Gender-Pay Inequality and Organizational Culture: A Multi-Organizational Analysis of Job-Evaluation Data

by

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A thesis submitted in conformity with the requirements for the degree of Doctor of Philosophy
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Abstract

According to sociologists, more female-concentrated occupations pay less mainly because societal culture devalues work associated with women. But less clear is how much the cultural context of the work organization fosters or suppresses this devaluation. This question is vital because pay and work are not formally linked at the occupation level, but at job level – through a formal workplace practice known as job evaluation. And as researchers often note, the outcomes of this practice are ultimately influenced by organizational culture. Drawing from the literature on gendered organizations, organizational culture, job evaluation, and stereotyping theory, this dissertation examines whether organizations with more masculine cultures have intensified levels of devaluation in their job-reward systems – reflecting the logic that more masculine cultures prescribe wider status differences between what is stereotyped as masculine and feminine. The analysis draws from a confidential dataset linking over 50 thousand jobs to 68 separate government organizations of a single country.

Main findings suggest that while the statistical effect of organizational culture is modest, the amount of devaluation in an organization’s job-reward system intensifies in more female-concentrated jobs that are located in more masculine organizational cultures. Further, in some instances, the traditional framework of job evaluation might encourage gender stereotypes to manifest as pay inequalities that benefit more female-concentrated jobs. But this counterintuitive form of inequality is largely masked in more masculine organizational cultures. Collectively, this dissertation contributes to a more organizational-cultural understanding of pay determination by considering how the cultural context of work organizations influences formal organizational
activities that were intended to be gender neutral. It also contributes to the more recent gendered-organizations literature that has become increasingly concerned with the impact of organizational context on gender inequalities, and to some of the more recent social-psychological literature concerned with the impact of background effects on stereotyping outcomes.
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Chapter 1
Introduction

This dissertation contributes to the broad debate among social scientists about the relationship between culture and structure. Pursuant to this broader concern, I examine organizational culture’s association with gender-pay inequalities. Specifically, I focus on whether organizations with more stereotypically masculine cultures are associated with greater gender-pay inequalities in their job-reward systems.

The rationale for this inquiry is straightforward. Economists tell us that differences between men and women’s productivity largely explain why women are paid less in the labour market. They also tell us that any pay inequalities not explained by differences in the sexes’ productivity can be explained by women’s preferences for lower paying work, and employers’ tastes for pay discrimination (Becker 1991; Mincer and Polachek 1974). Sociologists largely agree with economists on these points, but differ in their assumptions of where such tastes and preferences originate. Where economists have largely assumed that such tastes and preferences are endogenous to individuals and employers, sociologists have emphasized the embeddedness of these actors within their broader social and cultural environment for shaping these tastes and preferences (Bielby and Baron 1986; Okamoto and England 1999).

I also emphasize the centrality of culture for explaining gender-pay inequalities, but I focus on the cultural environments of work organizations. By approaching the subject of culture in this way, I contribute to the gendered-organizations literature that has become increasingly concerned with how organizational context impacts gender inequalities (see Britton and Logan 2008). Specifically, this research advances our understanding of how much the “genderedness” of an organizational culture contributes to the severity of gender inequalities in an organization’s formal processes, even when such processes are intended to be gender neutral.

As elaborated later in this chapter, my warrant for studying this issue comes from several sources. In choosing organizations as the location to examine the general problem of gender inequality, I start with Acker’s (1992) fundamental argument about studying how organizations’ processes and practices are gendered in order to understand gender inequalities in the wider
labour market. Acker’s emphasis on studying an organization’s processes and practices is also highly relevant to my specific focus on gender-pay inequality. This is because organizations are the sites where pay differences between the work that men and women do are formally established (Tomaskovic-Devey and Skaggs 2002). This occurs through an administrative activity known as job evaluation, in which each job in the organization is ranked on a set of criteria, and then assigned pay based on its relative rank. As a practice that is situated within organizations and concerned with placing a value on the work that men and women do in the organization, job evaluation is a prime example of an organizational practice that is likely to be gendered.

But to understand how and why this type of practice becomes gendered, it is central to consider the values reflected in an organization’s culture. This is because the relevant literature has long noted that job evaluation is an activity that is ultimately governed by what the organization values (Arnault et al. 2001; Arvey, Passino, and Lounsbury 1977; Lowe and Wittig 1989; Mount and Ellis 1989; Quaid 1993; Remick 1984; Treiman and Hartmann 1981). Thus, to understand how and why differences in job value in an organization tend to be organized around such features as a job’s sex composition or the stereotypical maleness/femaleness of its tasks, it is paramount to understand the degree that organizational cultures use notions of gender as a reference for organizing categorical and status differences. I provide a comprehensive explanation of why in the theory and conceptualization chapter (Chapter 3). In that chapter, I draw on Ridgeway’s (2011) gender frame paradigm of inequality, and the importance of the institutional environment for establishing the salience of gender.

This dissertation is presented with three research chapters (Chapters 2, 4, and 5), and one chapter devoted to theory, measurement, and conceptualization (Chapter 3). These chapters are united by the enduring sociological view that cultural biases offer a framework for understanding why some types of work are valued more than others. After all, decision makers who adjudicate the value of jobs in their work organization do not make their decisions in a social or cultural vacuum. These individuals are also actors entwined in organization-specific systems of rules, formal and informal behaviours, practices and traditions that frame the acceptability of their decisions (see reviews by Bond and Smith 1996; Cialdini and Goldstein 2004; Merton and Rossi 1949).
These three separate but interconnected research chapters may be thought of as addressing two broad research questions. To set the stage for a discussion around what is popularly known as the cultural devaluation of women’s work, the first question, which I address in Chapter 2, asks about the job-based sources of gender-pay inequality in organizations. That is, to what degree does a job’s human-capital demands explain the traditionally negative female-composition effect on pay?

I elaborate on this effect in Chapter 2, but the female-composition effect refers to the observation that jobs or occupations with more women in them tend to have lower pay (Tomaskovic-Devey 1993a). One explanation for this effect, from human-capital theory, is that jobs that pay less have innately lower productivity demands. So if women are increasingly represented in lower-paying jobs, it is because women are predominantly a better match to jobs with lower productivity demands (Becker 1991). The other explanation, cultural devaluation, posits that the female-composition effect on pay has little to do with the work’s productivity demands. Instead, this effect reflects the devaluation of work as it becomes more associated with the historically devalued female sphere (England 1992).

As I also elaborate in Chapter 2, an analysis of job-level data is essential to properly answer the above question. First, it is well documented that as the level of occupational classification becomes finer, the effect of gender composition on wages becomes stronger (see review in Cohen and Huffman 2003). Therefore, a job-level analysis should provide a more accurate assessment of human capital’s role in the female-composition effect. Second, studying this issue with job-level data is conceptually more relevant than studying it with occupation-level data because pay is ultimately linked to work at the job-level in workplaces (Tomaskovic-Devey and Skaggs 2002).

The above point is pivotal to this dissertation. Since work and pay are formally linked at the job level in workplaces, institutional factors would be inherent in determining the work a particular job entails, the likely sex of the persons to hold certain jobs, and according to an application of Ridgeway’s (2011) paradigm, the salience of gender in determining a job’s value to the organization. I use this understanding as a foundation for the second question addressed in Chapters 4 and 5, which looks at how organizational context moderates the relationship between
a job’s female composition and a job’s value. With a focus on the organization’s culture as it relates to masculine gender stereotypes, the second question asks: What is the impact of an organizational culture’s level of masculinity on the female-composition effect, and how does this impact vary by organization? To answer these questions, I draw on a dataset containing 68 government organizations from a single country, covering over 50 thousand jobs.¹

Before proceeding to the next sections, I clarify two terms that appear throughout this dissertation: the concept of job value, and the concept of job evaluation. In this dissertation, job value refers to both a monetary and a numeric value placed on a job by organizational-decision makers. In Chapter 4, I focus on the concept of job value in terms of monetary value while in Chapter 5 I look at job value in terms of numeric points awarded to the job. As explained in subsequent chapters, an organization’s decision makers arrive at these two measures of job value through participating in a job evaluation. In short, job evaluation is a systematic way of determining the relative worth of a job in an organization, for the purposes of establishing pay differences. To achieve this, individuals trained in such procedures usually use information from the job description to numerically rate each job according to a set of criteria known as compensable factors. The higher a job’s rating across each of these factors, the higher the job’s relative value in the organization. These numeric ratings are then used to establish a relative monetary value for jobs in the firm, thus defining job evaluation as a measurement of the relative value of the work to the organization, not the relative value of the incumbent in the job.

Gender and Organizations: The Contextuality of Masculine-centred Logics

How organizational contexts explain gender inequalities in the labour market is not a new question. However, a relatively important way of looking at this question has been through focusing on gender relations within organizations. Acker, who is one of the pioneering scholars of this approach, highlights the importance of studying gender relations within organizations to understand the origins of gender inequality in the labour market. In The Future of Gender and Organizations, she writes:

¹ A strict confidentiality agreement prevents the disclosure of further information about the data source. Please contact the author for more information.
The gender wage gap and the sex segregation of the labour force are aspects of the ‘economy’ or the ‘market’. Some, perhaps most, of the practices and processes that create these inequalities occur in work organizations. Thus, to study gender inequalities in the economy, we must study gender relations in organizations. To adequately discuss these relations, we have to talk about organizations and the multiplicity of activities that link them as the sites in which both the ‘economy’ and the ‘polity’ take place (1998:196).

The implication is that the formal and informal outcomes of organizations are based on more than just rational economic behaviours. These outcomes are also based on understanding organizations as sites of social and cultural exchange. As such, the outcomes of organizations can also be explained by struggles for power and status, and taken for granted ways of thinking that seem to lack a clear economic motive or benefit. From this perspective, it would be difficult to fully understand gender inequality in any labour market without first considering the gender relations underlying the formal and informal processes and practices taking place within organizations.

As I elaborate in Chapter 3, researchers have become increasingly aware that organizational context is important for explaining gender inequalities in organizations because organizational context can affect the tenor of gender relations. But as I point out, such research has largely focused on how organizational context explains variations in the way organizational members would be expected to enact gender (how they do gender) because of the structures of their work. The research in this area has been less clear about how organizational context genders the structures of the work in the first place. I argue that this issue is partly addressed by returning to Acker’s (1990) largely forgotten but fundamental example of how the structures of jobs become gendered through a formal organizational practice like job evaluation. The more pressing question is to what extent an organization’s context leaves its unique stamp on the gender inequalities embedded in these job-evaluation outcomes. As I also explain, examining this issue is important. One of the chief criticisms of the gendered-organizations research concerned with organizational context has been that more research is needed on the factors that make formal-organizational processes more oppressively gendered in some organizational contexts over others (see review in Britton and Logan 2008). My contribution to this gap in the literature is made through investigating the extent that more masculine organizational cultures are associated with producing greater gender-pay inequalities in the organization’s job-evaluation system.
Including Cultural Context in the Study of Organizations’ Pay Outcomes

Gender-pay inequality has been one of the most popular types of labour-market inequality to study, but the focus has been overwhelmingly on the individual. In this approach, gender disparities in earnings are explained through focusing on the differences between individual male and females’ levels of human capital, labour-market choices, and other personal attributes net of broad controls for industry, occupation, or region (Becker 1991). Individual-level factors are certainly essential for explaining gender disparities in earnings. But on the other hand, research that has had access to scarcer workplace-level data has shown that the attributes of workplaces can explain more of the gender-pay gap than individual-level differences. For example, Drolet’s (2002) research finds that in Canada, workplace attributes account for more of the gender-pay differential at the individual level than the worker (42.6% and 18.6% respectively). Therefore, our understanding of gender-pay inequality in the labour market can be greatly advanced through looking more at how organizational context frames such disparities.

There is merit to viewing culture as an organizational attribute that underlies gender-pay inequalities in organizations. As an entity transcending any single organizational member, culture is definitely not an individual-level attribute, though its effects are typically communicated through individuals. At the same time, certain aspects of an organization’s culture may speak to the normative attitudes and values about how work associated with a certain gender is valued in the organization. Such an understanding ultimately places organizational culture at the centre of explaining gender-pay inequalities generated in organizations’ formal reward systems. However, before elaborating on this, it is necessary to highlight some of the limitations of current organizational perspectives on pay determination/inequalities.

Organizational perspectives on pay outcomes typically fall into two camps. Other theories of pay outcomes exist, but they are primarily focused on pay determination as an individual-level phenomenon.

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2 Other theories of pay outcomes exist, but they are primarily focused on pay determination as an individual-level phenomenon.
judgements about job value and remuneration are motivated to balance an employee’s wants, needs, and expectations against the employer’s designated resources, given monitoring constraints, and costs imposed by external conditions. Agency perspectives have sometimes been used to explain the pay outcomes of rank and file employees (Gomez-Mejia 1992; Newman and Huselid 1992), but its primary application has been in the area of executive and managerial pay (Jackson and Schuler 1995).

The other perspective, known as the institutional perspective, focuses largely on the noneconomic factors influencing organizations’ pay outcomes. This perspective views organizations as social entities that are constantly seeking acceptance in their socially constructed environments. To ensure their survival, organizations may enhance perceptions of their legitimacy by conforming to what other organizations currently do or “should” do (Meyer and Rowan 1977; Zucker 1977). On this point, the concept of institutional isomorphism is particularly relevant for explaining the organizational bases of pay determination. As decision makers grapple with the perceived legitimacy of their organizations’ pay systems, they may be motivated to adopt the pay policies and practices of organizations that already have acceptance in the eyes of others. From this perspective, an organization’s adoption of particular pay policies and practices is understood more as a ritual that enhances perceptions about the credibility of the pay outcome. An especially rich example of research using this perspective comes from Quaid (1993), who shows how the policies and procedures guiding an organization’s job-evaluation system are essentially rituals borrowed from other organizations that help to legitimize the resultant pay system.

Despite the insights these two perspectives offer, they arguably overlook how the values of the organization play a role in decision makers’ judgements about job value. Agency-based theories take for granted that pay is based on minimizing agency costs. As such, there is little consideration for the noneconomic behavioural factors within the organization that may shape the pay outcome, such as social networks, power, status, and charisma.

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3 Costs borne by the employer from the employee acting more in his or her own interests than in the interests of the employer.
The institutional perspective, with its emphasis on organizational behaviours that ensure the organization’s legitimacy, gets closer to an organizational-cultural theory of pay determination. But this perspective also has limits. First, it is a superficial explanation for pay outcomes because it focuses on how and what organizational behaviours get carried out to justify and legitimize the outcome. Second, since institutional perspectives are heavily based on the principle of isomorphism, the organization’s external environment would be the primary focus for understanding how and what behaviours must be engaged in to legitimize the pay system. Therefore, institutional perspectives of pay determination would have little room for discussing how the value context of the organization may be a reference point for why some types of work are valued more than others.

Part of Quaid’s research on the myth of equitable job evaluation highlights the shortcomings of the institutional perspective mentioned above. As she clarifies, firms are usually attracted to formal job evaluation because the apparent scientism of the process gives it wide organizational and social legitimacy. Since organizations frequently pattern themselves on each other’s already legitimated evaluation criteria and procedures, this gives further credibility to the pay outcome without anyone having to think too hard about the validity of the process. But overall, most pivotal to Quaid’s exposition is that under the ritual of job-evaluation procedures is the deeper observation that the evaluation process often becomes a vehicle for enacting pay outcomes that were largely preordained by the organization’s particular political, social, and cultural environment (1993:223-254). From this perspective, it is easy to see the merits of understanding how the valuation of work comes about through a more cultural understanding of organizations.

Past research has similarly noted that agency and institutional theories are limited for explaining cultural biases in the determination of executive pay (Malsch, Tremblay, and Gendron 2012). However, I am unaware of any research that has raised these issues vis-à-vis an organization’s rank and file (non-executive or non-managerial) jobs. This lack of coverage is significant for two reasons. Rank and file jobs not only comprise the bulk of an organization’s workforce, but would
generally account for the bulk of its direct compensation costs. Thus, there is substantive importance to pursuing alternate ways of understanding the valuation of an organization’s rank and file jobs.

From a theoretical standpoint, a more explicitly cultural understanding of pay determination in organizations is desirable because, as stated previously, the relevant literature continuously notes that determining the relative value of jobs is ultimately a value-driven process within the organization (Arnault et al. 2001; Arvey et al. 1977; Lowe and Wittig 1989; Mount and Ellis 1989; Quaid 1993; Remick 1984; Treiman and Hartmann 1981). As such, the methods employed to ensure that pay differentials in an organization are objective belie the reality that there is no inherently objective standard for determining a job’s value.

Lastly, we know that interorganizational differences in job value can reflect interorganizational differences in firms’ agency costs (e.g., differing monitoring constraints, resource limitations, and costs imposed by external conditions). Further, we know that institutional perspectives would explain interorganizational differences in job value through looking at how these varying outcomes are shaped by organizations’ differing quests and strategies for legitimacy. However, we know relatively little about how differences among organizations’ cultures contribute to interorganizational differences in job value. This lack of information is further obfuscated by the difficulty of conceptualizing and measuring organizational culture.

**Masculinity and an Organization’s Culture**

The principal contribution of this dissertation is in understanding the relationship between the cultural context of the organization, and the degree of gender inequality generated in an organization’s job-evaluation outcomes. As I explain in Chapter 3, I focus on such inequalities as they are correlated with the masculinity dimension of organizational culture. The reason for limiting my analysis of culture to the masculinity dimension is straightforward. This dissertation draws partly from a gendered-organizations approach to explaining gender-pay inequalities.

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4 For example, the average annual wage of the 6 million incumbents in managerial and executive occupations in the US accounts for only 11.4 percent of the total average wage bill of the country’s 128 million employed (2011 US Bureau of Labor Statistics).
Central to this approach is the understanding that most aspects of an organization’s existence (whether material or symbolic) contain gender inequalities that subordinate females because organizations are patterned around masculine-centred logics. The masculinity dimension of organizational culture thus has much conceptual relevance to research drawing from a gendered-organizations approach. Most important is that conceptualizing a culture as more or less masculine is a convenient way of indicating the popular yet difficult-to-measure idea that some organizational contexts are more gendered than others (see review in Rutherford 2011). Since it is not possible to directly measure culture, this research focuses on indicators for the level of masculinity characterizing an organization’s culture. The conceptualization and measurement of organizational culture, along with its level of masculinity, is discussed in Chapter 3. What follows is only a brief discussion of the underlying rationale for this approach.

The notion that culture explains gender inequalities in the valuation of work can be traced back at least to England’s (1992) cultural-devaluation thesis. This thesis is discussed in Chapter 2, but England argues that the failure of organizational policies to substantially reduce the gender-wage gap (e.g., through comparable worth or pay equity programs) is essentially a cultural problem rooted in unsubstantiated patriarchal beliefs about the value of work that women usually do. England’s reference to the effects of culture originally referred to societal culture, but her argument is even more relevant to the concept of organizational culture. This is because England originally reached this conclusion only after observing the continued failure of organizational policies to correct gender-pay inequalities in the workplace. Further, since the practice of evaluating a job for its relative worth is an organizational activity, the (de)valuation of work at the job level is unavoidably driven by what the culture of the host organization values about that job.

As I also discuss in Chapter 3, the masculinity of an organizational culture is a convenient indicator for the prevalence of ideological tenets long recognized as core explanations for gender stratification in the labour market. Charles and Grusky (2004) explain that such stratification is ultimately explained by the persistence of two main tenets, gender essentialism and male primacy. The former tenet is a belief that the sexes contain attributes that make them inherently more competent for different tasks. The tenet of male primacy encompasses a belief that anything associated with the male is inherently more status worthy. The former belief is helpful
for explaining categorical-gender inequalities in the labour market, like occupational-sex segregation. The later belief is informative for explaining vertical-gender inequalities, like the female-composition effect on pay. I explain that the prevalence or strength of these tenets in a culture, especially the male-primacy tenet, is highly consistent with notions about whether a culture is relatively more or less masculine. For this reason, the stereotypical masculinity of an organizational culture is extremely relevant for explaining the severity of gender-pay inequalities generated within and across organizations’ job-evaluation systems.

The Organizations under Examination

The data used in this research comes from two sources. The first source is a comprehensive set of job-evaluation data from a population of government agencies belonging to an OECD member country. The second source comes from organization-level data compiled from an employee survey of the same organizations. The employee survey was administered to each of these agencies under an employer-led human resources initiative, around the same time as the collection of the job-evaluation data. In the first research chapter (Chapter 2), the job-level data is analyzed without any organization-level variables. In the latter two research chapters (Chapters 4 and 5) the analysis is based on the job-level data joined to the attributes of its respective organization.

The data in these three research chapters encompasses an entire population of jobs and central government agencies that existed in this single country at the time of data collection. The original dataset contains over 50 thousand jobs across 68 agencies, but the valid sample sizes will vary according to the chapter. Each chapter has its own data and methods section so the methodological details are not discussed at this point. Due to the highly confidential nature of the data, more detailed information is suppressed as a condition of its use. However, it is gratefully acknowledged that this data was obtained through a special research agreement.

The most unique aspect of this data, aside from the large number of jobs and organizations, is the detailed job-evaluation information connected to each job and the nested nature of the job-evaluation data. Under the direction of a controlling organization, local committees were formed in each organization to carry out evaluations of its jobs. While such an arrangement is likely to ensure a high degree of intraorganizational consistency in the determination of a job’s value, it is
also likely to introduce substantial interorganizational variability in the evaluation of certain job factors. As committee members take the standard instructions and evaluation instrument and apply it to the jobs in their respective organization, organizationally-bound logics and histories about job value are likely to influence how jobs are rated for their contribution to the firm.

Since the data for this dissertation is based on government service jobs and organizations, the results may not be generalizable to other sectors. However, the present data is especially appropriate for the focus of this research on gender-pay inequality in jobs within and across organizations. Government is a substantial employer of women in most advanced economies, making the pay policies of government organizations extremely relevant for understanding issues surrounding the remuneration of women in the world’s paid workforce. Also, the government organizations providing the job data have a presence in virtually every sector of the economy and society, so the data enable an analysis of jobs that encompass a diverse spectrum of human-capital demands and other characteristics.

