Organizational cynicism: A study among call centers

by

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11-2004
Abstract

Psychological contract violation is the emotional precursor to the onset of organizational cynicism. Traditionally several demographical factors moderate this relationship. Previous studies included these factors as control variables, but not all of them. This study examines the moderation of all potential demographical variables between psychological contract violation and organizational cynicism. Results of an empirical study among call center employees suggest that demographical variables do not moderate this relationship. Except for the family variable, indicating the relational status of the interviewee, the demographical variables also did not influence organizational cynicism. However, three control variables (company, work type and answering location) did influence organizational cynicism. Interestingly, work type also moderated the relationship between psychological contract violation and organizational cynicism.
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3 Acknowledgements

The author wishes to thank first and foremost Mr. Fons Naus from the University of Maastricht for his cooperation and guidance in building this thesis. His expertise on the issue of organizational cynicism proved indispensable. Secondly, the author would like to thank the University of Maastricht for providing the necessary and excellent facilities for writing this thesis.

The author would also like to thank the following people who have greatly helped data collection through their personal network: Miss Fenna Hagen and Mr. Wouter Delken.
4 Introduction

Employees are often confronted with two opposing views of the working environment: on the one hand, they know their working environment from first-hand experience. They know the culture of the company, they know what their boss is like, they know how much money they make, and they know how much they like or dislike their job. On the other hand, they are confronted with the image that the company portrays or wants to portray to the outside world. For example, they might see an interview with the CEO of their firm on TV. They might see an article or advertisement about their company in the newspaper.

Many times, employees will find that their own views toward their company will not be fundamentally different from the official image. Nevertheless, for some employees, they will be very different. They may experience lay-offs, while hearing the CEO praise the company’s friendly employee policies. These employees will probably feel a sense of anger when they hear such a message. This paper is about these employees: employees that have lost confidence in their employer, that feel betrayed, angry and fearful. In short, these employees might suffer from an attitude called “organizational cynicism”.

When we think about these employees, many questions come to mind. Why do these employees feel the way they do? What happened to them? What do they feel exactly? Do some groups of employees feel this way more than other groups of employees?

The central question that this paper tries to answer is: how do demographical factors relate to organizational cynicism?

For example, are men more cynical than women are? Demographics will be split up into its components to see if some demographical variables might make more of a difference than others might. We will also try to find clusters of demographical groups that might influence organizational cynicism jointly. Demographics are not the cause of organizational cynicism (why would age create organizational cynicism?); rather, they might influence its effect on employees. Therefore, we also have to focus
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on the causes of organizational cynicism to assess the effect of demographics.

In the first part of this paper, we will explore the concept of organizational cynicism. Then, we will further elaborate the problem statement in several hypotheses. In the third section, we will test these hypotheses in a study among call center employees. Finally, we will draw the conclusions of the study. In the appendix, you can find a bibliography, the questionnaire used for the study, some data used for the study, and some additional information.
5 Organizational cynicism and demographics

The theoretical background on the relation between demographics and organizational cynicism (OC) is very slim. Certainly, no studies available today control for all the demographical variables that will be treated here: all of the previous studies use some subset of these variables. However, several researchers have controlled for some demographical variables in their study on OC.

Most of the studies that control for demographical variables found no significant effect of demographics on organizational cynicism. From a theoretical perspective, this seems logical because organizational cynicism is not supposed to be influenced by demographics: it is supposed to be created by events in the past. However, some demographical groups may be more susceptible to the causes of organizational cynicism than other groups. For example, it has been suggested that another workplace attitude, employee satisfaction, is distinctly influenced by age and tenure (Gibson & Klein, 1970). Therefore, we believe it is likely that certain clusters of employees might be differently influenced by organizational cynicism. After a discussion of the theoretical basis of organizational cynicism, we will discuss these clusters in more detail.

5.1 Organizational cynicism redefined

A plethora of definitions of organizational cynicism exists, but two are most influential. The first is (Dean, Brandes, & Dharwadkar, 1998):

“Organizational cynicism is a negative attitude toward one's employing organization, comprising three dimensions: 1) a belief that the organization lacks integrity; (2) negative affect towards the organization; and (3) tendencies to disparaging and critical behaviors toward the organization that are consistent with these beliefs and affect.” (p. 345)

Another influential definition of OC comes from Andersson (1996), who thinks that
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cynicism “… can be defined best as both a general and specific attitude, characterized by frustration, hopelessness, disillusionment, as well as contempt toward and distrust of a person, group, ideology, social convention, or institution.” (p. 1397-1398).

Unfortunately, these two definitions have some structural problems, which we will discuss in the next section. At the end a new definition will be formed. Nevertheless, these definitions do make one point clear: the most important element of OC is that it is an attitude. To avoid a circular reasoning (OC is an attitude, and it is not a behavior because it is an attitude), it should also be clear why OC is an attitude. An attitude represents (p. 28) “… a summary evaluation of a psychological object\(^1\) captured in such attribute dimensions as good-bad, harmful-beneficial, and likable-dislikable...” (Ajzen, 2001). Beliefs, on the other hand, are (p. 459) “… subjective judgments that objects (or ideas) exist and have certain attributes …” (Cicirelli, 1990).

In the most popular model on the relationship between belief and attitude, the “expectancy-value model” (Ajzen, 2001), beliefs are conceptualized as being mentally linked to certain standard attributes (see Figure 1). In case of a confrontation with a new attitude object, the mind compares the standard attributes with the actual attributes of the attitude object and tries to match comparable attributes. In this way, the mind can quickly associate several beliefs with the object. As explained before, an attitude is the summary evaluation of these beliefs. Then, the mind stores the attitude

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\(^1\) A psychological object can be anything the mind considers as such, including organizations or management, for example.
as a belief, but only if the attitude is important and frequent enough. As such, a belief is usually conceptualized as a precursor to an attitude. Other studies lend support to this conceptualization of OC as an attitude (Andersson, 1996).

The problem with the definitions of Andersson (1996) and Dean et. al. (1998) is that attitudes are normally not defined in terms of their consequences (i.e. behavior). They should also not be defined in terms of their affective components, like frustration, disillusionment, or hopelessness, because an attitude is supposed to be a “summary evaluation” (see previous discussion). Because a belief is a precursor or cause of an attitude, a belief (or disbelief) should also not be part of an attitude. Furthermore, the study of OC is in an exploratory research state (Wanous, Reichers, & Austin, 2000). This means that at this point, it is still unclear what the exact causes, components and effects of organizational cynicism are. To then restrict the definition of the attitude in terms of its consequences seems premature.

Organizational cynicism is best defined as an attitude of rejection of the employing organization, or parts of it, as a viable psychological contract partner. This minimalist definition answers all of the above problems with the two major definitions discussed before: it is not defined in terms of its behavioral consequences, or in terms of its precursors. Furthermore, it fits in the direct cause-and-effect framework proposed by Andersson (1996), where OC is caused by the violation of the psychological contract (as we will see later). Since the psychological contract is a belief (Andersson, 1996), it is logical that the rejection of the contract is the next step, i.e. an attitude. The “rejection” is also very much an action, and as we will see later, attitudes always have an action-component.

Most definitions of OC also include some reference to the emotions associated with OC, and these are not included in our definition. When it comes to the emotions or affective aspects of organizational cynicism such as disillusionment and anger, Ajzen (2001) argues that in the process whereby the mind compares the standard belief-attribute combinations with the attributes of the attitude object, both emotions and cognitions influence this process. The “storage” of the attitude as a belief is also influenced by both emotions and cognitions. While these emotions and cognitions are directly and strongly associated with the attitude of cynicism, it thus seems they are
not part of the attitude itself. Furthermore, this opens the possibility that people do not have the same emotions because of OC. Indeed, it seems unlikely that all people have the same emotional reactions from OC. This may depend on character, for example. In addition, it is likely that these emotions actually constitute psychological contract violation, because the psychological contract (which is broken in case of PCV) is a belief (see Figure 1).

This conceptualization of organizational cynicism as an attitude means that the rules that apply to attitudes also apply to OC. One of these rules is that an attitude is a part of a thought-action process (see Figure 2) that starts at a belief, and possibly ends in a behavior (Ajzen, 2001).

Many other factors moderate each of these relationships, but this is the basic structure. One important aspect of these influences is that they may be both of an emotional or a cognitive nature. Indeed, some authors (Dean et al., 1998) have argued that organizational cynicism can also be caused by a rational, accurate perception of the surrounding environment. These and other influences may very well stop the thought-action process before it leads to behavior, and in fact, most of the times it does (Ajzen, 2001). It should also be noted that a “value” is a specific type of belief (Ajzen, 2001), and is, as such, also included in this model. Since belief, behavior, intention and values are not a part of an attitude, they can also not be part of a definition of an attitude, as we argued earlier.

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2 For example, Ajzen (2001) suggests that both intention and behavior are also influenced by “perceived difficulty”, i.e. the decision to perform behavior is also influenced by how difficult we consider that behavior to be.

3 Values reflect “… widely shared and rarely questioned beliefs supported by a very limited cognitive foundation…” (Ajzen, 2001).
5.2 Organizational cynicism research

Originally cynicism comes from the ancient Greek word “kyon”, meaning “dog” (Dean et al., 1998). The earliest Greek cynics were people that held any societal institution in contempt. Humor was often used to criticize (then) modern institutions. They avoided luxury, institutions, and the state. These earliest cynics had cynicism as a deliberate philosophy, contrary to modern cynics, who are often more portrayed as victims of society (Kanter & Mirvis, 1989). What the ancient cynics and modern cynics have in common is hopelessness (Andersson, 1996): the ancient cynics were fighting a system (society) they could not beat and had no hope of doing so. Modern cynics have been made cynical by the way the system (their corporation) has treated them and equally have no hope of improvement. Both types of cynics also use humor to criticize their systems. People usually associate this cynical humor with the word cynicism. This is distinctly different from the attitude of cynicism.

The first modern studies into organizational cynicism were part of the historical research into personality characteristics in the 1940’s at the University of Minnesota. The “Minnesota Multiphasic Personality Inventory” or MMPI developed there served as the basis for the earliest cynicism scales, such as the Cook and Medley cynical hostility scale (Cook & Medley, 1954). These scales initially focused on aggression and hostility as a character trait (Turner & Valentine, 2001). Later on, the research into organizational cynicism focused more closely on cynicism as an attitude (Johnson & O'Leary-Kelly, 2003). The difference obviously lies in its persistency and stability.

The most modern research into the attitude of cynicism has revealed that cynicism may be a philosophy (like the ancient Greek cynics), but is not a stable character trait (Guastello & Rieke, 1992). It is also unrelated to another personality trait, negative affectivity (Wanous, Reichers, & Austin, 1994). Rather, there does seem to exist a character trait of “cynical hostility”, but this is not the same as the attitude of cynicism (Dean et al., 1998). Since this has profound consequences for the validity of the early measurement scales of cynicism, new scales have been developed that attempt to capture a belief in lack of integrity (Pugh, Skarlicki, & Passell, 2003). These “new” forms of cynicism are not only directed towards specific elements of the individual’s
environment, but are also created and influenced by the environment (Andersson, 1996).

