understanding of the influence of HRM (e.g. Becker and Gerhart, 1996; Brewster, 2007; Paauwe and Boselie, 2005; Paauwe and Farndale, 2017). Considering this, we decided to further investigate the rationale behind the numbers, conducting qualitative interviews.

Interviews are considered to be useful for combining methods within a multi-method approach (Robson and McCartan, 2002). Commonly, interviews are classified into (i) structured interviews, (ii) semi-structured interviews and (iii) unstructured interviews (Robson and McCartan, 2002). In the first type, the interviewer follows a questionnaire with fixed questions with a predetermined order. In the second typology, the interviewer has predetermined questions but it is more flexible than the structured interview: the order of the questions can be modified and more questions can be added depending on the conversation. The third typology is the most flexible, the interviewer has a general interest and lets the conversation develop. Considering that the aim of the interviews in this research was to gain insights into the specific knowledge and opinion of the interviewees about the context of the analysed data, we decided to use semi-structured interviews. This kind of interview provides flexibility and encourages co-operation and rapport which was of interest in this case (Robson and McCartan, 2002).

In all cases, the interview procedure was the same. To start, interviewees were informed about the research purpose, a consent form for recording was given and confidentiality was ensured in all the cases (Hernandez Sampieri, Fernandez and Lucio, 2014). The interview started with an informal conversation for generating a trust environment and followed with “warm-up” questions before covering the main purpose of the interview (Robson and McCartan, 2002). The majority of the questions were retrospective or acquaintance questions (Mertens, 2010). Although a predetermined questionnaire was prepared, questions were adapted and more questions were added along the conversation. The conversations ended with “cool-off” questions to defuse any tension (Robson and McCartan, 2002). All the interviews lasted around one hour and the records

of the interviews were transcribed for posterior analysis. The interview questionnaires and transcriptions are not included in this document for confidentiality reasons.

Combining the quantitative analysis together with the interviews, a triangulation of the results was done. The use of multiple data sources offered the opportunity to analyse the same phenomenon from different angles (Yin, 2014). This approach allowed us to test the relationship from a temporal perspective and helped us to understand the changes that happened in the competitive environment during that period in an accurate way.

Related to sample 1, the driving force for the interviews were the negative associations found between the employee-related variables (i.e. HIWS, organisational commitment and job satisfaction) and productivity for the first wave (see Table 31). This could mean that in the first wave, those stores in which employees perceived higher levels of HIWS and were more committed and satisfied, were less productive. The opposite could also be true, i.e. that in the most productive stores, employees were less satisfied and less committed and they perceived lower levels of HIWS. However, these negative associations disappeared for the second wave. In order to understand why the relationship between employee-related variables and productivity was negative for the first wave and disappeared for the second wave, we interviewed several people. First, to obtain a more strategic perspective, we had several meetings and informal conversations with people from the retail chain headquarters including members of the management team and employees from the HRM department. In addition, we also interviewed two regional store managers to acquire a more general perspective.

In contrast, in sample 2, one of the most intriguing finding was related to employee attitudes, specifically the job satisfaction of employees. Job satisfaction was not related either to productivity or absenteeism in wave 1, but it was positively related to productivity and negatively related to absenteeism in wave 2 (see Table 32). In this case, since the 25 industrial cooperative companies were independent, people from the service offices of the cooperative network were interviewed to obtain an overall perspective. The finance director was interviewed to gain insight into what extent each wave represented a different economic cycle and the HRM director was interviewed to know the differences in terms of HRM in both waves. In addition, one of the directors of the insurance company of the cooperatives (which provided the absenteeism data) was also interviewed in order to obtain more insights about the pattern and evolution of absenteeism itself. The

conclusions extracted from these interviews are detailed in Section 9.4.2 and some excerpts of the interviews are included for reinforcement.

The following sections focus on this match between the empirical evidence and qualitative explanations gathered through the interviewed people. Since each sample is different and the context is unique for each one, the explanations are divided into two sections, one per analysed sample. Each section includes some of excerpts of the interviews in order to complement and reinforce the conclusions.

9.4.1 Retail store chain: sample 1

Table 31 shows that people-related variables (i.e. perceived HIWS, job satisfaction and organisational commitment) were negatively associated with store productivity for the first wave [see Figure 36 (A)]. These negative associations disappeared however, for the second wave [see Figure 36 (B)].

In addition, correlations in Table 31 also show that these variables (i.e. job satisfaction and store productivity) were related to store type. In 2011, the cooperative stores (coded as 1) were the most productive (i.e. positive correlation coefficient) but employees reported being less satisfied (i.e. negative correlation coefficient) [see blue dots in Figure 37 and in Figure 38 (A) the mean value of satisfaction of subsidiary stores is higher]. In 2015 these associations were not the same: the cooperative stores continued being the most productive but employees did not report being less satisfied than employees from the subsidiaries [in Figure 37 the satisfaction level of both store types are in the same range and in Figure 38 (B) the mean values of both stores are equated].

It is important to mention that only the relationship of store productivity with job satisfaction has been visually represented, but organisational commitment and the perception of HIWS presented the same pattern.

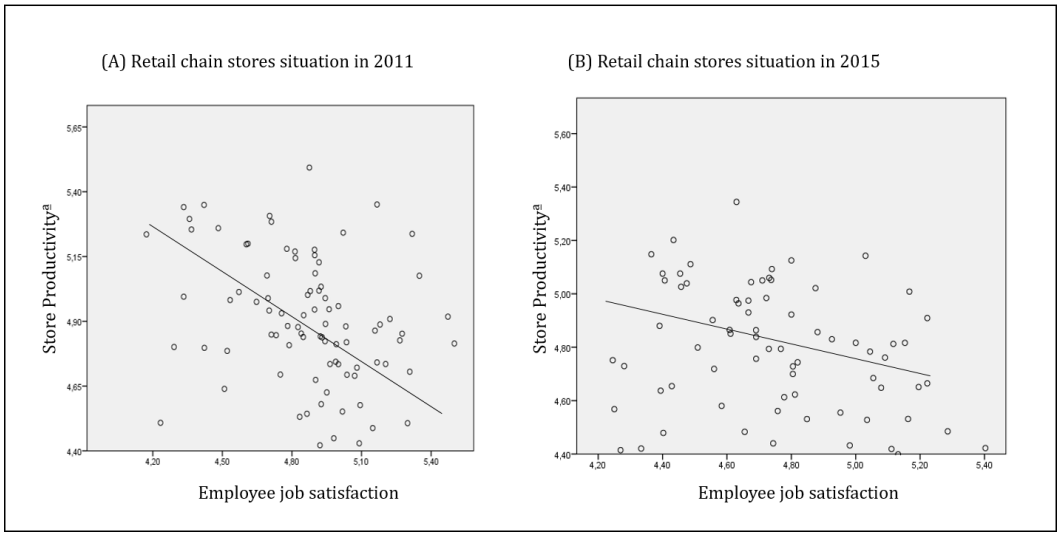

Figure 36: Job satisfaction and store productivity relationship in sample 1
[a]transformed for normality

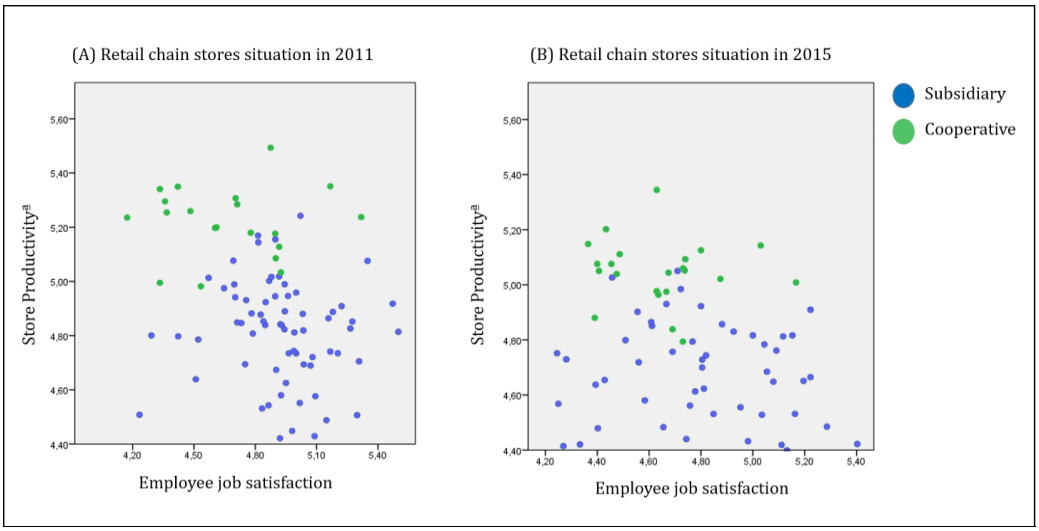

Figure 37: Job satisfaction and store productivity in sample 1 differentiated by store type
[a]transformed for normality

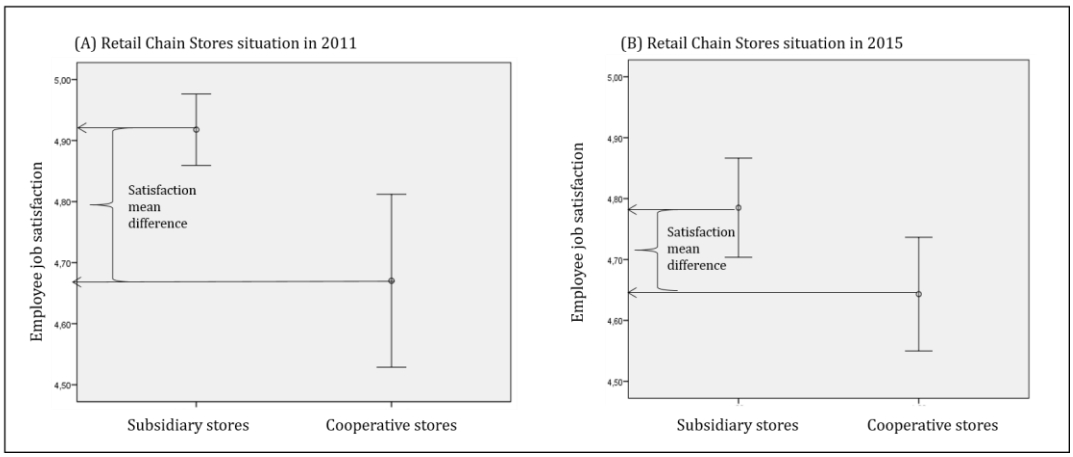

Figure 38: Differences in job satisfaction levels in subsidiary and cooperative stores

One possible explanation for the negative association between being a cooperative store and having lower employee job satisfaction, organisational commitment or lower perceived levels of HIWS in 2011 [see Figure 38 (A)] might be the idiosyncratic concerns of cooperative workers. These concerns might have influenced their expectations about HIWS therefore impacting (negatively) on their scores about the perceived practices and contributing to lower levels of job satisfaction and organisational commitment. Practices such as autonomy and participation in decision making are part of the cooperative philosophy and employees might take them for granted when they become co-owners. However, if that was the only reason, the negative associations between store type and employee-related variables would have remained for the second wave, since the staff remained stable over the four years for both types of stores. Therefore, we considered that there were other aspects that influenced the low scores in HIWS, job satisfaction and organisational commitment for the cooperative workers in 2011.

According to the interviewees, 2011 was a very tough year with regards to the economic situation of the company. In 2009, the company decided to extend its network by the acquisition of a competitor brand. However, together with the economic crisis in 2008, this decision drove the company into considerable financial debt. As of 2009, the company started taking measures in response to those financial difficulties. One of the interviewed manager stated:

> "In both cooperative and subsidiary stores, we had to reduce our wages and increase working hours, and these decisions generated tense feelings and a deterioration in organisational climate."

Recessionary actions such as wage cuts and increasing working hours have a direct and negative influence on employee well-being, increasing stress and anxiety and creating a sense of insecurity in employees (Wood and Ogbonnaya, 2018). Therefore, it can be expected that those cost-cutting measures had a negative effect on employee job satisfaction and organisational commitment and their attributions towards their work environment.

Unexpectedly, the negative effect seemed to be stronger for cooperative workers. Cooperative workers work in the most productive stores and they are the ones who received the most benefits until the company went into debt. Regional managers agreed:

> "Undoubtedly, the most productive stores are located in the Basque Country and the market share is the biggest here. Nevertheless, having to make such decisions (i.e. reduce wages and increase working hours) produced a feeling of future uncertainty for the employees. Cooperative workers had previously been experiencing a very profitable time for the company in which they were earning four extra salaries per year."