Also, pay as it is connected to the administrative unit known as a job is especially applicable to the government sector because in most countries, pay in the core civil service remains largely job based (Hasnain, Manning, and Pierskalla 2012). Further, unions have traditionally emphasized the job over individual performance as the basis for remuneration (Metcalf, Hansen, and Charlwood 2000). Since all of the jobs in the present data are affiliated with unions representing the country’s civil service employees, the present data are highly relevant to the study of gender inequalities in the valuation of jobs.

Lastly, organizational culture is generally understood as rigid and slow to change (Hofstede 2001; Tolbert and Hall 2009). Such a characterization would be especially appropriate for public sector organizations because the comparatively bureaucratic operating environments and stable

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5 According to 2010 statistics from the ILO Laborsta database, among the OECD countries with total public sector employment counts broken down by sex, on average, almost 68 percent of those employed in this sector were female (http://laborsta.ilo.org/STP/guest).

6 It is acknowledged that incumbent and team-based pay systems have made inroads in parts of the public sector, such as in health care and education. It is also acknowledged that the UK government recently announced its civil service will switch to pay for performance by 2015-2016 (Risher 2014). Nevertheless, compared to the private sector, job-based compensation remains a major component of pay in the public service.
work force of public service organizations provide a prime opportunity for a culture to become firmly entrenched. This can be explained for example, by the fact that the politically driven nature of government agencies means they are traditionally under less pressure to evolve and change quickly in response to profit motives (see review in Parker and Bradley 2000). Further, a traditionally strong reliance on internal job ladders combined with high union density would also ensure that public service organizations have a relatively stable and enduring workforce of insiders. In theory, all of these conditions are conducive to a rigid and stable organizational culture, making government service organizations an excellent context for exploring relationships between organizational culture and job value.

My theoretical opportunity lies in the fact that while the well accepted argument about the cultural devaluation of women’s work has been around for almost three decades, there should be substantial variation in the extent to which inequality is attributed to the cultural devaluation of such work. The merit of this view is especially clear considering the gendered-organizations literature’s more recent concern with the impact of organizational context on gender.

The following sections provide a brief summary of the contents of each chapter. Many of the details are in the chapters themselves, so the summaries are not exhaustive. Chapters 2, 4, and 5 are research chapters, while Chapter 3 is devoted to theory and conceptualization.

Chapter 2: Cultural Devaluation or Human-capital Specialization?

Chapter 2 starts from a broad perspective, and focuses on the debate over human capital and the cultural devaluation of women’s work. Regardless of the industry, geography, occupation, or earnings unit under examination, research indicates an almost universal pattern known as the female-composition effect on pay. That is, jobs or occupations with more females in them tend to have lower pay, even after controlling for other relevant characteristics known to explain pay differences (e.g., education, experience, unionization). However, less clear is whether this effect reflects unmeasured productivity differences in the work that females tend to hold, or whether the work itself is valued less because it is associated with the historically devalued female sphere. This question has been a major point of divergence between economists and sociologists. Where economic perspectives tend to emphasize the presence of unobserved productivity
differences, sociological perspectives tend to emphasize that the devaluation of work associated with females plays a bigger if not a complete role.

My research examines this question at the more detailed job level, which is preferred for several reasons. First, research on this issue has often been carried out at the occupational level. But as past research notes, the broadness of occupation-level data tends to give results that are biased towards human-capital explanations (Tomaskovic-Devey and Skaggs 2002). To help minimize this bias, as well as make the presence of a female-composition effect more discernable, I use proxies for human capital that are instead derived from job-level data. Second, the job-level measure of human capital used in this research is connected to a job-based measure of pay. This is advantageous because past studies researching the relationship between work and its rewards tends to match individually-based measures of pay (e.g., an individual’s wage or earnings) to an occupational measure of human capital. This can be problematic because a certain portion of an individual’s pay typically reflects the idiosyncrasies of the incumbent, thus making it a relatively inaccurate measure of the rewards assigned to the work itself.

My data highlights that though a job’s human-capital demands plays an important part in explaining the female-composition effect on pay, the effect is by no means static or consistent. For example, among jobs considered low in human-capital demands, more male-concentrated jobs appear to enjoy heightened returns on this attribute compared to equivalently rated female-dominated jobs. However, this relationship becomes more counterintuitive as a job’s human-capital demands increase. Among higher-human capital jobs, more female-concentrated jobs have the higher returns.

These types of findings make it hard to view that a human-capital explanation for pay differences is easily separated from the cultural-devaluation explanation. If they were separate, the pay associated with a job’s sex composition should be consistent across the human-capital spectrum. This is because, as the traditional argument goes, more female-concentrated jobs pay less because more female-concentrated jobs also have lower human-capital demands.

Chapter 2 is largely a within-organizations analysis of gender-pay inequalities. It is intended to be the starting point for subsequent chapters, which expands the focus on gender-pay inequality across organizations. For example, in Chapter 2, the presence of interactions between a job’s
female composition and a job’s human-capital demands suggests the cultural embeddedness of job-based rewards.

Chapter 3: Theory and Measurement

Chapter 3 is largely conceptual, and its main ideas were largely discussed already. But to summarize, Chapter 3 introduces the theoretical rationale for researching the relationship between organizational context, and the female-composition effect on pay at the job level. It also explains how and why the masculinity of an organization’s culture is useful for understanding this relationship. Chapter 3 also devotes substantial attention to the conceptualization and quantitative measurement of the level of masculinity characterizing an organization’s culture. The exposition takes inspiration from the methods of Bird’s (2003) organizational research on masculine stereotype dissimilarities. To my knowledge, Bird’s research remains one of the few examples of organizational scholarship that explores the difficult issue of how to quantify gender stereotypes. Based on the variables in my data, I develop a quantitative indicator of the level of masculinity characterizing organizations in the dataset, and use this indicator in the analyses in Chapters 4 and 5.

Chapter 4: Organizational Culture and Job-Evaluation Bias

Chapter 4 is the second research chapter, and extends the analysis of gender-pay inequality introduced in Chapter 2. It does this by considering how the level of masculinity characterizing an organization’s culture is related to interorganizational variations in job-evaluation bias. The broad inspiration for this line of inquiry comes from Nelson and Bridges (1999), who posit that devaluation’s effect on pay inequalities would be most pronounced in interaction with the culture and structure of the organization.

While job evaluation is an administrative activity that ranks jobs for their relative value to the organization according to a predefined set of criteria, job-evaluation bias arises when a job’s relative value to the organization is based at least partly on criteria that are not included in the job-evaluation system. It may also arise when the appropriate criteria are included but have been undervalued. In this chapter, I ask: do organizations with more masculine cultures have greater levels of job-evaluation bias? If so, can we expect the level of job-evaluation bias to be greater in more masculine organizational cultures?
As previously mentioned, the administrative literature has noted that the relative value assigned to jobs through a job evaluation depends largely on what is valued in the organization. This suggests that job-evaluation outcomes, and by implication, any biases in those outcomes, are highly contingent on the culture of the organization. However, job-evaluation bias is almost exclusively explained with individual-level factors, so how organizations’ values affect such bias is unknown. Using organization and job level data from the dataset, I apply a Hierarchical Linear Model (HLM) to investigate an association between organization’s culture and job-evaluation bias. Findings show that net of other factors, jobs in organizations with a more masculine culture have more job-evaluation bias. Further, the negative effect of a job’s female composition on job-evaluation bias is amplified in more masculine organizational cultures. These results highlight the limits of initiatives like pay equity or comparable worth for ensuring fair valuations of work, because these initiatives often incorporate organizations’ cultures in the evaluation tool itself. Also, since the attributes of jobs and key institutional and structural features of the organization are held constant in this research, these results lend support to a more culturally-centred organizational explanation for the female-composition effect.

Chapter 5: Stereotyping Effects in Job Evaluation

The third research chapter (Chapter 5) builds on some of the findings and questions raised in Chapters 2 and 4. Based on some of the gender-counterstereotypical findings in Chapter 2 regarding returns to a job’s human-capital demands, Chapter 5 theorizes about how a job-evaluation framework would be prone to generating gender-counterstereotypical outcomes. After drawing on the relevant literature, I test this understanding through a hypothesis that such outcomes are an artifact of the job-evaluation procedure. Based on what was learned from the organizational-cultural perspective on job-evaluation bias in Chapter 4, Chapter 5 then introduces a second hypothesis about how the level of masculinity in an organization’s culture may moderate this counterintuitive outcome.

The results highlight that the typical structure of a job-evaluation procedure, and the measures used, can give the impression that a job’s human-capital demands are more highly valued in more female-concentrated jobs than in male-concentrated jobs. However, in more masculine organizational cultures, there is largely no inequality at all, with male- and female-concentrated jobs appearing to receive similar ratings on this attribute. Ironically, this equality seems to appear
because such cultures would be more critical of the value of the characteristic when it is in male-concentrated jobs.

Chapter 6: Conclusions

Historically, notions of gender have played an important role in the valuation of work. This dissertation seeks a better understanding of how such an important factor influences the valuation of work, but at the organizational level. In this final chapter, I summarize the contributions that each chapter makes, including their contribution to the broader concern about how culture affects structure. I also acknowledge the limitations of the research, and discuss opportunities for future research in this area.

Lastly, this dissertation periodically assumes the presence of gender-pay inequalities in the analysis through inference. That is, cultural devaluation is assumed to be present among female-concentrated jobs after controlling for other relevant influences. Though this is a standard quantitative approach to understanding gender inequalities in pay and rewards, it has a well known caveat. Devaluation can never be conclusively exhibited through inferential procedures (Cain 1986; Milkovich 1984). It is always possible that unmeasured or unobserved variables account for some or all of the unexplained inequality associated with a job’s female composition.

I view this caveat as based largely on the preferred perspective of the discipline making the argument. For example, sociologists are biased towards interpreting unexplained pay differentials between the sexes as devaluation. However, economists tend to view this as the presence of unobserved or unmeasured rational explanations for pay differences between males and females. However, the irony is that the unobserved variables explanation, just like the devaluation explanation, is still driven by assumptions because neither can be empirically verified. Furthermore, the concept that sociologists call devaluation is technically an unobserved variable; but it is not the kind of unobserved variable economists prefer to assume is behind gender-pay inequalities.

Thus, the question of whether a model’s results support a devaluation explanation or simply reflect unobserved but rational explanations for pay differences ultimately reduce to discipline-based assumptions about how to explain the world. Since this dissertation is sociologically based,
the presence of cultural devaluation is inferred after controlling for other observable factors. However, statistical models will always be imperfect representations of real world relationships. Therefore, I acknowledge that what gets interpreted as devaluation in this dissertation may partly reflect unobserved differences in productivity-related factors, as well as the omission of other relevant variables from the models.
Chapter 2
A Job-Level Look at the Sex-Composition Effect on Pay: Two Theoretical Perspectives

This chapter makes two main contributions. First, it provides an account of just how much the human-capital demands of work explain gender-based pay inequalities at job level. By focusing on jobs as opposed to occupations, and on the skill demands of the work as opposed to the skills individuals bring to their work, this research contributes to the broad literature on microlevel structures and processes behind gender-pay inequality in the workplace over the wider labour market. Second, this chapter also points to the need for further research on how organizational-cultural factors explain gender-based pay inequalities at the job level.¹ Pursuant to these two main contributions, this chapter asks two questions:

*At the job level, how much is the traditionally negative relationship between female composition and pay explained by the work’s human-capital demands?*

As I later explain in more detail, this question stems from economists’ and sociologists’ differing explanations for why more female-concentrated work tends to pay less. Economists typically view that work pays less when the *individuals* doing the work are largely less skilled. According to this view, the abundance of females in lower-paying work would imply that females are in such work because they are generally less skilled. On the other hand, sociologists emphasize that the skills of the individuals in the work have less bearing on what the work is paid. Instead, they argue that female-concentrated work tends to pay less because employers devalue the *work* itself when it is associated with females or female stereotypes. In turn, this relationship is sustained through supply- and demand-side processes that continue to channel a majority of females towards stereotypically female (and devalued) areas of work.

The economic and sociological perspectives clearly differ in their reasons for why more female-concentrated work pays less, but they arguably share a similar omission. With economists’ focusing on the human capital of individuals, and sociologists’ emphasis on the devaluation of the work’s characteristics, neither perspective directly considers how much the skill demands of

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¹ The need for further research on this issue is clarified in Chapter 3, which examines the theoretical and conceptual basis of organization-level culture.
the work itself contribute to pay inequalities between different groups of workers. Nevertheless, some of the more recent sociological research suggests that the human-capital demands of the work itself are an important explanation for why more female-concentrated work pays less. In this chapter, I focus on such an explanation through analyzing job-level data from workplaces.

The second question stems from the first, and is concerned with understanding if and how the returns to a job’s human-capital demands are conditioned by a job’s female composition. For example, would more female-concentrated jobs with high-human capital demands receive the same rate of pay for these demands as more male-concentrated jobs with high demands?

*How does a job’s female composition moderate the returns associated with a job’s human-capital demands?*

As I also later explain, the rationale for this question is partly based on the need for a more integrated understanding of how the sex composition of jobs at different skill levels shapes gender disparities in pay. This need for a more integrated perspective comes largely out of the fact that one of the main strategies for ameliorating gender-pay inequalities has been through workplace policies that redistribute females into higher-paying jobs, which are otherwise predominantly held by males (see Jaine, Sloan, and Horwitz 2003 for a review). Under the reasonable assumption that jobs with higher human-capital demands also pay more, such policies might instead reduce one form of gender-pay inequality in the workplace while exacerbating another. For example, to the extent a job’s female composition is associated with a disproportionately greater pay penalty in jobs with higher human-capital demands, this suggests that workplace redistribution policies might improve the overall earnings of females in the organization while widening gender-pay inequalities among higher-paying jobs. In formal job-evaluation systems, the majority of the variance in a job’s assigned pay can be linked to its skill demands (Jacobs and Steinberg 1990, Rotundo and Sackett 2004). Therefore, this attribute is an extremely relevant starting point for understanding how a job’s characteristics and its sex composition conjointly affect gender-pay inequalities.

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2 The other main approach includes paying female-dominated jobs found to be of equal (comparable) value to male-dominated jobs.
The rest of this chapter proceeds as follows. First, I begin with a more detailed review of the devaluation and human-capital explanations for gender-pay inequality. I then discuss some of the more recent sociological research comparing these two explanations, and the relevant issues that these studies have raised through their controversial findings that largely support the human-capital explanation. This is followed by a discussion of the need for a more integrated understanding of how females’ concentration in jobs at different skill levels shapes gender disparities in pay. The chapter then proceeds with an overview of the data and methods used to answer the two questions introduced earlier. After discussing results of the analyses, I present the limitations of the research, and introduce the context for the questions explored in subsequent chapters.

Culture and Capital: Two Perspectives

The literature clearly demonstrates a historically negative relationship between the percentage of women in an occupation and the average pay for that occupation, also popularly known as the sex- or female-composition effect. Explanations for that relationship typically fall within two theoretical perspectives. The first perspective, devaluation, is primarily sociological. The second perspective, based on the concept of human capital, is favoured mostly by economists. The following sections provide a more in-depth overview of these two fundamental explanations.

The Devaluation Explanation

The basic premise behind the devaluation explanation, also called the status composition hypothesis, is that work loses its status when it is associated with females. This loss of status eventually translates into a more direct perception that the work itself is inherently less valuable. Though this devaluation comes through the work’s association with notions of the female and not from the work per se, the distinction is often obscured over time as gender biases surrounding different types of work become institutionalized (England 1992; England, Budig, and Fulbre 2002; Kilbourne et al. 1994).

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3 Past research has identified Hakim’s theory about women’s individual work orientations and personal choices as a third line of inquiry falling somewhere in between these two perspectives (see review in Polavieja 2008). But Hakim’s person-centred theory is largely peripheral to the present study, which focuses on the job-based components of gender-pay inequality.
Empirical evidence of devaluation is typically inferred from a situation in which work done largely by females is paid less than comparable work done largely by males (England et al. 1994). On the demand-side, an organization’s personnel policies can reinforce this outcome by facilitating the sorting of males and females into such differentially valued work (Gorman 2005; Knoke and Yoshito 1998; Tomaskovic-Devey 1993b; Williams 1992). On the supply side, this sorting may also be helped by men and women’s socialization to pursue work opportunities along gender-traditional paths (Jacobs 1989; Okamoto and England 1999).

The ideological basis for devaluation is best conceptualized in Charles and Grusky’s (2004) theory of gender stratification in the labour market. These authors assert that the confluence of two deeply rooted cultural tenets—gender essentialism and male primacy—explain the persistence of devaluation. According to the tenet of gender essentialism, each gender has attributes that make it innately more suited for different tasks. According to the tenet of male primacy, males and male-associated attributes are more status-worthy. And as scholars of social inequality have long recognized, ideologies about difference (such as gender essentialism) often convert into ideologies based on hierarchy (such as male primacy), thus giving rise to the perception that work done primarily by females is inherently less valuable. Whether or not biological differences between the sexes contributed to the initial development of these two notions, they have become so institutionally and historically entrenched that they appear as self-evident truths.

The Human-capital Explanation

Human capital is broadly defined as a person’s stock of experience, skills, education, and training that can be used to generate economic value. Human-capital theory argues that individuals with higher levels of human capital are capable of generating greater economic value and as such, their greater productivity should lead to higher earnings. Consequently, human-capital theory suggests that more female-concentrated occupations tend to pay less than more male-concentrated occupations because those working in more female-concentrated occupations tend to be less productive through bringing lower levels of human capital to their work (Becker [1964] 1993; Polachek 1976).

Human-capital explanations for the sex-composition effect are based largely on rational-choice arguments. Few studies have been able to put the rational choice explanation under
comprehensive scrutiny, but ones that have done so find that it overestimates the amount of computational acumen people have about the future (Okamoto and England 1999).

On the supply side, these rational choice explanations assume that pay differences related to a job’s sex composition reflect rational decisions that men and women make regarding their acquisition of human capital. According to this approach, women largely choose to be employed in lower-paying areas of work. They do this, the assumption goes, because of their traditional association with and commitment to the domestic sphere, which contributes to them having more labour-market interruptions than men. Because higher-paying work is supposed to require more human capital, too much human capital would therefore be an irrational investment for women to make, since labour-market interruptions depreciate high levels of human capital at a faster rate than low levels of human capital. Therefore, the argument is that returns to women’s human-capital acquisition would be maximized by working in lower-paying areas of work, which is supposed to be less sensitive to human-capital depreciation and skill atrophy (Becker 1991, 1985; Mincer and Polachek 1974; Polachek 1976, 1981).

The principles of rational choice are also central to demand-side explanations. For example, in order to minimize employee costs such as wages, recruitment, training, and absences, employers are expected to hire the most productive workers. This becomes central in jobs accompanied by higher market wages and higher recruitment and training costs. In the absence of an efficient way to screen workers based on their abilities, employers may anticipate a person’s productivity by their gender through statistical discrimination. Because employers may assume that women have less labour-market commitment than men, they may also expect that women will be less productive and more costly to recruit, train, and retain. Consequently, employers may perceive that hiring women for higher-paying, higher-skill jobs is not cost effective in the long run. Instead, employers may assign women to lower-paying jobs that require less human capital to become proficient. To date, the scant research comprehensively examining this explanation has found little evidence that statistical discrimination is economically rational (Bielby and Baron 1986).4

4 Other economic explanations (e.g., crowding) exist for the relationship between sex composition and pay, but they are tangential to the present focus on the relationship with job-based human capital.
In summary, researchers in the human-capital tradition have been primarily concerned with how differences in individuals’ skills and attributes account for pay inequalities between different groups of workers. How the skills and attributes of the work itself might explain the sex-composition effect on pay has been of lesser interest. On the other hand, the devaluation perspective takes a more work-based approach to understanding the sex-composition effect. But it does this through emphasizing what remains to be explained of this effect net of controls for the attributes of the work and other factors. Thus, the devaluation perspective is also less directly interested in how much the skill demands of the work itself might account for the sex-composition effect on pay, though for different reasons than the economic perspective.

However, more recently, a series of sociological studies examining the sex-composition effect have had some controversial findings. When these studies include a variable representing the specialized skills of the work itself (specialized-human capital), the sex-composition effect, the principal indicator of devaluation, becomes marginal or disappears (Tam 1997; Polaveja 2005, 2007, 2008, 2009). These results are controversial because they imply that more female-concentrated work pays less not because of devaluation, but because females pool into work with lower human-capital demands. These findings are also at odds with prior sociological research suggesting that while human capital theory is important for explaining the female-composition effect on pay at the individual level, the skill demands of the work itself explain little of this effect (review in England et al. 1994; Kilbourne et al. 1994).

As I elaborate in the following section, one main limitation of these recent studies is that they rely on an occupation-level measure of the work’s skill demands. Because pay relationships are actually formed in the workplace at the more detailed job level, pay relationships are inherently more idiosyncratic at the job level than at the occupation level (Tomaskovic-Devey and Skaggs 2002). Therefore, by using occupation-level measures of sex composition and the work’s human-capital demands, researchers may be using a less sensitive measure of how the demands of the work itself explain the sex-composition effect on pay. This is a crucial point, and it forms the basis of the first research question asking about the degree that a job’s human-capital demands explain the female-composition effect on pay. But before delving into these issues, the following

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5 In fairness, this literature also acknowledges that even if more female-concentrated occupations truly have lower human-capital demands, discrimination and socialization may still facilitate the sorting of females into such occupations.
section provides some background on the conceptualization of human capital as an attribute of the work itself, and the sociological studies that have included a work-based measure of human capital in their analyses of the sex-composition effect.

**Explaining the Sex-Composition Effect with a Job-Based Measure of Human-Capital**

Becker (1993 [1964]) first formalized the idea that pay is connected to the productivity of individuals through what he calls *specific-human capital*. While *general-human capital* represents a set of productivity attributes that an individual can transfer to different types of work, *specific-human capital* represents the nontransferable productivity attributes that an individual brings to a particular type of work. Because of its restricted applicability to other work, Becker argued that specialized-human capital can be costlier for individuals to acquire, but provide greater returns over general-human capital. Because it is more difficult for firms to replace individuals with more specialized skills, firms are compelled to offer higher pay to individuals with these skills.