This has led to a subdivision of cynicism into different forms of cynicism, each related to different parts of the environment, such as society as a whole or the employing organization. This research also gave birth to “organizational cynicism”. As we will explain later, this organizational cynicism is the umbrella term for all forms of cynicism directed toward the job and the employer. Each form will be discussed in the next section.

While the previous researchers focused on the measurement of cynicism, other researchers have tried to study cynicism in the context of other possible influences. Some have argued, for example, that organizational cynicism might be part of a continuum, with on one side cynicism, and on the other side altruism (Turner & Valentine, 2001), or trust (Pugh et al., 2003). However, many authors have argued in earlier literature that they are conceptually different (Andersson & Bateman, 1997).

In terms of the statistical differentiation of organizational cynicism versus other variables, studies have shown organizational cynicism to remain significant in comparisons. Job satisfaction (or job dissatisfaction) in particular is problematic, because it is caused mainly by the same factor, namely psychological contract violation or PCV (Turnley & Feldman, 2000). Studies have shown it to be distinguishable from OC both statistically (Reichers & Wanous, 1997) and conceptually (Andersson & Bateman, 1997).

Another problematic factor is trust. There are indications that because trust is a belief (Andersson & Bateman, 1997), and OC is an attitude, distrust might be a precursor to OC (see Figure 2). However, the relationships between belief and attitude are as complicated as they are extensive (Ajzen, 2001) and go far beyond the scope of this article. Andersson and Bateman (1997) also argue, much like Dean et al. (1998), that distrust is the belief-component of OC. Nevertheless, as we previously argued, a belief cannot possibly be part of the definition of an attitude and this possibility will not be considered further here.
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Often organizational commitment is also closely related to cynicism and job satisfaction, but it is statistically distinct from both job satisfaction (Turnley & Feldman, 2000) and cynicism (Turner & Valentine, 2001). In addition, in terms of cause-and-effect relationships in workplace attitudes and behaviors, it makes sense to differentiate the concepts because organizational commitment is most often classified as an outcome (i.e. as a behavior) rather than an attitude or a belief (Johnson & O'Leary-Kelly, 2003).

5.2.1 Forms of organizational cynicism in an attitude framework

All of the latest papers on OC argue that OC is an umbrella term for the five most popular forms of cynicism in the workplace (Dean et al., 1998). It is therefore our conception that they are not fundamentally different. They probably all overlap each other to some degree.

To research OC in organizations, a survey was done among employees of several call centers. For the purpose of our research, it is important that the organization researched somehow overlaps with all five forms of organizational cynicism: this will make sure that the attitude that is being studied is general enough to be called “organizational cynicism”. The alternative is that the discovered attitude is a specific form of OC, which will make it impossible to draw conclusions for the general form of OC (as previously explained).

In order to differentiate between all these concepts, it is necessary to return to the basic literature on attitudes and behaviors (Ajzen & Fishbein, 1977). In this literature, every attitude and behavior is assumed to have four dimensions: action, target, context and time. The different types of cynicism differ in at least one of these elements (see Table 1). The categorization of these types is directly used from Dean et al. (1998). The categorization of Andersson (1996) does not include a separate form of organizational change cynicism, but instead categorizes it as a sub form of “cynicism toward business organizations and leaders” (p. 1398). While this might be a good idea, CAOC has been present in research about organizational cynicism and deserves a separate place. The Andersson categorization also includes “police cynicism” (p. 1398), but this area of research has not received much attention lately. Andersson also
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includes “cynicism in social work” (p. 1398), but is the same as occupational cynicism in the overview below. The same goes for “cynical hostility” (p. 1399), which is similar to personality cynicism Societal or institutional cynicism does not appear in Andersson’s categorization, but is relevant because of it’s prevalence in research.

<table>
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<tr>
<th>Action</th>
<th>Target</th>
<th>Context</th>
<th>Time</th>
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<tbody>
<tr>
<td>CAOC</td>
<td>Disappointment, Pessimism</td>
<td>Change</td>
<td>Failed change</td>
</tr>
<tr>
<td>Employee</td>
<td>Bitterness, Frustration</td>
<td>Anything</td>
<td>PCV</td>
</tr>
<tr>
<td>Occupational</td>
<td>Detachment, Contempt</td>
<td>Customers</td>
<td>Service organizations</td>
</tr>
<tr>
<td>Personality</td>
<td>Bitterness, Anger</td>
<td>Human nature</td>
<td>Stable trait</td>
</tr>
<tr>
<td>Societal / Institutional</td>
<td>Estrangement, Despair</td>
<td>Institutions</td>
<td>Unstable</td>
</tr>
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Table 1: An overview of the different sub-forms of organizational cynicism.

5.2.1.1 Cynicism about organizational change (CAOC)

CAOC (Reichers & Wanous, 1997) is a form of OC, which is a reaction to perceived failed change in the organization. This does not only include changes that simply did not happen and left the organization as it was. It also includes failed changes that have made the organization worse off than before. Usually this is happening in a context where managers promise beforehand that the change will be to the advantage of the individual employee. If repeated enough, the employee will adjust her expectations to previous disappointments. This may create a self-fulfilling prophecy where employees no longer cooperate with change efforts, which in turn may fail because of lack of cooperation. CAOC is different from other forms of OC in that there is a certain dynamic in the causes of it. In terms of time, Reichers and Wanous (1997) suggest that the level of cynicism can be increased by the wrong policies, and decreased by the right policies. Therefore, we conclude that CAOC is unstable. It can also overlap with other forms of OC (Dean et al., 1998).

Organizational change is very much present in call centers. All of the call centers involved in the study had recent reorganizations involving lay-offs. All of the reorganizations were caused by an economic downturn.

Andersson (1996) describes cynicism in social work like this: “Cynicism as an attitudinal concomitant of burnout and expression of role conflict and role ambiguity is common in occupations that require caregiving as the major task responsibility.” (p. 1399).

Please note that the list of “actions” is not exhaustive.
5.2.1.2 Employee cynicism

Employee cynicism is the version of cynicism suggested by Andersson (1996). The definition of cynicism proposed by her (see the research review earlier) attempts to cover all possible areas of cynicism, including cynicism towards work (p.1397), police cynicism (1398) and CAOC (p.1400). Since its inception, this definition has been used simultaneously for organizational cynicism. The main contribution of Andersson is that she has proposed that organizational cynicism may be caused by psychological contract violation (PCV), which will be discussed later.

This form of cynicism is also applicable to call centers, because the telltale signs of employee cynicism, frustration, hopelessness and disillusionment, are a persistent problem for the managers of call centers. Employee cynicism is continually influenced by the context of the employee, and is thus unstable.

5.2.1.3 Occupational cynicism

This form of organizational cynicism has originated in the earliest studies into cynicism, namely police cynicism (Dean et al., 1998). In fact, it has been purported (Dean et al., 1998) to consist of “work cynicism” (what we now call occupational cynicism) and “organizational cynicism”. Work cynicism refers to the content of work, and organizational cynicism refers to the context of work (Naus, 2003). Occupational cynicism is now associated with service workers under role conflict and role ambiguity (Dean et al., 1998). This form of cynicism is also associated with the burnout.

Occupational cynicism also very much applies to call centers, because call center employees are continuously under performance pressure, combined with a need to service the customer well. This may lead to role conflict. Occupational cynicism may very well be unstable, but we found no literature to support this. However, there are indications that occupational cynicism is but one step in a learning process that in the end results in realism (Naus, 2003). This may indicate that it also may vary as the context changes.
5.2.1.4 **Personality cynicism**

Personality cynicism is the patho-psychological variant of OC. It is part of the Cook and Medley hostility scale (Cook & Medley, 1954). This stable trait is characterized by cynicism towards all human behavior (Abraham, 2000). While one could argue that this variant of cynicism does not belong to OC, it is possible that it will influence the general level of OC because personality cynicism will also be projected on human behavior in organizations.

It is very likely that this form of OC will also apply to call centers, since personality cynicism is present in a certain part of every population, and thus in the population researched.

5.2.1.5 **Societal / Institutional cynicism**

Societal or institutional cynicism is the form of OC where citizens of a country distrust their government and corporations (Kanter & Mirvis, 1989). This more general form of organizational cynicism somewhat overlaps with personality cynicism (Dean et al., 1998). Since Kanter and Mirvis also suggest (1989) that this form of cynicism can be managed, it must be unstable.

This form of cynicism may also very well penetrate the call centers, since Kanter and Mirvis seem to suggest (1989) it is very predominant in society.

A problem in the study of Kanter and Mirvis (1989) is that even toward an attitude object with the same specific attributes, people can have both positive and negative attitudes, or “attitudinal ambivalence” (Ajzen, 2001). This implies that a person may be cynical towards her boss, but may also admire her leadership for example. Apparently, the mind can “group” certain attributes of an attitude object and develop a certain attitude for this group, while ignoring the attributes that do not fit the attitude. This may mean that societal cynicism does not necessarily imply organizational cynicism. However, the condition of “attitudinal ambivalence” is unstable (Ajzen, 2001).

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6 Their research was in the U.S.A., and ours is in Europe.
5.2.2 Antecedents of OC

For our study we have determine the antecedents of OC in order to assess the effects of demographical variables. From previous studies we know that OC is caused by psychological contract violation (PCV) (Turnley & Feldman, 2000) and indirectly by psychological contract breach (PCB) (Johnson & O'Leary-Kelly, 2003). The difference between the violation and the breach is that the breach is the event itself, while the violation refers to the emotions that are the result of the breach (Turnley & Feldman, 2000). The contract might involve any “reciprocal obligation” (Andersson, 1996), from reasonable executive salaries to managerial competency. Although this has never been proven, it is presumed that the causality goes from PCV and PCB to OC, and not the other way around. The reason is that the reverse causality is unlikely, because the cynic typically has low expectations of such a contract, and hence will be harder to disappoint. Despite the closeness of the concepts of PCV and PCB, research has shown that they have discriminant validity when they are researched together (Johnson & O'Leary-Kelly, 2003).

5.2.2.1 Andersson’s (1996) contract violation framework

![Andersson's Contract Violation Framework](image)

Figure 3: Andersson’s (1996) contract violation framework

Beyond PCV, Andersson (1996) also proposes (but does not research) a more extended contract violation framework for the causes of OC, which is highly complex in terms of its inputs and moderators. A simplified version can be seen in Figure 3. What is relevant for this article is that one of the moderators is “demographics”. While this article specifically focuses on employee cynicism (a subform of

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7 The perceived psychological contract breach is caused by “reneging” or “incongruence”, see (Robinson & Morrison, 2000). Reneging refers to a purposeful neglect of the obligation by the employer. Incongruence is a misunderstanding about the existence and the nature of the obligation.

8 Because it is PCV, and not PCB that causes changes in beliefs and attitudes (Turnley and Feldman, 2000), we will not use PCB for the research.