Such a drastic change, coloured the perceptions of employees about their job characteristics and their satisfaction levels. Cooperative workers were strongly emotionally affected and their responses were more pessimistic compared to the responses of the employees of the subsidiaries in 2011. Systems like HIWS are based on the norm of reciprocity (Gouldner, 1960) and these kinds of recessionary actions represent a violation of the psychological contract[21] the employee might have with the company. Researchers have noted that the employment contract (e.g. temporary or co-owner) might affect the psychological contract of an employee (Silla, Gracia and Peiró, 2005) being the expected duration of the contract the most influencing variable (Rousseau, 1995). The longer the contract, the longer the exchange relationship, and thus the number of obligations for both parties becomes greater (Blau, 1964). Therefore, it can be concluded that the psychological contract of a co-owner is stronger.

Cost-cutting decisions are related to the conflicting outcomes perspective (Van De Voorde, Paauwe and Van Veldhoven, 2012) since they serve to achieve financial results at the expense of employee well-being. Such cutbacks might send inconsistent messages about how vital employees are for the company thus decreasing employee well-being levels. These negative HR outcomes, together with the fact that the most productive stores were the cooperative stores (located in the Basque Country), generated the negative associations for 2011. Mean difference *t-tests* between cooperatives (n=20) and subsidiaries (n=77) for the variables involved in the study supported this conclusion. For the first wave, the results showed statistically significant differences for HIWS (t=3.3, p<0.01), job satisfaction (t=4.74, p<0.01) and organisational commitment (t=1.87, p<0.1). The levels of these variables were significantly lower in cooperative stores in 2011 and productivity levels were significantly higher in these same stores.

[21] "Psychological contract refers to individual's beliefs regarding the terms and conditions of a reciprocal exchange agreement between that focal person and another party." (Rousseau, 1989, p.123)

In the period from 2011 to 2015, the financial situation of the company remained complicated and cost-cutting policies continued. In this period, in contrast to the previous one, the measures were more restrictive in subsidiaries: employees were laid off and the company decided to sell some of these stores to competitors. This was in direct contradiction to the "cooperativization" plan that had been floated but never executed prior to the financial crisis. This fact, added to the abovementioned drastic decisions that were implemented, caused a considerable reduction in the well-being level of the employees of subsidiaries.

These drastic decisions also generated tension and uncertainty in the cooperative stores. Considering the situation, the management team started holding information sessions for the workers of the cooperatives explaining the situation of the company from 2011. In the words of one of the interviewed managers:

> "Everything was questioned by employees and we decided to start disseminating information about the company's situation and future steps. This allayed many fears and uncertainties because people saw that we were willing to inform and listen to them."

Researchers have demonstrated that communication practices such as information sessions during organizational change have a positive influence on employee well-being, since they serve to reduce uncertainties and anxieties about change (Bordia, Hunt, Paulsen, Tourish and DiFonzo, 2004; Rafferty and Restubog, 2010). In line with this, previous studies have also related communication practices to greater acceptance from employees towards change, together with openness and support (Oreg, Vakola and Armenakis, 2011).

Furthermore, within the same period, the cooperative stores were transformed into a new model (i.e. more sustainable, more local and more customer oriented). According to the interviewees, the store transformations were very exhilarating projects and employees showed the same enthusiasm as in new openings. These actions enhanced the optimism of the employees about the future of the company which is a key factor for employee well-being (Guest, 2017). The information sessions together with the transformation of the cooperative stores contributed to the maintenance of the cooperative worker well-being for the 2011-2015 period. However, during the same period, the well-being of employees of subsidiaries dropped to the level of the cooperatives. This resulted in no difference

between both groups of workers. In 2015, employee-related variables were levelled for both groups of stores. The mean difference *t*-tests between cooperatives *(n=22)* and subsidiaries *(n=63)* in 2015 showed no statistical differences in HIWS (*t*=.78), and organisational commitment (t=1.21). The difference between the job satisfaction level was lower and less significant than in 2011 (*t*=2.42, p<0.05). Therefore in 2015, there was no clear association between productivity and people-related variables. This lack of association between employee-related variables and productivity in 2015 was attributed to the sector itself as explained previously in Section 9.3.

9.4.2 Cooperative industrial companies: sample 2

As previously mentioned in the document, the relationships between variables were different depending whether the links were analysed cross-sectionally or longitudinally. This was exactly the case of employee job satisfaction. It was not associated with productivity nor absenteeism in wave 1 [see Figure 39 and Figure 40 (A)], but it was positively associated with productivity and negatively associated with absenteeism in wave 2 [see Figure 39 and Figure 40 (B)]. This pattern suggested that as in the case of the retail stores, there were some contextual patterns related to the measurement point influencing the results of the industrial cooperatives.

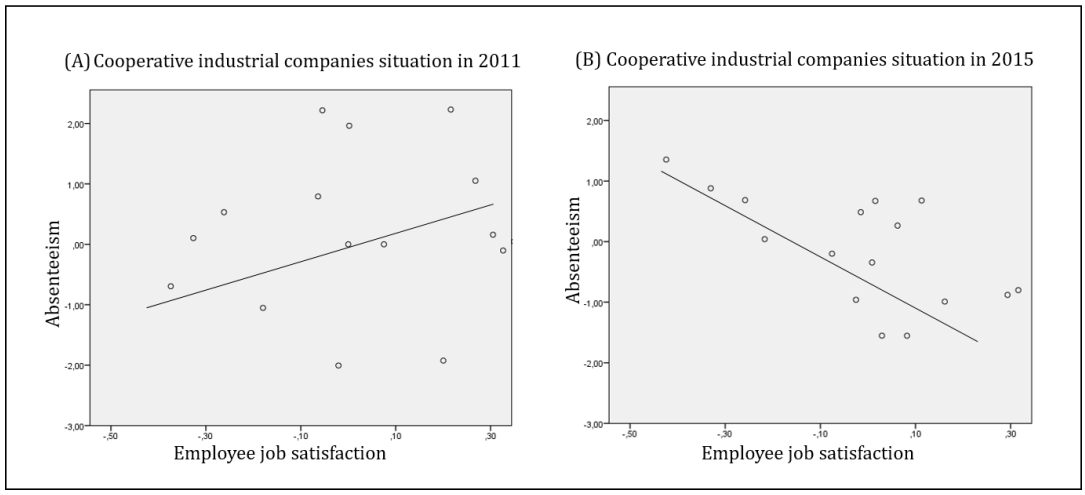

Figure 39: Job satisfaction and absenteeism relationships in sample 2
(Residual values are represented)

The HRM director stated that there were two major contextual factors that should be considered. He argued:

> "There are two contextual factors that are of major importance when analysing these results; the global financial crisis and the "internal crisis" of the cooperatives due to the closure of one of the biggest cooperatives in the group. However, more than these external factors, what really influences employee responses is how they perceive the management of these contextual difficulties."

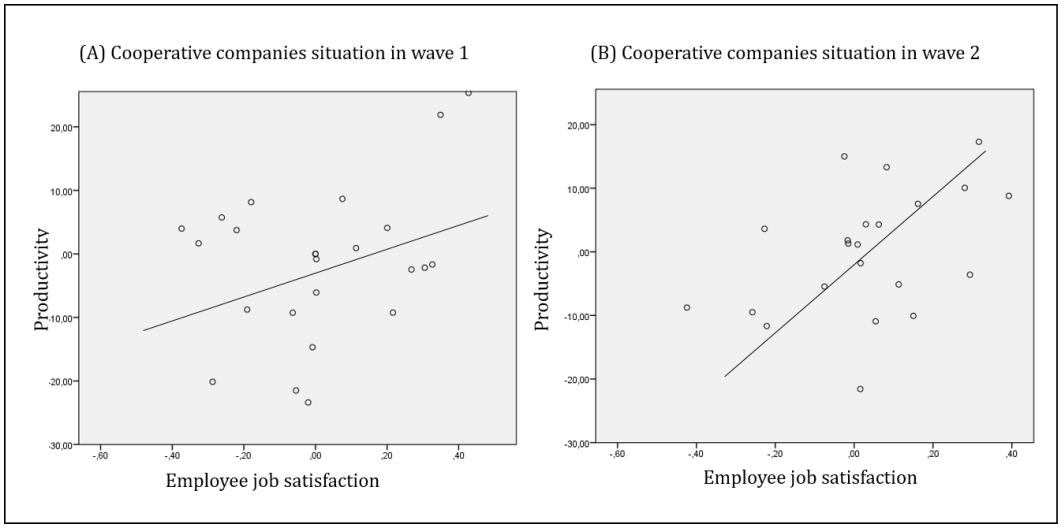

Figure 40: Job satisfaction and productivity relationships in sample 2
(Residual values are represented)

Related to the economic context and according to the finance director of the corporation:

> "Considering the context of the industrial companies within the corporation, it can be said that in general terms the economic crisis broke out around 2007-2008. The toughest years were from 2008 until 2011 when the market fell again. 2012, 2013 and 2014 were more stable years and in 2015 we saw a big improvement until the fourth trimester of 2018 where the market started to decelerate again."

In the analysed samples, the first wave average year is 2013 and the second wave average year is 2017. It can therefore be concluded that cooperatives were in a pre-recovery period during the first wave and in a more estable and recovery period in the second wave. 2011 was a very tough economic year and when companies are facing financial difficulties they need to adopt measures in order to survive in the market. The finance director argued:

> "The period from 2008 until 2011 was a very difficult economic situation. The economic crisis was an issue that resonated with everybody and all companies were taking measures to survive."

The global economic crisis was generating tensions and cooperatives had to adopt contingency measures to improve results. The finance director stated:

> "Reducing down payments, not receiving capital interest, not receiving extra salaries, increasing working hours without the corresponding remuneration and staff restructuring are typical contingency measures that cooperatives adopt. Cooperative workers are co-owners of the cooperatives and when the results are not good, co-owners are the ones that have to make these kinds of trade-offs for the benefit of the cooperative."

Although the fact such actions are rooted in the culture of cooperatives and employees react well towards them, it is obvious that they do not satisfy employees since their work conditions and their incomes are affected. The abovementioned contextual factors (i.e. economic and the "internal crisis") were new and unknown for the cooperatives and this fact together with the adopted contingency measures, generated an environment full of uncertainties. The HRM director added:

> "It was the first time that most workers were experiencing such contingency measures. The measures were related to difficulties and generated uncertainties about the future of the cooperative. These measures had therefore a significant impact on employee job satisfaction and how they perceived their work environment."

In line with this, one of the side effects that recessionary actions had was that employees became more absentees. The insurance company director said:

> "Unlike in a public limited company, in cooperatives, the job is secure and in times of crisis, the absenteeism of co-owners tends to increase as a measure to protect their welfare. This economic crisis was the biggest of the last 40 years and some cooperatives started to relocate their employees to cooperatives due to the lack of work. Such movements generated uncertainties that led to an increase in absenteeism. If an employee is absent you cannot relocate them."

In response to this increase in absenteeism, cooperatives decided to adopt contingency measures to reduce it. Some measures were related to occupational risk prevention and other measures were more cost-reduction oriented. The director of the insurance company explained:

> "An efficient way to lower the level of absenteeism is to reduce the worker's income in some way. Cooperatives took measures to penalize workers (economically) depending on their level and frequency of absenteeism. The higher the absenteeism, the more repercussion."

According to the director of the insurance company, most of these measures were adopted in 2012 and the average level of absenteeism dropped considerably. However, after a period of 2 years, workers adjusted to these measures and the absenteeism levels went back to normal (i.e. increased again).

It can be thus concluded that the first wave variables represented distorted values. First, the productivity values of the cooperatives were potentially conditioned by the economic situation of that moment which was the toughest of the last 40 years. Second and related to people-related variables, the contingency measures and the associated uncertainties generated a drop in employee expectations about the future of the cooperative, which led to a distortion in the levels of job satisfaction. In addition, the absenteeism level of the first wave was potentially conditioned by external actions and due to uncertainties and other measures that cooperatives were taking, it increased or decreased undermining the possible association between absenteeism and employee-related variables such as job satisfaction.

In contrast, in the second wave of data, when the contextual situation was more stable and cooperatives went back to normal, relationships between job satisfaction and organisational outcomes were found to be significant. First, in those companies where employees reported being more satisfied, the absenteeism levels were lower (or vice-versa). The insurance company director affirmed:

> "There is a clear negative association between employee job satisfaction and organisational absenteeism. Absenteeism depends on cultural aspects of the company such as autonomy, recognition of the work, feeling part of the project, etc. which are aligned with increased job satisfaction. Cooperatives tend to invest

> and take care of these aspects in good economic situations. In tough economic circumstances the efforts are usually directed to survive in the market and these aspects are pushed to the background."

Second, in those companies where employees reported being more satisfied, the productivity levels were higher. The HRM director argued:

> "The internal context of the company has a huge impact on employee job satisfaction. When you see that the future of the company is uncertain, the internal experience of the cooperative is one of survival. In contrast, when things are going well and employees can see the future of the company, aligned and satisfied employees can be a source of competitive advantage."