Tam (1997) notes that in empirical research, specialized skills have long been classified along two dimensions: occupation and industry, but that these dimensions are merely convenient tools to talk about the diversity of a job’s tasks and skills in the workplace. Based on this understanding and Becker’s rationale for pay differences linked to specific-human capital, Tam introduced the *specialized-human capital hypothesis*. This hypothesis states that the wage-depressing effects of an occupation’s female composition can be explained not by devaluation, but by differences in skill specialization across occupations. Consistent with this hypothesis, Tam (1997) found no evidence that the percentage of females in an occupation depresses wages once differences in skill specialization across occupations were controlled for.6

That pay inequalities can be linked to the productivity attributes of the work itself is not a new idea (e.g., Granovetter 1981; Thurow 1975). But the findings produced from Tam’s (1997) approach set a precedent for thinking about how the skill demands of the work itself could substantially explain sex-composition effects on pay. Prior to Tam’s study, the extensive

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6 Tam’s research measures specialized-human capital from U.S. Bureau of Labor Statistics data documenting the specific training period of occupations.
sociological research had found little evidence that the skill demands of occupations explained much of the sex-composition effect on pay (review in England et al. 1994; Kilbourne et al. 1994). But all research that has followed Tam’s lead has been able to explain away this effect with a measure of specialized-human capital (Polaveija 2005, 2007, 2008, 2009; Tomaskovic-Devey and Skaggs 2002, though see Perales 2013).

Nevertheless, the way in which many of these studies have measured specialized-human capital raises questions about their findings. For instance, Polaveija’s (2007, 2008, 2009) European research relies on incumbents’ self-reports of the level of skill, training, or specialist knowledge required for their job. Arguably, this approach is problematic for research trying to explain the female-composition effect as a function of specialized-human capital. First, past research finds that men tend to exaggerate their capabilities, while women understate them (Correll 2001). Second, such biased self-reporting by gender has been linked to the degree that each gender internalizes traditional stereotypes about gender and ability (Correll 2004). Therefore, self-reports of a job’s skill demands will likely be gender biased, and this bias would grow stronger as the occupation becomes more saturated with a particular gender. It would then become increasingly difficult to distinguish the effect of the work’s demands from the supposedly devaluing effect of sex composition.

Contrasting self reports, Tam’s (1997) American research measured specialized-human capital through the occupation-specific training time required for each occupation. But because this measure tends to underestimate the skills required of jobs mainly performed by women (Phillips and Taylor 1980; Steinberg 1990), its explanatory power may be overestimated. Polaveija’s (2005) study of nationally representative occupational data from the Spanish labour market uses an indicator for task specificity. And while he explained away the sex-composition effect on wages with this indicator, Polaveija also admits this indicator was very indirect, having been derived from the Eriksson, Goldthorpe, and Portocarero (EGP) class schema’s rationale for differentiating occupations on the basis of asset specificity and monitorability. Further, Perales (2013) failed to replicate Polaveija’s (2005) success with this measure on nationally representative occupational data from Britain. In fact, Perales (2013) was also far from

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7 This measure comes from the 1980 U.S. Dictionary of Occupational Titles (DOT). It represents the average amount of time required to learn the techniques, acquire the information, and develop the facility needed for average performance in a job similar to the referent occupational title in the DOT.
completely explaining the net effect of sex composition with any of the other four measures of specialized-human capital he tested.

Regardless of the questions these studies raise through their measures of specialized-human capital, all studies except Tomaskovic-Devey and Skaggs (2002) share a common feature that raises questions about their results. These studies use occupation-level data to draw conclusions about sex differences in rewards for specialized-human capital that, by definition, originates with jobs in workplaces. An occupation can be thought of as a group of jobs involving closely related tasks, whose performance requires similar qualifications, knowledge, and skills. But a job consists of a set of duties, tasks and responsibilities requiring the services of an individual (Thériault 1992). Thus, it is informative but problematic to ascertain the impact of specialized-human capital on sex-composition effects with occupational data. I elaborate below.

Tomaskovic-Devey and Skaggs note that occupation-based measures of human capital and sex composition are simply too broad to capture the complexity of what is going on at the job level, where pay relationships are actually formed, and are more idiosyncratic through their contingency on the unique circumstances of each workplace. They clarify this with an earlier study showing clear evidence of substantial measurement error when occupation-level over job-level measures are used to predict earnings, especially for measures of skill (2002). Their point is fundamental because it implies that researchers wanting to be more certain about how specialized-human capital explains the sex-composition effect on pay should strive for a more job-level measure of such a relationship. Hence the rationale for the first question in this chapter, which asks how much a job’s human-capital demands as opposed to an occupation’s human-capital demands, explains the sex-composition effect on pay. Tomaskovic-Devey and Skaggs (2002) investigated this issue with job-level data, but their findings raise additional questions – as I explain below.

Consistent with Tam’s (1997) occupational findings, Tomaskovic-Devey and Skaggs (2002) found that sex-composition effects on pay appeared to come from females’ tendency to be in jobs that required less specialized skills and training. However, further analyses suggested that this inequality resulted from females sorting into jobs with no access to firm-specific training because of that segregation. The authors subsequently downplayed the direct devaluation of women’s
work as an important source of gender-pay inequalities in organizations. The downplaying of direct devaluation by these authors seems premature.

The sample size of 700 individuals is unrepresentative and small. Even if the sample contained one incumbent per job, it is not clear that 700 jobs from multiple workplaces in one region is diverse enough to conclude that specialized-human capital subsumes devaluation at the job level. Questions also remain about whether some of these key variables would still be statistically significant in a larger sample size. The study also used a measure of specialized-human capital based on individuals’ self-reports, so the explanatory power of this variable may be gender biased for reasons discussed earlier. But most importantly, the authors note that the advantage of using job-level data is tempered by a correlation between job-sex composition and individual gender that is so high, \( (r=.882) \), that there are multicollinearity problems when they are in the same model. This is problematic because it is not clear how much their explanation of the sex-composition effect comes from the level of specialized-human capital required by the job, or from the human capital the individual brings to the job. As I elaborate in the Methods section, my job-level analysis overcomes these issues.

Tomaskovic-Devey and Skaggs’ (2002) point about pay relationships being more idiosyncratic at the job level is also relevant for thinking about the second question in this research – the degree that a job’s female composition moderates the returns to a job’s human-capital demands. It is important to go beyond just asking what the female-composition effect on pay is net of a host of other characteristics, and ask how much the female-composition effect on pay varies because of a job’s particular characteristics. As I elaborate in the next section, it is especially important to ask such a question as it relates to a job’s human-capital demands. This is because the degree that a job’s female composition moderates the returns to a job’s human capital demands can, in theory, alter the efficacy of workplace policies that were designed to ameliorate gender-pay inequalities.

**The Conditioning Effect of Sex Composition on Returns to a Job’s Human-Capital Demands**

Often, the characteristics of work are presented as objective and self-evident attributes, making the relationship between the work’s demands and what it is paid appear insensitive to changes in female composition (see review in Steinman 1999). But according to Steinberg’s review of the
social construction of skill, the reality is different. Although skill definitions can at times reflect more objective attributes, such as observable differences in a job’s level of autonomy and complexity, justifications for which skills deserve higher levels of compensation are often constructed out of historical circumstances that are based on assumptions about gender (Steinberg 1990). Thus, it is reasonable to expect that returns to a job’s human-capital demands are moderated in some way by the job’s female composition. Figure 2.1 illustrates this relationship:

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Job Human-capital Demands

  C+

  B?

  A-

Job Female-Composition

 Job Average Pay
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Figure 2.1. Relationship between a Job’s Human-Capital Demands and Pay as Moderated by a Job’s Female Composition

“A” is the negative relationship between female composition and pay that is, according to economists, largely spurious and explained instead by the lower human-capital demands, “C”, innate to more female-concentrated jobs. “B” represents the potential moderating effect of female composition that influences returns to the job’s human-capital demands “C”. The interaction of “B,” job-female composition, with the relationship between a job’s human-capital demands and pay, “C,” is important. Ideally, pay differences are supposed to be based on objective sources of reward, such as the level of skill demanded by the work. Under this ideal, we would expect jobs with higher-skill demands to receive the same rate of return for these demands as jobs with lower-skill demands, irrespective of the job’s sex composition.

But suppose that jobs with higher skill demands had disproportionately lower rates of return for these demands as the percentage of females in the job increased. Such a relationship is difficult to explain from a human-capital perspective alone, since this perspective would argue that jobs with higher skill demands should have the same rate of pay regardless of their sex composition.

The devaluation perspective offers more insight into the above scenario. This perspective would view that there is nothing precluding the female-composition effect on pay from intensifying in jobs with greater human-capital demands – if there is something about such jobs that provide the
opportunity for this to happen. In the following paragraphs, I explain what may create the opportunity for the female-composition effect to manifest like this.

In brief, it is typically understood that work demanding higher levels of skill is likely to pay more. However, because of organizational policies to induce performance, work that pays more is also likely to have wider pay dispersion, or heteroscedasticity (Bloom 1999). This is important because it suggests that pay inequalities are potentially wider at higher points in an organization’s pay distribution. Therefore, if more females were to be located in jobs demanding higher levels of skill, they will likely be in higher-paying jobs, but they will also be in a pay structure that allows for wider potential pay inequalities. Theoretically, the conditions are appropriate for the female-composition effect on pay to be exacerbated among jobs with higher skill demands.

Pay dispersion can have different causes, depending on the unit or level of analysis under study (review in Gupta, Conroy, and Delery 2012). But I am referring to an important consideration behind the pay dispersion of jobs within firms. A consistent theme in the pay literature has been that to motivate employees, organizations must set pay rates that are not only high enough in an absolute sense, but also different enough to communicate the differences in contribution, human capital, and effort that exist in an organization (review in Bloom 1999). This policy also applies to jobs. Jobs that make a greater contribution to the firm must not only be paid high enough in an absolute sense, but the pay must be different enough to distinguish the contribution of one job with high human-capital demands from a job with even higher human-capital demands. But here is the problem. To effectively distinguish the difference in contribution that jobs make to the firm, the pay difference distinguishing one job from another would have to widen progressively across the pay distribution. This policy not only formalizes wider pay dispersion among jobs that are higher up in the pay distribution, but it also creates the conditions for greater potential pay inequalities at higher points in the pay distribution.9

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8 For example, the average salary of jobs in the 80th percentile of a pay distribution will not only be higher than the average in the 20th percentile, but the variance might also be wider.

9 This is clarified in the following example. Suppose an organization’s pay policy mandated that the maximum salary between every job in the pay hierarchy was differentiated by $5000. Pay differences across jobs are thus equitable because they are constant, but this policy ineffectively distinguishes the contributions of higher-paying jobs. A salary difference of $5000 means proportionately more for a job with a maximum salary of $25,000 than for a job with a maximum salary of $100,000. Establishing salary differences that are proportionate to the salary level
How females are affected by such a policy is not clear since the literature is relatively silent on how pay dispersion within firms affects gender-pay inequality. But since a firm’s pay structure is likely to become more dispersed at higher points in the pay distribution, this provides the potential for the female-composition effect on pay to be more severe in higher-paying jobs. At the labour-market level, current evidence supports that more dispersed earnings structures tend to worsen pay inequalities for members of traditionally marginalized groups. If this pattern is documentable at the broad labour-market level, then it is intuitive to think that this pattern is even clearer to see within the more detailed and self-contained earnings structure of the firm. In the remainder of this section, I discuss the theoretical and practical relevance of examining this issue at the job-level, and the relevance of examining this issue as it pertains to returns a job’s skill demands.

Past studies have suggested that sex-composition effects on pay can be exaggerated by a host of characteristics at the level of the labour market, workplace, occupation, job, and the individual. But there is particular merit to focusing on the variability of this effect at the job level. It is well established that the effect of sex composition on pay is more pronounced at the job level than at the occupation level, partly because the broader classification of work at the occupation level has been shown to understate the degree of segregation at the finer job level (Bielby and Baron 1986; Huffman, Velasco, and Bielby 1996). Also, researchers generally agree that what is observed at the occupation level regarding sex-composition effects largely reflects more proximate and idiosyncratic processes operating at the job level (Cohen and Huffman 2003b; Reskin 1993; Tomaskovic-Devey 1995). Thus, compared to an occupation-level analysis, a job-level

corrects this problem, but this policy would also widen pay differences among higher-paying jobs. 10 percent of $25,000 means the next highest-paying job is capped at $27500, but 10 percent of $100,000 means the next highest-paying job is capped at $110,000, a numerically greater difference of $10,000.

10 Konrad, Yang, and Cannings (2012) find that in labour markets with more dispersed earnings structures, the effect of bias on pay tends to have a substantively negative effect on members of devalued groups.

11 See citations in Andersen and Witham (2010); Corcoran and Duncan (1979) for how gender conditions returns to human capital at the individual level. At the job level, past research has found that sex composition can interact with several job characteristics to affect pay, such as how old the job is, its number of incumbents, ambiguity of tasks (Baron and Newman 1990), or working conditions (Jacobs and Steinberg 1990). But Huffman and Velasco (1997) found no evidence that the pay penalty associated with a job’s female composition varied as a function of organizational attributes and organizational environments. Others who have controlled for individual, job-level, and labour market characteristics have found that the tendency for jobs to pay less as proportion female rises is more subdued in gender-integrated labour markets (Cohen and Huffman 2003a). In a related study extending this analysis to include the devaluation of jobs at the organizational level, these same authors find the severity of the devaluation at this level is strongly linked to the gender segregation of the local labour market (Cohen and Huffman 2003b).
examination of sex-composition effects clearly has more reliability and validity from the perspective of conceptualizing and measuring the phenomenon.

With regard to studying the effect of sex-composition on returns to a job’s skill demands, it is important to focus on this attribute because it is a large part of what employers reward for in a job (Jacobs and Steinberg 1990; Rotundo and Sackett 2004). As a major component of a job’s rewards, it is also theoretically important to inquire about whether the sex-composition effect on pay moderates the returns to a job’s skill demands. If it does moderate the returns to such a major component of a job’s rewards, then an important source of gender-pay inequality is being overlooked in conventional analyses.

To date, the relevant sociological research that has included measures of specialized-human capital in its analyses of sex-composition effects has treated these demands mostly as linear controls. This approach is adequate if sex-composition effects on pay are not moderated by the level of skill demanded by the work, but it is more realistic to expect that they are. As outlined previously, the pay structure of firms is likely to be more dispersed at higher points in the pay distribution. Plus, based on the evidence from the human-capital literature, it is reasonable to conclude that work with greater skill demands generally pays more (e.g., Autor and Handel 2013). These two understandings support the expectation that work with greater skill demands is generally located higher up in the firm’s pay distribution, where pay dispersion is greater. The more realistic scenario then, is that the female-composition effect on returns to a job’s skill demands intensifies at higher levels of skill.

This moderating effect, if it exists, has important policy implications for how workplaces correct gender-pay inequalities. Most workplaces rely on two broad strategies for correcting pay inequalities. The first strategy, a within jobs approach, is implemented through policies and

---


13 As the level of skill demanded by the work cannot be directly measured, it was inferred through the abstractness of work tasks. Net of other factors, these authors found that work with more abstract tasks was generally associated with higher pay. While other research rightly notes that skills and tasks are not completely synonymous concepts, generally there is a positive correlation between the two from the perspective that work with a significantly higher content of abstract tasks tends to be done by more skilled workers (as measured by their levels of education and experience) (Baumgarten, Geishecker, and Görg 2013).
practices that ensure male and female-concentrated jobs making the same or substantively the same contribution to the organization are paid at the same rate. Workplace initiatives popularly known as equal pay, comparable worth, or pay equity, are reminiscent of this first strategy. The second strategy is an across jobs approach. In this strategy, gender-pay inequalities are seen as an occupational mobility problem in which females are primarily concentrated in lower-paying, less-skilled jobs. To ameliorate gender-pay inequalities using this strategy, workplace policies and practices facilitate the redistribution of females into higher paying jobs. Workplace initiatives popularly known as affirmative action or employment equity are reminiscent of this second strategy (Jain et al. 2003).

One potential problem with these policies is that when there is widening pay dispersion at higher points in the pay distribution, ameliorating pay inequalities with the across-jobs approach potentially exacerbates pay inequalities that are targeted by the within-jobs approach. Grodsky and Pager (2001) illustrated this problem through their analysis of racial wage inequalities in US occupational data. They showed that policies which redistribute blacks into higher-paying occupations to reduce a racial-composition effect on pay would help raise the overall average wage of black workers. However, this would also exacerbate racial pay inequalities within occupations because the black-white pay gap widened at higher points in the occupational-pay distribution.

Grodsky and Pager’s (2001) findings are helpful for thinking about the practical implications of the second research question, which is how the female composition of the job moderates the returns to a job’s human-capital demands. If the female-composition effect is associated with increasingly negative returns at higher levels of these demands, workplace policies that redistribute females into higher-paying jobs might be counterproductive. These policies might raise the average salary of females in the organization, but they would also place more females into a pay structure where sex-composition effects on pay have the potential to be more severe. This follows because, as previously discussed, the pay dispersion in firms is likely to widen at higher pay levels.

In summary, this chapter looks at two interrelated questions: to what degree do a job’s human-capital demands explain the female-composition effect on pay, and to what degree the returns to
a job’s human-capital demands are moderated by a job’s female composition. The following section introduces the data and analytic approach used to answer these questions.

Data and Methods

This research draws on job-level data from 68 government service organizations of an OECD Member country. The data were originally collected as part of an initiative to implement a universal job-evaluation system in the country’s bureaucratically complex government service. As explained in Chapter 1, job evaluation is a term used to describe the formal organizational activity of assessing jobs in the firm for the purposes of establishing pay differences between jobs that make different contributions to the firm. In this activity, jobs are typically scored against a set of criteria known as compensable factors, and then assigned a numeric score reflecting each job’s overall rating on these factors. Based on each job’s overall score in this schema, it is subsequently assigned to a corresponding pay level. For a more detailed overview of this activity, please refer to Appendix A.

Under the direction of an overseeing organization, job-evaluation committees were formed in each of the 68 organizations to rate over 50,000 jobs. Committee members were given the same formal training to carry out the evaluations, part of which included instruction on keeping subjective assumptions about gender and race out of the assessment process. Nevertheless, it is possible that unconscious gender and racial biases are still contained within these assessments.

For several reasons, these data are especially appropriate for this study. As mentioned in Chapter 1, government is a substantial employer of women in most advanced economies, so job data from government organizations are extremely relevant for studying the nature of sex-composition effects on pay. These public service job data were also useful because they encompass work from virtually every sector of the economy, thus providing a sample of jobs covering a wide spectrum of human-capital demands. Since this dissertation focuses on pay as it is connected to the demands of jobs, job data from the government sector are also highly applicable. This is because pay based on the characteristics of the job and not the individual in the job continues to dominate in the government sector (Dulebohn and Werling 2007).

14 The data in this research are protected by a strict nondisclosure agreement.
Variables and Model Specification

The job-evaluation data for this research is especially appropriate for measuring gender-pay inequalities that are related to the human-capital demands of the work. This is because a job evaluation is supposed to assess, among other things, the relative skill demanded of the job, not the skills an incumbent brings to the job. Therefore, the information about skill collected in most job evaluations is a highly valid source of data from which to capture the specialized human-capital required by the work itself. In the following paragraphs, I describe how these demands, and other relevant job characteristics, were measured from these data.

The original job-evaluation data were based on a schema comprised of 34 compensable factors, each of which was classified into one of the four main dimensions of job value traditionally required by law in most job-evaluation systems: Skills, Effort, Responsibility, and Working Conditions (see Column A of the table in Appendix B). A preliminary analysis revealed that many of the compensable factors within each of these four dimensions were highly intercorrelated. Further, several of the factors in the Responsibility dimension were also highly correlated with many of the factors in the Skills dimension. To effectively eliminate these intercorrelations while retaining as much of the original schema as possible under these four dimensions, many of the compensable factors within each of the four dimensions had to be aggregated.

The result of aggregating this highly intercorrelated set of 34 factors produced seven final variables, each with a numeric value representing the summed scores of their constituent factors. Three of these variables fall under the Responsibility dimension, one under the Effort dimension, and one under the Working Conditions dimension (see Column B of the Table in Appendix B). The remaining two variables, which are the main focus of this research, fall under the Skills dimension. These two variables are crucial because they are used as measures of a job’s specialized human-capital demands in the statistical models. Table 2.1 illustrates the desirably low partial correlations of this final set of variables.
Table 2.1.  Descriptive Statistics and Partial Correlations of the Condensed Set of Compensable Factors  
\((N = 50229)\)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>WB</th>
<th>PA</th>
<th>EC</th>
<th>SK1</th>
<th>SK2</th>
<th>EF</th>
<th>WC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsibility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsibility for well-being of individuals (WB)</td>
<td>1.21</td>
<td>0.49</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsibility for physical assets (PA)</td>
<td>4.42</td>
<td>1.40</td>
<td>-0.11</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsibility for ensuring compliance (EC)</td>
<td>1.93</td>
<td>0.83</td>
<td>0.02</td>
<td>0.12</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skills</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive skills (SK1)(^1)</td>
<td>46.06</td>
<td>12.17</td>
<td>-0.02</td>
<td>0.01</td>
<td>0.37</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor and sensory skills (SK2)</td>
<td>1.70</td>
<td>0.86</td>
<td>0.12</td>
<td>0.19</td>
<td>-0.04</td>
<td>-0.15</td>
<td>1.00</td>
<td></td>
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<tr>
<td>Effort</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effort (EF)</td>
<td>13.90</td>
<td>2.05</td>
<td>0.06</td>
<td>-0.01</td>
<td>0.12</td>
<td>0.56</td>
<td>0.05</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Working Conditions</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working conditions (WC)</td>
<td>4.31</td>
<td>1.66</td>
<td>0.33</td>
<td>0.13</td>
<td>-0.01</td>
<td>-0.10</td>
<td>0.42</td>
<td>0.33</td>
<td>1.00</td>
</tr>
</tbody>
</table>

\(^1\)SK1 comprises information, leadership, and money responsibilities; breadth and depth of required job knowledge; and communication skills (see Column 2 of the table in Appendix B).