9 Since the psychological contract is a belief (Johnson & O'Leary-Kelly, 2003), and the resulting violation are emotions (Turnley & Feldman, 2000), it is easy to see how the PCV-OC link fits in the Ajzen (2001) framework (see Figure 1).
organizational cynicism), it is unlikely that this framework is significantly different for the entirety of OC.

### 5.2.3 Consequences of OC

One of the conclusions of contemporary research into OC is that it can have severe consequences, for both the organization and the individual. The burnout is an example. For the organization, OC is usually associated with a range of negative consequences, such as lower organizational citizenship behavior or OCB (Dyne & Graham, 1994), lower motivation (Wanous et al., 1994), and emotional exhaustion (Maslach, 2001). Generally OC is not related to what is called “in-role job duties” (Turnley & Feldman, 2000), because it is assumed that the employee will want to avoid negative repercussions.

OC is also related to lower job satisfaction and higher job dissatisfaction (Abraham, 2000). However, these and other studies unfortunately do not include the classic contention that actually satisfaction and dissatisfaction are not opposites, but unrelated concepts (Herzberg, 1987), despite some general criticism (Ajzen, 2001). Organizational commitment is also negatively associated with OC (Abraham, 2000).

### 5.3 The researched model

![Figure 4: the proposed model]

- **Moderators:**
  - Demographics
    - Age
    - Children
    - Divorce
    - Education
    - Family status
    - Home country
    - Language
    - Race
    - Sex
    - Sexual orientation

- **Control variables:**
  - Income
  - Fill-in location
  - Tenure
  - Work type

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5.4 Psychological contract violation

It is generally acknowledged that OC is caused by PCV (Andersson, 1996). For our study, we will not research the causation between them, but only the relation. In order to assess the effects of demographical variables, the significance of the relationship between PCV and OC must first be tested.

Hypothesis 1: there is a positive relationship between PCV and OC.

5.5 Demographics

In several studies about cynicism, some demographical variables are used as control variables:

<table>
<thead>
<tr>
<th>Article</th>
<th>Age</th>
<th>Education</th>
<th>Family</th>
<th>Gender</th>
<th>Income</th>
<th>Occupation</th>
<th>Race</th>
<th>Salary type</th>
<th>Tenure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wanous et al. (1994)</td>
<td>☺</td>
<td>☺</td>
<td>☺</td>
<td>☺</td>
<td>☺</td>
<td>☺</td>
<td>☺</td>
<td>☺</td>
<td>☺</td>
</tr>
<tr>
<td>Mirvis et al. (1991)</td>
<td>☺</td>
<td>☺</td>
<td>☺</td>
<td>☺</td>
<td>☺</td>
<td>☺</td>
<td>☺</td>
<td>☺</td>
<td>☺</td>
</tr>
<tr>
<td>Andersson et al. (1997)</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
</tr>
<tr>
<td>Reichers et al. (1997)</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
</tr>
<tr>
<td>Wanous et al. (2000)</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
</tr>
<tr>
<td>Bateman et al. (1992)</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
<td>☼</td>
</tr>
</tbody>
</table>

Table 2: a sample of demographical variables in previous OC research

For this study, all of the above demographical variables will be used. However, we also included some other demographical variables that are normally used to describe

---

10 A study on the nature of the relationship between PCV and OC is beyond the purpose of this paper.

11 Please note that this article is about CAOC or Cynicism About Organizational Cynicism.

12 Please note that this article is about CAOC or Cynicism About Organizational Cynicism.
the demographics of a population. None of these demographical variables was ever used in OC research, as far as we can tell. All these variables are hypothesized to partly or fully moderate the relationship between PCV and OC.

- Age

Age is included in the regression, but is problematic because of its probable heavy interaction with the control variable “organizational tenure”. In advance, it is unclear what the exact relationship between age and tenure might be. We assume there might be a small positive correlation, because of the influence of “careers” on the data: some employees will follow a career at the same employer, and their tenure and age will increase in tandem. On the other hand, a call center has a very high employee turnover, which might deteriorate the relationship. In addition, previous research (Gibson & Klein, 1970) has shown that another attitude, satisfaction, is influenced positively by age, but negatively by tenure. These researchers hypothesized that perhaps satisfaction and age are positively related because older people might be milder than young people might. The authors also propose some reasons why this might be the case. Since satisfaction is a positive attitude, and OC is a negative attitude, we propose the opposite effect of what Gibson and Klein (1970) researched, namely a negative relationship between age and OC. Since PCV and OC are hypothesized to be positively related, this implies the following:

Hypothesis 2: age tends to weaken the relationship between PCV and OC.

- Education

Although the employees of the firm all do similar work, their education levels vary widely. The reason is that some are there to finance their studies, and others do the work long-term. We believe that those who are higher educated are more cynical, because their education is not necessary to do that work. This is despite the fact that previous research (Andersson & Bateman, 1997) suggests that there might not be an influence at all.

Hypothesis 3: education tends to strengthen the relationship between PCV and OC.
Organizational cynicism: a study among call centers

- Family life

Family-related demographical factors (“family life”) such as having children or being divorced can have an influence on mental and physical well being (Franks, Campbell, & Shields, 1992). The following hypotheses have been researched:

Hypothesis 4a: a more stable relationship will weaken the link between PCV and OC.
Hypothesis 4b: being divorced will strengthen the link between PCV and OC.
Hypothesis 4c: having children will reduce the link between PCV and OC.

- Gender

Several researchers have found no relationship between gender and OC. However, some did find that men are more cynical than women (Maslach, 2001) are. This is also confirmed in the Mirvis and Kanter (1989) study. In summary, we expect men to be more cynical than women.

Hypothesis 5: men experience a stronger PCV-OC link than women do.

- Income

While income is related to OC, it is heavily moderated by salary type (Wanous et al., 1994). Salary types include for example per-piece salary, hourly salary or fixed salary. It has been discovered that those who have a fixed, long-term contract with bonuses and benefits are most sensible to OC. The higher the element of performance-based pay is in someone’s salary, the lower the sensitivity to OC (Wanous, Reichers et al. 1994). It is presumed that since people with higher salaries have the most to lose, the can also be most disappointed and thus the most cynical. Income itself is thus probably strengthening the OC-PCV link.

Hypothesis 6: income strengthens the OC-PCV link.
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- Nationality

National background is assumed to have an influence as well. National cultures vary widely in their “programming” of their subjects, as we know from Hofstede (Hofstede, 1991). Thus, it might very well be the case that certain national cultures are more cynical than others are. In addition, there might be a natural selection effect: only the most ambitious and optimistic people will try to begin a new life in another country. Since research has shown OC to be negatively related to motivation (Andersson & Bateman, 1997), it is assumed that a foreign culture will have a net negative effect on the strength of the relationship between OC and PCV, with certain differences between countries of origin. The default nationality is Dutch.

Hypothesis 7: foreigners experience a weaker PCV-OC link than domestic persons do.

- Occupation

From previous studies there are only slim indications that employees higher in the hierarchy might experience less OC than lower employees (Kanter & Mirvis, 1989). From qualitative observations, we learned people at the bottom-end of the hierarchy at call centers have far less challenging and interesting work than employees only one level higher in the hierarchy. Because normally higher levels of responsibility are associated with higher levels of satisfaction (Meyer, 2000), employees with more responsibility might also experience less OC. Because there probably is a very large overlap between “occupation” and the control variable “work type”, this variable was not further researched.

- Race

It is unclear what the influence of race is on OC. A problem in this area is that any results might be contaminated by discrimination or racism by society. However, it seems intuitively logical to assume that non-white people will take a psychological contract violation more personal than other people will might.

Hypothesis 8: non-white people will experience a stronger PCV-OC link.
• Religiousness

The religiousness of the interviewed is assumed to be negatively related to OC. Religiousness might provide someone with hope and inspiration in her daily life. This questionnaire did not ask for “spirituality”. Without systematic evidence, it is assumed that too large a section of society is spiritual in some way. Religiousness is assumed to have a stronger and more permanent influence on someone’s state of mind.

Hypothesis 9: Religiousness will weaken the link between OC and PCV.

• Sexual orientation

Just like with race, sexual orientation might be contaminated by societal discrimination. There are no data that indicate the influence (if any) of sexual orientation on OC, thus we are left but with speculation. We believe that non-heterosexual employees are more cynical, because they are still very much discriminated against in society. It has been shown that people that perceive they are discriminated against create a buffer around the self-concept (Dion, 2002), similar to the buffer of cynicism.

Hypothesis 10: A non-heterosexual sexual orientation will strengthen the relationship between PCV and OC.

5.6 Control variables

The following variables have appeared in articles about OC as control variables:

• Organizational tenure

Tenure is strongly related to OC. The relationship is not linear; rather, it has an inverse U-shape (Niederhoffer, 1967): in the early years of someone’s career the initial idealism and optimism is replaced with OC. After a few years, this OC reaches

13 In earlier research, this was called “sexual preference”, but this has since become unfashionable, because “preference” might imply the possibility of choice in sexual orientation. Such a choice is unrealistic.
its peak. Then, as the individual becomes more experienced and more embedded in the organization, she is better able to deal with the inconsistencies between her beliefs and the beliefs of her environment. The employee then develops an “informed idealism”, whereby she again finds her previously lost idealism, but is now aware of the cynical environment she lives in. This variable is entered as a control variable because it is not part of the study for demographical patterns of OC.

• Dispositional factors

Andersson (1998) believes that other “dispositional” variables also moderate the relationship between de contract violation and the occurrence of employee cynicism, namely: self-esteem, locus of control, equity sensitivity, negative affectivity, Machiavellianism and work ethic. She also believes that the relationship is moderated by “group norms”. While we appreciate her theoretical contribution to this field, we did not study all these variables because of time constraints.

• Company

To control for the different attitudes that might exist at different companies, we must also control for company.

• Work type

Some work types might be more demanding than others might. Therefore, we also control for work type.

• Location

Potentially the answers to the questionnaire are influenced by where the employee answers the questionnaire. For example, her work environment might lead her to give less extreme answers than her home environment. Hence, we also ask the respondent where she is answering the questionnaire.
In summary, several hypotheses have been formulated that explain the framework of our study. In order to test our hypotheses, a study was performed among several call centers, and this study will be discussed in the next section.
6 Methods and analysis

6.1 Sample and procedure

To investigate the different relationships we want to study, we focused on call center employees. A call center is a company or part of a company designed to handle large amounts of phone calls. Sometimes the word contact or telephone is used instead of “call”. The “center” is sometimes replaced by central or centre. There is no commonly accepted definition. There are “in-house” and “support” call centers: the support call centers provide call center services to other companies. The in-house call centers only handle calls intended for the company it is part of. We chose call centers specifically because employees tend to be subject to role conflict: on the one hand, they have performance indicators that force them to make as many calls as possible, and on the other hand they have to help a client as good as possible. Role conflict is highly associated with OC (Dean., Brandes et al. 1989). Furthermore, employee turnover rates are in the top-5 of per-industry turnover rates\(^{14}\) in the USA. This might be an indication that employees tend to leave a call center job quicker than another job because they do not like the job.