Hence, it can be concluded that the relationship between employee-related and organisational variables needs to be analysed and understood in the specific context that data is gathered.

"We should care about people's psychological and physical health,
not just about profits."
Jefrey Pfeffer.

Chapter 10

Conclusions

10 Conclusions

Meta-analysing the research in SHRM supports the idea that HRM has a significant effect on OP (Combs et al., 2006; Jiang et al., 2012; Subramony, 2009) and that this effect is materialised through employee attitudes and behaviours (Peccei et al., 2013). These linkages assume several causal relationships: (i) HRM acts as a cause of employee attitudes and behaviours, and (ii) employee attitudes and behaviours act as a cause of OP. In addition, based on the idea that more profitable organisations invest more in HRM, reverse causal paths where OP acts as the cause and HRM as the effect has been recommended for further study. Both causality assumptions and possible reverse causal paths imply measuring variables at different time points; i.e. analysing the relationship from a longitudinal study. However, most of the studies to date that have tested these relationships have done so with cross-sectional studies (see Chapter 3), which makes it impossible to infer causality and test alternative causal paths. The overarching goal of this thesis therefore was to conduct a longitudinal study in order to understand the causal relationships between HRM and OP and their relationship with employee attitudes.

The two-wave cross-lagged analyses conducted in this study allowed us to test causal relationships from a temporal perspective. In addition, gathering data in two different sectors, during different economic situations and in employee-owned companies, led us to important contributions as detailed below.

10.1 Contribution

Paauwe, Guest and Wright (2013) started their book "*HRM and Performance, Achievements and Challenges*" questioning whether the HRM-OP link was strong, universal and causal or if it was potentially weak, contingent and spurious. Trying to shed some light on that question, in this dissertation two longitudinal studies employing two different samples from two sectors were conducted analysing the causal link between High-Involvement Work Systems, employee attitudes and Organisational Performance. The findings point towards Paauwe, Guest and Wright's second premise since two of the stated five hypothesis were accepted in one of the analysed two samples. The results indicate that the result of the HRM-OP causal link is contingent on external boundary conditions and methodological aspects. These results are in line with the meta-analysis conducted by Tzabbar, Tzafrir and Baruch (2017) who concluded that contextual and empirical factors have a strong influence on the HRM-OP relationship.

First, managerial responses towards organisational turbulence seem to potentially influence the linkage. The current study shows that managers tend to adopt recessionary actions in response to financial difficulties, and that these actions have a negative effect on employee well-being and significantly colours how they perceive their work environment. As a consequence, the positive effect that systems like HIWS are supposed to have on both employee well-being and therefore on OP are undermined. In addition, under tough economic circumstances the fact of prioritizing cost-cutting decisions instead of long-term investments also hinders the investments of high-performing organisations in advanced HR systems. Furthermore, financial difficulties also generate future uncertainty for employees which potentially influences how they see their work environment. Therefore, it can be concluded that the factor of financial difficulties and the response of managers and employees towards it should be cautiously considered when testing the HRM-OP causal (and bidirectional) relationship. The results also showed that clear managerial communication to employees is key in this process. Communicating the contingency measures effectively, with great sensitivity and explaining the reason behind them reduces uncertainty and employees respond better towards them.

On the other hand, the sector in which the organisation operates acts as a boundary condition. In this study, sample 1 represented the retail sector and sample 2 represented the manufacturing sector. The high stability coefficients of productivity in retail stores suggest that past productivity is such a strong predictor of future productivity that it knocks out any impact of HR systems (Guest, 2011). However, the results of sample 2 are in line with the theoretical foundations of the SHRM literature and show that HIWS might contribute to sustained competitive advantage leading to increased productivity levels and reduced absenteeism levels. Hence, the variable that accounts for the sector needs our attention and should be carefully examined.

Finally, the findings support that conclusions might differ depending on the methodological approach followed in the analysis. Testing two measurement points of the same variables allowed us to see whether the relationships remained stable cross-sectionally and longitudinally. The results show that the time lag between variables is important and that it conditions the results, and therefore the conclusions drawn from them. Some variables that were cross-sectionally correlated did not seem to be longitudinally related and vice versa. An analysis centred just on cross-sectional data precludes causal inference and the relationship might be undermined because the cause needs time to generate its effect (Zapf et al., 1996). As a conclusion, the temporal

perspective of the longitudinal approach is necessary so as to better understand the dynamism of the relationships and contextual factors that might qualify the linkage.

Evidencing these contingencies we offer SHRM researchers and practitioners a chance to broaden the spectrum. First, we empirically demonstrate the magnitude of temporality and contextual aspects, and we encourage researchers to be methodologically rigorous to draw well-founded conclusions. Second, if the effect of High-involvement systems is different depending on the sector or the economic circumstances, then, managers should decide where and when to invest in them and what to expect from them depending on the specific context.

10.2 Theoretical implications

Based on the discussion of the results detailed in the previous chapter, the proposed conceptual model (see Figure 12) can be modified and improved. First, causal distance between variables was demonstrated to be of great importance and time-lags between proximal variables were empirically demonstrated to be shorter than between more distal variables. Thus, a conceptual model considering the role of time between variables should be developed.

In line with this, reverse causality was not supported in any of the occasions and one of the main reasons for this could be that the employed variables were not the most appropriate due to large causal distance between them. Employer-rated HR systems (i.e. implemented HRM) and financial performance (i.e. distal organisational outcomes) seem to be more aligned with the theoretical rationale of the reverse causality. Therefore, if both causalities are to be analysed together, both perceived and implemented HRM and proximal and distal organisational outcomes should be combined in the same model.

Measuring all the variables at different time points enables the testing of all the possible causal relationships between them, even the non-hypothesised ones. In this study, a non-hypothesised relationship appeared to be significant: the relationship from employee attitudes towards HRM (in sample 1). No conceptual model has been found in the literature including this possible reverse path. However, this reverse relationship could be explained with the trust cycle (Cardona and Elola, 2003): (i) the more employees are involved and they trust management, the more positive behaviours towards the organisation they will have, and (ii) the more positive attitudes and behaviours employees have towards the organisation, the more management will trust employees and tend to

implement policies that make employees participate in the business project (information, transparency, autonomy, etc.). The abovementioned unexpected results refer to the second part of the trust cycle, in which more satisfied employees might boost the implementation of HIWS. Therefore, although the most commonly applied conceptual models do not include this reverse path from attitudes towards HR systems, this finding suggests that analysing that path could be of interest for future research. In addition, a third wave would elucidate whether the trust cycle takes place in both directions.

Finally, combining the quantitative and qualitative approach led us to understand that context matters and that it should be cautiously analysed. Contingencies such as the sector itself or the economic situation the company is experiencing should be analysed in depth. The contextual theory (Johns, 2006) suggests that the analysis should be conducted within the specific context the company operates to avoid biased findings. The relationship between the variables does not work in a vacuum and it needs to be understood in the specific context of the company (Farndale and Paauwe, 2018).

10.3 Practical implications

Any company interested in increasing employee job satisfaction and organisational commitment should consider investing in a HIWS such as the one defined in the current study. This is because results in this investigation and other studies (e.g. Elorza, 2008; Madinabeitia, 2016; Boxall, Hutchison and Wassenaar, 2015) have demonstrated that HIWS are positively associated to both job satisfaction and organisational commitment regardless of the sector or company type. If employees perceive they are involved at different levels of the organisation, with (i) more autonomy in their job, (ii) opportunities to participate in strategic decision making, (iii) information from the organisation and (iv) specific training to do their job properly, they report being more satisfied and committed. These kinds of systems require reversing he traditional Taylorism and involving employees beyond job discretion.

From a societal perspective, high-involvement systems could be considered as one of the best methods for improving work quality and employee well-being (Boxall et al., 2019). Indeed, one of the main aims of implementing such systems should be improving employee well-being and not just as a means to obtain better organisational results. Indeed, the results show that the impact that these systems and employee well-being might have on OP is limited in retail. When customers interact in the production process (in this case, the service process) the impact that employees might have on the results is

undermined since the store output does not depend so much on their behaviour. Therefore, managers from the service or retail sector should not be seeking economic or financial benefits from the implementation of HIWS since they might find the lack of results frustrating.

In contrast, the manufacturing sample supported the mutual gains perspective (Kochan and Osterman, 1994; Van De Voorde et al., 2012) and demonstrated that HIWS can have a positive influence on both employee well-being and organisational results. The results show that one-standard-deviation increase in the perception level of HIWS implied an increase of 6.8% in productivity and a decrease of 9% in absenteeism. Manufacturing companies might therefore benefit from the implementation of these kinds of systems and should strategically consider the investment in them.

Considering the current situation in Spain, it is important to highlight the practical significance of such practices in the reduction of absenteeism. According to Adecco Group Institute (2019), absenteeism reached record levels in Spain in 2018 reaching 5.3%. This entails 0.4% of the Gross Domestic Product (GDP) and 1,350 millions of euros. In addition, the industrial sector presented the worst scenario with an absenteeism of 5.6% and the Basque Country tops the list with 125 hours/year of absenteeism per employee. Although "healthy company" programs and this kind of studies have demonstrated the importance of promoting employee well-being for reducing absenteeism, they are still not universally accepted and implemented (Adecco Group Institute, 2019). However, the extent of the problem should undoubtedly encourage practitioners to consider them.

In addition, if managers decide to invest in high-involvement management as a means of overcoming financial difficulties, they should be aware that the value of HIWS is diminished when combined with contingency measures. The benefits of HIWS are realised through social exchange mechanisms which are based on the norm of reciprocity. If employees perceive the company is investing in them, they may reciprocate in turn. However, if the company behaves ambidextrously, that inconsistency can breach the norm of reciprocity. Coherence is key for ensuring success.

Employee job satisfaction and organisational commitment are the two most analysed employee attitudes within the field of SHRM. However, these findings suggest that they do not respond to HRM and relate to OP in the same way over time. Organisational commitment is less volatile and seems to be more related to organisational and contextual

aspects, and therefore matures over time. Job satisfaction by contrast, is less stable, seems to be more related to the job itself and there is more leeway for HRM to influence it. In addition, organisational commitment measured in terms of affective commitment might not be the best attitude to analyse within cooperatives if the aim is to test its influence on OP. As previously argued, a co-owner can rank high in affective commitment because of the mere fact of being a co-owner, but they might not be satisfied in that moment and therefore not be ready to go the extra mile by behaving proactively. Thus, employee job satisfaction is a more neutral and appropriate variable to analyse within different samples and can more easily demonstrate the power of HRM.

On top of that, the qualitative analysis of the retail store chain brought to light the divergence between different employee groups. The dynamism of the current market obliges companies to have a more heterogeneous workforce (i.e. combining permanent and temporary workers) which at the same time requires agile people management. The diversity of employee groups should be managed equitably: the company must be able to satisfy the needs of all groups without unfair treatment between them. (Ayestarán and Valencia, 2010).

Finally and related to coherence, employers of cooperatives should be especially aware of the importance of sending a coherent message to their employees and ensure that the measures they adopt are not breaching the psychological contracts of employees. Co-ownership generates several expectations, such as employees being the core of the organisation. Adopting labour related cost-cutting measures as a means to cope with financial difficulties might send inconsistent messages to co-owners therefore causing tensions among the workforce and reducing commitment. Therefore, managers should be cautious with the contingent decisions they make in a recession period since these may have medium and long-term negative influences on employees that could be very difficult to recover from. Such decisions should be carefully communicated and justified. The quality of the communication process should be gently and responsibly handled making employees a participant of every decision.

10.4 Limitations

The present study has several limitations and therefore results should be considered with caution. The main limitation is that only two waves of data were available. Two waves of data are enough for conducting a longitudinal cross-lagged analysis and to test causal

effects between variables. However, as previously mentioned, a true longitudinal study needs three waves of data for capturing the absolute dynamism of the relationship.

In addition, not having three measurement points has limited the study of the mediation effect of employee attitudes. With three waves of data (i.e. T0, T1 and T2), the effect of HRM at T0 on attitudes at T1, and the effect of attitudes at T1 on OP at T2 could be analysed. This investigation was focused on understanding causal relationships and therefore, taking into consideration that only two waves of data were available, the effect of HRM at T1 on employee attitudes at T2 was analysed on the one hand, and the effect of employee attitudes at T1 on OP at T2 on the other.

Furthermore, the analysed time-lags between variables were fixed and quite large in both samples (i.e. 4 years for sample 1 and 3.5 years for sample 2). Analysing a range of time lags between proximal and distal variables can elucidate the role of time in the relationship and can help better shape the time needed for the variables to bear fruit.

Related to the measured variables, the SHRM literature assumes that OP is a multidimensional construct. This thesis was focused on analysing proximal outcomes such as productivity and absenteeism. However, it could be very interesting to test the influence of more proximal outcomes (e.g. product or service quality) and the effect of these proximal outcomes on distal outcomes.