Two of the variables in Table 2.1, identified as SK1 and SK2, represent the two aspects of a job’s human-capital demands. SK1 represents what I label the cognitive skills associated with a job’s human-capital demands. It comprises 12 of the 13 factors originally listed under the Skills dimension of the job-evaluation schema (see Column A of the Table in Appendix B). It also includes three factors from the Responsibility dimension (responsibility for planning, acquiring, and spending funds) that were highly correlated with these 12 factors because they appear to require high levels of cognitive skill as a precursor to exercising these responsibilities.

As the correlations in Table 2.1 show, a second factor, labelled SK2, was retained as a separate measure of a job’s human-capital demands. This factor was one of the 13 factors classified under the Skills dimension in the original job-evaluation schema (see Column A of the Table in Appendix B). This factor represents what the job-evaluation schema called Motor and Sensory Skills— a measure of skill in controlling the body movements to result in skilled action (e.g., coordination, maintenance of equilibrium, and dexterity), as well as using the senses to make distinctions. This factor was so poorly correlated with the other factors, that it was retained as a conceptually distinct aspect of a job’s skill demands.
Aside from the abundant sample size of jobs from a large number of organizations, this analysis offers two main advantages over the analysis used in Tomaskovic-Devey and Skaggs’ (2002) research. First, the estimates will not be potentially distorted by high levels of multicollinearity between a job’s characteristics and an individual incumbent’s characteristics, because the data were not created from nor do they contain any information based on the individuals in these jobs. Secondly, the two main measures of skill used in this analysis (Cognitive and Motor and Sensory Skills), are highly relevant indicators for the concept of specialized-human capital at the job-level. This is because the instructions accompanying the job-evaluation schema from which this data is based, explicitly ask that the skills factors of these jobs be identified based on, among other things, the depth and breadth of specific expertise, specialized or on-the-job training, and skills learned in the workplace. Therefore, these measures go beyond a set of general skill requirements to do the job and incorporate an essential feature of the specialized-human capital concept – the nontransferrable skill sets specific to the job in the firm.

The Regression Model

Both of the questions in this research rely on an OLS regression model. I start with an overview of the model specification and the analytic approach pertaining to the first question:

\[
\text{To what degree is the traditionally negative relationship between female composition and pay explained by a job's human-capital demands?}
\]

This question is answered through a series of models which compare the effect of a job’s female composition on pay with and without the human-capital variables. Comparing the change in the explained variance between these models made it possible to estimate how much the skill demands of the jobs were contributing to the female-composition effect. The first model introduced all variables except a job’s percentage of females and the two variables measuring a job’s human-capital demands. This was followed by a second model introducing a job’s percentage of females. The change in explained variance between these two models provided a baseline estimate of how much a job’s female composition accounted for the variance in a job’s salary, absent of controls for a job’s skill demands.

A third model was introduced with all variables except a job’s percentage of females, followed by a fourth model introducing a job’s percentage of females. The change in explained variance
between Model 3 and 4 provided an estimate of the effect of a job’s female composition net of a job’s skill demands. The overall contribution of a job’s human-capital demands to the female-composition effect was therefore estimated by comparing the variance explained by female composition between Model 3 and 4, with the variance it explained between Model 1 and 2.

The dependent variable in these models is a job’s full-time maximum annual salary because this was the only measure of pay available in the data. However, using this measure is one of three commonly accepted methods for measuring gender-based differences in pay (Robinson 1998). Normally, hourly wages are preferable for analyses of gender-pay inequality because it minimizes measurement errors in earnings related to gender disparities in hours worked. But because the pay data are based on the full-time equivalent maximum annual salary of jobs, using an hourly wage measure in this case does nothing to minimize measurement errors in the pay variable.

To preserve confidentiality, it was necessary to represent the salary data in a form that would conceal the country currency. This was done by representing the salary data in terms of salary levels, which is a practice that has been used in other studies (Jacobs and Steinberg 1990; Stoever et al. 2007). In total, the salary data were classified into 741 salary levels, representing 741 different maximum salaries for the jobs in the data. Pay data are often skewed, and typically need to be logged for use in OLS regression models. However, the present pay data was used in unlogged form because preliminary analyses showed that logging the data worsened the skew.

The main independent variable in the OLS model is a job’s percentage of females, which came directly from the job-evaluation data. The variables representing a job’s human-capital demands are the variables in Table 2.1 representing the cognitive aspects of a job’s skill demands (SK1), and the motor and sensory aspects (SK2). As previously explained, these two variables were derived from the compensable factors used in the job-evaluation data, and came largely from the Skills dimension of this schema (see the table in Appendix B). Higher scores on these variables indicate greater-skill demands imposed by the job in the respective area.

---

15 The skewness of the unlogged data was -.026 (.011), while the skewness of the logged data was -2.27 (.011).
The OLS model contains seven other variables controlling for pay differences in job salary. Five of these controls include the condensed set of compensable factors from the job-evaluation schema in Table 2.1: three indicators for a job’s type of responsibility (responsibility for well-being of individuals, physical assets, and ensuring compliance), one indicator measuring the relative effort of the job, and one variable measuring the unpleasantness of the job’s working conditions. Since all five of these variables were derived from the factors in the job-evaluation schema, they are extremely relevant controls for other factors that determine what a job is paid.

The sixth control variable is a job’s number of incumbents. According to Baron and Newman (1990), tendencies towards devaluing a job are stronger in jobs containing fewer incumbents. The reason, as they suggest, is that it is cognitively easier to perceive and classify a job with 1 male incumbent and 9 female incumbents as female dominated, than one with 100 male incumbents and 900 female incumbents.\(^\text{16}\)

The seventh control variable consists of a measure of union activism concerning gender-pay inequality. Some unions, especially those having large percentages of female members, have recognized the strategic importance of attracting and retaining their female membership through developing policies that address gender-pay inequality (Baron and Newman 1990). As Baron and Newman have found, jobs protected by unions with greater levels of activism on such issues tend to have lower levels of devaluation. The present analysis used a union’s female density to represent its level of activism on such issues, as unions with a higher-female density might be expected to have stronger positions about the equitable pay of females.

Controls for industry and geography were not included because there was no reliable way to link the job data to these variables. However, this should not greatly impact the results of the analysis. First, employment in the government service is often conceptualized as an industry unto itself (e.g., the private/public sector distinction). Second, even if meaningful geographic data were available, it might be a weak control for pay differences in the present analysis. Since the jobs in the data are protected by unions that bargain nationally, any negotiated agreements over a job’s maximum salary would tend to apply to all such jobs, regardless of the geographic location. If

\[^{16}\text{To facilitate interpretation, the variable measuring a job’s number of incumbents was rescaled so its lowest point of one incumbent equalled 0.}\]
the data were based on the unique salaries of individuals in these jobs, then geographic controls would likely provide more information about salary differences.

The second question this research asks, about how a job’s female composition moderates the returns to a job’s human-capital demands, was answered by extending the fourth OLS model. A fifth model was added containing an interaction term between a job’s percentage of females, and each of the two indicators for a job’s human-capital demands discussed earlier. If the female-composition effect on pay varies in any way as a job’s skill demands change, then these two interaction terms will capture this moderating effect.

Approximately four-fifths of the jobs in the data were staffed by one incumbent, meaning that the percent of women in such jobs was either 0 or 100. And while only one-fifth of these single-incumbent jobs were staffed by men, the men in such jobs had a substantially higher salary on average. Thus, due to the high proportion of single-incumbent jobs and the higher average salary of men in such jobs, an OLS model that weighted jobs equally was likely to produce an artificially large negative female-composition effect on pay. Further, it is also possible that single-incumbent jobs were not strongly sex-typed, but appeared as such because of the sex of the incumbent at the time of the job evaluation. To ensure that the model results were not biased by the abundance of single-incumbent jobs, jobs were weighted in proportion to their number of incumbents. In other words, the sum of the case weights in the data equals the number of jobs.

Lastly, the seven variables created from the job-evaluation data, mentioned above had different minimum and maximum values. Therefore, these variables were standardized to ensure that their estimated effects in the OLS model could be meaningfully compared (Firth 1998).

Results

After providing a brief overview of some of the key variables used in the analyses, the OLS regression results pertaining to the first question are introduced. Table 2.2 provides a descriptive overview of the variables in these analyses. Except for a job’s number of incumbents, the weighted and unweighted values of these variables are similar.

The average salary level of these jobs was about 396, or 50 percent of the maximum salary level of 741. On average, 52 percent of incumbents in any given job were female, though the standard deviation indicates that there is a great deal of variation around this average. The cognitive
aspects of a job’s human-capital demands (SK1) had an average score of 45.2, which is 46.6 percent of the maximum possible score of 97 on this attribute. The average for the motor and sensory aspects (SK2) was 1.7, which is 34 percent of the maximum possible score of 5.

Table 2.2. Descriptive Statistics of Model Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Unweighted</th>
<th>Weighted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Job salary level</td>
<td>395.74</td>
<td>190.63</td>
</tr>
<tr>
<td>Percentage of women in job</td>
<td>51.41</td>
<td>29.26</td>
</tr>
<tr>
<td>Female density of job’s covering union</td>
<td>48.76</td>
<td>27.12</td>
</tr>
<tr>
<td>Number of incumbents in job</td>
<td>2.41</td>
<td>19.15</td>
</tr>
<tr>
<td>SK1: Information, leadership, money, knowledge,</td>
<td>46.06</td>
<td>12.17</td>
</tr>
<tr>
<td>communication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SK2: Motor and sensory skills</td>
<td>1.70</td>
<td>0.86</td>
</tr>
<tr>
<td>Job responsibility: Well-being</td>
<td>1.21</td>
<td>0.49</td>
</tr>
<tr>
<td>Job responsibility: Ensuring compliance</td>
<td>1.93</td>
<td>0.83</td>
</tr>
<tr>
<td>Job responsibility: Physical assets</td>
<td>4.42</td>
<td>1.40</td>
</tr>
<tr>
<td>Job effort</td>
<td>13.90</td>
<td>2.05</td>
</tr>
<tr>
<td>Job working conditions</td>
<td>4.31</td>
<td>1.66</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1Data are weighted in proportion to the number of incumbents in the job (see pg. 40).

Human-Capital, Devaluation, and the Female-Composition Effect on Pay

Pursuant to the first question—to what degree the negative female-composition effect on pay could be explained by a job’s human-capital demands—Table 2.3 presents the results of the regression analysis.

Model 1 in Table 2.3 shows that approximately 56 percent of the variance in the average salary is explained without controlling for a job’s female composition, or the two variables controlling for a job’s human-capital demands. The explained variance increases to about 61 percent when a job’s percentage of females is added in Model 2. Therefore, a job’s female composition explains about 4.9 percent of the variance in the average salary when these crucial human-capital variables are absent (.612 -.563).

Model 3 shows that after controlling for all variables except a job’s percentage of females, over 76 percent of the variance in the average salary is explained. This explained variance increases to 78.5 percent once a job’s percentage of females is included in Model 4. Therefore, a job’s female composition explains considerably less variance, about 2.3 percent, once these crucial controls for a job’s human-capital demands are added (.785 -.762).
By dividing the change in the explained variance between Model 3 and 4 (2.3 percent) by the change in the explained variance between Model 1 and 2 (4.9 percent), we can estimate the degree that the female-composition effect on pay is accounted for by a job’s human-capital demands. The net effect of a job’s female composition in the presence of controls for human capital is about 47 percent of its net effect in the absence of such controls (2.3/4.9). Or alternatively, about 53 percent of the net effect of a job’s female-composition reflects the skill-demands of jobs.

Table 2.3. Regression of Job Characteristics on Salary Level (N = 50229)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>520.35***</td>
<td>586.56***</td>
<td>463.57***</td>
<td>513.31***</td>
<td>513.91***</td>
</tr>
<tr>
<td><strong>Human-capital demands</strong>¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SK1: Cognitive skills²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SK2: Motor and sensory skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Compensable factors</strong>¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsibility: Well-being of individuals</td>
<td>-6.36**</td>
<td>-1.25**</td>
<td>-2.20***</td>
<td>1.76***</td>
<td>0.44***</td>
</tr>
<tr>
<td>Responsibility: Physical assets</td>
<td>-4.11***</td>
<td>-8.50***</td>
<td>-4.02***</td>
<td>-5.08***</td>
<td>-4.43***</td>
</tr>
<tr>
<td>Responsibility: Ensuring compliance</td>
<td>51.43***</td>
<td>49.40***</td>
<td>6.33***</td>
<td>6.66***</td>
<td>6.90***</td>
</tr>
<tr>
<td>Effort</td>
<td>60.90***</td>
<td>57.23***</td>
<td>15.27***</td>
<td>15.54***</td>
<td>15.43***</td>
</tr>
<tr>
<td>Working conditions</td>
<td>-23.93***</td>
<td>-44.05***</td>
<td>-11.45***</td>
<td>-23.02***</td>
<td>-21.25***</td>
</tr>
<tr>
<td><strong>Other job characteristics</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Female density of union (percent)</td>
<td>-3.05***</td>
<td>-2.43***</td>
<td>-1.70***</td>
<td>-1.33***</td>
<td>-1.27***</td>
</tr>
<tr>
<td>Number of incumbents in job</td>
<td>-0.30***</td>
<td>-0.33***</td>
<td>-0.02***</td>
<td>0.02***</td>
<td>0.02***</td>
</tr>
<tr>
<td>Percentage of females in job</td>
<td>-1.77***</td>
<td>-1.26***</td>
<td>-1.33***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of females in job × SK1:Cognitive skills²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.016</td>
</tr>
<tr>
<td>Percentage of females in job × SK2:Motor and sensory skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.488***</td>
</tr>
<tr>
<td>Adjusted R-squared value</td>
<td>.563</td>
<td>.612</td>
<td>.762</td>
<td>.785</td>
<td>.789</td>
</tr>
<tr>
<td>Change in R-squared value</td>
<td>.049</td>
<td>.150</td>
<td>.023</td>
<td>.004</td>
<td></td>
</tr>
</tbody>
</table>

* p ≤ .05; ** p ≤ .01; *** p ≤ .001
¹ Variables are standardized.
² Responsibility for information, leadership, and money; breadth and depth of required job knowledge; communication skills.
³ Model results are based on proportional weights of the number of incumbents in the job (see pg. 40).

Additional information about this effect is also provided by comparing key coefficient estimates in Model 2 and 4. For example, the intercept of 586.56 in Model 2 represents the predicted average salary level when there are 0 percent females in the job, a union’s female density is 0,
the number of incumbents in a job is at its lowest point of 1, and all other job characteristics are at their mean values. For a job’s percentage of females, the coefficient estimate of -1.77 indicates that each percentage increase in a job’s proportion of females is associated with a pay penalty of about 1.8 levels. These estimates suggest that in the absence of controls for a job’s skill demands, a job occupied entirely by females is predicted to have a salary that is about 70 percent of the average salary in all-male jobs.17 This improves to only about 75 percent once a job’s skill demands are controlled for in Model 4. Therefore, a job’s human-capital demands are a relatively incomplete explanation for the female-composition effect on pay in the present data.

The Moderating Effect of Female Composition on Returns to a Job’s Human-Capital Demands

Model 5 in Table 2.3 presented the results of the regression analysis pertaining to the second question, which asked how a job’s female composition moderates the returns to a job’s human-capital demands. The regression estimates should be considered highly stable as they show no evidence of harmful collinearity. Nevertheless, the interaction terms in Model 5 were “orthogonalized” to achieve more accurate coefficient estimates in the face of inevitable collinearity with their component variables.18 Before discussing these results, I introduce the results of a preliminary analysis that largely confirm the rationale for asking about moderating effects.

In an earlier section, I mentioned that on average, work with greater-skill demands tends to pay more, and that work which pays more tends to have wider pay dispersion. A preliminary analysis of the data largely confirmed these two associations (see Appendix C). Demonstrating these associations is important because it provides a stronger basis for expecting that a job’s female composition will moderate the returns to a job’s human-capital demands when such demands are higher. A third diagnostic analysis suggested that as a job’s male composition increased, so did its salary and the accompanying pay dispersion. Meanwhile, a fourth diagnostic analysis found

17 Using the estimates from Model 1, this is calculated as follows: \(((586.56) + (100 \times -1.77))/586.56 = 0.698\).

18 The highest variance inflation factor (VIF) of the variables in the full model (Model 5) was 5.52. This is well below even the most conservative VIF limit of 7 proposed by Belsley (1991). After orthogonalizing the interactions and their components, the average VIF improved to 1.81. The corresponding coefficient estimates for the human-capital variables and their interactions also changed dramatically. The procedure involves substituting the residuals of the interaction term in the regression model after it has been regressed against the collinear variables to partial out the shared variance (Draper and Smith 1998).
that a job’s male composition and a job’s relative skill demands were positively correlated (see Appendix C). Collectively, these data present a situation where gender-pay inequality might be reduced by redistributing females into higher-paying, higher-skilled jobs that are predominantly held by males. However, doing so would also expose more females to a pay structure that enables devaluation to intensify among jobs with higher human-capital demands.

Figures 2.2 and 2.3 plot the predicted relationship between a job’s percentage of females and salary level, at low and high levels of cognitive skill, respectively. Figures 2.4 and 2.5 plot the same for a job’s motor and sensory skills. In both charts, the solid line shows the main effect of a job’s female composition on salary at low- and high levels of these skill demands. The dashed line shows how returns would be moderated by a job’s female composition at these skill levels.

In Figures 2.2 and 2.3, the main effect of a job’s percentage of females is expectedly negative. Relative to more male-concentrated jobs with the same demands, more female-concentrated jobs are predicted to have consistently lower pay for cognitive skills. The minor divergence of the solid line from the dashed line in Figure 2.3 suggests that at higher levels of cognitive skill, returns for these skills are moderated only marginally in the expected manner by a job’s female composition. Therefore, the results in Figure 2.3 do not equivocally support that the female-composition effect is more severe at higher levels of this attribute.

Figure 2.2. Effect of Job-Percent Female and Low Cognitive Skills (SK1) on Salary Level
Figure 2.3. Effect of Job-Percent Female and High Cognitive Skills (SK1) on Salary Level

However, the results pertaining to motor and sensory skills were more unique. In Figure 2.4, a job with low motor and sensory skills and occupied entirely by females was predicted to have returns on this attribute that were disproportionately lower than an equivalently rated all-male job. However, Figure 2.5 shows that jobs with high motor and sensory skills and occupied entirely by females would have disproportionately higher returns on this attribute.

The presence of a moderating effect at higher levels of skill is confirmed at least for motor and sensory skills, but the direction of this effect is unique because it is counter-stereotypical. The result implies that more female-concentrated jobs with higher levels of motor and sensory skill would receive greater returns for this attribute. The initial assumption was that more female-concentrated jobs receive disproportionately lower rates of return at higher levels of this attribute because of the wider pay dispersion that is likely to accompany higher-skilled, higher-paying jobs. I return to this counterintuitive finding in the next section.
Figure 2.4. Effect of Job-Percent Female and Low Motor & Sensory Skills (SK2) on Salary Level

Figure 2.5. Effect of Job-Percent Female and High Motor & Sensory Skills (SK2) on Salary Level
Discussion

In this chapter I have asked two questions about the female-composition effect on pay. I have examined whether, as in certain occupation-level findings, such an effect is adequately explained by females’ concentration in jobs with lower human-capital demands. I have also examined how a job’s female composition moderates the returns to a job’s human-capital demands.

The findings of Tam (1997) or Polaveija (2005, 2007, 2008, 2009) suggest that, at the occupation level, sex-composition effects on pay can be explained by the level of specialized-human capital demanded in more female-concentrated occupations. Perales (2013) tested this thesis on nationally representative British data with five alternate measures of specialized-human capital. However, he found no evidence that sex-composition effects on pay were completely explained by specialized-human capital, leading him to conclude that devaluation was still a viable explanation for why more female-concentrated occupations tended to pay less. In the only analysis using job-level data, Tomaskovic-Devey and Skaggs (2002) results were still consistent with the specialized-human capital thesis. More female-concentrated jobs paid less not because of devaluation, but because such jobs tend to have less specialized skills; though the authors qualify this finding with additional analyses suggesting that females were likely sorted into jobs that required less specialized skills and training.

My findings are different. Consistent with Perales (2013), I find little evidence that controlling for specialized-human capital completely explains the female-composition effect on pay. But unlike Perales, whose findings are based on occupation-level data, my findings are based on the job level which, as explained earlier, is a more analytically appropriate unit of analysis from which to examine this issue. However, my findings also disagree with Tomaskovic-Devey and Skaggs (2002), the only other job-level analysis of this issue. To my knowledge, this research is the only job-level analysis finding that specialized-human capital is an insufficient explanation for the sex-composition effect on pay.

Nevertheless, my findings still suggest that a substantial portion of the sex-composition effect on pay can be accounted for by females’ concentration in jobs with less specialized skills, and males’ concentration in jobs with more specialized skills. First, about 4.9 percent of the variance in salary was attributed to the sex composition of jobs, and about 2.3 percent of this variance remains unaccounted for once controls for human capital were added. This means about 53
percent of the variance in the sex-composition effect is putatively explained by the human-capital demands of jobs, and the remaining 47 percent of the variance may be attributed to something else. Thus, while the inclusion of variables controlling for specialized-human capital seems to explain a little over half of the sex-composition effect, a substantial amount of variance associated with this effect goes unexplained.

Wage calculations using the model intercepts and coefficient estimates for female composition showed that in the absence of controls for human capital, all-female jobs would have had an average salary that was about 70 percent of the average salary of all-male jobs. However, once the wage-determining effects of human capital were held constant, this gap narrowed only marginally to 75 percent of the average salary of all-male jobs. This small decrease in pay inequality after controlling for human capital is alarming because it suggests that among more sex-concentrated jobs at least, differences in specialized-human capital play a minor role in explaining the sex-composition effect on pay.