6.1.1 Proposition to the call center employee

A questionnaire\(^{15}\) was put on the Internet that allowed the respondents to remain anonymous\(^{16}\). The answers were saved directly in a database on the webpage. The questionnaire was originally set up in the English language, but had to be translated to Dutch in order for the employees to understand it. Several dictionaries were used to ascertain a correct translation. A hidden variable logged which language the respondent had chosen. The beginning of the questionnaire tries to assure the respondent that answering the questionnaire is beneficial to call center employees in general. Furthermore, she is assured that while the results have to be reported back to management, this will not be employee-specific.

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\(^{15}\) See the appendix for the full questionnaire.

\(^{16}\) The original webpage will remain online for some time at [http://www.student.unimaas.nl/mp.delken/callcenter](http://www.student.unimaas.nl/mp.delken/callcenter). The answers will be saved, but will not be used in the research.
In the end, 60 questionnaires were collected. Only 39 were usable, because 21 questionnaires were used as test-questionnaires\textsuperscript{17}. The average age of the respondent was 24.7 years, the average tenure was 18.1 months, and 41\% were female.

### 6.1.2 Proposition to the company

Initially five large call centers were approached. First, they were contacted by telephone, later more information was sent via e-mail to the appropriate person, including a formal proposal and request for research. All of the e-mails were delivered and read\textsuperscript{18}.

The proposition to the companies during the study includes:

- Assurances that the results will not refer to specific companies.
- A promise of a company-specific report that compares the company to all other companies in the study.
- A promise of a general report, including a “managerial implications”-section.
- A request to use the results of the questionnaire not to the detriment of the employee.

Only one of the five firms actively sent e-mail back to the researcher (which was a rejection of the proposal). One week later, the contact persons were contacted again through telephone. None of the call centers was willing to cooperate in the study. After this initial disappointment, all call centers listed in the telephone book in the Netherlands were called. A random selection of call centers from all over the world was also selected from the Internet and e-mail was sent to their public e-mail address. This included some of the largest call centers in the world. Since only three persons answered the English version of the questionnaire, we assume that there has been no response from this e-mail.

\textsuperscript{17} It was indicated on the questionnaire that the respondent could “test” the questionnaire by filling in “test” in the box reserved for the name of the call center.

\textsuperscript{18} Current e-mail technology allows asking for a “read-receipt” and a “delivery-receipt”. The recipient may choose to allow the receipt not to be sent, even if the e-mail was read or delivered.
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Because of this lack of cooperation, the researchers started to spread the address of the website informally as well, in several ways:

- The researchers asked friends, acquaintances and family that work in a call center to answer the questionnaire.
- Four temporary employment agencies that recruited call center employees were asked to cooperate. One of them agreed to cooperate and sent all 281 call center employees an SMS\(^{19}\) with an invitation to answer the questionnaire. The Internet address was also in the SMS.
- Several notices were published on message boards in and around known student areas such as the University Library and Faculty building. Students could rip off a small part of the A4 paper with the Internet address of the questionnaire on it.
- On the Internet, several messages were posted on popular call center forums. Managers mainly use these forums, and we have no reason to assume they passed on the Internet address to their employees.
- We also posted some messages on electronic message boards of the University of the researchers. Since very few students use them, we expected only very little response from that.

### 6.2 Measures

The first part of the questionnaire asks the respondent for demographic information. The questions were not randomized to ensure a slow build-up of the sensitivity of the questions, compared to starting with a question about sexual orientation for example\(^{20}\). There were nominal (e.g. gender) and ratio (e.g. income) variables only; there were no interval or ordinal variables. In some of the questions, the interviewee had to fill in the answer herself (e.g. income). The second part of the questionnaire asks the respondent for her opinion on certain statements. She can answer by marking a 1 (strongly disagree), a 2 (disagree), a 3 (neutral), a 4 (agree) or a 5 (strongly agree).

\(^{19}\) A “Short Message Service” or SMS is a service available on most modern mobile phones that allows the user to send a short text message to another mobile phone.

\(^{20}\) This is common practice in social psychology questionnaires.
Thus, they are all ordinal measures\(^{21}\). All the questions in the second part of the questionnaire were randomized. The respondent can skip a question simply by not answering it.

### 6.2.1 Dependent variable

To measure the dependant variable organizational cynicism we used five questions used by Pugh et al. (2003). These in turn are based on Dean et al. (1998). Two of the five questions were reverse-coded. A Cronbach’s alpha of 0.85 has been reported in the past for this factor (Chrobot-Mason, 2003), our study revealed an alpha of 0.89. They include questions like “My company expects one thing of its employees, but rewards another” and “My company’s policies, goals and practices seem to have little in common”\(^{22}\).

### 6.2.2 Independent variables

- Psychological contract violation

To measure psychological contract violation, we used four questions that have shown to be highly significant in a previous research (Robinson & Morrison, 2000). They include questions like “I feel frustrated by how I have been treated by my organization” and “I feel betrayed by my organization”. Two of the questions were reverse-coded.

### 6.2.3 Demographics

- Age

Respondents could fill in their age in a box. Age was not categorized, but directly entered into the statistical program.

\(^{21}\) [http://web.uccs.edu/lbecker/SPSS/scalemeas.htm](http://web.uccs.edu/lbecker/SPSS/scalemeas.htm).

\(^{22}\) Please see the appendix for the full questionnaire.
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- **Education**

To measure the education level of the respondents we used three measures that we planned to integrate into one variable later on using factor analysis. According to UNESCO’s\(^{23}\) latest version of the International Standard Classification of Education (ISCED97)\(^{24}\), our three-way measurement is a reliable proxy for “education”\(^{25}\). The ISCED97 classification allows the comparison of education levels from different education systems and was designed to compare the state of education internationally. This is relevant for this study because some of the respondents might not have been educated in the Netherlands. The same classification mentions that without each of these three measurements, education cannot be properly measured. This was the justification for using factor analysis. Concerning the three measures, the respondent had to fill firstly in herself the total amount of years of education after primary school. Secondly, the respondent had to choose a level of secondary education (low, middle or high) she participated in. Thirdly, the respondent could choose a level of tertiary education (lower professional, middle professional, high professional or academic). A section on post-tertiary education was not included. It was assumed beforehand that all respondents had some form of primary school, since all countries in the EU (of which most of the respondents were expected to originate) have primary school enrollment rates that hover around 100% of the population\(^{26}\). This was the only question in the questionnaire where the respondent could mark multiple answers per section.

- **Family life**

Family-related demographical variables (renamed to “family life” for convenience) might influence the state of mind of the individual in three ways: through the type of relationship (e.g. marriage), through children and through a divorce. We did not measure aspects of the family in a broader way (e.g. parents of the interviewed), because we found the quality of those relationships too hard to quantify. We divide the type of relationship in three categories: single, girlfriend / boyfriend or married / engaged. Furthermore, we ask the individual if she has ever been divorced and if she

\(^{23}\) United Nations Educational, Scientific and Cultural Organization.

\(^{24}\) The 1997 version is the improved and latest version of the initial 1976 standard.

\(^{25}\) “Education” is notoriously difficult to measure across different education systems. There are even problems with the definition of the concept. For a more elaborate discussion, see (UIS, 1997)

\(^{26}\) This applies to the EU at the time of writing.
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has any children, and if so how many. Obviously, the issue of whether you can actually meet your own children may also be relevant, but this proved too hard to quantify given the complex child guardianship arrangements that exist today.

- Income

To measure income the respondent is asked to fill in her approximate gross monthly income in euros from the job in question. In the question, it is reiterated that an approximate amount will suffice, this to take away any possible suggestion that the respondent has to look this up and calculate it from her personal files\textsuperscript{27}.

- Nationality

Since the effects of nationality on the attitudes of an individual can only take effect after extended exposure (Ajzen, 2001), we asked the respondents what they “consider” their nationality, rather than what is their actual nationality. Although there are several problems with such an operationalization\textsuperscript{28}, it has one critical benefit: it amplifies the attitudinal link to their nationality. They had to fill their considered nationality in themselves in a box, since a complete country listing was undesirable in terms of presentation of the questionnaire.

- Race

The respondent was asked what she would “consider” her race. We did not ask for her actual race, because it is very likely that some people will not know what race they belong to if they have a mixed racial background. Furthermore, the consideration of the race might amplify the relationship between attitude and race, because the opinion of the race will be mentally closer to attitudes than the factual race.

- Religiousness

The respondent is asked whether she is “actively” religious. The “actively” was added in contrast with passively religious.

\textsuperscript{27} Such a situation could have lowered the response rate.

\textsuperscript{28} For example, someone might have been brought up in several countries and thus received several cultural influences on her attitudes.
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- Sexual orientation

We gave respondents a choice between “heterosexual”, “homosexual” and “bisexual”.

6.2.4 Control variables

- Tenure

In order to measure organizational tenure, we asked the respondent to indicate in a box how many months she works in her call center. We chose months and not years, because we suspected that the high employee turnover would result in shorter employment times.

- Company

In order to control for inter-company differences, the last question in the questionnaire asks the respondent what company she works for. As previously explained, the companies are assured that the results of the questionnaire do not mention company names.

- Work type

The respondent could choose inbound, outbound, management and “other”. According to the manager of one of the call centers, this classification accurately and sufficiently reflects the different tasks in the call centre. This was confirmed by one of the employees of one of the temporary employment agencies.

- Location

To measure the location where the respondent is answering the questionnaire, we ask her to choose between “at home”, “at work” or “other”.

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In summary, the organization of the study has been defined through a study location and measures for each variable. In the next section, we will discuss the results of this study.
## 7 Results

Below is a short overview of the demographical variables, sorted by valid N.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Scale</th>
<th>Choices</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Valid N(^{29})</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Ratio</td>
<td>Pos. integer</td>
<td>27.72</td>
<td>7.23</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Children</td>
<td>Ratio</td>
<td>Pos. integer</td>
<td>0.23</td>
<td>0.67</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>Nominal</td>
<td>1 Yes 2 No</td>
<td>1.97</td>
<td>0.16</td>
<td>39</td>
<td>Deleted</td>
</tr>
<tr>
<td>Family</td>
<td>Nominal</td>
<td>1 Single 2 Boy-/girlfriend 3 Engaged/Married</td>
<td>1.56</td>
<td>0.68</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td>Nominal</td>
<td>1 Dutch 2 English</td>
<td>1.08</td>
<td>0.27</td>
<td>39</td>
<td>Deleted</td>
</tr>
<tr>
<td>Religiousness</td>
<td>Nominal</td>
<td>1 Yes 2 No</td>
<td>1.87</td>
<td>0.34</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>Nominal</td>
<td>1 Male 2 Female</td>
<td>1.41</td>
<td>0.50</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Country</td>
<td>Nominal</td>
<td>1 Other 2 NL</td>
<td>1.81</td>
<td>0.39</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>Nominal</td>
<td>1 Caucasian 2 Other</td>
<td>1.05</td>
<td>0.23</td>
<td>38</td>
<td>Deleted</td>
</tr>
<tr>
<td>Sexual orientation</td>
<td>Nominal</td>
<td>1 Heterosexual 2 Homosexual 3 Bisexual</td>
<td>1.08</td>
<td>0.36</td>
<td>38</td>
<td>Deleted</td>
</tr>
<tr>
<td>Income</td>
<td>Ratio</td>
<td>Pos. integer</td>
<td>921</td>
<td>996</td>
<td>37</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: overview of the demographical variables

Because there are too many variables (31\(^{30}\)) compared to the number of cases (39), the number of variables has to be seriously reduced, preferably to seven or eight\(^{31}\). To this end, we will first have to delete the individual variables that are not relevant. This is

---

\(^{29}\)Pairwise deletion was used for missing data.