On the other hand, an additive index of HIWS was employed in this study. Although it is a common approach to operationalize HR systems, it does not allow the evaluation of the theoretically argued synergetic effects among the different HR practices. In addition, there is an emerging interest to test the effect of each practice separately to understand how each practice actually work and how are they related to both organisational and employee outcomes (Boxall et al., 2019). One interesting future possibility could be dividing the high-involvement practices into the classification of Wood, Van Veldhoven, Croon and Menezes (2012) (rol-based involvement and wider organisational involvement) and testing the effects of each type separately.

Moreover, this study did not follow an experimental design and the control of third factors was limited. This means that the tested effects were not truly causal. There are other factors that could influence the effect that were not considered in the study, such as

organisational strategy. Measuring the intended HR practices (implemented HRM) would also help to better understand the whole process of SHRM (see Figure 5).

Since follow up to individual responses was not available, aggregating responses at the organisational level resulted in relatively small sample sizes (especially for the industrial companies). 200 is seen as optimal for SEM analyses and in this case, the sample size was 100 (on average) for sample 1 and 25 for sample 2. However, gathering longitudinal data is quite complicated in practice and 200 could be challenging.

One of the strengths of this research is that a mixed method was employed for obtaining a detailed understanding of the results. However, the conclusions of the interviews are partly subject to the interviewer interpretation and they do not have the same degree of reliability like the quantitative analysis. In addition, the lack of standardization makes biases difficult to rule out.

Finally, generalizations should be applied cautiously. It would be interesting to duplicate the study in other industries, in different economic situations and in other regions and countries to test the generalization of our results.

10.5 Future research

The review of available longitudinal studies analysing the HRM-OP link has evidenced the lack of such studies in the SHRM literature. In order to move the research forward, more longitudinal studies are needed for several reasons. First, repeated measurements are a *sine qua non* condition for testing possible causal relationships since cause must precede the effect in time (e.g. Shadish et al., 2002). Second, the profound changes in the current competitive environment demand longitudinal studies that can incorporate these changes within the analysis for achieving a more general understanding of the HRM-OP relationship in the 21st century (Wright, Nyberg and Ployhart, 2018). Finally, the findings of this thesis provide support for the contingency perspective in terms of the context effect on HRM (Farndale and Paauwe, 2018), and longitudinal approaches allow the control and analysis of different contextual aspects.

SHRM researchers have assumed and demonstrated that HRM and OP are at least weakly and positively associated but little is still known about the time lags between the different connecting links. In future investigations, all dependent and independent variables should be measured annually or every 6 months and the relationships between variables be

tested within a relatively long time horizon (e.g. during 5 years). In this way, how and when the links become stronger or weaker can be understood. Such empirical studies could elucidate the causal inference on the one hand and the role of time on the other and new conceptual models including approximate time lags could be developed based on them.

In addition, to have a whole understanding of the dynamism of the relationship, researchers should combine quantitative longitudinal studies with qualitative interviews that help better shape the context and interpret the results. This was the procedure undertaken in the current dissertation. Quantitative analysis serves to test existing data and identify themes. The qualitative part should be focused on understanding the specific context in which the organisation is in the specific moment data is gathered, what the impressions of managers about the situation and the workforce are, and any other contextual aspects/changes that they consider relevant (Farndale and Paauwe, 2018). Qualitative longitudinal data together with quantitative longitudinal results can help make a qualitative leap in the understanding of the relationship and how it is materialised. The drastic and rapid changes in the current competitive environment demand consideration of the relationships, both theoretically and analytically.

Moreover, to build further on the findings of the current research, more variables should be included in the tested models. Firstly, including variables that are part of the process model of SHRM such as the implemented HR practices could be insightful for understanding the different connecting links of the relationship. Secondly, we found that context matters and therefore including contextual factors (e.g. sector, economic crisis and competitive strategy) as part of the analysis (i.e. not just for control purposes) would help develop specific theoretical contributions for the contingency perspective of the SHRM literature. Finally, having three measurement points would allow a complete mediation test and would shed light on the currently unknown Black Box issue.

One further aspect to be considered is the “people aspect”. Most of the research to date has been focused on the relationship between HRM and OP (Kaufman, 2015a) and some scholars have recently noted their concern about this. It seems that HRM has been largely driven by profit motives rather than by employees and their well-being (e.g. Farndale and Paauwe, 2018; Guest, 2017; Wright et al., 2018). The line of research that focuses on employees is of special interest nowadays. Companies are in need of adaptable and passionate employees in order to compete in a cut-throat and rapidly changing

environment (Hamel, 2012; Kochan, 2015). Companies must develop dynamic capabilities (Teece, Pisano and Shuen, 1997) that enable them to constantly adopt to new environmental changes and employee attitudes and reactions are key for this.

In addition, the fourth industrial revolution has brought about a change where companies should produce more output with less employee input (Wright et al., 2018). Employees have therefore become a key aspect. Analysing the effect of advanced HR practices on different dimensions of people such as their well-being, their performance, or talent acquisition and retention, might be as important as understanding the effect of practices on financial results.

Finally, more research in employee-owned companies from other countries would help better understand whether HR systems work differently in cooperative compared to traditional companies. This research should focus on understanding the differences that might exist between different employee types, and how they perceive the practices based on their expectations. This research line would elucidate whether there should be a specific ownership HR system or if it can be the same as in non-cooperative companies (Kaarsemaker and Poutsma, 2006).

"If I have seen further,
it is by standing on the shoulder of giants."
Isaac Newton.

Chapter 11

References

11 References

Abando, J., Gallartegi, E., & Rodriguez, J. (2007). The quality of management in Basque companies: Differences existing between cooperative and non-cooperative companies. In *Cooperative Firms in Global Markets* (pp. 109-150). Emerald Group Publishing Limited. doi: 10.1016/S0885-3339(06)10005-8

Adecco Group Institute. (2019). VIII Informe Adecco Sobre Absentismo Laboral. Madrid.

Aït Razouk, A. (2011). High-performance work systems and performance of French small- and medium-sized enterprises: examining causal order. *The International Journal of Human Resource Management*, *22*(2), 311-330. doi: 10.1080/09585192.2011.540157

Aldás, J. (2013). La invarianza del instrumento de medida. In F. Sarabia (Ed.), *Metodología para la investigación en marketing y dirección de empresas*. Madrid: Pirámide.

Aldas, J., & Uriel, E. (2017). Modelos de ecuaciones estructurale: validación del instrumento de medida. In *Análisis multivariante aplicado con R*. Madrid: Ediciones Parainfo.

Anderson, J. C., & Gerbing, D. W. (1984). The effect of sampling error on convergence, improper solutions, and goodness-of-fit indices for maximum likelihood confirmatory factor analysis. *Psychometrika*, *49*(2), 155-173. doi: 10.1007%2FBF02294170

Antonakis, J., Bendahan, S., Jacquart, P., & Lalive, R. (2010). On making causal claims: A review and recommendations. *Leadership Quarterly*, *21*(6), 1086-1120. doi: 10.1016/j.leaqua.2010.10.010

Appelbaum, E., Bailey, T., Berg, P., & Kalleberg, A. L. (2000). *Manufacturing advantage: Why high-performance work systems pay off*. Ithaca,NY: IRL Press.

Arando, S., Gago, M., Jones, D. C., & Kato, T. (2011). Efficiency in Employee-Owned Enterprises: An Econometric Case Study of Mondragon. *International Labor Rleations Review*, 1-28. doi: 10.1177/0019793914564966

Argyle, M. (1989). Do happy workers work harder? The effect of job satisfaction on work performance. *How harmful is happiness*, 94-105.

Arthur, J. B. (1994). Effects of Human Resource Systems on Manufacturing Performance and Turnover. *Academy of Management*, *37*(3), 670-687. doi: 10.5465/256705

Asparouhov, T., & Muthen, B. (2006). Constructing covariates in multilevel regression. *Mplus Web Notes*, *11*, 1-8.

Ayestarán, S., & Valencia, J. (2010). ¿ Cómo influyen los cambios culturales sobre el contrato psicológico entre el trabajador y la organización? *Revista de Psicología Social, 25*(2), 131-144. doi: 10.1174/021347410791063831

Bagozzi, R P, & Baumgartner, H. (1994). The evaluation of structural models and hypothesis testing. *Principles of Marketing Research, Blackwell, Cambridge*, 402.

Bagozzi, Richard P, & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the academy of marketing science*, *16*(1), 74-94. doi: 10.1007/BF02723327

Bakan, I., Suseno, Y., Pinnington, A., & Money, A. (2004). The influence of financial participation and participation in decision-making on employee job attitudes.

International Journal of Human Resource Management, *15*(3), 587-616.

Bakotić, D. (2016). Relationship between job satisfaction and organisational performance. *Economic research-Ekonomska istraživanja, 29*(1), 118-130. doi: 10.1080/1331677X.2016.1163946

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, *17*(1), 99-120. doi: 10.1177/014920639101700108

Barney, J., Wright, M., & Ketchen, D. J. (2001). The Resource-Based View of the Firm: Ten years after 1991. *Journal of Management*, (27), 625-641. doi: 10.1177/014920630102700601

Barney, J., & Wright, P. M. (1998). On becoming a strategic partner: the role of human resources in gaining competitive advantage. *Human Resource Management*, *37*(1), 31-46.

Bartko, J. J. (1976). On various intraclass correlation reliability coefficients. *Psychological bulletin*, *83*(5), 762. doi: 10.1037/0033-2909.83.5.762

Basterretxea, I., & Storey, J. (2018). Do Employee-Owned Firms Produce More Positive Employee Behavioural Outcomes ? If Not Why Not ? A British-Spanish Comparative Analysis. *British Journal of Industrial Relations*, *56*(2), 292-319. doi: 10.1111/bjir.12247

Batt, R. (2002). Managing customer services: Human resource practices, quit rates, and sales growth. *Academy of Management Journal*, *45*(3), 587-597. doi: 10.5465/3069383

Bayraktar, C. A., Karacay, G., Araci, O., & Calisir, F. (2018). Exploring the relationship between high-involvement human resource practices and affective commitment within non-Western service context. *International Journal of Work Organisation and Emotion*, *9*(3), 283-302. doi: 10.1504/IJWOE.2018.094686

Becker, B., & Gerhart, B. (1996). The impact of human resource management on organizational performance: Progress and prospects. *Academy of Management Journal*, *39*(4), 779-801. doi: 10.5465/256712

Becker, B.E., & Huselid, M. A. (2006). Strategic Human Resources Management: Where Do We Go From Here? *Journal of Management*, *32*(6), 898-925. doi: 10.1177/0149206306293668

Becker, Brian E, Huselid, M. A., Pickus, P. S., & Spratt, M. F. (1997). HR as a source of shareholder value: Research and recommendations. *Human Resource Management*, *36*(1), 39-47. doi: 10.1002/(SICI)1099-050X(199721)36:1<39::AID-HRM8>3.0.CO;2-X

Beer, M., Spector, B., Lawrence, P. R., Mills, D. Q., & Walton, R. E. (1984). *Managing human assets.* New York: Free Press.

Ben-Ner, A., & Jones, D. C. (1995). Employee participation, ownership, and productivity: A theoretical Framework. *Industrial Relations: A journal of economy and society*, *34*(4), 532-554. doi: 10.1111/j.1468-232X.1995.tb00387.x

Bennett, V. M., & Levinthal, D. A. (2017). Firm Lifecycles: Linking Employee Incentives and Firm Growth Dynamics. *Strategic Management Journal*, *38*(10), 2005-2018. doi: 10.1002/smj.2644

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological bulletin*,

107(2), 238.

Biemann, T., Cole, M. S., & Voelpel, S. (2012). Within-group agreement : On the use (and misuse) of Rwg and Rwg (j) in leadership research and some best practice guidelines. *The Leadership Quarterly*, *23*, 66-80. doi: 10.1016/j.leaqua.2011.11.006

Birdi, K., Clegg, C., Patterson, M., Robinson, A., Stride, C. B., Wall, T. D., & Wood, S. J. (2008). The Impact Of Human Resource And Operational Management Practices On Company Productivity: A Longitudinal Study. *Personnel Psychology*, *61*, 467-501. doi: 10.1111/j.1744-6570.2008.00136.x

Blasi, J. R., Freeman, R. B., & Kruse, D. L. (2008). Creating a Bigger Pie? The Effects of Employee Ownership, Profit Sharing and Stock Options on Workplace Performance. doi: 10.3386/w14230

Blau, P. M. (1964). *Exchange and power in social life*. New York: Wiley.

Blau, P. M. (1987). Contrasting theoretical perspectives. In J.C. Alexander, B.Gielsen, R. Münch & N.J. Smelser (Eds.), *The micro-macro link (*pp. 71-85). London, England: University of California Press.