How reliable is the estimated effect of human capital in explaining the female-composition effect? This is best discussed by asking whether the compensable factors used for indicating the human-capital variables were assigned scores that accurately reflect the innate demands of the work. As past research has noted, traditional job-evaluation systems often grossly understate or even completely overlook the skills in more female-concentrated jobs (Pay Equity Task Force 2004; Steinberg 1990). It is therefore likely that the “true” demands of the more female-concentrated jobs in this data are greater than indicated. This means the portion of the female-composition effect explained by females’ concentration in lower-skilled jobs (about 53 percent) is likely overstated. Nevertheless, these results do not necessarily imply that females are innately suited for work with lower human-capital demands. As Tomaskovic-Devey and Skaggs’ (2002) research suggested to a much greater degree, institutional discrimination and socialization could be sorting females into jobs with less specialized demands and fewer training opportunities. The cross-sectional nature of my data does not permit me to elaborate on these explanations but, with 47 percent of the variance in the female-composition effect still unexplained in the model, the potential roles of discriminatory hiring and socialization cannot be easily dismissed.
The Moderating Effect of a Job’s Female Composition

This research also examined how a job’s female composition moderated returns to a job’s human-capital demands. It was expected that devaluation might intensify among higher-skilled jobs. Because such jobs tend to pay more, and the pay dispersion is often wider in higher-paying jobs, it was expected that this pay structure leaves jobs open for greater potential devaluation at higher levels of skill. But a job’s female composition had a negligible moderating effect on returns to cognitive skills. This negligible effect was thought to reflect the fact that the pay dispersion across jobs with different levels of cognitive skill turned out to be fairly consistent (see Appendix C). But this explanation is challenged by the fact that the pay dispersion is also fairly consistent across different levels of motor and sensory skill (see Appendix C), yet the returns to this skill continued to be moderated by a job’s sex composition.

Nevertheless, the way these moderating effects appeared was not what would have been expected. Instead of more female-concentrated jobs experiencing intensified devaluation at higher levels of motor and sensory skill, they received greater returns than more male-concentrated jobs with the same skill demands. Given the historical tendency to view that which is associated with the male as worthy of more status in the labour market (Charles and Grusky 2004), the expectation is that more male-concentrated jobs would receive disproportionately higher returns at higher levels of skill. I discuss these counterintuitive results with the aid of recent theory and research on stereotyping outcomes.

According to the social-psychology literature, the relationship plotted in Figure 2.5 is arguably reminiscent of assimilative and contrast effects in stereotyping. Assimilative effects confirm the stereotype associated with a particular group, and contrast effects appear to counter the traditional stereotype. For example, a series of measurements showing that, on average, females are shorter than males would be called an assimilative effect because it coincides with the (biologically true) notion that on average, men are taller than women. A group of measurements that shows women are taller on average than men would be called a contrast effect.

All of the main effects plotted in Figures 2.2 to 2.5 are consistent with an assimilative stereotyping outcome because each conforms to the historical finding that greater female
composition is associated with lower pay. However, the interaction effect in Figure 2.5 is counterstereotypical, and therefore consistent with a contrast effect. It was originally expected that devaluation would intensify among jobs with higher-skill demands. Instead, Figure 2.5 shows that more female-concentrated jobs with high motor and sensory demands would receive greater returns for this attribute. Most puzzling is that this counterintuitive effect occurs even as the pay dispersion remains relatively consistent across the skill distribution (see Appendix C). In theory, this consistency should constrain the moderating effect of sex composition in higher-skilled jobs.

Previous research explains that contrast and null effects often result when socially devalued groups are the targets of double standards of judgement. For example, experiments have shown that females may achieve higher ratings than men on a variety of characteristics precisely because judges may have lower expectations about a female’s performance when compared to the average male. Ironically, these lower expectations can make it easier for females to surpass the lower bar set by judges. This thought process has also been shown to work in reverse, resulting in males scoring lower than females on some characteristic because more is traditionally expected from males (Biernat 1995, 2003; review in Biernat, Manis, and Nelson 1991).

This logic is illustrated through the following example. Suppose a female receives 8 out of 10 on a task because the evaluator’s lower expectations of the female’s performance leads to these expectations being easily exceeded. Meanwhile, a male receives 5 out of 10 on the same task because the evaluator holds higher expectations for males. If this perception is systematic enough, then on average, females would appear to score higher than males on a task (a contrast effect), though traditional gender stereotypes would still be driving the outcome.

This framework is useful for explaining the counterstereotypical interaction effect in Figure 2.5. More female-concentrated jobs with high motor and sensory demands might receive greater returns on this attribute precisely because evaluators had initial expectations that these skills in more female-concentrated jobs would make a lower contribution to the organization. Going into

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19 The insubstantial interactions in Figures 2.2 and 2.3 show no effects, and therefore are not applicable to the present discussion.
a job evaluation with such low expectations could make it easier for evaluators’ expectations to be exceeded once they examined the content of the job.\textsuperscript{20}

More research is needed, but the counterstereotypical moderating effect in Figure 2.5 is reminiscent of the sexist logic behind a contrast effect. If jobs with high levels of motor and sensory skill are traditionally viewed as more taxing for females, then this same chauvinistic view may also encourage employers to offer disproportionately higher pay for female-concentrated jobs with such skills. This phenomenon, which I call a \textit{gender-patronizing premium}, is further discussed in Chapters 5 and 6.

Conclusions

This chapter sought to explain how much the female-composition effect on pay is explained by a job’s human-capital demands. Since pay relationships are formed primarily at the job level and not at the occupation level, it is analytically more appropriate to study this issue with job-level data. But, as discussed earlier, pay relationships at the job level are also likely to be more idiosyncratic than at the occupation level – hence the rationale for asking whether a job’s female composition moderates the returns to a job’s human-capital demands. A job’s female composition may moderate the returns of other job characteristics, but there was a good reason for limiting the analysis to this feature. As previously noted, past research suggests that the majority of a job’s assigned pay can be linked to its skill demands. Thus, failing to examine whether a job’s female composition moderates the returns to a job’s skill demands overlooks a potentially important source of gender-pay inequality that is not adequately explained by human capital or devaluation explanations alone.

My research found that about 4.9 percent of the variance in a job’s average salary is attributed to the sex composition of jobs, net of all factors except a job’s human-capital demands. After controlling for such demands, the net effect of sex composition was about 2.3 percent of the variance. This suggests that about 53 percent of the sex-composition effect on pay is attributed to the skill demands of the jobs in which the sexes are concentrated, while the remaining 47 percent

\textsuperscript{20} This understanding is complemented by a diagnostic analysis comparing the proportion of male- and female-concentrated jobs (defined as 75\% or more, respectively) that scored high on motor and sensory skills. While 48 percent of male-concentrated jobs scored $+1SD$ or higher on this skill, only 2.2 percent of female-concentrated jobs scored $+1SD$ or higher. Therefore, it is reasonable to assume that evaluators enter an evaluation of more female-concentrated jobs with initially lower expectations about their motor and sensory demands.
of this effect is unexplained. Further, the returns to a job’s cognitive demands were not found to be moderated by the job’s female composition. Thus, to the extent that more female-concentrated jobs pay less for this aspect of a job’s skill demands, this suggests that such jobs may have less specialized human-capital demands. For motor and sensory skills, the results are more counterintuitive. Compared to more male-concentrated jobs with equivalent demands, more-female-concentrated jobs receive greater returns for high levels of motor and sensory skill. Despite these results, it is important to note that the effect of job-percent female in the model is likely underestimated due to endogeneity with other job attributes in the model.

The findings in this research raise several issues. First, prior research notes that job-level data should be biased towards overstating the degree that the female-composition effect is explained by devaluation. Since quantifying human capital at the job level is more prone to measurement error than quantifying a job’s percentage of females, some of the effects which should be attributed to job, firm, or industry variables may be pushed into the statistical model’s error component (Tam 1997:1683, fn.). How much this research is affected by the same problem is undeterminable. However, as the models in this research did not include measures beyond the job level, it is possible that devaluation has been overstated by the omission of firm or industry-level variables. I return to this issue later as it is relevant to the questions explored in subsequent chapters.

The second issue concerns the generalizability of the findings. Relative to the public sector, the private sector has turned increasingly towards market- and individually driven pay systems, thus reducing its reliance on job evaluation as a means to determine job rewards (Dulebohn and Werling 2007). Since the data in this study came from jobs in the government sector of a single country, the results may not apply to other sectors or to other countries.

Third, the findings in this research have dual implications for workplace policies that redress gender-pay inequalities. Since there are no moderating effects associated with a job’s cognitive-skill demands, policies that redistribute females into jobs with more specialized cognitive demands may raise the average pay of females in the organization without exacerbating gender-pay inequalities among higher-paying jobs. Redistributing females into jobs with more specialized motor and sensory demands may also raise the average pay of females, but it would also widen pay inequalities among such jobs in favour of females.
The fourth issue is most important. The present analysis largely bypassed any consideration of how firm-level factors influence the results. For example, interorganizational differences in workplace size, the level of formalization in personnel policies, and the degree of establishment-level sex segregation can impact gender inequalities in pay (Huffman and Velasco 1997). To the extent that these influences are present in the analysis, it means that sex-composition effects on pay may also be explained by the attributes of organizations.

The data in this study were based on jobs whose value was determined in actual workplaces through the previously mentioned organizational activity of job evaluation (see Appendix A). Given this reality, inquiring about the interorganizational sources of gender-pay inequalities is an important step in subsequent research. The management and administrative literature repeatedly notes that job evaluation is a formal organizational activity bounded ultimately by what the organization values (Arnault et al. 2001; Arvey et al. 1977; Lowe and Wittig 1989; Mount and Ellis 1989; Quaid 1993; Remick 1984; Treiman and Hartmann 1981). Therefore, it is difficult to fully understand what the female-composition effect on pay reflects, without considering the value context of the organization in which jobs are evaluated and rewarded.

Researchers commonly infer that an unexplained female-composition effect on pay evidences the “cultural” devaluation of “women’s work.” But rarely is there an effort to substantiate this by, for example, linking this unexplained effect to values about gender. Demonstrating such a link would not be easy, but it would go a long way towards supporting the intuitive assumption that the female-composition effect on pay is rooted in cultural assumptions about work and gender.

The following chapters elaborate on the fourth issue, and explore how organizational culture may account for gender-pay inequalities that exist in the present data. Chapter 3 is a theoretical discussion of the link between organizational values, beliefs, and culture as forces that shape organizational processes and outcomes. This is discussed more generally, and in reference to the idea of organizations’ cultures shaping gender inequalities in job rewards. Chapter 4 applies some of these ideas by focusing on the link between the level of masculinity characterizing an organization’s culture and the level of gender bias in its job-evaluation outcomes. Chapter 5 expands upon the theory and findings from Chapters 2 and 4, with hypotheses about contrast effects in job-evaluation outcomes, and how organizational culture may moderate these effects.
Chapter 3
Theory and Conceptualization

The main goal of this chapter is to introduce the theory and rationale behind the organization-level analyses that follow in Chapters 4 and 5. As I clarify later, these two chapters build on the job-level analysis of gender-pay inequality in Chapter 2 by examining whether gender inequalities in an organization’s job-evaluation outcomes are accentuated in more masculine organizational cultures. As such, Chapters 4 and 5 are best viewed as part of an emerging area of research on gendered organizations that is increasingly concerned with how organizational context frames the gendered outcome.\(^1\) However, Chapters 4 and 5 differ from previous research in the area by focusing more on how an organization’s cultural context frames the gendered outcome. I briefly explain the rationale for this cultural focus by introducing the broader literature on organizations and inequality.

The recognition that what goes on in organizations is important for understanding inequalities in the labour market largely began with Baron and Bielby’s (1980) famous call four decades ago to “bring firms back in” to stratification research. And according to an extensive review by Stainback, Tomaskovic-Devey, and Skaggs, the current literature concerned with this issue can be divided into three explanatory frameworks. The first framework focuses primarily on how the inertial tendencies of organizational structures, logics, and practices create and maintain inequalities. The second framework relates to studying how inequalities are generated by workplace actors. The third framework is more institutional, and focuses on how inequalities are generated in relation to organizations’ responses to pressures from their external environments (2010).

My emphasis on organizational culture as it relates to gender inequalities in an organization’s job-evaluation outcomes is most relevant to the first framework. As this area of the literature emphasizes, inequalities in organizations are often created and maintained through gender or racial biases embedded in human resource practices (see Stainback et al. 2010 for examples of research). But, as this area of the literature also notes, inequalities arising from such biases can

\(^1\) Britton and Logan (2008) identify two other emerging areas of research on gendered organizations: the intersectionality of race, class, and gender; and the exploration of mechanisms for organizational change.
be substantially reduced when an organization’s policies and practices are more formalized, especially when accountability structures are also present in the organization (Kalev, Dobbin, and Kelly 2006; Dobbin, Schrage, and Kalev 2009). However, the reality is that accountability structures and formalization will still be ineffective at reducing inequalities in an organization’s practices unless the underlying values and culture of the organization that steer these initiatives are meritocratic to begin with (Baron et al. 2007).

Baron et al.’s (2007) research raises an important point. Regardless of how egalitarian, formalized, and transparent an organization’s processes and practices appear, they are ultimately executed within the schema of the organization’s underlying values and culture. Theoretically, this pinpoints organizational culture as a crucial determinant of the degree of inequality associated with an organization’s practices, especially when explaining inter-organizational variations in such inequality. This is because when a group of organizations contain similar human resource practices, accountability structures, and high levels of formalization, organizational culture would then become more relevant for explaining why the same formal policies and procedures might lead to wider inequalities in some organizations over others.  

As previously stated, Chapters 4 and 5 are best viewed as part of an emerging area of research on gendered organizations that is increasingly concerned with how organizational context frames the gendered outcome. However, in this research, the context of interest is organizational culture. With a handful of studies being the exception (e.g. Cohen and Huffman 2003a; Gorman 2005; Kmec and Skaggs 2009; Hirsch and Kmec 2009), most of the research that is relevant to the gendered-organizations approach has considered the issue of organizational context through comparing two or three organizations (Britton and Logan 2008). The findings of these smaller-n studies are highly valid in their demonstration that the particular organizational context matters for understanding how the gendered outcome manifests. But unlike the former types of studies, which often use dozens or hundreds of organizations, the small sample sizes in these other studies typically precludes researchers from making generalizations about the impact of organizational context.

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2 This point is particularly relevant to the group of organizations studied in this dissertation. As explained later, the organizations under examination come exclusively from the government-service sector. All of these organizations are highly bureaucratic, have the same set of highly formalized HR policies, and also have extensive accountability structures.
However, it has never been more important to develop theoretical generalities in such an area. As Britton and Logan’s review of the relevant literature notes, it is no longer enough to simply document the consequences of working in gendered organizations or the characteristics of gendered organizations. The future of such research lies in understanding the specific mechanisms and processes through which gender inequalities are reproduced. In doing so, such research will aid in identifying strategies for real and enduring change (2008). But I add that to develop effective strategies for real and enduring change, it is also logical to identify any patterns in the way that organizational contexts affect the processes and mechanisms through which gender inequalities are reproduced. After all, how can strategies for change be truly enduring and effective if they are implemented without recognizing how the particular context of the organization might hijack the good intentions of these ameliorative strategies?  

The analyses in Chapters 4 and 5 build on this opportunity in the gendered organizations literature. With a comparatively large sample of organizations (n=58), the analyses in Chapters 4 and 5 aim to provide a more generalizable understanding of just how much the processes through which gender inequalities are reproduced within organizations are accentuated by the organization’s context. This is done in a manageable way in Chapters 4 and 5 by focusing on only one form of gender inequality in the organization: the ostensible devaluation of more female-concentrated jobs (the female-composition effect on pay) first introduced in Chapter 2. The inequality-reproducing process that Chapters 4 and 5 focus on with regard to this job data is the multi-organization job-evaluation program that was responsible for producing this job data. To develop a generalizable understanding of just how much gender inequalities in this formal organizational process are associated with variations in organizational context, Chapters 4 and 5 introduce models to estimate how gender-pay inequalities in this job data are associated with the stereotypical masculinity of an organization’s culture.

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3 The significance of this rhetorical question will become more evident in Chapters 4 and 5, and echoes a crucial problem pointed out by Ridgeway. As she notes, contemporary organizations are acutely aware of the need to implement procedures and processes that limit gender biases in their personnel policies. But the intended outcomes of these procedures and processes are often blunted in the social-relational processes through which they are carried out (2011). It is intuitive that an organization’s social-relational processes blunt the outcomes of its well-intentioned strategies, but it is less intuitive that any such blunting effects are the same across different organizations because each organization is likely to vary with regard to the effects of its social-relational processes.
This chapter proceeds as follows. First, I elaborate on the connection between Chapter 2 and the organizational emphasis in Chapters 4 and 5 by highlighting an important point that Chapter 2 did not address. Chapter 2 focused on gender-pay inequalities at the job level because that is where pay relationships are typically established. But for simplicity, Chapter 2 bypassed the theoretically important role that organizational context plays in shaping pay inequalities at the job level.

Second, in explaining the importance of organizational context for shaping pay inequalities at the job level, I introduce some of the more recent literature on gendered organizations that is increasingly concerned with the impact of organizational context on the gendering of work. As I clarify, this recent literature has been extremely informative for explaining how context relates to the gendering of jobs or occupations through drawing on the concept of doing gender in one’s work. However, a less-explored issue in this literature has been how context influences the gendering of the work’s structures in the first place. I illuminate this question by first noting that Acker’s (1990) fundamental example of gendering jobs through job evaluation already clarified how the structures of the work can become gendered in the first place – through gender inequalities embedded in organizational logics. Thus, to understand how (much) context plays a role in gendering the work’s structures in the first place, it is informative to study the outcomes of job evaluations from many organizational contexts. Illuminating this question provides an important theoretical foundation for Chapters 4 and 5, which are concerned with how much gender-pay inequalities predicted from an organization’s job-evaluation system are associated with organizational context.

Third, to explain why some organizational contexts might be associated with greater levels of gender inequality in their job-evaluation outcomes than others, I offer a theory of what goes on inside organizations to make some organizational contexts more prone to devaluing more female-concentrated jobs in a job evaluation. This explanation is largely based on an adaptation of two sources: Gorman’s (2005) research on job-sex segregation as explained by organizational culture, and Ridgeway’s (2011) theory that in some institutional environments, gender is a more salient feature in decision making than in others. I end this section with an understanding that it

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4 This issue is also largely overlooked within the broader literature on how a job’s structures affect the doing of gender in one’s work (see Nentwich and Kalan 2013).
is useful to focus on how stereotypically masculine an organization’s culture is as a means of explaining gender’s greater salience in some institutional settings over others.

But the greater salience of gender in a culture does not necessarily mean greater gender inequalities in that culture. Therefore, the fourth part of this chapter theorizes about how more masculine organizational cultures are related to more severe gender inequalities in organizations. In the final section, I argue for the conceptual relevance of measuring how gendered an organization’s context is by drawing on indicators of an organizational culture’s consistency with masculine stereotypes. I then introduce a framework for measuring this by drawing from Bird’s (2003) quantitative approach to measuring masculine stereotype dissimilarities in organizations. This framework is then used to measure the impact of an organizational culture’s level of masculinity in the analyses of pay inequalities that follow in Chapters 4 and 5.

**Gender-Pay Inequalities at the Job Level, and Organizations**

Chapter 2 showed that despite introducing a detailed set of controls for pay inequalities at the job level, more female-concentrated jobs had lower annual salaries on average than more male-concentrated jobs with equivalent characteristics. Further, Chapter 2 also found that more female-concentrated jobs with greater motor and sensory skill demands tended to have a disproportionately higher rate of pay for this characteristic than more male-concentrated jobs with equivalent demands. The existence of this inequality in the job-evaluation data is puzzling. The multi-organization job-evaluation program that produced the data was implemented with the express intent of being gender neutral, as most modern job-evaluation programs are. But despite an extensive set of controls introduced at the job level in Chapter 2, a non-trivial amount of the female-composition effect on pay remained and is presumed to reflect devaluation. Of main interest in Chapters 4 and 5 is the extent that the devaluation of women’s work at the job level reflects organizational cultures’ varying values about gender that become entwined with the ostensibly neutral job-evaluation process. The remaining paragraphs in this section elaborate on this point.

Chapter 2 was a within-organizations analysis of the devaluation debate. The analysis was based on gender pay inequalities associated with the characteristics of jobs, which were in turn nested

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5 The manual for this initiative had a chapter advising evaluators on how to keep gender biases out of the process.
within 68 organizations. Chapter 2’s main contribution came from examining this debate at the less-studied but conceptually more appropriate job level. As discussed in Chapter 2, hiring decisions and pay relationships are primarily established at the job level through workplace policies and practices, not at the individual or occupation level. Therefore, by examining the alleged effects of devaluation at the job level, researchers often get a clearer sense of just how much gender-pay inequalities attributed to the devaluation of women’s work actually reflects the devaluation of the work itself.

As Chapter 2 also discussed, researchers note that pay relationships are also likely to be more idiosyncratic at the job level. Part of the analyses in Chapter 2 was motivated by this issue when it looked at whether the female-composition effect on pay was greater among jobs demanding more specialized-human capital. But to simplify an already complex analysis, Chapter 2 omitted any discussion of how organizational context accounts for idiosyncrasies in the female-composition effect at the job level. Yet, as discussed in the concluding remarks of Chapter 2, the administrative literature makes clear that jobs are ultimately conceived in organizations. This literature also makes clear that despite its rational appearance, the formal activity of assigning pay differences to jobs (discussed in Chapter 1 and 2 as job evaluation) is subjective, and depends largely on what the organization values in its jobs. One logical implication of these facts is as follows: to the extent that organizations differ in their notions of what female-typed jobs are worth, the female-composition effect on pay might be more severe in some organizations over others.

Therefore, to fully understand the female-composition effect on pay as a reflection of devaluation, it is informative to go beyond the analysis of job-evaluation data. Though such data will be more accurate in exposing the female-composition effect on pay, analyzing this data alone ignores the pre-eminence of an organization’s value context for framing the severity of this effect. To address the theoretically important role of an organization’s values in shaping devaluation, it is helpful for future research to include some indirect measure of an

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6 For example, Thériault defines a job as a group of positions that are identical in terms of the significant, major tasks they involve. In turn, the positions and tasks that make up a job largely depend on an organization’s objectives, resources, and needs (1992). However, evidence from the sociological literature would largely disagree with this understanding of jobs as strictly rational and gender-neutral products of the organization (e.g., Gorman 2005; Petersen and Morgan 1995; Tilly 1996).
organization’s beliefs about the value of female-typed jobs. This is the basic understanding for why the analyses in Chapters 4 and 5 focus on the connection between the devaluation of more female-concentrated jobs, and the masculinity of an organization’s culture. The remaining sections in this chapter elaborate on the theoretical approach behind such an analysis. This includes an explanation for why this dissertation focuses on organizational culture, and more specifically, why the masculinity of an organization’s culture is used to indicate an organization’s beliefs about the relative value of female-typed jobs.