\(^{30}\)Thirty questions and one hidden variable logging the chosen questionnaire language.

\(^{31}\)“As a general rule, the minimum is to have at least five times as many observations as there are variables to be analyzed…” p. 98-99, (Hair, Anderson, Tatham, & Black, 1998)
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described in the next section. After that, we will try to find if we can further reduce the number of variables by way of factor analysis.

7.1 Data analysis

The variable for lower secondary education had to be dropped because only one person marked this. The same goes for lower tertiary education with only two answers. The Country variable had to be split into two categories, one for the Netherlands and one for “Other”, because no single country other than the Netherlands had more than one hit. The “Divorced”-variable also had to be dropped because only one person answered this. Unfortunately, the “Race”- and “Sexual orientation”-variables also had to be dropped because only two persons answered to the affirmative for both. We also subjected the “language” variable (indicating the language of the chosen questionnaire) to a student’s t-test to see if the mean was anything different from “Dutch”. With a t of 1.780, this test resulted in a significance of 0.166. Therefore the variable was dropped. As a result, hypotheses 10 (race) and 12 (sexual orientation) could not be researched. Hypothesis 6b (divorced) could also not be researched.

The computer-generated variables were also all dropped. The “user”-variable (designed to log the username of the interviewee) was dropped because no username was logged, probably due to some technical problem. The “IP”-variable (designed to log the IP-address32 of the interviewee) was dropped because it sometimes contradicted the “Location”-variable. Normally, companies have one single IP-address for Internet use of its employees. Every IP-address appearing more than one time in the database was “whoised”33 to establish the owner of the IP. For every company in the database we were thus able to establish the “At work” IP-address. However, sometimes the interviewee indicated she was at home, and still had a company IP-address, or vice versa. We assume that this confusion might come from a misunderstanding about the terms “at work”: some people might be working at home,

32 The “Internet Protocol”-address of every computer on the Internet is a unique number, designed in order for other computers and computer users to be able to find the computer on the Internet. For example, the IP-address of the server that hosts this OC-questionnaire is 137.120.1.1.
33 A “whois”-query (from “who is”) is any query that returns key information about the owner of any IP-address upon providing the IP-address. Normally this query is done on the RIPE (“Réseaux IP Européens”), -database, the central database for every IP-address in Europe (www.ripe.net).
or might be at a second job, other than the call center job. Since the perception of the location is more closely related to the attitude than the factual location (see the discussions on race and sexual orientation), we deleted the IP-variable. The “Browser”-variable (indicating the name of the internet browser used by the interviewee at the time of answering the questionnaire) was dropped because everyone except one of the interviewees used Microsoft Internet Explorer\textsuperscript{34}. The “Timestamp”-variable (logging the date and time of clicking the “Submit”-button on the questionnaire) was dropped because we found no benefit in it, in light of the required parsimony in variables. For the same reason, the “ID”-variable (logging the row number of the questionnaire in the database) was deleted.

The “Age”-variable showed such an abnormal distribution that it was impossible to transform it to a normal distribution. While categorizing age into two categories (older or younger than 30) seemed most obvious, this solution was highly undesirable because there were only four people in the above-30 category. Furthermore, age was considered too valuable for such amounts of information to be lost. Since we know that different contract types probably cause the split in age, the final regression might filter out this split.

Tenure (operationalized as “months”, meaning the number of months the interviewee had worked at that call center so far) was equally problematic as age: there appeared to be a clear split in the middle between young people who work at the call center shortly, and people working there for a longer period. After consultation with one of the temporary employment agencies, it became clear that there is a legal reason behind this: call centers can employ a person for a maximum of three years (36 months) on a temporary basis, after which time they have to be offered a permanent contract. This permanent contract is both more expensive and less flexible compared to a temporary contract. Anecdotal stories of the interviewees also confirmed that all lower call center employees are let go after three years. Just like with age, it is most obvious to split tenure into two parts, and again we consider tenure too valuable. Again, we assume that another variable is responsible for this split, namely contract type.

\textsuperscript{34} One computer-generated answer did not give a browser name.
The “Postprimary”-variable (the number of years of education after primary school) had one clear outlier: a person indicating he had only one year of education after primary school, despite also indicating he finished or was working on a tertiary indicating. Assuming he is from Holland (he indicated he identified most with Holland), that implies that he must have had at least 4 years of secondary education. The distribution is neither visually nor statistically (a Shapiro-Wilks significance of 0.167) normal, but makes sense because a finished secondary and tertiary education in Holland accounts for 10 years of education, approximating the mean of the variable (9.8). The variable was therefore not transformed.

### 7.2 Factor analyses

In this section, we first have to create the individual variables OC, PCV and Education from the multiple underlying questions using factor analysis. Afterwards, we will perform several regressions to test our hypotheses, using these new variables. Firstly, we will explain the different statistical tests that we might use.

Normally, factor analyses are done simply by adding the scores of the different questions and then to divide them by the number of questions. However, this method is inferior to normal factor analysis because the last method weighs the different questions in such a way that they optimally fit the underlying dimension. In that sense, adding the different scores and dividing them by the number of questions is a special case of factor analysis where the weights are restricted to –1, 0 and 1. The major advantage of using optimal scaling is that not only the variables have different weights; the answers to each variable are also weighted. Therefore, normal factor analysis is a special case of factor analysis with optimal scaling. Adding the scores of the questions in fact makes a faulty assumption: that the variables have a numerical (ratio) or interval scale. Of course, a Likert-scale, as used in our questionnaire, is not a numerical variable, but an ordinal variable. Categorical factor analysis does not assume the ratio scale. Rather, it is possible to specify the scale of the variable.

To illustrate with an example, if a variable is categorized as “nominal”, in categorical factor analysis with optimal scaling, the factor calculation will shuffle the answers to
the question (for example single, boy-/girlfriend, and married/engaged in the family status variable) until a good fit is reached. It will then also assign weights to each answer to fit the factor optimally. Obviously, the solution is also much more elegant because each nominal variable does not have to be split into several dummy variables, making the regression model longer. In short, the factor calculation takes the liberty of fully exploiting the characteristics of ordinal and nominal variables.

In the appendix is an overview of the different transformations applied to the variables OC, PCV and Education. All three variables were square-rooted to ensure maximum normality. Non-normality is a common problem in statistical analysis with few cases. Next, these variables are discussed separately.

All five OC questions had Shapiro-Wilks tests for normality indicating they were all non-normal\[35\]. Categorical principal components analysis\[36\] of the Organizational Cynicism construct revealed that question 24 (“My company expects one thing of its employees, but rewards another”) had to be dropped, because its component loading was only 0.466, compared to ratios higher than 0.8 for the other four questions. Cronbach’s alpha also improved from 85.4% to 89.1% by dropping question 4. The OC construct

\[35\] Please note that for studies with relatively few cases, non-normality is a very serious problem.

\[36\] Varimax rotation was used.
showed an unsatisfactory Shapiro-Wilks test significance for normality of 0.023. After taking the square root, this improved to 0.395. We also tested taking the log, but this worsened matters. As can be seen in the overview in the appendix, taking the summated scale instead of the factor-scale would also be a bad decision. However, the summated scale (adding up the variables and then dividing by four) does shine a light on the level of OC (see Figure 5\textsuperscript{37}). It seems most people are not cynical. Nevertheless, because the distribution has a fat tail on the right, there must be a small group that is extremely cynical. It also seems no group feels no cynicism whatsoever.

All four questions on Psychological Contract Violation also did not pass the Shapiro-Wilks tests for normality. Categorical principal components analysis with varimax rotation revealed a sufficient alpha of 86.1\%. All component loadings were acceptable. After taking the square root, the Shapiro-Wilks test significance was 0.047. The histogram of the summated scale shows that relatively few people experience PCV\textsuperscript{38}.

Regarding education, an initial factor analysis quickly showed large communalities between all the education variables, except “Tertiary Education High”\textsuperscript{39}. Because the education questions asked for educations the interviewee was working on or had finished, it was unclear what the finished educations of the interviewee were. This might be important for operationalizing education. For that reason, four new variables were created indicating the different “tracks” of education: Education Low for marked secondary lower and tertiary lower education, Education Middle for marked secondary middle and tertiary middle education, Education High for marked secondary higher and tertiary higher education, and Education Academic for marked secondary higher and tertiary

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|}
\hline
\textbf{Dimension} & \textbf{Factor Loadings} \\
\hline
1 & - .850 \\
Secondary Education Middle & -.850 \\
Secondary Education High & .768 \\
Tertiary Education Middle & -.818 \\
Tertiary Education Academic & .887 \\
Education Middle Track & -.825 \\
Education Academic Track & .887 \\
\hline
\end{tabular}
\caption{component loadings Education}
\end{table}

\textsuperscript{37} Since the summated scale averages out the Likert-scale of our questionnaire, this OC scale runs from 1 to 5.
\textsuperscript{38} This scale also runs from 1 to 5.
\textsuperscript{39} Please note that all the variables relating to lower education were previously deleted.
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academic education. An adapted factor analysis\(^40\) was performed on these ten education variables (the secondary lower and tertiary lower education were previously deleted). Variables with low factor loadings were consecutively removed until an optimal solution was found with 6 out of 10 variables\(^41\). The solution had an Alpha of 91.7% and an eigenvalue of 4.24, explaining 70.59% of the variance. The second-best

### Table 5: overview of non-demographical variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Scale</th>
<th>Choices</th>
<th>Mean</th>
<th>St. Dev</th>
<th>Shapiro-Wilks</th>
<th>Valid N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company</td>
<td>Nominal</td>
<td>1 Company A – 5 Other</td>
<td>3.6</td>
<td>1.2</td>
<td>0.000</td>
<td>38</td>
</tr>
<tr>
<td>Contract</td>
<td>Nominal</td>
<td>1 Full-time 2 Part-time 3 Partly(^42) retired</td>
<td>2.03</td>
<td>0.63</td>
<td>0.000</td>
<td>39</td>
</tr>
<tr>
<td>Education</td>
<td>Interval(^43)</td>
<td>-</td>
<td>1.67</td>
<td>0.34</td>
<td>0.000</td>
<td>39</td>
</tr>
<tr>
<td>Location</td>
<td>Nominal</td>
<td>1 At home 2 At work 3 Other</td>
<td>1.64</td>
<td>0.67</td>
<td>0.000</td>
<td>39</td>
</tr>
<tr>
<td>Months</td>
<td>Ratio</td>
<td>Pos. integer</td>
<td>18.1</td>
<td>20.18</td>
<td>0.000</td>
<td>39</td>
</tr>
<tr>
<td>OC</td>
<td>Interval</td>
<td>-</td>
<td>1.56</td>
<td>0.31</td>
<td>0.395</td>
<td>38</td>
</tr>
<tr>
<td>PCV</td>
<td>Interval</td>
<td>-</td>
<td>1.48</td>
<td>0.32</td>
<td>0.047</td>
<td>38</td>
</tr>
<tr>
<td>Work</td>
<td>Nominal</td>
<td>1 Inbound 2 Outbound 3 Management 4 Other</td>
<td>1.7</td>
<td>0.87</td>
<td>0.000</td>
<td>38</td>
</tr>
</tbody>
</table>

*Table 5: overview of non-demographical variables*

Again, the square root was taken to improve normality. As you can see in the factor loadings (Table 4), Education measures positively, meaning a higher score on the Education variable means a higher education. However, because the lower education

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\(^{40}\) CatCPA or Categorical Principal Components Analysis. This technique is a factor analysis adapted to cope with categorical variables. Linear factor analysis and linear regression are incapable of handling categorical variables.