Bliese, P. D. (2000). Within-group agreement, non-independence, and reliability: Implications for data aggregation and analysis. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 349-381). San Francisco, CA, US: Jossey-Bass.

Böckerman, P., & Ilmakunnas, P. (2012). The job satisfaction-productivity nexus: A study using matched survey and register data. *ILR Review*, *65*(2), 244-262. doi: 10.1177/001979391206500203

Boon, C., Hartog, D. N. Den, & Lepak, D. P. (2019). A Systematic Review of Human Resource Management Systems and Their Measurement. *Journal of Management*. doi: 10.1177/0149206318818718

Bordia, P., Hunt, E., Paulsen, N., Tourish, D., & DiFonzo, N. (2004). Uncertainty during organizational change: is it all about control? *European journal of work and organizational psychology, 13*(3), 345-365. doi: 10.1080/13594320444000128

Bos-Nehles, A. C., Van Riemsdijk, M. J., & Kees Looise, J. (2013). Employee perceptions of line management performance: applying the AMO theory to explain the effectiveness of line managers' HRM implementation. *Human resource management*, *52*(6), 861-877. doi: 10.1002/hrm.21578

Boselie, P, Dietz, G., & Boon, C. (2005). Commonalities and Condradictions in HRM and Performance Research. *Human Resource Management Journal*, *15*(3), 67-94. doi: 10.1111/j.1748-8583.2005.tb00154.x

Boselie, Paul. (2014). *Strategic human resource management: A balanced approach. Second Edition*. Tata McGraw-Hill Education.

Boselie, Paul, Paauwe, J., & Jansen, P. (2001). Human resource management and performance: lessons from the Netherlands. *International Journal of Human Resource Management, 12*(7), 1107-1125. doi: 10.1080/09585190110068331

Bowen, D. E., & Ostroff, C. (2004). Understanding HRM-firm performance linkages: The role of the «strength» of the HRM system. *Academy of Management Review*, *29*(2), 203-221. doi: 10.5465/amr.2004.12736076

Boxall, P. (2013). Building Highly-Performing Work Systems: Analysing HR Systems and

Their Contribution to Performance. In J. Paauwe, D. E. Guest, & P. Wright (Eds.), *HRM and performance: Achievements and challenges* (pp. 47-59). Padstow,Cornwall: John Wiley & Sons.

Boxall, P. (2018). The development of strategic HRM: reflections on a 30-year journey. *Labour & Industry: a journal of the social and economic relations of work*, *28*(1), 21-30. doi: 10.1080/10301763.2018.1427423

Boxall, P., Guthrie, J. P., & Paauwe, J. (2016). Editorial introduction: progressing our understanding of the mediating variables linking HRM, employee well-being and organisational performance. *Human Resource Management Journal*, *26*(2), 103-111. doi: 10.1111/1748-8583.12104

Boxall, P., Huo, M.-L., Macky, K., & Winterton, J. (2019). High-involvement Work Processes and Systems: A Review of Theory, Distribution, Outcomes, and Tensions. In *Research in Personnel and Human Resources Management* (pp. 1-52). Emerald Publishing Limited. doi: 10.1108/S0742-730120190000037002

Boxall, P., Hutchison, A., & Wassenaar, B. (2015). How do high-nvolvement work processes influence employee outcomes? An examination of the mediating roles of skill utilisation and intrinsic motivation. *The International Journal of Human Resource Management, 26*(13), 1737-1752. doi: 10.1080/09585192.2014.962070

Boxall, P., & Macky, K. (2009). Research and theory on high-performance work systems: progressing the high- involvement stream. *Human Resource Management Journal*, *19*(1), 3-23. doi: 10.1111/j.1748-8583.2008.00082.x

Boxall, P., & Macky, K. (2014). High-involvement work processes, work intensification and employee well-being. *Work, employment and society*, *28*(6), 963-984. doi: 10.1177/0950017013512714

Boxall, P., & Purcell, J. (2011). *Strategy and human resource management*. Palgrave Macmillan.

Boxall, P., Purcell, J., & Wright, P. M. (2007). *The Oxford Handbook of Human Resource Management*, 1-15. New York: Oxford University Press.

Brewster, C. (1999). Strategic Human Resource Management: The Value of Different Paradigms. *Management International Review*, *39*(3), 45-64. doi: 10.1007/978-3-322-90993-0_5

Brewster, C. (2007). A European perspective on HRM. *European Journal of International Management*, *1*(3), 239-259.

Brown, T. A. (2006). *Confirmatory Factor Analysis for Applied Research*. (D. A. Kenny, Ed.), *Methodology in the Social Sciences*. New York: The Guilford Press.

Browne, C. G. (1956). Review: Psychology in Industry: A Psychological Approach to Industrial Problems. *ILR Review,9*(3), 507–509. doi: 10.1177/001979395600900339

Browne, M. W., & Cudeck, R. (1992). Alternative Ways of Assessing Model Fit. *Sociological Methods & Research*, *21*(2), 230-258. doi: 10.1177/0049124192021002005

Bryson, A., & White, M. (2018). HRM and Small-Firm Employee Motivation: Before and After the Great Recession. *Industrial and Labor Relations Review*, 1-25. doi: 10.1177/0019793918774524

Byrne, B. M., Shavelson, R. J., & Muthén, B. (1989). Testing for the equivalence of factor covariance and mean structures: The issue of partial measurement invariance.

Psychological bulletin, *105*(3), 456-466.

Campbell, J. P., McCloy, R. A., Oppler, S. H., & Sager, C. E. (1993). A theory of performance. *Personnel selection in organizations*, *3570*, 35-70.

Cardona, P., & Elola, A. (2003). Trust in management: The effect of managerial trustworthy behavior and reciprocity. IESE Working Paper No. D/496. doi: 10.2139/ssrn.462624

Cascio, W. F., & Boudreau, J. (2011). *Investing in People. Financial Impact of Human Resource Initiatives.* New Jersey: Pearson Education Inc.

Chadwick, C. (2010). Theoretic insights on the nature of performance synergies in human resource systems: Toward greater precision. *Human Resource Management Review*, *20*(2), 85-101. doi: 10.1016/j.hrmr.2009.06.001

Chan, D. (1998). The conceptualization and analysis of change over time: An integrative approach incorporating longitudinal mean and covariance structures analysis (LMACS) and multiple indicator latent growth modeling (MLGM). *Organizational Research Methods*, *1*(4), 421-483. doi: 10.1177/109442819814004

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating Goodness-of- Fit Indexes for Testing Measurement Invariance. *Structural Equation Modeling: A Multidisciplinary Journal, 9*(2), 233-255. doi: 10.1207/S15328007SEM0902_5

Chytiri, A.-P., Panayotopoulou, L., & Guest, D. (2017). The impact of a financial crisis on human resource management and performance relationship. In E. T. Demetris Vrontis, Yaakov Weber (Ed.), *9th Annual Conference of the Euromed Academy of Business* (pp. 510-523). Euromed Press.

Čikeš, V., Maškarin Ribarić, H., & Črnjar, K. (2018). The Determinants and Outcomes of Absence Behavior: A Systematic Literature Review. *Social Sciences*, *7*(8), 120. doi: 10.3390/socsci7080120

Clegg, C. W. (1983). Psychology of employee lateness, absence, and turnover: A methodological critique and an empirical study. *Journal of Applied psychology*, *68*(1), 88. doi: 10.1037/0021-9010.68.1.88

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (1983). Applied multiple regression. *Correlation Analysis for the Behavioral Sciences.*.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). Applied multiple regression/correlation analysis for the behavioral sciences. Mahwah, NJ: Erlbaum (3rd ed.).

Combs, J., Liu, Y., Hall, A., & Ketchen, D. (2006). How much do high-performance work practices matter? A meta-analysis of their effects on organizational performance. *Personnel Psychology*, *59*(3), 501-528. doi: 10.1111/j.1744-6570.2006.00045.x

Conway, N., & Briner, R. B. (2012). Investigating the effect of collective organizational commitment on unit-level performance and absence. *Journal of Occupational and Organizational Psychology*, *85*(3), 472-486. doi: 10.1111/j.2044-8325.2011.02051.x

Cook, J. D., Hepworth, S. J., Wall, T. D., & Warr, P. B. (1981). The experience of work: A compendium andreview of 249 measures and their use. London: Harcourt Bracejovanovich.

Crook, T. R., Todd, S., Combs, J. G., & Woehr, D. J. (2011). Does human capital matter? A meta-analysis of the relationship between human capital and firm performance. *Journal of applied psychology*, *96*(3), 443. doi: 10.1037/a0022147

Dansereau, F., Alutto, J. A., & Markham, S. (1978). An initial investigation into the suitability of absenteeism rates as measures of performance. In *Manpower planning and organization design* (pp. 721-731). Boston,MA: Springer.

Datta, D. K., Guthrie, J. P., & Wright, P. M. (2003). HRM and Firm Productivity : Does Industry Matter ? HRM and Firm Productivity : Does Industry Matter ?

Deci, E. L., & Ryan, R. M. (2008). Facilitating optimal motivation and psychological well-being across life's domains. *Canadian psychology/Psychologie canadienne*, *49*(1), 14. doi: 10.1037/0708-5591.49.1.14

Deery, S. J., Iverson, R. D., & Walsh, J. T. (2006). Toward a better understanding of psychological contract breach: A study of customer service employees. *Journal of Applied Psychology*, *91*(1), 166. doi: 10.1037/0021-9010.91.1.166

Delery, J. E., & Roumpi, D. (2017). Strategic human resource management, human capital and competitive advantage: is the field going in circles? *Human Resource Management Journal*, *27*(1), 1-21. doi: 10.1111/1748-8583.12137

Delery, J. E., & Shaw, J. D. (2001). Research in Personnel and Human Resources Management Article information : *Research in Personnel and Human Resource Management*, *20*, 165-197.

Delery, J., & Gupta, N. (2016). Human resource management practices and organizational effectiveness: internal fit matters. *Journal of Organizational Effectiveness: People and Performance*, *3*(2), 139-163. doi: 10.1108/JOEPP-03-2016-0028

Den Hartog, D. N., Boselie, P., & Paauwe, J. (2004). Performance management: A model and research agenda. *Applied psychology*, *53*(4), 556-569. doi: 10.1111/j.1464-0597.2004.00188.x

Dineen, B. R., Noe, R. A., Shaw, J. D., Duffy, M. K., & Wiethoff, C. (2007). Level and dispersion of satisfaction in teams: Using foci and social context to explain the satisfaction-absenteeism relationship. *Academy of Management Journal*, *50*(3), 623-643. doi: 10.5465/amj.2007.25525987

Duncan, T., Duncan, S., & Strycker, L. A. (2010). *An introduction to latent variable growth curve modeling*. Mahwah, NJ: Lawrence Erlbraum Associates, Inc.

Dunham, R. B., Grube, J. A., & Castaneda, M. B. (1994). Organizational commitment: The utility of an integrative definition. *Journal of Applied psychology*, *79*(3), 370. doi: 10.1037/0021-9010.79.3.370

Duxut, V., & Bhati, M. (2012). Impact of employee participation on job satisfaction, employee commitment and employee productivity. *European Journal of Business and Social Sciences*, *1*(6), 34-51.

Dyer, L., & Reeves, T. (1995). Human Resource Strategies and Firm Performance : What Do We Know and Where Do We Need to Go ? *International Journal of Human Resource Management, 6*(3), 656-670. doi: 10.1080/09585199500000041

Elorza, U. (2008). *Explorando el black box: El efecto de los sistemas de gestión de personas en la autoeficacia, actitudes y comportamientos de los trabajadores de producción y el rendimiento organizativo. (PhD Dissertation)*. Universidad del País Vasco. Euskal Herriko Unibertsitatea.

Elorza, U., Aritzeta, A., & Ayestarán, S. (2011). Exploring the black box in Spanish firms : the effect of the actual and perceived system on employees ' commitment and

organizational performance. T*he International Journal of Human Resource Management, 22*(7), 1401-1422. doi: 10.1080/09585192.2011.561956

Elorza, U., Harris, C., Aritzeta, A., & Balluerka, N. (2016). The effect of management and employee perspectives of high-performance work systems on employees' discretionary behaviour. *Personnel Review*, *45*(1), 121-141. doi: 10.1108/PR-07-2014-0167

Farndale, E., & Paauwe, J. (2018). SHRM and context: why firms want to be as different as legitimately possible. *Journal of Organizational Effectiveness: People and Performance*. doi: 10.1108/JOEPP-04-2018-0021

Ferrer, E., & Mcardle, J. J. (2010). Current Directions in Psychological Science. *Current Directions in Psychological Science*, *19*(3), 149-154. doi: 10.1177/0963721410370300

Field, A. (2009). *Discovering statistics using SPSS*. Sage publications.