To introduce the theoretical rationale for the analyses in Chapters 4 and 5, I situate the relationship concerning organizational culture and the degree of devaluation in an organization’s job-evaluation outcomes within some of the developments pertaining to the literature on gendered organizations. This literature is highly relevant because Acker, who was one of the pioneering scholars of the gendered organization’s approach, originally illustrated this theory by drawing on the organizational activity of job evaluation.

Acker (1990) argues that organizations are gendered in the sense that all aspects of an organization (e.g., action, meaning, identity, structure) are inherently defined and patterned in terms of distinctions between male and female, masculine and feminine. And to the extent that differences in value, status, or opportunity are associated with these distinctions, gender inequalities are reproduced within the organization in a manner that typically privileges notions of the masculine. It is important to note that Acker’s theory views gender inequality as a serious problem, but this is only a symptom of the real problem – the persistence of processes and practices within organizations that pattern organizational life on the basis of gender distinctions.

Acker originally identified five processes that reproduce gender (inequality) in organizations: the division of labour, cultural symbols, workplace interactions, individual identities, and organizational logics. However, this dissertation focuses mainly on the concept of organizational logics. As explained in the following paragraphs, Acker views the formal organizational activity of evaluating jobs within the firm (job evaluation) as a prime example of how organizational logics reproduce gender inequalities.

Acker explains organizational logics as the bureaucratic system of rules and procedures that help establish and legitimate structures and hierarchies within the organization. These logics appear in
such forms as written work rules, labour contracts, managerial directives, as well as in documents containing job descriptions, pay scales, and job-evaluation procedures. The problem with these organizational logics, Acker notes, is that though they appear as taken-for-granted gender neutral ways of organizing the workplace, these logics are actually “…built upon and conceal a gendered substructure … in which men’s bodies fill the abstract jobs. Use of such abstract systems continually reproduces the underlying gender assumptions and the subordinated or excluded place of women.” (1990:154).

Acker provides examples of how the abstract system of job-evaluation can unwittingly reflect the gendered substructure of organizational logics. To reiterate, job evaluation is a formal set of rules and procedures an organization uses for establishing pay differences within the firm. In a typical job-evaluation system, the content of jobs is described and jobs are compared against a set of criteria for establishing the job’s relative contribution to the firm. The greater a job’s overall contribution is deemed to be, the higher the job’s relative position in the organizational hierarchy, and the higher the level of pay normally associated with the job.

As this typical definition of job evaluation implies, the concept of a job is premised on the assumption that it is an abstract position in an organizational hierarchy that is separate from any individual. However, Acker argues that this abstracted image, though appearing gender-neutral because it is detached from a real worker, usually implies that the ideal worker is a male. This is because the abstract image of a job is presented as completely rational, and devoid of any imagery that suggests a worker in a job might have any other commitments or concerns that impinge on the job. To the extent this notion of the ideal worker can be connected to an actual worker, Acker argues that this best resembles the stereotype of the male worker – traditionally portrayed as devoted to his work because he has a wife that attends to his personal needs and any domestic responsibilities (1990).

Since the abstract concept of a job carries gendered assumptions about the ideal worker, Acker notes that this can reproduce a gendered division of labour during the application of job-evaluation policies and procedures. For example, to the extent that some of the organization’s jobs are interpreted as requiring higher levels of skill, effort, or responsibility, the default assumption is that male workers are preferred because such jobs are expected to demand more commitment. These types of assumptions also lead to a firm’s hierarchical division of labour.
being organized in a manner that perpetuates gender inequalities. As Acker (1990) notes, organizational logics typically operate under the ostensibly gender neutral assumption that job complexity and responsibility is commensurate with a job’s hierarchical position. But since males are typically idealized for jobs containing more commitment (e.g., jobs containing greater levels of skill and responsibility), this logic can have the effect of privileging notions of the male in the hierarchy. For example, as Acker has observed in organizations’ job-evaluation programs, “…skills in managing money, more often found in men's than in women's jobs, frequently receive more points than skills in dealing with clients or human relations skills, more often found in women's than in men's jobs” (1990:150). When it comes time to link a job’s score on a set of job-evaluation criteria to a corresponding pay level, this type of gendered thinking can often relegate more-female concentrated jobs to lower levels in the organization’s status or pay hierarchy.

Acker’s theory of gendered organizations is pivotal for clarifying that the concept of gender is not just an attribute associated with individuals; it is also personified in organizational and occupational structures. And, as illuminated through her job-evaluation example, one of the principal ways that gender is transmitted to these structures is through an organization’s bureaucratic system of rules and procedures (organizational logics). Because these systems of rules and procedures are often based on logics that rationalize value and identity in terms of masculinity and femininity, gender inequalities do not just become reflected in organizational structures, these inequalities also become part of the logic for the structures themselves.

Most organizations in the industrialized world still have some type of formal system to rationalize what their jobs are paid. Therefore, Acker’s job-evaluation example, though three-decades old, is still fundamental to our understanding of how organizational logics can perpetuate gender inequalities in organizations. However, in recent years, the study of organizational logics has been largely eclipsed by research that is more concerned with studying the other gender-reproducing processes that Acker mentions (the division of labour, cultural symbols, workplace interactions, and individual identities). Therefore, while Acker’s approach has remained central to the more recent literature on gender inequality in organizations, the study
of organizational logics has largely taken a backseat in this literature. But as I explain in the following section, the topic of organizational logics, and Acker’s fundamental discussion on job evaluation, can contribute greatly to some of the more recent concerns in the literature. Specifically, I am referring to the literature on gender and work that has become increasingly concerned with the impact of organizational context.

**Gendering and Context**

Over a decade ago, Britton (2000) critiqued the gendered-organizations literature for its scant attention to the issue of organizational context. In making this critique, Britton was largely motivated by the popular literature at the time that was concerned with linking jobs/occupations to how gender was enacted in one’s work. Studies concerned with this issue are largely premised on the idea that the structures of a job can almost force employees to engage in interactions that communicate identities based on notions of gender (see Nentwich and Kelan 2013 on themes in the literature on doing gender). Thus, by studying the structures of the job, researchers can better understand how inequalities based on notions of gender are reproduced in work settings. But as Britton’s critique implies, studies in this tradition tended to underemphasize the role of organizational context for further influencing how people did gender in their job.

Since Britton’s (2000) critique, the relevant literature has paid much more attention to the question of organizational context. One of the most compelling examples is Dellinger’s (2004) study of how different organizational contexts frame the doing of gender in the same occupation. Despite the expectation that a traditionally gendered occupation like accounting might produce a stable form of masculinity across different contexts, Dellinger found that how men did gender in this occupation was greatly influenced by the organizational culture. In the first organization, described as a publisher of a feminist magazine, the men tended to distance themselves from the

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7 Notable exceptions exist. For example, Williams et al.’s (2012) recent ethnography of how organizational logics gender 21st century work arrangements. However, reviews of the relevant literature suggest that currently, researchers are less interested in studying how organizational logics reproduce gender inequalities (see Britton and Porter 2008; Nentwich and Kelan 2013).

8 The concept of doing gender is currently a popular way of understanding gender inequalities in work settings. While the theoretical origins of this concept are multifarious (see Nentwich and Kalan 2013), most studies are guided by the understanding that gender is not something that is inherent to the individual, but an identity that is constructed through social and behavioural processes and practices. Thus, by studying the processes and behaviours that create or affirm expectations about a gender identity, researchers can come to understand how gender and gender inequalities become constructed in work settings.
egalitarian ideals represented by the women’s magazine and undermine their identification with the environment through misogynistic humour. In the second environment, described as a publisher of heterosexual male pornography, males felt safer to engage in sexual jokes with female coworkers while also feeling freer to distance themselves from the extreme form of masculinity represented by their employer’s business. Dellinger’s study was important for empirically demonstrating that there was more to the doing of gender than the culture and structures of one’s occupation, there was also the culture of the organization.

In extensions of Dellinger’s (2004) approach to analyzing similar occupations in different organizational contexts, other research has considered how different organizational contexts are associated with how people interpret sexuality in their work. For example, Lerum (2004), through comparing a strip club and a high-end restaurant, studied the circumstances in which sexually charged interactions became a problem among women in the traditionally female-dominated field of waitressing. Her findings suggested that, among other things, more overt sexual expressions between coworkers were not necessarily indicative of a more oppressive workplace to the degree that workers operated within a shared culture regarding the acceptability of such behaviour. In a similar study, Trautner’s (2005) ethnography of the same occupation (exotic dancer) across multiple contexts (strip club) highlighted the centrality of organizational culture in constructing a particular type of sexuality. However, her analysis was also important for highlighting the intersectionality of gender and organizational culture with social class.

In the more recent literature, the material context of the organization has been highlighted as an important influence on how one does gender in the same occupation. For example, Sargent (2009) examined how work arrangements in different music stores affected workers’ display of masculinities within the stably male-gendered culture of rock music. Her study suggested that while all the types of masculinities observed in each store were largely unwelcoming to women, the deskilled work arrangements in big-box stores produced a particularly marginalizing type of masculinity. This occurred because in such a male-dominated culture, work arrangements that largely stripped males of any authority seemed to encourage workers to reassert their authority through doing a more competitive form of masculinity in their job. Sargent’s (2009) study is important for illustrating how doing gender in one’s work is affected not just by organizational
context, but also for raising questions about how modern work arrangements shape the doing of
gender (also see Williams, Muller, and Kilanski 2012).  

As these typical examples of the research show, the culture and structure of occupations is not
the only factor that influences gender and gender inequalities in work settings; organizational
context also matters. But while this literature clearly suggests that organizational context can
impact how people do gender in their work, it is less clear about how or to what extent
organizational context genders the structures of the work in the first place. This oversight is
understandable because as this section introduced, studies looking at how people do gender in
work settings were never intended to address this question. Instead, such studies largely assume
that the structures of the work are just gendered.

How does Acker’s original discussion on organizational logics and job evaluation help address
this gap in the literature? Answering this requires reframing this gap in the literature as a two-
part question. First, what mechanisms in an organization are responsible for gendering the
structures of work? Second, what role does organizational context play in altering the effect of
these mechanisms?

The first part of this question is most relevant to Acker’s original discussion. As she clarifies,
organizational logics – the bureaucratic system of rules and procedures that help establish and
legitimate structures and hierarchies within the organization, infuse gender inequalities into the
very structures of organizations. Chief among these logics is the formal organizational activity of
job evaluation, which is supposed to determine a job’s relative contribution to the organization
based only on its characteristics (e.g., level of skill, effort, responsibility, and working
conditions). But the integrity of this exercise frequently becomes blurred by assumptions about
the job’s suitability for a certain sex. As discussed earlier, these assumptions can alter
judgements about the job’s relative contribution to the organization. When this happens, a job’s
structures are essentially being created by assumptions about gender. Therefore, what largely
genders the structures of work in the first place, at least within organizations, is the
organizational logic of job evaluation.

For other examples of research looking at how (organizational) context defines the doing of gender, see reviews in
The second part of the question then becomes; how does organizational context affect the gendering of a job’s structures from the process discussed above? To answer this question, I refer to some of the relevant theory and research by Gorman (2005), and Ridgeway (2011). The characteristics of a job are not always easy to separate from assumptions about the gender appropriateness of the job. But as their research on sex segregation suggests, this distinction may be easier to make in some organizational contexts over others. I extend their theory to the activity of job evaluation. In organizational contexts where it may be harder to separate the contribution of a job from assumptions about the job’s gender appropriateness, a female-composition effect on pay may be more severe.

Organizational Culture and Gendering the Structure of Jobs

As Acker and others have shown, gender inequalities can be built into a job’s structures through the organizational logic of job evaluation. However, the extent that a job’s structures are gendered by this formal process ultimately depends on the severity of the gender inequality embedded in the organizational logic. But the premises underlying gender inequalities in organizational logics do not develop in a vacuum. When organizational-decision makers use these logics, these logics are based at least partly on what is viewed as acceptable or normal within the boundaries of the organization. And whatever becomes acceptable or normal within the boundaries of the organization is largely a question of organizational culture.

To understand how this crucial point connects to the organizational contextuality of gender-pay inequalities generated in a job evaluation, I introduce Gorman’s (2005) relevant research on role-incumbent schemas and the level of job-sex segregation stemming from organizations’ hiring practices. Gorman sought to explain whether the gender-stereotypicality of an organization’s profile of the kind of person sought to occupy a position affected the extent to which men and women were selected for that position. Her findings confirmed that when selection criteria for jobs contained a greater number of stereotypically masculine characteristics, women comprised a smaller proportion of new hires, and vice versa.

Her rationale for this outcome was based on the argument that organizational-decision makers typically rely on gender stereotypes from wider societal culture when they are forming impressions about the jobs they intend to fill. However, she argues, organizations typically contain well-developed schemas for the type of person thought to perform successfully in the
role to be filled. These *role-incumbent schemas*, as Gorman calls them, develop largely from the organization’s culture. To the extent that the relevant gender stereotype is congruent with the organization’s role-incumbent schema, gender stereotypes will matter for whether more males or females are hired for a particular job.

As Gorman notes, gender inequalities are accentuated when an organization’s structural mechanisms, such as its established policies and practices, intersect with its interactional mechanisms, which embody the formal and informal face-to-face or mediated social encounters that take place in everyday organizational life. Through these encounters, decision makers often form sex categorized impressions of other employees or candidates, and then use these impressions as a basis for judgements in selection decisions (2005).

Gorman’s theory is highly relevant to understanding how sex-composition effects on pay might manifest in an organization’s job-evaluation outcomes because of organizational culture. For job evaluators to properly participate in the formal organizational activity of job evaluation (a structural mechanism), they must first develop an understanding of the job they are evaluating by reading the job’s description. Since research shows that people can form gender-stereotypical impressions of a job just by reading the job’s description or its title (Naughton 1988), job evaluators are likely well aware of any popular gender stereotypes associated with the jobs they are evaluating.

Job evaluators’ impressions of the gender of the jobs they are evaluating may also be further influenced by any interactions with organizational members who typically hold these types of jobs. For example, the evaluator may recall the sex of the incumbents they interacted with in the past to help confirm or disconfirm the societally-implied gender of the job they are evaluating. Since people are more likely to notice and remember information that confirms an applicable stereotype than disconfirms it (review in Gorman 2005), evaluators are more likely to recall information from their interactions that confirm the stereotypical gender of the job they are evaluating.

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10 Gorman does not specifically refer to these two mechanisms as processes that gender jobs, but these mechanisms strongly parallel Acker’s (1990) identification of two processes that gender work: organizational logics, and workplace interactions.
But as Gorman (2005) also notes, seeing employees (or jobs) through the lens of gender stereotypes may not be sufficient to lead an evaluator to sex categorize the job in the immediate organizational setting. Also needed is some type of logic within the organization that helps rationalize the congruency of these broad stereotypes to the jobs at hand. On this point, I adapt Gorman’s (2005) concept of role-incumbent schemas to the activity of job evaluation.

Gender stereotypes are generally shared at the level of a society. But how these stereotypes result in gender inequalities within the organization depends more on how congruent these stereotypes are with the role-incumbent schemas unique to each organization. Role-incumbent schemas represent abstract mental representations of the characteristic attributes of persons found across an organization’s various roles. While such schemas can overlap with broader gender stereotypes originating from society, these schemas are largely informed by the attributes, categories, and characteristics associated with incumbents who have successfully performed these roles in the past. Role-incumbent schemas are therefore largely unique to each organization, and develop from as well as constitute an organization’s culture (Gorman 2005).

Consequently, an evaluator may draw on societal culture to gender stereotype a job, but the ultimate confirmation or disconfirmation of the job’s gender stereotypicality (e.g., its maleness or femaleness) depends on the organization’s unique role-incumbent schema for the job. Gorman (2005) indicates several mediums through which these schemas become known, but two are relevant for the present research. The first medium is the expression of role-incumbent schemas in an organization’s written texts. Since job evaluators must read the job’s description in order to evaluate the job, they have a prime opportunity to become aware of any role incumbent schemas that have crept into the language of the job description. The second medium is through ethnographic observation. It was discussed earlier that evaluators’ impressions of a job’s gender stereotypicality might also be informed through interactional mechanisms. To the extent this has happened, evaluators will have formed an impression of a job’s role-incumbent schema through a form of ethnographic observation.\footnote{In the present research, the risk of past interactions influencing perceptions of the gender of the job being evaluated is especially likely. As I explain in the Data and Methods sections of Chapters 4 and 5, the job evaluators were employees of the organizations conducting the job-evaluation initiative.}
I have applied Gorman’s theory to explain how job evaluators may interpret the maleness or femaleness of the jobs they are evaluating. But this theory also explains how evaluators may attach different values to jobs based on their assumed gender appropriateness. Just as gender stereotypes in societal culture help job evaluators form impressions of a job’s gender appropriateness, gender stereotypes in societal culture should also influence evaluators’ perceptions of a job’s relative status. This is highly likely in light of Charles and Grusky’s (2004) cross-national research that vertical inequalities in the labour market are ultimately explained by the deeply rooted tenet that whatever is associated with males is more status worthy. The status-typing of jobs based on their assumed gender appropriateness is even more likely in a local organizational context. As Nentwich and Kelan’s (2013) review on the concept of doing gender notes, the activity of doing gender in one’s job unavoidably involves doing hierarchies so that notions of the feminine are almost always subordinated to the masculine. Job evaluators therefore have firm impressions of a job’s relative status based on their impressions of how jobholders do gender in their jobs.

However, to extend Gorman’s theory, the extent that a job’s implied gender appropriateness results in the job being viewed as more/less status worthy should depend on more than evaluators’ knowledge of stereotypes in societal culture. It also depends on the extent that an organization’s role-incumbent schema characterizes males, or those doing gender in a masculine way, as the preferred candidates in higher-status jobs. For example, consider an organization’s managerial, executive, or professional jobs. Legitimate reasons exist for perceiving these types of jobs as more status worthy because in most organizations, these jobs entail greater decision-making authority and responsibility. But, if the organization’s past experiences suggest that the most successful incumbents in these jobs have been male, then this may contribute to a role-incumbent schema characterizing males, or those who do gender as a male, as best suited for these higher-status jobs. Further, the association of males with these legitimately higher-status roles also likely fuels a schema that jobs associated with male attributes are generally more status worthy. This understanding is more than a theoretical explanation. As Ridgeway (2011) notes,

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12 This is not hard to imagine. Past research notes that while women’s representation in management positions has increased over time, this has occurred mostly in low and mid-level management positions. There continues to be a “think manager think male” mentality in most societies, resulting in the underrepresentation of women in management positions in general, and particularly in top management positions, and higher status leader roles (review in Basow 2013).
once status beliefs associated with males become established, male privilege (or female disadvantage) often becomes rooted in the sex category itself.

To reiterate, I have adapted Gorman’s theory on gender stereotypes and role-incumbent schemas to explain how jobs might become gendered by a job evaluation. First, job evaluators form gender categorizations of the jobs they are evaluating as informed through societal culture, through their own interactions with organizational members, and through the role-incumbent schema for the job that has developed out of the organization’s culture. The extent that a job is evaluated as more valuable because of its association with male attributes flows from a similar logic. Assumptions of masculine primacy abound in societal culture, and through the process of doing hierarchies while doing gender. However, these assumptions will only affect the job-evaluation process to the extent that they match a schema within the organization that jobs more associated with males or masculine stereotypes make an inherently greater contribution.

Gorman (2005) presented evidence that organizations might hire a disproportionate number of males or females for a job to the extent the organization’s role-incumbent schema for the job embodies a greater number of stereotypically masculine or feminine characteristics. Because she argues that these schemas develop out of organizational culture, her research offers indirect evidence of how organizational culture can shape the actions of decision makers that lead to greater or lesser job-sex segregation within the organization. But also important is how organizational culture can shape views about the relative contribution of a job to the organization, once the job has been sex categorized.

Like Gorman, my explanation for this vertical type of gender inequality hinges on the understanding that the congruency of the job’s role-incumbent schema (as developed through organizational culture) with gender stereotypes accounts for the conditions in which gender is accentuated in organizations. But Gorman’s theory and my application of it raises a similar issue. Some organizations are likely to have role-incumbent schemas that are highly congruent with gender stereotypes found in societal culture – leading to the expectation of greater gender inequalities in such organizations. In other organizations, these schemas might be much less congruent – leading to the expectation of narrower gender inequalities. Gorman explains that organizational culture constitutes as well as establishes an organization’s role-incumbent schemas; but what is it about some organizational cultures that enable role-incumbent schemas to
be so congruent with societal gender stereotypes in some organizations, but less congruent in others? In other words, going beyond the view of role-incumbent schemas as a reflection of organizational culture, what is the unobservable belief system in the organization’s culture that makes role-incumbent schemas more/less consistent with societal stereotypes in the first place?

An effective way of approaching this question involves Ridgeway’s (2011) theory about the salience of gender. Ridgeway explains that historically, gender has been a primary frame for creating difference in societies (*the gender frame*). Through time, the relational processes (e.g., social interactions, formal and informal rules and regulations) that developed around these perceived differences eventually became associated with status beliefs about gender. As she goes on to clarify, the extent that status beliefs about gender actually modify people’s judgements depends on gender’s salience to them, given the situation and institutional setting.

To the extent that gender is more salient in an institutional setting (e.g., gender is more salient in an organizational culture), then gender inequalities might be greater in that setting. This follows for two reasons. First, decision makers who personally view gender as less a significant basis for differences might still feel compelled to align their judgements with an institutional setting that holds gender as more salient. Second, in institutional settings where gender is already more salient, this likely reinforces the judgements of those who already view gender as highly salient. Based on this understanding, there is a basis for expecting that gender-pay inequalities produced in an organization’s job-evaluation outcomes are greater in certain types of organizational cultures. I elaborate below.

In organizational cultures where gender is more salient, it is logical to expect that gender is more central for organizing differences in organizational life. But this attribute alone may be insufficient for producing gender-pay inequalities in the organization’s job-evaluation system. For this type of gender inequality to develop, it is necessary that the organizational culture also places a relatively higher status on that which it differentiates as masculine. As I elaborate in the next section, the type of culture that best fits this profile is a stereotypically masculine organizational culture. Further, in more stereotypically masculine cultures, status differences will be even wider between that which is viewed as more versus less masculine. In theory, this has implications for the severity of the female-composition effect on pay reflected in a firm’s job-evaluation system. This is because in more masculine organizational cultures, the assumed
maleness of the job should be more significant for determining its relative contribution to the firm.