\(^{41}\) Included: Secondary Education Middle, Secondary Education High, Tertiary Education Middle, Tertiary Education Academic, Education Middle (track), and Education Academic (track). Excluded: Postprimary, Tertiary Education High, Education Low (track), and Education High (track).

\(^{42}\) Nobody marked the “Other” category.

\(^{43}\) It may seem odd to the attentive reader that an initially ordinal scale has somehow been transformed into an interval scale. However, please remember that the method with which the Education, OC, and PCV variables have been created, categorical principal components analysis with optimal scaling, modifies the distance between answers to optimally fit the solution. The method thus also defines these distances.
variables had to be dropped, any conclusions regarding education can only be made for the middle, high and academic education levels.

Below is the correlation matrix of the study. All variables whose correlation with other variables would have meant nothing (like the company variable) are excluded.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Sex</td>
<td>-0.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Country</td>
<td>-0.02</td>
<td>0.27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Children</td>
<td>0.74**</td>
<td>-0.05</td>
<td>-0.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Religiousness</td>
<td>-0.26</td>
<td>0.01</td>
<td>0.28*</td>
<td>-0.45**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Income</td>
<td>0.43**</td>
<td>-0.29*</td>
<td>-0.12</td>
<td>0.49**</td>
<td>0.22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Tenure</td>
<td>0.44**</td>
<td>-0.33*</td>
<td>0.04</td>
<td>0.29*</td>
<td>0.13</td>
<td>0.33*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Education</td>
<td>-0.23</td>
<td>-0.16</td>
<td>0.24</td>
<td>-0.38**</td>
<td>0.13</td>
<td>0.00</td>
<td>0.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. OC</td>
<td>0.09</td>
<td>0.25</td>
<td>-0.10</td>
<td>0.09</td>
<td>-0.03</td>
<td>-0.16</td>
<td>0.09</td>
<td>-0.29*</td>
<td></td>
</tr>
<tr>
<td>10. PCV</td>
<td>0.14</td>
<td>0.12</td>
<td>-0.11</td>
<td>0.13</td>
<td>-0.21</td>
<td>-0.34*</td>
<td>0.03</td>
<td>-0.23</td>
<td>0.62**</td>
</tr>
</tbody>
</table>

* p < 0.05; ** p < 0.01

Table 6: correlation matrix

Next, several categorical regressions were run, testing several models. All the categorical regressions were run using optimal scaling. The difference between categorical regression with optimal scaling and normal linear regression is substantial. Just like with factor analysis, the problem is that normal regression assumes that the variables all have a ratio scale. Unfortunately, our model has several nominal variables. Normally this would be solved by using dummy variables for each category of the nominal variable, but this method excludes the possibility of optimal scaling. For example, if we regress with a dummy variable using conventional linear regression, the dummy variable receives only one weight: the beta. The advantage of optimal scaling is that it can give the zero more weight than the one, for example. This is perfectly acceptable because the dummy variable itself is also a nominal variable (which also puts the acceptability of using it in a linear regression in doubt). The optimal scaling method can therefore take the liberty of modifying the distance between 0 and 1, because the distance between 0 and 1 means nothing in nominal variables anyway.
Through several steps, the final model was build. Next is a short overview of these different models (Table 7).

<table>
<thead>
<tr>
<th>Model</th>
<th>Deleted before</th>
<th>Missing variable method</th>
<th>Variables</th>
<th>Deleted after</th>
<th>R²-Adj.</th>
<th>F (sig.)</th>
<th>Valid N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Exclude</td>
<td>14</td>
<td>9</td>
<td>4.9%</td>
<td>1.079 (0.462)</td>
<td>35</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>Exclude</td>
<td>5</td>
<td></td>
<td>30.4%</td>
<td>2.309 (0.039)</td>
<td>37</td>
</tr>
</tbody>
</table>

Table 7: model comparison

The model with all the researched variables (model 1⁴⁵) showed the model had to be improved. Variables with a significance of the F-test higher than 5% were consecutively removed, each time starting with the highest value. After each deletion the regression was done again because the optimal scaling method will adapt the weights to the regression.

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Standardized Coefficients</th>
<th>df</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beta</td>
<td>Std. Error</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company</td>
<td>0.628</td>
<td>0.233</td>
<td>4</td>
<td>7.271</td>
</tr>
<tr>
<td>Family</td>
<td>0.576</td>
<td>0.224</td>
<td>2</td>
<td>6.595</td>
</tr>
<tr>
<td>PCV</td>
<td>0.448</td>
<td>0.182</td>
<td>1</td>
<td>8.170</td>
</tr>
<tr>
<td>Location</td>
<td>0.377</td>
<td>0.182</td>
<td>2</td>
<td>4.274</td>
</tr>
<tr>
<td>Work type</td>
<td>0.294</td>
<td>0.160</td>
<td>3</td>
<td>3.377</td>
</tr>
</tbody>
</table>

Table 8: regression (dependent variable OC)

⁴⁴ Excluding the dependant variable OC.
⁴⁵ Notice that there is no constant in the categorical regression. This is because all the interval and ratio variables (including the dependant variable OC) are transformed in such a way that this is not necessary.
In the end, nine variables had to be deleted until the model itself showed an F-test with a significance of 5%, the minimum threshold. That means that all the hypotheses relating to these nine variables are not supported: hypotheses 2 (age), 3 (education), 4c (children), 5 (sex), 6 (income), 7 (country) and 9 (religiousness). The control variables tenure and contract type also had to be deleted. Since all remaining variables had an F-significance below 5% (see table), no variable had to be deleted afterwards.

Because Family, Company, Location and Work Type are nominal variables, the categories are changed to optimally fit the regression. In the family variable, the “single”-category had the highest OC value, followed closely by the girl-/boyfriend category. The engaged/married category showed a far lower value of OC. This supports hypothesis 4a. The categories of the control variables were also given different weights, but will not be discussed. PCV showed the predicted relationship with OC, supporting hypothesis 1. Fortunately, this regression has six variables, less than the maximum number of variables of 7 to 8 that was previously discussed.

### 7.3 Moderation

As can be seen in the original model, all demographical variables were hypothesized to moderate the relationship between PCV and OC. Because Family is the only demographical variable in the regression (the rest is control variables), this is the only variable we have to use a moderation test for. Therefore, a moderation test also has to be performed.

The test performed is the “product method”, or hierarchical multiple regression. The Family and PCV variables are multiplied to create a new “PCV-Family Interaction”-variable. The proper way to perform this analysis is by comparing the regression model before the interaction variable is entered and after. The interaction variable itself does not have to be significant: as long as the overall model improves...
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In terms of $R^2$ and $F$, it can stay in the equation (Cohen and Cohen 1983). The value of the interaction variable itself is meaningless, unless the two variables that interact have the same statistical properties, which is not the case in our model\textsuperscript{49}. Because of this, replacing one or both of the interacting variables with the interaction variable is not a statistically sound method (see Cohen and Cohen 1983 for a full review). Model 1 (see Table 9) is the initial model with Family, PCV, and without the interaction variable. After introduction of the interaction variable, the model worsens (model 2)\textsuperscript{50}, as can be seen from the values for Overall $F$, $R^2$ and $R^2$-Adj. Model 3 is a model without PCV. This model is also worse than the first model. However, the interaction variable has become significant, compared to model 1. The reason behind this is that the interaction variable will take over part of the variance of PCV. After all, the interaction variable is the product of PCV and Family. Model 4 is a model with only the interaction variable, but this model is also worse. Combined with the fact that the interaction variable is insignificant in model 2, the conclusion is that there is no interaction. So hypothesis 4a is not supported. It also means that Family must have an independent influence on OC.

\begin{table}[h]
\centering
\begin{tabular}{|c|cccc|cccc|cccc|}
\hline
 & \multicolumn{4}{c|}{Regression} & \multicolumn{4}{c|}{F} & \multicolumn{4}{c|}{Sig} \\
 & 1 & 2 & 3 & 4 & 1 & 2 & 3 & 4 & 1 & 2 & 3 & 4 \\
\hline
Family & 0.58 & -0.99 & 0.30 & 6.60 & 4.56 & 3.31 & 0.01 & 0.02 & 0.05 \\
PCV & 0.45 & 0.85 & 8.17 & 4.66 & 0.01 & 0.04 & & & & \\
\hline
Interaction & -0.68 & 0.67 & 0.69 & 1.20 & 18.25 & 19.27 & 0.28 & 0.00 & 0.00 \\
\hline
Overall $F$ & 2.31 & 2.12 & 2.13 & 2.21 & (0.04) & (0.06) & (0.06) & (0.05) & & & & \\
(sig.) & & & & & & & & & & & & \\
\hline
$R^2$ & 53.6\% & 54.5\% & 51.5\% & 45.9\% & & & & & & & & \\
$R^2$-Adj. & 30.4\% & 28.8\% & 27.3\% & 25.1\% & & & & & & & & \\
\hline
\end{tabular}
\caption{Overview of different moderator models}
\end{table}

Using discriminant analysis, it can be seen why there is no interaction. Discriminant analysis tries to predict the value of a nominal variable by way of manipulating the dependant variables. In a sense, it calculates a regression for each category. However, it cannot replace a normal regression for statistical tests. This model predicted Family

\textsuperscript{49} For example, PCV has an interval scale and most demographical variables have a nominal scale.

\textsuperscript{50} The control variables were not included in the table to improve readability. None of the control variables became insignificant during any of the regressions.
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correct in 65.8% of the cases, which is relatively good\textsuperscript{51}. The overall F-test for equality of means was 12.5%, well above the minimum threshold of 5%. The F-test for equality of means for each Family-category showed a significance of 25.9% for OC and 15.5% for PCV. Therefore, it is unlikely that the different groups experience the same level of OC and PCV.