Fiorito, J., Bozeman, D. P., Young, A., & Meurs, J. A. (2007). Organizational commitment, human resource practices, and organizational characteristics. *Journal of Managerial Issues*, 186-207.

Forcadell, F. J. (2005). Democracy, cooperation and business success : The case of Mondragon Corporacion Cooperativa. *Journal of Business Ethics*, *56*, 255-274. doi: 10.1007/s10551-004-5094-5

Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational behavior*, *26*(4), 331-362. doi: 10.1002/job.322

Geldhof, G. J., Preacher, K. J., & Zyphur, M. J. (2014). Reliability estimation in a multilevel confirmatory factor analysis framework. *Psychological methods*, *19*(1), 72.

Gerhart, B. (2005). Human resources and business performance: Findings, unanswered questions, and an alternative approach. *Management Revue*, 174-185.

Gerhart, B. (2007). Modeling HRM and performance linkages. In P. F. Boxall, J. Purcell, & P. M. Wright (Eds.), *The Oxford handbook of human resource management*. Oxford, UK: Oxford University Press.

Godard, J. (2004). A Critical Assessment of the High-Performance Paradigm. *British Journal of Industrial Relations*, *42*(2), 349-378. doi: 10.1111/j.1467-8543.2004.00318.x

Gollob, H. F., & Reichardt, C. S. (1987). Taking account of time lags in causal models. *Child development*, 80-92. doi: 10.2307/1130293

Gollob, H. F., & Reichardt, C. S. (1991). Interpreting and estimating indirect effects assuming time lags really matter. doi: 10.1037/10099-015

Gong, Y., Law, K. S., Chang, S., & Xin, K. R. (2009). Human resources management and firm performance: The differential role of managerial affective and continuance commitment. *Journal of Applied Psychology*, *94*(1), 263. doi: 10.1037/a0013116

Gould-Williams, J. (2003). The importance of HR practices and workplace trust in achieving superior performance: A study of public-sector organizations. *International Journal of Human Resource Management, 14*(1), 28-54. doi: 10.1080/09585190210158501

Gouldner, A. W. (1960). The Norm of Reciprocity: A Preliminary Statement. *American Sociological Review*, *25*(2), 161. doi: 10.2307/2092623

Granger, C. W. J. (1969). Investigating Causal Relations by Econometric Models and Cross-spectral Methods. *Econometrica*, *37*(3), 424-438. doi: 10.2307/1912791

Guest, D. E. (1997). Human resource management and performance: a review and research agenda. *The International Journal of Human Resource Management*, *8*(3), 263-276. doi: 10.1080/095851997341630

Guest, D. E. (2017). Human resource management and employee well-being: towards a new analytic framework. *Human Resource Management Journal*, *27*(1), 22-38. doi: 10.1111/1748-8583.12139

Guest, D. E. (2011). Human resource management and performance: still searching for some answers. *Human Resource Management Journal*, *21*(1), 3-13. doi: 10.1111/j.1748-8583.2010.00164.x

Guest, D.E, Michie, J., Conway, N., & Sheehan, M. (2003). Human Resource Management and Corporate Performance in the UK. *British Journal of Industrial Relations*, *41*(2), 291-314. doi: 10.1111/1467-8543.00273

Guthrie, J. P. (2001). High Involvement Work Practices, Turnover, and Productivity: Evidence from New Zealand. *The Academy of Management Journal*, *44*(1), 180-190. doi: 10.5465/3069345

Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational behavior and human performance*, *16*(2), 250-279. doi: 10.1016/0030-5073(76)90016-7

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis*. Prentice Hall.

Hamaker, E. L., Kuiper, R. M., & Grasman, R. P. P. P. (2015). A Critique of the Cross-Lagged Panel Model. *Psychological Methods*, *20*(1), 102-116. doi: 10.1037/a0038889

Hamel, G. (2012). *What matters now*. *Strategic Direction* (Vol. 28). San Francisco, CA: Jossey-Bass.

Harrison, D. A., & Martocchio, J. J. (1998). Time for absenteeism: A 20-year review of origins, offshoots, and outcomes. *Journal of management*, *24*(3), 305-350. doi: 10.1177/014920639802400303

Harrison, D. A., Newman, D. A., & Roth, P. L. (2006). How important are job attitudes? Meta-analytic comparisons of integrative behavioral outcomes and time sequences. *Academy of Management journal*, *49*(2), 305-325. doi: 10.5465/amj.2006.20786077

Hauff, S., Alewell, D., & Hansen, N. K. (2014). HRM systems between control and commitment: occurrence, characteristics and effects on HRM outcomes and firm performance. *Human Resource Management Journal*, *24*(4), 424-441. doi: 10.1111/1748-8583.12054

Hauff, S., Dul, J., & Rhee, H. Van. (2019). Exploring Necessary Conditions in HRM Research : Fundamental Issues and Methodological Implications. *Human Resource Management Journal, Pre-publication version*. doi: 10.1111/1748-8583.12231

Hausknecht, J. P., Hiller, N. J., & Vance, R. J. (2008). Work-unit absenteeism: Effects of satisfaction, commitment, labor market conditions, and time. *Academy of Management Journal*, *51*(6), 1223-1245. doi: 10.5465/amj.2008.35733022

Hernandez Sampieri, R., Fernandez, C., & Lucio, P. B. (2014). *Metodologia de la investigacion*. Mexico: McGraw-Hill.

Hohenstein, N.-O., Feisel, E., & Hartmann, E. (2014). Human resource management issues in supply chain management research. *International Journal of Physical Distribution & Logistics Management*, *44*(6), 434-463. doi: 10.1108/IJPDLM-06-2013-0175

Holt Larsen, H., & Brewster, C. (2003). Line management responsibility for HRM: What is happening in Europe? *Employee Relations*, *25*(3), 228-244. doi: 10.1108/01425450310475838

Hu, Li-tze, & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological methods*, *3*(4), 424. doi: 10.1037/1082-989X.3.4.424

Hu, Li-tze, & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal*, *6*(1), 1-55. doi:10.1080/10705519909540118

Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, *38*(3), 635-672. doi: 10.5465/256741

Jackson, S. E., Schuler, R. S., & Jiang, K. (2014). An Aspirational Framework for Strategic Human Resource Management. *Academy of Management*, *8*(1), 1-56. doi: 10.1080/19416520.2014.872335

Jackson, S. E., Schuler, R. S., & Rivero, J. C. (1989). Organizational characteristics as predictors of personnel practices. *Personnel psychology*, *42*(4), 727-786. doi: 10.1111/j.1744-6570.1989.tb00674.x

James, L. R. (1982). Aggregation bias in estimates of perceptual agreement. *Journal of applied psychology*, *67*(2), 219. doi: 10.1037/0021-9010.67.2.219

James, L. R., Choi, C. C., Ko, C.-H. E., McNeil, P. K., Minton, M. K., Wright, M. A., & Kim, K. (2008). Organizational and psychological climate: A review of theory and research. *European Journal of work and organizational psychology*, *17*(1), 5-32. doi: 10.1080/13594320701662550

James, L. R., Demaree, R. G., & Wolf, G. (1984). Estimating within-group interrater reliability with and without response bias. *Journal of applied psychology*, *69*(1), 85. doi: 10.1037/0021-9010.69.1.85

James P. Selig, & Todd D. Little. (2011). Autoregressive and Cross-Lagged Panel Analysis for Longitudinal Data. In B. Laursen, T. D. Little, & N. A. Card (Eds.), *Handbook of Developmental Research Methods* (pp. 265-278). The Guilford Press.

Jiang, K., Hu, J., Liu, S., & Lepak, D. P. (2017). Understanding employees' perceptions of human resource practices: Effects of demographic dissimilarity to managers and coworkers. *Human Resource Management*, *56*(1), 69-91. doi: 10.1002/hrm.21771

Jiang, K., Lepak, D. P., Han, K., Hong, Y., Kim, A., & Winkler, A. L. (2012). Clarifying the construct of human resource systems: Relating human resource management to employee performance. *Human Resource Management Review*, *22*(2), 73-85. doi: 10.1016/j.hrmr.2011.11.005

Jiang, K., & Messersmith, J. (2018). On the shoulders of giants: a meta-review of strategic human resource management. *International Journal of Human Resource Management*, *29*(1), 6-33. doi: 10.1080/09585192.2017.1384930

Jiang, K., Takeuchi, R., & Lepak, D. P. (2013). Where do we go from here? New perspectives

on the black box in strategic human resource management research. *Journal of Management Studies*, *50*(8), 1448-1480.

Johns, G. (2006). The essential impact of Context on Organizational Behavior. *Academy of Management Review*, *31*(2), 386-408. doi: 10.5465/amr.2006.20208687

Judge, T. A., & Kammeyer-Mueller, J. D. (2012). Job Attitudes. *Annual Review of Psychology*, *63*, 341-367. doi: 10.1146/annurev-psych-120710-100511

Judge, T. A., Thoresen, C. J., Bono, J. E., & Patton, G. K. (2001). The Job Satisfaction-Job Performance Relationship: A Qualitative and Quantitative Review. *Psychological Bulletin*, *127*(3), 376-407. doi: 10.1037/0033-2909.127.3.376

Kaarsemaker, E. C. A., & Poutsma, E. (2006). The fit of employee ownership with other human resource management practices: Theoretical and empirical suggestions regarding the existence of an ownership high-performance work system. *Economic and Industrial Democracy*, *27*(4), 669-685. doi: 10.1177/0143831X06069009

Kantar WorldPanel. (2018). Balance de la Distribución y el Gran Consumo 2018.

Katou, A. (2012). Investigating reverse causality between human resource management policies and organizational performance in small firms. *Management Research Review*, *35*(2), 135-156. doi: 10.1108/01409171211195161

Katou, A., & Budhwar, P. S. (2010). Causal relationship between HRM policies and organisational performance: Evidence from the Greek manufacturing sector. *European Management Journal*, *28*(1), 25-39. doi: 10.1016/j.emj.2009.06.001

Katou, A., & Budhwar, P. (2014). HRM and Firm Performance. In P. Budwhar, J.Cranshaw & Ann Davis (Eds), *Human resource management: strategic and international perspectives* (pp. 26-47). London, UK: SAGE.

Katz, D., & Kahn, R. L. (1978). *The social psychology of organizations* (Vol. 2). Oxford, UK: Wiley.

Kaufman, B. E. (2012). Strategic Human Resource Management Research in the United States: A Failing Grade After 30 Years? *Academy of Management Perspectives*, *26*(2), 12-36. doi: 10.5465/amp.2012.0037

Kaufman, B. E. (2015a). Evolution of strategic HRM as seen through two founding books: A 30th anniversary perspective on development of the field. *Human Resource Management*, *54*(3), 389-407. doi: 10.1002/hrm.21720

Kaufman, B. E. (2015b). Market competition , HRM , and firm performance : The conventional paradigm critiqued and reformulated conventional paradigm critiqued and reformulated. *Human Resource Management Review*, *25*(1), 107-125. doi: 10.1016/j.hrmr.2014.08.001

Kearney, M. W. (2017). Cross-lagged panel analysis. *The SAGE Encyclopedia of Communication Research Methods*, 1-6.

Kehoe, R. R., & Wright, P. M. (2013). The impact of high-performance human resource practices on employees' attitudes and behaviors. *Journal of management*, *39*(2), 366-391. doi: 10.1177/0149206310365901

Kelloway, E. K., & Francis, L. (2013). Longitudinal research and data analysis. In R. R. Sinclair, M. Wang, & L. E. Tetrick (Eds.), Research methods in occupational health psychology: Measurement, design, and data analysis (pp. 374-394). New York, NY, US: Routledge/Taylor & Francis Group.

Kenny, D. A. (1979). *Correlation and causality*. New York: Wiley.

Kenny, D. A. (2016). Miscellaneous Variables: Formative Variables and Second-Order Factors. Retrieved 24th January 2019 from http://davidakenny.net/cm/mvar.htm

Kenny, D. A., Kaniskan, B., & Mccoach, D. B. (2014). The Performance of RMSEA in Models With Small Degrees of Freedom. *Sociological Methods & Research*, 1-22. doi: 10.1177/0049124114543236

Kim, D. H. (1999). *Introduction to Systems Thinking*. Pegasus Communications Inc.

Kim, Yoon-ho, Kim, Y., Kim, A., Han, K., & Lepak, D. P. (2018). High-performance work systems as a remedy for growing pains : evidence from South Korean organizations. *Asia Pacific Journal of Management*. doi: 10.1111/1744-7941.12179

Kim, Youngsang, & Ployhart, R. E. (2014). The effects of staffing and training on firm productivity and profit growth before, during, and after the great recession. *Journal of Applied Psychology*, *99*(3), 361-389.

Klein, K. J., & Kozlowski, S. W. J. (2000). *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions.* San Francisco, CA: Jossey-Bass.