Before elaborating on these ideas, I briefly review the relevant literature on organizational culture. I do this to stress the importance that past literature has given to the organizational-culture concept for understanding an organization’s formal processes and outcomes. I then provide a more in-depth discussion about more masculine cultures being associated with greater gender inequalities.

**Culture**

A universal definition of culture is contentious, but Trice and Beyer’s conceptualization is representative of most. They explain that culture is comprised of an immaterial *substance* representing a set of belief systems and ideologies. Whether these ideologies are rational is irrelevant; it is sufficient that they are taken for granted as a basis for action. They also explain that members of a culture express, affirm, and communicate the substance of their culture through observable *forms* such as symbols, rituals, and behaviour patterns (1993). The most appealing quality of this two-part conceptualization is that by observing a culture’s forms, one can better understand the substance (belief systems) characterizing the culture. Lastly, though individuals who participate in a certain culture may act and think similarly, culture is not a deterministic force. Rather, as Swidler’s toolkit metaphor suggests, culture is better thought of as “a general way of organizing action” (1986:277).

**Culture and the Study of Organizations**

The notion that culture could be used to understand work organizations has existed at least since Jacques’ studies at the Tavistock Institute (e.g., Jaques 1951). But the idea gained more momentum in the 1980s as firms began to explore culture as a management tool that could be manipulated to improve organizational effectiveness (Ouchi 1981), and as academics became increasingly aware that traditionally rational approaches to organizational analysis were often insufficient for explaining how organizations functioned or affected the lives of their members (Trice and Beyer 1993).

Culture has been linked to the analysis of organizations in different ways, mostly because the concept of an organization has been defined differently according to the nature of the research
question (Ashkanasy, Wilderom, and Peterson 2000). When used as a noun to describe a work organization, formal association, or some other coordinated assemblage of people, culture is often viewed as something an organization has. When the term organization is used as a verb or adjective, such as to describe the phenomenon of organizing, culture often takes on the characterization of something that an organization is (review in Smircich 1983). In this dissertation, I use the concept of culture to mean something that an organization has. This perspective is dictated largely by the nature of the data for this dissertation, which consist of job-evaluation data collected from physical workplaces.

**Organizational Culture**

Just as there is no standard definition of the term culture, the term organizational culture is also ambiguous. However, the main idea behind an organizational culture is that members of the organization share a similar set of beliefs and behaviours with regard to their participation in organizational life. For these beliefs and behaviours to be part of an organizational culture, they would arise because of membership in the organization (e.g., through employment). Such beliefs and behaviours would pertain to some aspect of the organization’s existence, but would also transcend any behaviours or beliefs that would be expected as a sign of membership in a more localized employee group. Above all, these shared understandings about the organization would be bounded by individuals’ official or implied membership in the organization. Therefore, inherent in the conceptualization of organizational culture as *organizational* is its measurement or observation at the organizational level of analysis.¹³

The above understanding is conveniently illustrated through Trice and Beyer’s conceptual distinction between a culture’s substance and form. For example, to the extent employees embrace organization-wide the idea that productivity is the most important priority to their organization, this shared understanding could be recognized as part of an organizational culture’s substance. To the extent such shared understandings translate into organization-wide practices, routine behaviours and forms of worker interaction that reflect these beliefs (e.g., working late,

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¹³ For example, Trice and Beyer (1993) distinguish between organizational culture and the cultures of organizations. The latter concept refers to subcultures among groups of organizational members, such as work teams, age cohorts, professions, social classes, etc. It would be difficult to classify cultures based on these phenomena as an organizational culture. Also see Hofstede and Hofstede (2005) on overlapping cultures in organizations.
no non-work related socialization among employees) these behaviours constitute the culture’s respective form. But if these cultural forms were observed among only a few workgroups or departments, it is much harder to argue that they constitute an organizational culture.

As previously stated, the literature linking culture to the study of organizations was originally motivated by managerial interests. However, by the late 1980s, research began to show that organizational culture had limited use as a “quick fix” management tool because culture was often difficult to manipulate once in place (Tolbert and Hall 2009; Trice and Beyer 1993). As such, the subsequent literature began to focus more on organizational culture as a concept that could be used to understand an organization’s processes and outcomes.14 This shift in focus has been particularly helpful for advancing researchers’ understandings of how organizational cultures are linked to gender inequalities. This is because when the literature was primarily dominated by managerial aims, concerns about culture’s connection to gender inequality in organizations were largely ignored.

Using the Organizational Culture Concept to Explain Gender Inequality
The literature suggests that studying the concept of organizational culture with regard to gender inequality in organizations falls into four broad themes: the asymmetric distribution of rewards in workplace policies and practices, gender inequalities as reflected in the forms of organizational cultures, the maintenance of gender inequalities, and workers’ own perceptions. These themes largely reflect researchers’ differing research objectives and study designs.

Examples of research falling under the first theme include Gorman’s (2005) study of job-sex segregation during employee recruitment and selection, sex inequalities in personnel advancement and retention (Gale and Cartwright 1995; LaPierre and Zimmerman 2012), parental leave (Fried 1998; Haas and Hwang 2007), and employee performance appraisal (Castilla and Benard 2010). Some of this research is more explicit about the effect of organizational culture. But in most cases culture’s influence is taken for granted by inferring that gender inequalities in the mechanisms or policies being studied are evidence of the culture itself. Though pay

14 For example, Bellou (2010) studied organizational culture as an amplifier for employee job satisfaction; Chatman et al. (1998) on the effects of organizational culture and demographic diversity on work processes and outcomes; Guldenmund (2000) on an organization’s health and safety outcomes; Odom et al. (1990) on employee satisfaction and commitment; Scott-Findlay and Estabrooks (2006) on quality of service and patient care in clinical settings; Sheridan (1992) on employee retention.
differences between the sexes has been a popular topic in the literature concerned with this theme, research pairing gender inequalities in an organization’s job-evaluation practices to organizational culture is rare.

The second theme typically involves studying gender hierarchies in organizational culture as implied through the language, artifacts, and symbolism pertaining to the organization. Studies in this tradition tend to look at the way organizations and their members create and use images, symbols, and forms of consciousness that justify, legitimate, and even glamorize existing gender divisions (Benschop and Meihuizen 2002; Cooper 2000; Rao, Stuart, and Kellehar 1999; Rapoport et al. 2002).

The third theme studies the reproduction of gender inequalities in the contexts of the everyday interactions of individuals and groups within the organization. The premise in this perspective is that gender expectations are integral to many organizing practices. Thus, it is reminiscent of the earlier discussion in this chapter on the concept of doing gender and simultaneously doing hierarchies. In the act of organizing, people are doing gender, usually in a manner that reaffirms the assumed superiority of the masculine over the feminine (Anderson-Gough, Grey, and Robson 2005; Gherardi 1994, 1995; Jones 1998; Poggio 2000).

The fourth theme is best described as cognitive or perceptual. It is characterized by aggregating the perceptions of organizational members on matters relevant to gender, such as the gender discriminatory aspects of organizational cultures (e.g., Jones and Taylor 2012; Wicks and Bradshaw 1999, 2002). As the primary way of gaining information about organizational members’ perceptions has been through surveys, this approach tends to be more positivistic.

Each of these four approaches to studying organizational culture and gender inequality is unique. However, all approaches are motivated by a similar assumption; that gender inequalities are perpetuated by organizational cultures that privilege notions of the masculine over the feminine. This commonality is important because it suggests that the degree an organization’s culture reflects stereotypically masculine attributes is an important indicator of the severity of gender inequalities in the organization. I elaborate on this proposition in the next section by drawing on theory and research suggesting that more masculine cultures are generally synonymous with greater forms of hierarchical gender inequality.
Greater Gender Inequality in More Masculine Cultures

How are more masculine cultures likely associated with greater gender inequalities? This is clarified by first introducing Charles and Grusky’s cultural explanation of gender inequality in the labour market. They posit that such inequality is ultimately driven by two deeply rooted cultural tenets. The first tenet is gender essentialism – the belief that the sexes have attributes that make them innately more competent for different types of tasks and roles. The second tenet is male primacy – the belief that anything associated with the masculine is relatively more status worthy. As these authors note, scholars of social inequality have long recognized that ideologies about gender differences often convert into ideologies based on a gender hierarchy (2004). Thus, the effects of these two tenets often appear concurrently. For example, when categorical gender inequalities in the labour market are evident (e.g., sex segregation by type of work), this type of inequality is almost always synonymous with a vertical form of inequality that devalues anything associated with the female (e.g., paying female-concentrated work relatively less than male-concentrated work that makes a substantively similar contribution).

This explanation is highly relevant for introducing the theoretical linkage between a masculine culture and vertical gender inequalities in work settings (such as gender-pay inequality). This is because the tenet of male primacy is inherent in most conceptualizations of masculinity and masculine cultures. For example, studies identifying the content of gender stereotypes associated with different kinds of work consistently show that work attributes conveying status, authority, leadership, or dominance is prescribed for males, but largely proscribed for females (e.g., Anker 1998; Caleo and Heilman 2014). For studies specifically interested in studying the characteristics of masculine cultures, the principle of male primacy is also implied as a central feature of such cultures. For example, as Maier’s (1999) review notes, cultures identified as more masculine tend to prescribe (among other things) hierarchical relations, competition, and the establishment of status and authority. This does not imply that females working in stereotypically masculine cultures have not achieved higher status positions and higher pay associated with their work, but as Rutherford’s (2011) later review of the literature points out, there is consensus that a recurring theme in such cultures is the devaluation of women and women’s skills.

When the theory and research discusses masculine organizational culture as largely responsible for gender inequalities in the organization, it is already assuming that the tenet of male primacy is primarily to blame. For example, this is most evident in the literature discussing culture’s
connection to the persistence of the glass-ceiling phenomenon. As this literature seems to suggest, more women are unable to advance into higher status, higher paying positions within organizations because the prevalence of masculine organizational cultures tend to exclude, ignore, or devalue women’s contributions at higher levels within the firm (review in Van Vianen and Fischer 2002).

The centrality of the male-primacy concept is also implied in the cultural devaluation thesis (see Chapter 2). If work is paid less when it is associated with the female sphere, then the underlying assumption is that work associated with males is inherently more status worthy. But unlike the literature concerned with vertical inequalities like the glass-ceiling phenomenon, there has been less discussion about how the female-composition effect on pay is associated with masculine organizational cultures. Nevertheless, research at the cross-national level provides important clues about this. For example, such research shows that sex-segregation in the labour market varies greatly regardless of a culture’s consistency with masculine stereotypes. But gender-pay inequalities tend to be consistently larger in less gender-equitable cultures. This suggests that the masculinity of a culture offers less insight into the degree that males and females are separated into different types of work, perhaps because the tenet of gender essentialism is not so exclusive to more masculine cultures. However, the masculinity of a culture becomes very informative for understanding the severity of the female-composition effect on pay – likely because in more masculine cultures, there are wider status differences between attributes associated with the masculine, and attributes that are not.

Charles and Grusky’s explanation is a useful conceptual framework for explaining the cultural origins of gender inequality in the labour market. But as the above discussion suggests, it is unrealistic to think that beliefs about the primacy of males is uniform across all cultures, whether organizational or national. Nor is it realistic to expect that the severity of gender-pay inequalities

15 For example, it has long puzzled social scientists that countries widely associated with stronger beliefs in gender equality, such as the Scandinavian countries, exhibit some of the lowest levels of gender-pay inequality and some of the highest levels of occupational-sex segregation in the world. Meanwhile, countries with traditionally weaker gender-equalitarian beliefs, such as Japan and Italy, have much lower levels of sex segregation but high levels of gender-pay inequality. Scholars have offered numerous explanations for this paradox (e.g., Anker 1998; Charles 2003; Charles and Grusky 2004; Martin 2011). Coincidentally, Hofstede’s direct measure of the masculinity of national cultures scores Scandinavian countries like Sweden, Norway, and Finland as some of the least masculine cultures in the world at 5, 8, and 26 respectively. Meanwhile, countries like Japan and Italy score as some of the most masculine cultures in the world at 95 and 70 respectively (http://geert-hofstede.com/countries.html).
in a culture operate independently of how strongly the culture embodies the male-primacy tenet. It is more realistic that in cultures holding stronger beliefs about the primacy of males, such as more masculine cultures, status inequalities between notions of the male and female are even greater. This understanding is partly supported by historical evidence that representations of increasing masculinity are often accompanied by assumptions about higher status, thus leading to wider perceived status differences between what is perceived more and less masculine.\(^\text{16}\)

One of the implications from the above discussion about the relationship between culture and gender inequalities is that characterizing where a culture sits along a spectrum of masculinity can provide insight at least into the severity of hierarchical gender inequalities in work. Figure 3.1 illustrates this relationship.

**Figure 3.1. Relationship between Level of Masculinity in a Culture and Gender Inequality in Work**

This relationship deserves further consideration with regard to explaining the female-composition effect on pay in work organizations. As explained in this Chapter and in Chapter 1, an organization’s job-evaluation initiatives are driven largely by organizational values and priorities. This ultimately defines the valuation of jobs as cultural products of the organization. Cultural perspectives are therefore highly appropriate for understanding sex-based pay inequalities generated from an organization’s job-evaluation system. Based on what I have discussed thus far, it is possible that when job evaluators are in a more masculine organizational culture, they have more leeway to devalue the contribution that female-concentrated/female-associated jobs make to the organization. An important step in establishing this relationship is to include a measure of an organizational culture’s level of masculinity in a model that captures the female-composition effect on pay within and across organizations. But before explaining how this might be done, I highlight the contribution this makes to the relevant literature.

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Britton and Logan’s (2008) main critique of the literature linking gender and context notes that these studies are informative for understanding the processes that lead to gender inequalities in organizations, but they often offer few theoretical generalities. To support the development of more theoretical generalities, they suggest that the key issue for future research in this area is “…the identification of those factors that lead to organizational environments that are less oppressive across all of the dimensions of inequality embedded in organizational logics – (minimally) gender, race, class, and sexuality” (2008:116).

By exploring the notion that more masculine organizational cultures are associated with greater levels of gender inequality in an organization’s job-evaluation outcomes, this dissertation contributes directly to Britton and Logan’s (2008) comment about the dearth of research producing theoretical generalities in the area. Through focusing on the masculinity of an organizational culture and its relationship to gender inequalities in an organization’s job-evaluation outcomes, this research also makes another contribution. As highlighted throughout this chapter, organizational culture is a theoretically important factor for why some organizational environments are more oppressively gendered in their job-evaluation outcomes than others.

**Masculine Organizational Cultures: Conceptualization and Measurement**

The literature pertaining to masculinity and organizations has settled on the idea that organizations are comprised of *multiple masculinities* – categorically different types of masculinities. This is in contrast to the idea that organizations are characterized by greater or lesser levels of masculinity (reviews in Connell and Messerschmidt 2005; Kerfoot and Knights 1998; Wicks and Mills 1998). Categorical conceptualizations of masculinities in organizations are informative, but it is important to note drawbacks to this approach.

First, sometimes it is less effective to conceptualize masculinity in organizations in terms of categories. For example, this chapter devoted substantial attention to the idea that gender-pay inequalities in an organization’s job-evaluation outcomes are greater in more masculine organizational cultures. However, this association becomes conceptually harder to demonstrate through multiple categorizations of masculinity. This is mainly because these categorizations cannot be easily ranked to convey the intuitive idea that some types of masculinity are associated with greater inequalities in organizations because they are considered more masculine. My point
is similar to the observations that Rutherford (2011) makes in her review of gendered-organizational cultures. She notes that researchers have devoted substantial attention to decoding organizational culture for its “genderedness,” with the understanding that a more gendered culture is related to more severe gender inequalities in organizations.

However, the concept of masculinity has always been perceived in terms of hierarchical grades, even though it is popularly presented as sets of discrete categories. For example, consider the popular concept of *hegemonic masculinity*. Though the meaning of this concept is constantly being debated, it was originally understood as a dominant form of masculinity that subordinates other masculinities within the gender hierarchy (Connell 2005). Therefore, the idea that some types of masculinity are inherently more status worthy and invoke greater status inequalities relative to other masculinities has been inherent to conceptualizations of masculinity for some time.

The point is that the practical task of linking an organizational culture’s level of masculinity to the severity of gender inequalities in an organization is greatly facilitated by representing the concept in a rank fashion. This is most conveniently achieved by pooling the attributes or stereotypes associated with masculinity into a numeric measure. Higher numbers on this measure would denote a culture as more masculine because it is more consistent with the pre-identified set of masculine stereotypes. Though theorists widely recognize that masculinity is not a unitary and fixed concept (Connell and Messerschmidt 2005; Kerfoot and Knights 1998), the approach suggested here does not undermine such well-established theory. A single numeric measure is not representing masculinity as a unitary concept as long as it recognizes the multidimensionality of the concept through many indicators. Further, since a scalar representation of masculinity is meant to communicate that some cultures are more masculine than others; this approach is very consistent with the notion that masculinity is not a fixed concept. Lastly, Hofstede’s popular cross-national research has shown for the past three decades now that quantitative measures of a culture’s masculinity can be both valid and reliable (e.g., Hofstede and Hofstede 2005).

What attributes denote an organization’s culture as relatively more or less masculine? The answer to this question is often tautologous because it requires identifying the attributes associated with masculine stereotypes. As the gender and organizations literature notes:
Masculinity is a vague concept, but can be defined as values, experiences, and meanings that are culturally interpreted as masculine and typically feel “natural” for or are ascribed to men more than women in the particular cultural context. A particular problem with the concepts of masculinities and femininities is that they easily draw upon as well as (re)produce cultural stereotypes (Alvesson 1998:972-973).

Therefore, the only meaningful way to conceptualize masculinity is through commonly held masculine stereotypes. What are some of the stereotypes that help identify an organization’s culture as more or less masculine? While a substantial body of literature exists in this area, I confine the discussion to Bird’s (2003) research on masculine stereotype dissimilarities in organizations. As far as I am aware, Bird’s research is only example in the gendered-organizations literature that represents masculine stereotypes with a quantitative measure. Since I aim to quantitatively measure masculinity in an organization’s culture, her theory and conceptualization is the most convenient starting point.

In her examination of the quality of men’s working lives in organizations, Bird identifies individuals’ adherence to three commonly recognized masculine stereotypes in the workplace: male-breadwinner beliefs, competitiveness, lack of empathy and emotional detachment. Bird also identifies the sex composition of an organization’s work groups as a fourth attribute that indicates the likely prevalence of masculine stereotypes in an organization. These concepts are discussed in turn, followed by a discussion of how I apply these concepts to quantitatively measure an organizational culture’s level of masculinity.

**Breadwinner beliefs.** Bird notes that these beliefs consist of notions in the workplace that paid labour for women is less appropriate than for men. It also comprises notions that men are and want to be primary-wage earners, or that women are less suited for breadwinning pursuits (2003:585). Collinson and Hearn (1994) also highlight the centrality of the breadwinner stereotype in many dimensions of their multiple-masculinities typology.

**Competitiveness.** Bird notes that competitiveness is typically a core characteristic associated with men and masculine stereotypes. In contrast to men’s friendships with women and women’s friendships with other women, men’s friendships with other men are often adversarial, involve competitive activities, and entail little disclosure of personal feeling (2003:581-585). Collinson and Hearn (1994) also identify competitiveness as a primary feature in their multiple masculinities typology.
**Emotional Detachment & Lack of Empathy.** Empathy and emotional attachment are characteristics typically associated with femininity, and thus imply weakness and dependence in most work settings. As Bird’s review of the literature notes, to be masculine is to exhibit the opposite of the stereotypically feminine; meaning that the absence of empathy and emotional attachment are attributes more closely associated with the masculine (2003:585-586). Past literature has also stressed a similar notion through its widespread depiction of emotionality and compassion as feminine stereotypes. This is in contrast to the depiction of logic and rationality as masculine stereotypes.

**Work Group Sex Composition.** Similar to Collinson and Hearn’s (1994) understanding that organizational demographics can propagate different types of masculinity, Bird notes that workplace demographics should also portend the strength of masculine stereotypes in the organization. For example, in male-dominated work groups, where men would be more concerned about other men’s evaluations of whether they measure up as men, the conformance to conventional stereotypes of masculinity are likely to be stronger. This means that the sex composition of men’s work groups, or even the whole work organization, can shape the extent to which men feel compelled to engage in or are held accountable to masculinity stereotypes in relations to coworkers (2003:586).

An additional masculine stereotype not directly addressed in Bird’s framework is *aggression*. Earlier paragraphs noted that central to the concept of masculine organizational cultures is the assertion of dominance, hierarchy, and authority. Aggression is an essential component to any conceptualization of stereotypical masculinity because of its clear association with these other attributes. While *aggressiveness* is inherent in the masculine characteristic of competitiveness, aggression is different. For example, the aggressiveness of sales employees pursuing clients and penetrating new markets is different from an aggression exhibited through intimidating displays of physical, verbal or psychological dominance towards coworkers. Though aggression in the workplace is not exclusive to males, it is historically stereotyped as a masculine behaviour (essays in Fox and Lituchy 2012).

The above conceptualizations are helpful in characterizing the masculinity of organizational culture. For example, by most accounts, an organizational culture would not be described as feminine if employees in that culture were regular perpetrators and targets of verbal, physical, or
sexual abuse. Nor would an organizational culture be characterized as feminine if employees communicated that coworkers or management did not express much concern for organizational members outside of their need to meet work responsibilities. Further, it is highly unlikely that the word feminine would be used to describe the culture of an organization comprised largely of males, male-dominated jobs, or male-dominated work groups where the pressure to conform to masculine stereotypes would be high.