In Table 10\textsuperscript{52}, a more stable relationship clearly has lower values for OC and PCV\textsuperscript{53}. The table indicates that each category has a different PCV-OC relationship. For example, even though the Single and Girlfriend / Boyfriend categories have approximately equal OC-levels, their PCV value is very different. Thus, the table suggests that family is not a moderator because it influences PCV, and not OC. The Engaged / Married category is statistically irrelevant because there are so few cases in this category. The reason that Family is still significant in the regression is that it does account for a part of the variance of OC: family can explain the difference in the PCV-OC ratios. In conclusion, hypothesis 4a is not supported.

During these same moderation tests for the control variables, it was also discovered that the control variable Work Type interacts with PCV. By introducing the interaction variable Work Type – PCV, the model improved: compared to our initial regression model (model 2), the F increased by 0.103, the F-significance decreased by 0.008, the \(R^2\) increased by 0.041 and the \(R^2\)-Adj. by 0.034. However, the interaction variable took away so much variance of the PCV and Work Type variables that they both became insignificant. This is an indication that Work Type moderates the

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|}
\hline
Family & Single & Girlfriend / Boyfriend & Engaged / Married \\
\hline
OC & 11.78 & 11.34 & 9.68 \\
PCV & 6.46 & 4.49 & 3.75 \\
Ratio & 1.82 & 2.53 & 2.58 \\
N & 21 & 13 & 4 \\
\hline
\end{tabular}
\caption{discriminant analysis of the Family variable}
\end{table}

\textsuperscript{51} The Work Type variable was excluded because it was not a significant predictor of Family.
\textsuperscript{52} The control variables and the constant have been removed from the table to improve readability.
\textsuperscript{53} These are “Fisher’s linear discriminant functions”.

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relationship between PCV and OC fully, and not partly\textsuperscript{54}. When we look again at a discriminant analysis (Table 11)\textsuperscript{55}, we can see why PCV and Work Type interact.

Because the level of OC increases from left to right in the table, theory would suggest PCV to do the same. However, the ratio between the two suggests that there is no relationship, except maybe an inverted-U relation.

This means that each work type category is necessary to explain the relationship between PCV and OC, indicating moderation.

Because demographical variables might overlap, it is very likely that there are underlying dimensions that will give the same information, but will do so with fewer variables. This is important because it might mean that Family is significant in our model not because Family itself is significant, but because it has taken over variance of the other demographical variables. Therefore, it is important to perform further data reduction tests of all the original variables. These tests are performed in the next section.

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|}
\hline
\textbf{Work Type} & 
\textbf{Outbound} & \textbf{Inbound} & \textbf{Management} & \textbf{Other} \\
\hline
\textbf{OC} & 8.56 & 9.67 & 9.73 & 11.19 \\
\textbf{PCV} & 6.91 & 5.15 & 5.36 & 9.79 \\
\textbf{Ratio} & 1.24 & 1.88 & 1.82 & 1.14 \\
\textbf{N} & 13 & 19 & 4 & 2 \\
\hline
\end{tabular}
\caption{discriminant analysis of the Work Type variable}
\end{table}

\textsuperscript{54} Because of the limitations of the product method, it is not possible to definitively establish full moderation. Other tests are more suitable for this, but go beyond the scope of this paper.

\textsuperscript{55} The control variables and the constant have been removed from the table to improve readability. Company was not significant in this analysis and was therefore removed from the analysis.
7.4 Data reduction

The original 13 variables were subjected to a categorical principal components analysis (PCV was not included): the control variables (contract type, company, tenure, and work type) in one analysis and the demographical variables (age, sex, country, family, children, religiousness, and education) in another. The control group revealed two dimensions (see graph), called Company-Tenure (vertical) and Work-Contract (horizontal).

The directions of the lines in the graph show the factor loadings of the variable on each dimension. For example, “Company” has a factor loading of almost zero on the horizontal dimension, but a positive loading on the vertical dimension. The length of the lines is a measure of the size of the factor loading, and is thus a measure of the ability of the two dimensions to capture the variance of the variable. If a variable should have a very short line in this graph, it means that the factor calculation was unable to condense the information of the variable into either of the dimensions. In that case, the two dimensions in a statistical analysis cannot safely replace the variable.

A similar principal components analysis was performed for the eight demographical variables. Age, Family, Children, and Income loaded highly onto a separate dimension, “AFCI”. The Sex and Education variables also formed a new variable, “Sex-Educ”. The Country and Religiousness variables did not load onto any component. Next is a short overview of the characteristics of each of these dimensions.\footnote{Note that each of these dimensions now has a numerical scale because categorical principal components analysis with optimal scaling was used.}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{component_loadings.png}
\caption{Component loadings of the control variables}
\end{figure}
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<table>
<thead>
<tr>
<th>Dimension</th>
<th>Alpha</th>
<th>Eigenvalue</th>
<th>Variance explained</th>
<th>Variables</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFCI</td>
<td>80.3%</td>
<td>2.512</td>
<td>62.81%</td>
<td>Age</td>
<td>0.740</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Family</td>
<td>0.776</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Children</td>
<td>0.843</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Income</td>
<td>0.807</td>
</tr>
<tr>
<td>Sex-Educ</td>
<td>27.2%</td>
<td>1.157</td>
<td>57.86%</td>
<td>Sex</td>
<td>-0.758</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Education</td>
<td>0.764</td>
</tr>
<tr>
<td>Work-Contract</td>
<td>66.0%</td>
<td>1.981</td>
<td>49.52%</td>
<td>Work Type</td>
<td>-0.901</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Contract Type</td>
<td>0.931</td>
</tr>
<tr>
<td>Company-Tenure</td>
<td>41.0%</td>
<td>1.444</td>
<td>36.10%</td>
<td>Company</td>
<td>0.920</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Tenure</td>
<td>-0.741</td>
</tr>
</tbody>
</table>

Table 12: principal components of all the researched variables

Again, categorical regression is used to see if these new variables are better at explaining the OC-PCV link. Below is again the table with the regressions that were previously performed with the normal variables (model 1 and 2). Model A refers to the models with the dimensions.

<table>
<thead>
<tr>
<th>Model</th>
<th>Deleted before</th>
<th>Variables(^{57})</th>
<th>Deleted after</th>
<th>R(^2)- Adj.</th>
<th>F (sig.)</th>
<th>Valid N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>14</td>
<td>9</td>
<td>4.9%</td>
<td>1.079 (0.462)</td>
<td>35</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>5</td>
<td></td>
<td>30.4%</td>
<td>2.309 (0.039)</td>
<td>37</td>
</tr>
<tr>
<td>A</td>
<td></td>
<td>7</td>
<td></td>
<td>28.7%</td>
<td>2.96 (0.020)</td>
<td>35</td>
</tr>
</tbody>
</table>

Table 13: model comparison

After consecutive removal of each insignificant variable from this model A, none of the variables remained. Several other configurations of variables were also tried, but

\(^{57}\) Excluding the dependant variable OC.
none of them became significant in the regression, although the regression itself was often significant. Even though many dimensions had a Cronbach’s alpha of over 90%, indicating a very large communality between the variables, the dimensions showed no significance if PCV was introduced into the regression. This means the Family variable itself is significant in this model and that it has not taken over variance from other (demographical) variables.

This is convincing evidence that the other demographical variables are not insignificant in our models because there are relative few cases. Instead, it indicates that they would also not have been significant in a model with more cases.

In conclusion, through several analyses, we have established that the relationship between OC and PCV is not moderated by any demographical variables. However, it is moderated by Work Type. The Family variable, the only significant demographical variable, has a direct effect on OC: a firmer relationship reduces the link between PCV and OC. None of the hypotheses of the other demographical variables was supported. This might be because there are very few cases, which statistically also leads to fewer significant variables. In this case, it would be unknown what the true model would look like. However, data reduction showed many dimensions that were statistically strong, but none of them was significant in the link between OC and PCV. This could mean that the insignificant variables here would also have been insignificant in the “true” model. It is also an indication that it is purely Family that influences OC, and that Family has not taken over variance from other demographical variables.
8 Discussion

Below is a short overview of the researched hypotheses and their outcomes.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Description</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>▲PCV → ▲ OC</td>
<td>Supported</td>
</tr>
<tr>
<td>2</td>
<td>▲ Age → ▼ OC-PCV link</td>
<td>Not supported</td>
</tr>
<tr>
<td>3</td>
<td>▲ Education → ▲ OC-PCV link</td>
<td>Not supported</td>
</tr>
<tr>
<td>4a</td>
<td>Stable relationship → ▼ OC-PCV link</td>
<td>Not supported</td>
</tr>
<tr>
<td>4b</td>
<td>Divorce → ▲ OC-PCV link</td>
<td>Not tested</td>
</tr>
<tr>
<td>4c</td>
<td>Children → ▼ OC-PCV link</td>
<td>Not supported</td>
</tr>
<tr>
<td>5</td>
<td>Men → ▲ OC-PCV link</td>
<td>Not supported</td>
</tr>
<tr>
<td>6</td>
<td>▲ Income → ▲ OC-PCV link</td>
<td>Not supported</td>
</tr>
<tr>
<td>7</td>
<td>NL → ▲ OC-PCV link</td>
<td>Not supported</td>
</tr>
<tr>
<td>8</td>
<td>Caucasian → ▼ OC-PCV link</td>
<td>Not tested</td>
</tr>
<tr>
<td>9</td>
<td>Religiousness → ▼ OC-PCV link</td>
<td>Not supported</td>
</tr>
<tr>
<td>10</td>
<td>Heterosexual → ▼ OC-PCV link</td>
<td>Not tested</td>
</tr>
</tbody>
</table>

Table 14: overview of the outcomes of the initial hypotheses

With our study, we have shown the following model to represent our data best:

![Figure 8: model of the outcomes of the research](image)

The initial model hypothesized that all demographical variables would moderate the relationship between PCV and OC. The study among call centers has revealed that no single demographical variable influences the relationship between PCV and OC. The study confirmed the strong link between PCV and OC, correlating positively. In addition, the demographical variables did not have any significant influence on OC itself, with the exception of Family. This variable showed higher values for OC for single people than for people with a relationship, in line with hypothesis 4a.
However, three control variables were also significantly influencing OC. Location, representing the location where the interviewee was answering the questionnaire, showed higher OC levels for people answering their questionnaire at work, compared to at home. Originally, people answering the questionnaire at work were presumed to be milder for strategic reasons. Perhaps this is not the case because the introduction to the questionnaire mentioned explicitly that answers would not be saved on their work or home computer. The levels of OC varied also significantly per company, but these differences will not be discussed here because the companies were promised anonymity.

The Work Type variable was not only influencing OC, it was also moderating the PCV-OC relationship. Strangely, people doing inbound work were more inclined to suffer from OC, but less inclined to experience PCV, compared to those performing outbound work. Perhaps this is because on average, inbound work has a much higher tenure than outbound work (see the table). Even though those performing inbound work experience a lower level of PCV at a given moment, the cumulative PCV over this longer tenure period might have resulted in higher OC. That could explain why work type is not only influencing OC, but also interacting with PCV: the different work type categories are necessary to explain the different OC to PCV ratios. The fact that tenure is insignificant in our regression seems to contradict that notion, but work type can account for both the differences in OC and the differences in PCV, while tenure
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might only be able to account for the difference in OC. That would make work type a more efficient variable. Obviously, this requires further study.