Kline, R. B. (2012). Assumptions in structural equation modelling. In R. H. Hoyle (Ed.), *Handbook of structual equation modelling*. New York: Guildford Press.

Knies, E., & Leisink, P. (2014). Linking people management and extra-role behaviour: results of a longitudinal study, *24*(1), 57-76. doi: 10.1111/1748-8583.12023

Kochan, T. A. (2015). *Shaping the future of work: what future worker, business, government, and education leaders need to do for all to prosper*. New York: Business Expert Press.

Kochan, T. A., & Osterman, P. (1994). *The mutual gains enterprise: Forging a winning partnership among labor, management, and government*. Boston,MA: Harvard Business Press.

Konrad, A. M., Yang, Y., & Maurer, C. C. (2016). Antecedents and outcomes of diversity and equality management systems: An integrated institutional agency and strategic human resource management approach. *Human Resource Management*, *55*(1), 83-107. doi: 10.1002/hrm.21713

Kopelman, R. E., Brief, A. P., & Guzzo, R. A. (1990). The role of climate and culture in productivity. *Organizational climate and culture*, *282*, 318.

Kroon, B., Van De Voorde, K., & Timmers, J. (2012). High performance work practices in small firms: a resource-poverty and strategic decision-making perspective. *Small Business Economics*, *41*(1), 71-91. doi: 10.1007/s11187-012-9425-0

Kumar, V., & Pansari, A. (2015). Measuring the benefits of employee engagement. *MIT Sloan management review*, *56*(4), 67-72.

Kwon, K. (2019). The long-term effect of training and development investment on financial performance in Korean companies. *International Journal of Manpower*. doi: 10.1108/IJM-10-2017-0286

Lado, A., & Wilson, M. C. (1994). Human Resource Systems and Sustained Competitive Advantage : a Competency-Based Perspective. *Academy of Management*, *19*(4), 699-727. doi: 10.5465/amr.1994.9412190216

Lawler, E. E. (1986). *High-Involvement Management. Participative Strategies for Improving*

Organizational Performance. ERIC.

Lebreton, J. M., & L.Senter, J. (2008). Answers to 20 Questions About Interrater Reliability and Interrater Agreement. *Organizational Research Methods*, *11*(4), 815-852. doi: 10.1177/1094428106296642

Lepak, D. P., & Snell, S. A. (1999). The human resource architecture: Toward a theory of human capital allocation and development. *Academy of management review*, *24*(1), 31-48. doi: 10.5465/amr.1999.1580439

Lepak, D. P., & Snell, S. A. (2002). Examining the Human Resource Architecture : The Relationships Among Human Capital , Employment , and Human Resource Configurations. *Journal of Management*, *28*(4), 517-543. doi: 10.1177/014920630202800403

LePine, J. A., Podsakoff, N. P., & LePine, M. A. (2005). A meta-analytic test of the challenge stressor–hindrance stressor framework: An explanation for inconsistent relationships among stressors and performance. *Academy of management journal*, *48*(5), 764-775. doi: 10.5465/amj.2005.18803921

Little, T. D. (2013). *Longitudinal structural equation modeling*. New York: Guilford Press.

Liu, Y., Mo, S., Song, Y., & Wang, M. (2016). Longitudinal analysis in occupational health psychology: A review and tutorial of three longitudinal modeling techniques. *Applied Psychology: An International Review*, *65*(2), 379-411. doi: 10.1111/apps.12055

Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American psychologist*, *57*(9), 705.

MacCallum, R. C., & Austin, J. T. (2000). Applications of structural equation modeling in psychological research. *Annual review of psychology*, *51*(1), 201-226. doi: 10.1146/annurev.psych.51.1.201

Macduffie, J. P. (1995). Human Resource Bundles and Manufacturing Performance : Organizational Logic and Flexible Production Systems in the World Auto Industry. *Industrial and Labor Relations Review*, *48*(2), 197-221. doi: 10.1177/001979399504800201

MacDuffie, J. P., & Kochan, T. A. (1995). Do US firms invest less in human resources?: training in the world auto industry. *Industrial Relations: A Journal of Economy and Society*, *34*(2), 147-168. doi: 10.1111/j.1468-232X.1995.tb00366.x

Madinabeitia, D. (2016). *El Efecto de los Sistemas de Trabajo de Alto Rendimiento y Las Actitudes de las Personas en el Rendimiento Organizativo: Un Análisis Multinivel y Longitudinal. (PhD Dissertation)*. Mondragon: Mondragon Unibertsitatea.

Madjar, N., Oldham, G. R., & Pratt, M. G. (2002). There's no place like home? The contributions of work and nonwork creativity support to employees' creative performance. *Academy of Management journal*, *45*(4), 757-767. doi: 10.5465/3069309

Marin-Garcia, J. A., & Tomas, J. M. (2016). Deconstructing AMO framework: A systematic review. *Intangible Capital*, *12*(4), 1040-1087.

Markovits, Y., Boer, D., & Van Dick, R. (2014). Economic crisis and the employee: The effects of economic crisis on employee job satisfaction, commitment, and self-regulation. *European Management Journal*, *32*(3), 413-422. doi: 10.1016/j.emj.2013.09.005

Mason, C. M., & Griffin, M. A. (2002). Grouptask satisfaction: Applying the construct of job satisfaction to groups. *Small Group Research*, *33*(3), 271-312. doi: 10.1177/10496402033003001

Mason, C. M., & Griffin, M. A. (2003). Group absenteeism and positive affective tone: A longitudinal study. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, *24*(6), 667-687. doi: 10.1002/job.210

Meade, A. W., Johnson, E. C., & Braddy, P. W. (2008). Power and Sensitivity of Alternative Fit Indices in Tests of Measurement Invariance. *Journal of Applied Psychology*, *93*(3), 568-592. doi: 10.1037/0021-9010.93.3.568

Mertens, D. M. (2010). Transformative mixed methods research. *Qualitative inquiry*, *16*(6), 469-474. doi: 10.1177/1077800410364612

Messersmith, J. G., Lepak, D. P., & Gould-williams, J. S. (2011). Unlocking the Black Box : Exploring the Link Between High-Performance Work Systems and Performance. *Journal of Applied Psychology*, *96*(6), 1105-1118. doi: 10.1037/a0024710

Meyer, J. P., & Allen, N. J. (1997). *Commitment in the workplace.* London: Sage.

Meyer, J. P., Allen, N. J., & Smith, C. A. (1993). Commitment to Organizations and Occupations : Extension and Test of a Three- Component Conceptualization. *Journal of Applied Psychology*, *78*(4), 538-551. doi: 10.1037/0021-9010.78.4.538

Meyer, J. P., Paunonen, S. V, Gellatly, I. R., Goffin, R. D., & Jackson, D. N. (1989). Organizational commitment and job performance: It's the nature of the commitment that counts. *Journal of applied Psychology*, *74*(1), 152. doi: 10.1037/0021-9010.74.1.152

Mintzberg, H. (1978). Patterns in strategy formation. *Management science*, *24*(9), 934-948. doi: 10.1287/mnsc.24.9.934

Morgeson, F. P., & Humphrey, S. E. (2006). The Work Design Questionnaire (WDQ): Developing and validating a comprehensive measure for assessing job design and the nature of work. *Journal of Applied Psychology*, *91*(6), 1321-1339. doi: 10.1037/0021-9010.91.6.1321

Napathom, C. (2018). Strategic Human Resource Management: Prior Literature and Directions for Future Research and Practice. Thammasat Business School, Thamasat University.

Ng, T. W. H., Eby, L. T., Sorensen, K. L., & Feldman, D. C. (2005). Predictors of objective and subjective career success: A meta-analysis. *Personnel psychology*, *58*(2), 367-408. doi: 10.1111/j.1744-6570.2005.00515.x

Nishii, L. H, Lepak, D. P., & Schneider, B. (2008). Employee attributions of the "why" of HR practices: Their effects on employee attitudes and behaviors, and customer satisfaction. *Personnel psychology*, *61*(3), 503-545. doi: 10.1111/j.1744-6570.2008.00121.x

Nishii, L- Hisae, & Wright, P. M. (2008). Variability Within Organizations : Implications for Strategic Human Resource Management. *The people make the place. Dynamic linkages between individuals and organisations*, 225-248.

Nyberg, A. J., Moliterno, T. P., Hale, D., & Lepak, D. P. (2014). Resource-Based Perspectives on Unit-Level Human Capital : A Review and Integration. *Journal of Management*,

40(1), 316-346. doi: 10.1177/0149206312458703

O'Boyle, E. H., Patel, P. C., & Gonzalez-mulé, E. (2016). Employee ownership and firm performance: a meta-analysis. *Human Resource Management Journal*, *26*(4), 425-448. doi: 10.1111/1748-8583.12115

Oreg, S., Vakola, M., & Armenakis, A. (2011). Change recipients' reactions to organizational change: A 60-year review of quantitative studies. *The Journal of Applied Behavioral Science*, *47*(4), 461-524. doi: 10.1177/0021886310396550

Ostroff, C. (1992). The relationship between satisfaction, attitudes, and performance: An organizational level analysis. *Journal of applied psychology*, *77*(6), 963. doi: 10.1037/0021-9010.77.6.963

Ostroff, C., & Bowen, D. E. (2000). Moving HR to a higher level: HR practices and organizational effectiveness. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel Theory, Research, and Methods in organizations* (pp. 211-266). San Francisco, CA: Jossey-Bass.

Paauwe, J. (2004). *HRM and performance: Achieving long-term viability*. Oxford, UK: Oxford University Press.

Paauwe, J. (2009). HRM and Performance : Achievements, Methodological Issues and Prospects. *Journal of Management Studies*, *46*(1), 129-142. doi: 10.1111/j.1467-6486.2008.00809.x

Paauwe, J., & Boselie, P. (2005). HRM and performance: What next? *Human Resource Management Journal*, *15*(4), 68-83. doi: 10.1111/j.1748-8583.2005.tb00296.x

Paauwe, J., & Farndale, E. (2017). *Strategy, Hrm, and Performance: A Contextual Approach*. Oxford, UK: Oxford University Press.

Paauwe, J., Guest, D. E., & Wright, P. M. (2013). HRM and Performance: What Do We Know and Where Should We Go? In J. Paauwe, D. E. Guest, & P. M. Wright (Eds.), *HRM and performance: Achievements and challenges* (pp. 1-13). Padstow,Cornwall: John Wiley & Sons.

Paauwe, J., & Richardson, R. (1997). Introduction. *International Journal of Human Resource Management*, *8*(3), 257-262.

Paré, G., & Tremblay, M. (2007). The influence of high-involvement human resources practices, procedural justice, organizational commitment, and citizenship behaviors on information technology professionals' turnover intentions. *Group & Organization Management*, *32*(3), 326-357. doi: 10.1177/1059601106286875

Peccei, R., & Rosenthal, P. (1997). The antecedents of employee commitment to customer service: evidence from a UK. *The International Journal of Human Resource Management*, *8*(1), 66-86. doi: 10.1080/09585199700000041

Peccei, R., Van De Voorde, K., & Van Veldhoven, M. (2013). Hrm-Well-Being and Performance: A theoretical and empirical review. In J. Paauwe, D. E. Guest, & P.M. Wright (Eds.), *HRM and performance: Achievements and challenges* (pp. 15-45). Padstow,Cornwall: John Wiley & Sons.

Penrose, E. (1959). *The Theory of the Growth of the Firm*. New York: John Wiley & Sons.

Pfeffer, J. (1995). Producing sustainable competitive advantage through the effective management of people. *Academy of Management*, *19*(4), 95-106. doi: 10.5465/ame.2005.19417910

Piening, E. P., Baluch, A. M., & Salge, T. O. (2013). The Relationship Between Employees ' Perceptions of Human Resource Systems and Organizational Performance : Examining Mediating Mechanisms and Temporal Dynamics. *Journal of Applied Psychology*, *98*(6), 926-947. doi: 10.1037/a0033925

Ployhart, R. E., & Vandenberg, R. J. (2010). Longitudinal Research: The Theory, Design, and Analysis of Change. *Journal of Management*, *36*(1), 94-120. doi: 10.1177/0149206309352110

Podsakoff, N. P., Whiting, S. W., Podsakoff, P. M., & Blume, B. D. (2009). Individual-and organizational-level consequences of organizational citizenship behaviors: A meta-analysis. *Journal of applied Psychology*, *94*(1), 122.

Podsakoff, P. M., Mackenzie, S. B., Lee, J., & Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research : A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*, *88*(5), 879-903.

Porter, M. E. (1985). Competitive advantage: creating and sustaining superior performance. 1985. New York: Free Press.

Purcell, J., & Kinnie, N. (2007). HRM and business performance. *Oxford Handbook of Human Resource Management*, 533.