8.1 Theoretical implications and future research

Our study was designed to test Andersson’s (1996) idea that demographical variables moderate the influence of PCV on OC. The conclusion of our study is the opposite: demographical variables have no influence on the PCV-OC link. Family also did not moderate this relationship, but did influence OC. Our study suggests that these demographical variables either do not moderate the PCV-OC relationship, or have only a small influence, discernable only among a very large sample. Previous research where demographical variables are used as control variables suggests the former. In addition, a next study might want to incorporate cumulative PCV into the equation: such a concept might explain why certain groups of employees have high levels of OC and low levels of PCV, and vice versa.

8.2 Practical implications

The most important practical implication of our study is that the employer can probably only reduce OC in the organization by reducing PCV. The employer should probably also design different policies for different work types in the organization, because the study suggests that employees have different characteristics in each work type category.

8.3 Limitations

Several limitations apply to our study. Most importantly, there were too few cases in the database (39). The effects of a low response rate are amplified by the fact that most analyses were done with “optimal scaling”-features, which tend to give more significant results than conventional analyses. While “overfitting” is a clear danger with few cases, we see no reason why our results would be off the mark. Future studies into employee attitudes at call centers would do wise to take account of the persistent unwillingness of call centers to cooperate into any study.
According to several studies, the reliability of questionnaires must be questioned if the questions are of a sensitive nature. Most of these questions are very sensitive and respondents can always not answer the question. We believe that although sensitive questions decrease the reliability of a study, protecting the anonymity and privacy of the interviewees can reduce this effect. Still, the lowest response rates were for the sensitive variables income, sexual orientation and race.

Since most of the targets were informed through informal means, we have good reason to believe the respondents must have come from the direct social environment of the researchers. This bias might mean that the respondents were largely people with better career perspectives than the non-student call center employees were. While we control for this in the questions about education, it might mean the study lacks reference material.

Another limitation is that the education questions did not explicitly ask for finished educations. This might have been relevant for our model. In addition, the results of our study do not apply to lower education levels, because these had to be deleted because of low response.

Normally it would have also been appropriate to initially also include all the individual interactions between all the demographical variables and PCV into the regression. However, this is impossible because then the number of variables becomes too high for the regression to be meaningful.
9 Conclusion

With our study, we have tried to study the relationships between demographical variables, psychological contract violation (PCV) and organizational cynicism (OC). Previous research suggests that PCV might be a precursor to OC but that demographical variables might moderate this influence. After severe data collection problems, we could conclude that luckily relatively few people suffer from either OC or PCV. Contrary to previous suggestions (Andersson, 1996), our study showed that demographical variables do not moderate the influence of PCV on OC. Instead, a control variable, work type, moderated the relationship. Only one demographical variable, family type, had a significant influence on organizational cynicism. Using factor analyses, we could conclude that there are large areas of overlap between different demographical variables. Still, the underlying “dimensions” of the variables were worse predictors than the original variables. This means that the family variable probably did not take over variance from the other demographical variables, and is solely influencing the PCV-OC link.
10 References


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11 Appendices

11.1 Questionnaire

Questionnaire call center employees

Dear call center employees!
With this questionnaire we are trying to find out how you feel at your work. We are also trying to find out how this is influenced by your age, your education, etc. Some of these questions are sensitive.

This questionnaire is completely anonymous. Nobody will ever find out that this questionnaire has been filled in by you. In other words, the answered questionnaire can never be traced back to you. The results of this research will only be made available among a very small group of researchers of the Faculty of Economics and Business Administration of the University of Maastricht. Because you are answering the questionnaire on the Internet, your answers will also not be saved on your company computer or home computer, but only on a computer of the University of Maastricht. However, it has been agreed with the management that the results of this research will be reported back to them in general terms.

If you rather not answer a question, you can simply skip the question. But if you would answer as many questions as possible, you would be helping us a GREAT deal!

PAY ATTENTION: Once you have clicked on such (x58) a button (in which case it will look like this x ), you MUST make a selection in that group of buttons! So be careful that you are certain that you want to answer the question before you click a button! If, by accident, you click the button and you do not want to answer the question, you will have to click the "Reset"-button at the end of the questionnaire. In that case you will have to start all over again.

Good luck!

Greetz,
Menno Delken
University of Maastricht

If you are just testing the questionnaire, please answer "test" to the last question.

Questions 1-16: These questions are about who you are, what you do, etc.

1. Where are you now filling in the questionnaire?

58 All web components, like buttons, have been removed.
2. What is your age and gender?
   Age: years
   Gender: Man  Woman

3. How many years of education did you have after primary school?
   years

4. What forms of secondary education did you finish or are you working on now
   (multiple answers possible)?
   Low  Middle  High

5. What forms of tertiary education did you finish or are you working on now
   (multiple answers possible)?
   Low professional  Middle professional
   High professional  Academic

6. With which country do you identify the most?

7. What is your family situation?
   Single
   Girlfriend / Boyfriend
   Engaged / Married

8. How many children do you have?
   children

9. Have you ever been divorced?
   Yes  No

10. What is your race (in your opinion)?
    Caucasian
    Other than Caucasian

11. Are you actively religious?
    Yes  No

12. What is your sexual orientation?
    Heterosexual
    Homosexual
    Bisexual

13. What work do you do the most?
    Inbound
    Outbound
    Management
    Other

14. What is approximately your income from your call center job? (gross per
    month)
    €

15. What type of contract do you have?
    Full-time
    Part-time
    Partly retired
    Other

16. How many months did you work at the call center until now?
    months
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Questions 17-30: The following questions are about your feelings towards your company. Can you indicate your level of agreement or disagreement with each statement.

17. My company sufficiently supports me in what and who I am.
   Strongly disagree  Disagree  Neutral  Agree  Strongly agree
18. I see enough similarity between what my company says it will do and what it actually does.
   Strongly disagree  Disagree  Neutral  Agree  Strongly agree
19. My company's policies, goals and practices seem to have little in common.
   Strongly disagree  Disagree  Neutral  Agree  Strongly agree
20. The top-management of my company does not make too much money in comparison with what I make.
   Strongly disagree  Disagree  Neutral  Agree  Strongly agree
21. I do not feel frustrated by how I have been treated by my organization.
   Strongly disagree  Disagree  Neutral  Agree  Strongly agree
22. I am not afraid to be fired.
   Strongly disagree  Disagree  Neutral  Agree  Strongly agree
23. When my company says it's going to do something, I sometimes wonder if it will really happen.
   Strongly disagree  Disagree  Neutral  Agree  Strongly agree
24. My company expects one thing of its employees, but rewards another.
   Strongly disagree  Disagree  Neutral  Agree  Strongly agree
25. I feel betrayed by my organization.
   Strongly disagree  Disagree  Neutral  Agree  Strongly agree
26. I get back enough from the profit my company makes.
   Strongly disagree  Disagree  Neutral  Agree  Strongly agree
27. I feel anger toward my organization.
   Strongly disagree  Disagree  Neutral  Agree  Strongly agree
28. My organization does more for me than is strictly necessary.
   Strongly disagree  Disagree  Neutral  Agree  Strongly agree
29. Do you believe that your employer, besides the obligations resulting from your employment contract, also has other obligations towards you?
   Yes  No
30. I believe that my company does what it promises to do.
   Strongly disagree  Disagree  Neutral  Agree  Strongly agree
31. What is the name of the call center you work for?

If you are ready, press the "Submit"-button! If you want to do the entire questionnaire again, press the "Reset"-button!
Thank you for your cooperation!

Questions and remarks can be e-mailed to Menno Delken.
University of Maastricht.
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Last modified:
### 11.2 Different transformations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Transformation</th>
<th>Factors (dropped)</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Explained Variance</th>
<th>Alpha</th>
<th>Shapiro-Wilks</th>
<th>Valid N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>$\sqrt{(x+2.888)}$</td>
<td>6 (4)</td>
<td>1.67</td>
<td>0.34</td>
<td>70.59%</td>
<td>91.70%</td>
<td>0.000</td>
<td>39</td>
</tr>
<tr>
<td>Education</td>
<td>LN($x+2.888$)</td>
<td>6 (4)</td>
<td>0.97</td>
<td>0.46</td>
<td>70.59%</td>
<td>91.70%</td>
<td>0.000</td>
<td>39</td>
</tr>
<tr>
<td>OC SUM</td>
<td>$\sqrt{x}$</td>
<td>5 (0)</td>
<td>2.81</td>
<td>0.77</td>
<td>80.41%</td>
<td>0.427</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>OC SUM</td>
<td>LN $x$</td>
<td>4 (1)</td>
<td>1.64</td>
<td>0.26</td>
<td>87.04%</td>
<td>0.259</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>OC SUM</td>
<td>$\sqrt{x+2.523}$</td>
<td>4 (1)</td>
<td>1.56</td>
<td>0.31</td>
<td>75.44%</td>
<td>89.1%</td>
<td>0.023</td>
<td>38</td>
</tr>
<tr>
<td>OC Factor</td>
<td>$\sqrt{(x+2.523)}$</td>
<td>4 (1)</td>
<td>0.85</td>
<td>0.40</td>
<td>89.1%</td>
<td>0.259</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>PCV SUM</td>
<td>$\sqrt{x}$</td>
<td>4 (0)</td>
<td>2.45</td>
<td>0.80</td>
<td>82.27%</td>
<td>0.054</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>PCV SUM</td>
<td>LN $x$</td>
<td>4 (0)</td>
<td>1.54</td>
<td>0.25</td>
<td>82.27%</td>
<td>0.177</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>PCV Factor</td>
<td>$\sqrt{(x+2.3)}$</td>
<td>4 (0)</td>
<td>0.84</td>
<td>0.33</td>
<td>82.27%</td>
<td>0.177</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>PCV Factor</td>
<td>LN($x+2.3$)</td>
<td>4 (0)</td>
<td>1.48</td>
<td>0.32</td>
<td>70.60%</td>
<td>86.1%</td>
<td>0.003</td>
<td>38</td>
</tr>
<tr>
<td>PCV Factor</td>
<td>LN($x+2.3$)</td>
<td>4 (0)</td>
<td>0.74</td>
<td>0.43</td>
<td>70.60%</td>
<td>86.1%</td>
<td>0.003</td>
<td>38</td>
</tr>
</tbody>
</table>

Table 15: overview of the different transformations

---

59 None of the squaring transformations lead to relevant results, and are therefore omitted.
60 This refers to the significance of the Shapiro-Wilks test, not the value.
61 Pairwise deletion was used for missing cases.
62 Education was calculated using categorical principal components analysis with optimal scaling. An “Education Summated” scale could not be calculated because adding numerical and categorical data does not produce sensible results.
63 OC SUM refers to the OC summated scale calculated simply by adding all the scores of the questions, dividing them by the number of questions.
64 OC Factor refers to the OC summated scale calculated using factor analysis with principal components analysis and varimax rotation.
65 To use the root and LN transformations, the original variables had to be transformed so that they would not drop below 1.
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