Putnick, D. L., & Bornstein, M. H. (2016). Measurement invariance conventions and reporting: The state of the art and future directions for psychological research. *Developmental Review*, *41*, 71-90. doi: 10.1016/j.dr.2016.06.004

Rafferty, A. E., & Griffin, M. A. (2006). Refining individualized consideration: Distinguishing developmental leadership and supportive leadership. *Journal of Occupational and Organizational Psychology*, (79), 37-61. doi: 10.1348/096317905X36731

Rafferty, A. E., & Restubog, S. L. D. (2010). The impact of change process and context on change reactions and turnover during a merger. *Journal of Management*, *36*(5), 1309-1338. doi: 10.1177/0149206309341480

Riordan, C. M., Vandenberg, R. J., & Richardson, H. A. (2005). Employee involvement climate and organizational effectiveness. *Human Resource Management: Published in Cooperation with the School of Business Administration, The University of Michigan and in alliance with the Society of Human Resources Management*, *44*(4), 471-488. doi: 10.1002/hrm.20085

Robson, C., & McCartan, K. (2002). *Real World Research. A Resource for Users of Social Research Methods in Applied Settings. Fourth Edition.* Italy: Wiley.

Roca-Puig, V., Bou-Llusar, J.-C., Beltrán-Martín, I., & García-Juan, B. (2018). The virtuous circle of human resource investments: A precrisis and postcrisis analysis. *Human Resource Management Journal*, 1-18. doi: 10.1111/1748-8583.12213

Rothaermel, F. T. (2015). *Strategic Management*. New York: McGraw Hill.

Rousseau, D. (1995). *Psychological contracts in organizations: Understanding written and unwritten agreements*. Sage publications.

Rousseau, D. M. (1989). Psychological and implied contracts in organizations. *Employee responsibilities and rights journal*, *2*(2), 121-139.

Salancik, G. R., & Pfeffer, J. (1978). A social information processing approach to job attitudes and task design. *Administrative science quarterly*, 224-253. doi: 10.2307/2392563

Saridakis, G., Lai, Y., & Cooper, C. L. (2017). Exploring the relationship between HRM and firm performance: A meta-analysis of longitudinal studies. *Human Resource Management Review*, *27*(1), 87-96. doi: 10.1016/j.hrmr.2016.09.005

Schmidt, J. A., & Pohler, D. M. (2018). Making Stronger Causal Inferences: Accounting for Selection Bias in Associations Between High Performance Work Systems, Leadership, and Employee and Customer Satisfaction. *Journal of Applied Psychology*, *103*(9), 1001.doi: 10.1037/apl0000315

Schneider, B., Hanges, P. J., Smith, D. B., & Salvaggio, A. N. (2003). Which Comes First: Employee Attitudes or Organizational Financial and Market Performance? *Journal of Applied Psychology*, *88*(5), 836-851. doi: 10.1037/0021-9010.88.5.836

Schuler, R. S., & Jackson, S. E. (1987). Linking competitive strategies with human resource management practices. *Academy of Management Perspectives*, *1*(3), 207-219. doi: 10.5465/ame.1987.4275740

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Boston,MA: Houghton Mifflin Company.

Shin, D., & Konrad, A. M. (2014). Causality between high-performance work systems and organizational performance. *Journal of Management*, *43*(4), 973-997. doi: 10.1177/0149206314544746

Silla, I., Gracia, F.-J., & Peiró, J.-M. (2005). Diferencias en el contenido del contrato psicológico en función del tipo de contrato y de la gestión empresarial pública o privada. *Revista de psicología social*, *20*(1), 61-72. doi: 10.1174/0213474052871097

Snell, S. A., & Dean, J. W. (1992). Integrated Manufacturing and Human Resource Management : A Human Capital Perspective. *Academy of Management*, *35*(3), 467-504. doi: 10.5465/256484

Spreitzer, G. M. (1995). Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of management Journal*, *38*(5), 1442-1465. doi: 10.5465/256865

Storey, J., Basterretxea, I., & Salaman, G. (2014). Managing and resisting ' degeneration ' in employee- owned businesses : A comparative study of two large retailers in Spain and the United Kingdom. *Organization*, *21*(5), 626-644. doi: 10.1177/1350508414537624

Su, Z., Wright, P. M., & Ulrich, M. D. (2018). Going Beyond the SHRM Paradigm : Examining Four Approaches to Governing Employees. *Journal of Management*, *44*(4), 1598-1619. doi: 10.1177/0149206315618011

Subramony, M. (2009). A meta-analytic investigation of the relationship between HRM bundles and firm performance. *Human Resource Management*, *48*(5), 745-768. doi: 10.1002/hrm.20315

Sun, L.-Y., Aryee, S., & Law, K. S. (2007). High-Performance Human Resource Practices, Citizenship Behavior, and Organizational Performance: A Relational Perspective. *Academy of Management Journal*, *50*(3), 558-577. doi: 10.5465/amj.2007.25525821

Taasoobshirazi, G., & Wang, S. (2016). The Performance of the SRMR, RMSEA, CFI, and TLI: an Examination of Sample Size, Path Size and Degrees Of Freedom. *Journal of Applied Quantitative Methods*, *11*(3), 31-40.

Takeuchi, R., Lepak, D. P., Wang, H., & Takeuchi, K. (2007). An empirical examination of the

mechanisms mediating between high-performance work systems and the performance of Japanese organizations. *Journal of Applied Psychology*, *92*(4), 1069-1083. doi: 10.1037/0021-9010.92.4.1069

Tangen, S. (2005). Demystifying productivity and performance. *International Journal of Productivity and performance management*, *54*(1), 34-46. doi: 10.1108/17410400510571437

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic management journal*, *18*(7), 509-533.

Tharenou, P. (1993). A test of reciprocal causality for absenteeism. *Journal of Organizational Behavior*, *14*(3), 269-287. doi: 10.1002/job.4030140306

Tichy, N. M., Fombrun, C. J., & Devanna, M. A. (1984). Strategic human resource management. *Sloan Management Review*, *23*(2), 47.

Tzabbar, D., Tzafrir, S., & Baruch, Y. (2017). A bridge over troubled water: Replication, integration and extension of the relationship between HRM practices and organizational performance using moderating meta-analysis. *Human Resource Management Review*, *27*(1), 134-148. doi: 10.1016/j.hrmr.2016.08.002

Van De Voorde, K. (2010). *HRM , Employee Well-being and Organizational Performance : A Balanced Perspective (PhD Dissertation).* Tilburg: Ridderprint Offsetdrukkerij B.V.

Van De Voorde, K., Paauwe, J., & Van Veldhoven, M. (2012). Employee Well-being and the HRM-Organizational Performance Relationship: A Review of Quantitative Studies. *International Journal of Management Reviews*, *14*(4), 391-407. doi: 10.1111/j.1468-2370.2011.00322.x

Van Iddekinge, C. H., Ferris, G. R., Perrewé, P. L., Perryman, A. A., Blass, F. R., & Heetderks, T. D. (2009). Effects of Selection and Training on Unit-Level Performance Over Time: A Latent Growth Modeling Approach. *Journal of Applied Psychology*, *94*(4), 829-843. doi: 10.1037/a0014453

Van Veldhoven, M., & Peccei, R. (2014). *Well-being and performance at work: The role of context*. New York: Psychology Press.

Vandenberg, R. J., Richardson, H. A., & Eastman, L. J. (1999). The Impact of High Involvement Work Processes on Organizational Effectiveness. *Group & Organization Management*, *24*(3), 300-339. doi: 10.1177/1059601199243004

Von Bertalanffy, L. (1968). *General system theory: foundations,development, applications*. New York: George Braziller.

Wall, T. D., & Wood, S. J. (2005). The romance of human resource management and business performance , and the case for big science. *Human Relations*, *58*(4), 429-462. doi: 10.1177/0018726705055032

Walton, R. E. (1985). From control to commitment in the workplace. *Harvard Business Review*, 77-84.

Wood, S., & De Menezes, L. M. (2011). High involvement management, high-performance work systems and well-being. *The International Journal of Human Resource Management*, *22*(07), 1586-1610. doi: 10.1080/09585192.2011.561967

Wood, S. (1999). Human Resource Management and Performance. *International Journal of Management Reviews*, *1*(4), 367-413.

Wood, S., & Ogbonnaya, C. (2018). High-involvement management, economic recession, well-being, and organizational performance. *Journal of Management*, *44*(8), 3070-3095. doi: 10.1177/0149206316659111

Wood, S., Van Veldhoven, M., Croon, M., & de Menezes, L. M. (2012). Enriched job design, high involvement management and organizational performance: The mediating roles of job satisfaction and well-being. *Human relations, 65(4)*, 419-445. doi: 10.1177/0018726711432476

Wright, P. M., Dunford, B. B., & Snell, S. A. (2001). Human resources and the resource based view of the firm. *Journal of management*, *27*(6), 701-721. doi: 014920630102700607

Wright, P. M., Dyer, L., & Takla, M. G. (1999). What's next? Key findings from the 1999 state-of-the-art & practice study. *People and Strategy*, *22*(4), 12.

Wright, P. M., Gardner, T. M., Moynihan, L. M., & Allen, M. R. (2005). The relationship between HR practices and firm performance: Examining causal order. *Personnel Psychology*, *58*(2), 409-446. doi: 10.1111/j.1744-6570.2005.00487.x

Wright, P. M., & Haggerty, J. J. (2005). Missing variables in theories of strategic human resource management: Time, cause, and individuals. *Management revue*, 164-173.

Wright, P. M., & McMahan, G. C. (1992). Theoretical Perspectives for Strategic Human Resource Management. *Journal of Management*, *18*(2), 295-320. doi: 10.1177/014920639201800205

Wright, P. M., McMahan, G. C., & Mcwilliams, A. (1994). Human resources and sustained competitive advantage : A resource-based perspective. *International Journal of Human Resource Management*, *5*(2), 301-326. doi: 10.1080/09585199400000020

Wright, P. M., & Nishii, L. H. (2013). Strategic HRM and Organizational Behaviour: Integrating Multiple Levels of Analysis. In J. Paauwe, D. E. Guest, & P. Wright (Eds.), *HRM and performance: Achievements and challenges* (pp. 97-110). Padstow,Cornwall: John Wiley & Sons.

Wright, P. M., Nyberg, A. J., & Ployhart, R. E. (2018). A Research Revolution in SHRM: New Challenges and New Research Directions. *Research in Personnel and Human Resources management*, *36*, 141-161. doi: 10.1108/S0742-730120180000036004l

Wright, P. M., & Snell, S. A. (1998). Toward a unifying framework for exploring fit and flexibility in strategic human resource management. *Academy of management review*, *23*(4), 756-772. doi: 10.5465/amr.1998.1255637

Wright, P. M., & Ulrich, M. D. (2017). A Road Well Traveled : The Past , Present , and Future Journey of Strategic Human Resource Management. *Annual Review of Organizational Psychology and Organizational Behavior*, (4), 45-65. doi: 10.1146/annurev-orgpsych-032516-113052

Xiao, Z., & Björkman, I. (2006). High Commitment Work Systems in Chinese Organizations : A Preliminary Measure. *Management and Organization Review*, *2*(3), 403-422. doi: 10.1111/j.1740-8784.2006.00049.x

Yin, R. K. (2014). *Case Study Research Design and Methods.* Thousand Oaks, CA: Sage.

Zapf, D., Dormann, C., & Frese, M. (1996). Longitudinal Studies in Organizational Stress Research : A Review of the Literature With Reference to Methodological Issues. *Journal of Occupational Health Psychology*, *1*(2), 145-169.

Zatzick, C. D., & Iverson, R. D. (2011). Putting employee involvement in context: a cross-

level model examining job satisfaction and absenteeism in high-involvement work systems. *The International Journal of Human Resource Management*, *22*(17), 3462-3476. doi: 10.1080/09585192.2011.561016

Zelenski, J. M., Murphy, S. A., & Jenkins, D. A. (2008). The happy-productive worker thesis revisited. *Journal of Happiness Studies*, *9*(4), 521-537. doi: 10.1007/s10902-008-9087-4

Ziegler, M., & Buehner, M. (2009). Modeling socially desirable responding and its effects. *Educational and Psychological Measurement*, *69*(4), 548-565. doi: 10.1177/0013164408324469

"The journey of a thousand miles
must begin with a single step."
Lao Tzu.

Chapter 12

Academic Results

12 Academic Results

Table 44: Academic results

Year	Journal or Conference	Title
2019	Presented at Academy Of Management Annual Conference, held August 9-13, 2019 in Boston, Massachusetts, United States.	HPWS, job satisfaction and productivity: a longitudinal study of a Spanish retail company.
2019	Human Resource Management Journal. Currently under revise and resubmit process.	High-involvement HRM, Job Satisfaction and Productivity: a Two Wave Longitudinal Study of a Spanish Retail Company.