Measuring the Masculinity of an Organizational Culture
How can these masculine stereotypes be measured to represent an organizational culture’s level of masculinity? This largely depends on the indicators used to interpret the organizational culture construct. As Delobbe and Haccoun’s (2002) review notes, the organizational culture concept is typically measured through indicators that represent one of three different levels. Culture as measured from artifacts (e.g., documents, texts, symbols) is the most observable level. Culture as measured from values, norms and behaviour patterns is typically described as the intermediate level, while measuring culture as a set of basic assumptions represents the deepest and most elusive level. Studies interpreting culture at the most observable level of artifacts and at the deepest level of basic assumptions have typically been qualitative (e.g., ethnographies, textual analysis, and participant observation). Quantitative studies (e.g., surveys) have typically dominated the intermediate norms and behavioural patterns approach (2002:3-6).

The Organizational Culture Data
Ideally, measuring culture from both qualitative and quantitative approaches is best because it enables the measure to be cross validated at all three levels. However, when the information comes from a quantitative approach, such as from survey data, the measurement of culture is primarily restricted to the level of norms and behaviour patterns (the intermediate level).

Since the data for this dissertation comes from previously collected survey data, this dissertation relies on measuring organizational culture at the intermediate level. However, since Chapters 4 and 5 are concerned with the effect of inter-organizational variations in organizational culture, Delobbe and Haccoun (2002) would approve of this approach. They note that measuring culture at the level of norms and behaviour patterns is much more sensitive to inter-organizational variations than measuring culture at the other two levels.
The analyses in Chapters 4 and 5 use an independent variable that proxies for an organizational culture’s level of masculinity. The data for this measure comes from two sources: organizational information from the job-evaluation data described in Chapter 1 and 2, and from variables in a human-resources survey that was administered to each organization’s employees around the same time that the job-evaluation data was collected.¹⁷

The survey portion of the data source was originally administered as part of a human-resources initiative to collect information on a variety of topics relevant to employees’ work lives. The survey contains approximately 100 questions, and covers between 100 and 200 thousand employees, all of whom are unionized. The major topics in the survey include employees’ experiences with the organization they work in, experiences and views about their job and work unit, their present skills and career aspirations, experiences and views regarding communications with their supervisor, as well as any experiences they have had in the organization as victims of harassment, violence, and discrimination. As the survey is framed from the perspective of how employees view their organization’s surroundings and what they have actually experienced in the organization, it provides a useful set of indicators for characterizing informal rather than formal organizational culture from a norms and behaviour patterns perspective.

To reiterate, the following characteristics are used in the organizational culture measure: competitiveness, emotional detachment & lack of empathy, and the prevalence of aggression in the workplace. The measure also includes the proportion of male-dominated jobs in the organization. The male-breadwinner beliefs stereotype from Bird’s (2003) framework was dropped for reasons discussed later. What follows is an overview of how each characteristic was measured from the data.

**Competitiveness, emotional detachment & lack of empathy.** A review of the employee survey questionnaire revealed 13 questions that were suitable for indicating these stereotypes (6 for competitiveness and 7 for emotional detachment & lack of empathy).¹⁸ Respondents were asked to rate their level of agreement with each question on a four point Likert scale (strongly agree =

¹⁷ For confidentiality reasons, the exact date of the data collection is not disclosed. However, the survey and the job-evaluation data were collected around the same time between 2000 and 2010.

¹⁸ For confidentiality reasons, the specific items in the survey are not disclosed.
1, strongly disagree = 4). Responses were reverse coded to make higher scores consistent with stronger perceptions of competitiveness or emotional detachment in the organization. The Chronbach alpha score for the competitiveness, and emotional-detachment stereotype were .822 and .881 respectively (see Table 3.1). Thus, the measures for these two stereotypes have a high degree of internal consistency.

**Aggression.** The organizations under study had formal policies to deal with aggression in the workplace. However, this does not mean that such behaviour completely ceases in practice. Therefore, indicators for the level of aggression characterizing social relations in the organization came from a series of yes or no questions asking about employees’ experiences with physical violence, harassment or discrimination in their organization (see Table 3.1). The variable was then coded to show the percentage of employees in the organization who had reported experiencing at least one of the behaviours. An organization with a higher proportion of employees reporting any of these three experiences suggests that aggressive behaviour is more normative to that organization’s culture.

**Percentage of male-dominated jobs in the organization.** Also labelled Masculine Stereotype Conformity in Table 3.1. This variable is derived from the job-evaluation portion of the data. It is an indicator based on Bird’s (2003) premise that the percentage of males in workgroups can shape the extent men are held accountable to masculinity stereotypes in relations with coworkers. Since information about workgroup sex composition was not available in the data, the percentage of male-dominated jobs in each organization (conservatively chosen as 75 percent or more male) was used. Statistically, organizations with a higher proportion of male-dominated jobs should have relatively more male employees in their workgroups.

**Male breadwinner beliefs.** A preliminary analysis revealed that the data was largely unsuitable for measuring the belief that women are less suited for, or less interested in breadwinning pursuits than men. It was originally thought that breadwinner beliefs could be ascertained through examining sex differences in responses to survey items indirectly related to breadwinning pursuits (e.g., satisfaction with the extent of work and family balance; pressure to work overtime; satisfaction about access to development opportunities; or restrictions to advancement in the form of sex discrimination). But in many cases, tests on the prospective
items showed poor scale reliability, and sex differences in the responses were ambiguous or counterintuitive. This measure was therefore dropped from the culture measure.

Table 3.1. Variable Construction for the Level of Masculinity in Organizational Culture

<table>
<thead>
<tr>
<th>Variables</th>
<th>Indicators</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitiveness</td>
<td>• perceived level of cooperation in work unit</td>
<td>6 Survey Questions</td>
</tr>
<tr>
<td>(α = .822)</td>
<td>• feelings of acceptance as equal member of team</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• perceived departmental support for career development</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• the perceived adversarialness of employee relations in the department</td>
<td></td>
</tr>
<tr>
<td>Emotional Detachment</td>
<td>Employees perceptions and knowledge of the way informal and formal complaints and workplace issues are handled, such as:</td>
<td>7 Survey Questions</td>
</tr>
<tr>
<td>(α = .881)</td>
<td>• how organization responds to harassment and discrimination</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• knowing where to go in the organization when faced with conflict</td>
<td></td>
</tr>
<tr>
<td>Aggression</td>
<td>Experienced any of the following in the organization in the past two years:</td>
<td>3 Survey Questions</td>
</tr>
<tr>
<td></td>
<td>• physical violence</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• harassment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• discrimination</td>
<td></td>
</tr>
<tr>
<td>Masculine Stereotype Conformity</td>
<td>Percentage of jobs in organization with 75 percent or more males</td>
<td>Job-Evaluation Dataset</td>
</tr>
</tbody>
</table>

For the variables representing competitiveness and emotional detachment, the scores of the items comprising each variable were summed. In order to minimize the effect of missing responses, cases with more than one missing value were excluded from the calculation. For example, the cases used to calculate the 6-item competitiveness variable have valid values for at least 5 items. Since the item responses were recorded on a 4 point Likert scale, the 6 item competitiveness variable had a minimum potential value of 6 and a maximum value of 24. For the emotional detachment variable, the minimum score was 7 and the maximum was 28.

For scale compatibility, each of the four indicators was converted into a score ranging from 0 to 100 using the following formula:

\[
I_n = \frac{\text{actual value} - \text{minimum potential value}}{\text{maximum potential value} - \text{minimum potential value}} \cdot 100
\]  

[3.1]

Where for each of the four masculinity indicators \((I_n)\), the difference between the indicator’s actual and minimum potential value is divided by the difference in the maximum and minimum potential scale value. The resulting quotient will always have a maximum value of 1, which is then multiplied by 100. The actual value of the indicator is the sum of the item scores used to measure it. The minimum potential value is the lowest possible value the summed item scores could have for that indicator. For example, the 6-item competitiveness variable has a minimum
potential value of 6. The maximum potential value is the highest possible value the summed item scores could have for that indicator. In the case of the 6-item competitiveness variable with a maximum score of 4 on each item, this indicator had a maximum potential value of 24.

Each indicator was then converted into an organization-level measure by calculating its arithmetic mean for each organization. Scores falling closer to the maximum value of 100 indicate that an organization’s culture is more consistent with that masculine stereotype. To create an overall score of masculinity for each of \( k \) organizations, the set of four scores was averaged using the geometric mean:

\[
\left( I_{\text{competitiveness}}^{25} \cdot I_{\text{detachment}}^{25} \cdot I_{\text{violence harassment}}^{25} \cdot I_{\text{masculine stereotype conformity}}^{25} \right)_k \tag{3.2}
\]

There was a good reason for averaging the four indicators with the geometric mean. One problem with the arithmetic mean is that its linear-additive nature assumes each dimension is equally weighted across all of its values. For example, it would be erroneous to assume that a score of 20 on a more passive masculine stereotype, such as emotional detachment, carries the same weight as a score of 20 on a more confrontational form of masculinity, such as aggression.

However, a scale based on an arithmetically calculated mean score would weight these two aspects of masculinity equally across all of the scale’s values. The geometric mean is thus a more conservative measure by avoiding low scores on one component from being linearly compensated for by high scores on another factor. This should result in more realistic masculinity scores in organizations with widely different scores on each of the four components. The advantage of this approach is that in organizations with similar values among all four components, the difference between the arithmetic and geometric score is negligible.

Next Chapters

The following chapters examine how an organizational culture’s level of masculinity is associated with gender-pay inequalities generated in an organization’s job-evaluation outcomes. In doing so, this dissertation adds to the repertoire of research on how the cultural schema of organizations can frame organizational processes and outcomes.

As Bielby’s (2000) classic commentary on bias in the workplace notes, biases occur because stereotype-based cognitive distortions can creep into the minds of individual decision makers who administer an organization’s policies and practices. This makes inequalities in the
organization ultimately traceable to individuals. However, culture is widely recognized as an important frame of reference for individuals’ thoughts and behaviours. So while individuals may manifest biases through cognitive distortions, these biases do not originate exclusively from within individuals. Chapters 4 and 5 explore this understanding by focusing on organizational culture’s contribution to the female-composition effect on pay, as predicted from an organization’s job-evaluation initiatives.
Chapter 4
Organizational Culture and Job-evaluation Bias:
A Multilevel Analysis

Social scientists have long been interested in explaining how the work that people do is valued.\footnote{This includes the study of unpaid work in home settings. The present research is limited to the study of paid work in formal organizations.} At the societal level, such interest has taken the form of research on social stratification and status attainment (e.g., Hauser et al. 2000; Jacobs 1989; Kalleberg 1983). At the organizational level, the primary focus has been on characteristics of firms that affect pay inequalities between different groups of workers (e.g., Anderson and Tomaskovic-Deve 1995; Baron 1984; Dulebohn and Werling 2007; Huffman and Valesco 1997; Pfeffer and Ross 1990; Werner and Ward 2004). This chapter focuses on the organizational level, and asks how an organization’s cultural context is associated with gender inequalities in job rewards.

At the cross-national level, the idea that cultural perspectives can be used to understand inequalities in the rewards of work has received relatively little attention (review in Greckhamer 2011). The same can be said for research at the organizational level. Despite the theoretical relevance of organizational culture in understanding how inequalities in an organization’s formal reward systems come to exist, the relevant literature has given this issue only minor attention.

For example, researchers have long noted that the formal valuation of jobs in an organization—i.e., job evaluation—is couched in human judgements, which in turn are bounded by the nature of the organization’s decision-making environment (Arnault et al. 2001; Arvey et al. 1977; Lowe and Wittig 1989; Mount and Ellis 1989; Quaid 1993; Remick 1984; Treiman and Hartmann 1981). This suggests that an organization’s job-evaluation outcomes, including any biases in the procedure, are rooted in the particular values, customs, and beliefs embedded in the organization’s culture. However, researchers have largely studied the sources of job-evaluation bias as if it were isolated from organizational and cultural influences, mostly by using research designs that treat such biases as a cognitive distortion of individuals (review in Mount and Ellis 1989).

In an attempt to fill the gap in this literature, this research asks if organizations with relatively more masculine cultures have higher levels of gender bias in their job-evaluation results. I focus
on this dimension of culture for one important reason. As discussed in Chapter 3, the masculinity of an organization’s culture is a likely indicator of how strongly stereotypes associated with the male gender are privileged over the female gender in organizational life. And as the relevant literature has long argued, the androcentricity of organizations (i.e., their ideologically male centredness) is understood as a vital reason for gender inequalities in their structures, processes, and outcomes (Acker 1990, 1998; Alvesson and Due Billing 1992). Thus, this research sits within the generally accepted understanding that organizations reproduce gender inequalities because they are inherently gendered. But the present research extends this understanding by attempting to quantify an association between the degree that an organization is gendered, and the severity of the gender inequality produced within it.

Through examining the issue of organizational context—and, specifically, the relationship between an organizational culture’s level of masculinity and the severity of gender inequalities in job rewards—this chapter expands on some of the insights introduced in the previous chapters. For example, the inability of the analyses in Chapter 2 to explain all of the female-composition effect on pay at the job level supports the idea that women’s work is culturally devalued. However, this finding would be strengthened in two ways: First, by examining the sex-composition effect on pay net of organization-level characteristics that potentially mediate this effect. Second, by introducing a measure that also accounts for the impact of organizational culture. I elaborate below.

To the extent that more female-concentrated jobs are associated with a firm’s characteristics, then failing to control for these characteristics would exaggerate the degree that gender pay inequalities are a function of devaluation. As I discuss later, there is abundant research suggesting that sex-composition effects on pay are at least partially explained by firm-level characteristics (e.g., Anderson and Tomaskovic-Devey 1995; Blau 1977; Pfeffer and Ross 1990; Tolbert 1986). Therefore, a proper assessment of devaluation at the job level requires this effect to be estimated net of relevant firm-level influences.

In this research, I treat organizational culture as another firm-level characteristic that accounts for gender-pay inequalities in the organization. The rationale for this is straightforward. The unexplained female-composition effect on pay is widely inferred as evidence of the cultural devaluation of women’s work. But understanding this effect as a product of culture would be
enhanced by empirically demonstrating that culture accounts for some or all of the female-composition effect left over after other organization-level controls are added. The most feasible way to do this, given the available data, is through demonstrating that organizational culture influences the level of gender bias in an organization’s job evaluation outcomes, net of other job and organization-level controls.

The rest of this chapter is structured as follows. I begin with an understanding that decisions about job rewards are often aided by the formal organizational activity of job evaluation. But because this activity is ultimately contingent on what the organization traditionally values, the evaluation process can be subject to biases. In turn, these biases can lead to pay inequalities in the organization between different groups of workers. I also explain that because job evaluation is value driven and organizationally bounded, its outcomes are in theory greatly reflective of the organization’s culture. Thus, organizational culture is conceptually relevant to understanding the nature and severity of gender inequalities in an organization’s job-evaluation outcomes. I present hypotheses associated with these arguments, and test these hypotheses using over 50 thousand jobs matched to 58 different organizations. I then discuss the results as they relate to broader theory on the cultural devaluation of women’s work.

Job-Evaluation Bias

Most work organizations use some type of job-evaluation program to establish pay differentials for different kinds of work. As explained in Chapter 2, these programs typically involve assessing each job against a predefined set of criteria commonly referred to as compensable factors. Compensable factors usually encompass four main dimensions: skills, effort, responsibility, and working conditions. The job’s content as informed by the job description is then rated with numerical points against these four factors. When the points on these factors are summed, the result is a total score that is supposed to measure the relative value of each job to the organization. The higher the total score, the more the job supposedly contributes to the organization and the higher it should be paid.

Chapter 2 also explained that a job’s assigned points are linked to a cash value. Depending on the organization’s purposes for doing the evaluation, this can happen through one of two approaches. If the goal is to set job rewards relative to the external market, benchmark jobs are selected within the organization and matched to the pay of comparable jobs in the relevant
labour market. A linear regression is then run with the assigned points of the benchmark jobs as the independent variable, and the market pay of the comparable job as the dependent variable. In theory, the result estimates the market cash value of each job point among the set of benchmark jobs. The estimates are then used to calculate the market value of the remaining jobs in the organization, based on their assigned points. Each job is then slotted into a hierarchy of administratively predetermined salary grades. If the organization is only concerned with the internal consistency of its pay system, there would be no need for external pay information. Instead, regression estimates could be carried out, using the organization’s existing pay rate for the chosen benchmark jobs. Again, depending on the organization’s purposes, regressions may also be performed using the scores of each factor as independent variables instead of a job’s total point rating.

The concept of bias in job evaluation pertains to any systematic inaccuracies in the outcomes of the job-evaluation process. For example, overlooking the content of certain jobs as a source of job value precludes such content from being rewarded in the pay system. To the extent that employees with certain attributes are concentrated in jobs where such content has been overlooked, pay inequalities on the basis of employees’ characteristics will be present. The choice and number of benchmark jobs also has consequences for job-evaluation bias. If the selection of benchmark jobs is not broad enough to represent the spectrum of jobs in the organization, then the regression estimates used to assign a cash value to the organization’s remaining jobs may be distorted. Rating bias can also distort job-evaluation outcomes, such as when job evaluators systematically rate a job’s content as more/less valuable based on erroneous assumptions.

One of the most common examples of gender bias in job evaluation is rating bias, in which job evaluators systematically rate a job’s content as more/less valuable based on assumptions about the sex of the person doing the work, or assumptions about the sex appropriateness of the work. One consequence of such behaviour, whether conscious or unconscious, is pay differences between male- and female-concentrated jobs that make essentially the same contribution. Such inequality is commonly observed in the form of jobs that pay less as their female concentration increases, even after controlling for legitimate bases for pay differentials, such as human capital and other job characteristics (e.g., Figure 1 in Treiman and Hartmann 1981). The concept of
gender bias in job evaluation is thus synonymous with what the research typically calls the female-composition effect on pay, or the devaluation of women’s work.

Two issues characterize the study of job-evaluation bias. First, gender bias is one of the most widely studied forms of job-evaluation bias in the relevant literature. Second, however, the research has been largely individualistic, experimental, and inconclusive. Taken together, these two issues suggest that our knowledge about this popular topic can be deepened by focusing less on experimental and individualistic research in favour of more nonexperimental, contextual approaches.

The primary assumption in the relevant theory is that gender bias comes largely from individuals’ thoughts and behaviours. For example, Schwab and Grams’s (1985) seminal typology of the three sources of gender bias in job evaluation—direct bias, indirect bias, and sex of rater bias—describes these sources as if they begin with individual evaluators’ biased perceptions and behaviours. In addition, Arvey’s (1986) influential typology of the four ports of entry for gender bias in the job-evaluation procedure presents such biases as rooted in the organization as a system. However, a description of the bias transmitted through these four ports is framed at the individual level of analysis. A more complete view, which the present chapter seeks to build, is how the organization’s environment underlies gender bias in its job-evaluation outcomes.

In theory and research, evidence of gender bias in job evaluation has been sought by focusing on the thoughts and behaviours of individuals observed in experimental settings. However, the majority of such research has been inconclusive, regardless of the types of jobs under study, the method of manipulating incumbent sex, or the job-evaluation experience of study participants. On the other hand, much of the nonexperimental organizational research has shown that jobs

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2 An online search for peer-reviewed articles published between 1975 and 2010 using the keywords “job evaluation” and “bias” yielded 161 results. A narrower search found that 79 percent of these results contained the keywords “sex,” “gender,” or “women” in conjunction with “job evaluation” and “bias.”

3 Schwab and Grams (1985) use the term sex bias in their research, but the present research takes a less biologically oriented label by using the term gender bias.

4 Arvey et al. 1977; Cooper et al. 1987; Doverspike and Barrett 1984; Grams and Schwab 1985; Hornsby, Benson, and Smith 1987; Mahoney and Blake 1987; McArthur and Obrant 1986; McShane 1990; Mount and Ellis 1987; Naughton 1988; Rynes, Weber, and Milkovich 1989; Schwab and Grams 1985. The experimental research finds some support for indirect gender bias, where knowledge of the job’s current or market pay influences job evaluation judgements. This indirectly impacts gender bias to the extent jobs are sex segregated on the basis of pay.
held predominantly by women are paid less relative to comparably evaluated jobs held by men (e.g., Farnquist, Armstrong, and Strausbaugh 1983; Kim 1989; Nelson and Bridges 1999; Pierson, Kozaria, and Johannesson 1984; Treiman and Hartmann 1981). The lack of concurring evidence in the experimental research seems puzzling, unless individuals’ proclivities towards gender bias are mediated by contextual factors, such as conformity with the normative values of the organization.

For instance, the act of job evaluation is carried out by individuals, but a strictly individualistic understanding is challenged by an extensive body of research demonstrating the social contingency of individuals’ judgements. The main findings of such research (falling under what is known as reference group theory) are that individuals’ judgements are often guided by social frames of reference. Such frames of reference are delineated in many cases by the dominant views of the greater social unit to which the individual identifies (review by Bond and Smith 1996; Cialdini and Goldstein 2004; Merton and Rossi 1949). Thus, interpreting job-evaluation bias strictly as a cognitive distortion of individuals neglects the wider social context that facilitates these distortions.

A central idea in reference group theory is that individuals freely choose the group(s) they identify with (Hyman and Singer 1968). However, groups also exert great power over individuals’ behaviours, because groups contain processes that can admit or deny membership based on an individual’s adherence to group norms (Hyman and Singer 1968). These ideas are especially relevant to the present argument, that an organization’s values can frame the level of bias in job assessments. First, organizations often mobilize at least some of their own personnel to carry out job evaluations, so it is unrealistic to expect that evaluators’ judgements about job value are isolated from the normative values of the organization. Second, although individuals freely choose to work for a particular organization, according to reference group theory, employees failing to adequately emulate the organization’s perspectives in their work

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5 The theory is often further divided into the concepts of normative and comparative reference group behaviour, but the distinction is largely irrelevant in this dissertation. Both scenarios are recognized to influence an individual’s thoughts and behaviours through the normative principle, whereby people’s behaviours, feelings, and views are influenced by the group (Dawson and Chapman 2001).

6 It is common to have some or all organizational members write job descriptions or participate in the job evaluation committee for at least three reasons. First, it may be seen as a way of reducing program costs relative to hiring outside consultants. Second, internal participants may be seen as more knowledgeable about the jobs they are evaluating than outside consultants. Third, this process also conforms to popular calls for transparency in the process, thus increasing the likelihood that employees will view the evaluation outcomes as legitimate and fair.
responsibilities risk a denial of membership in the organization through social or economic ostracism. Thus, despite an organization’s commonly stated concern that its job evaluation be unbiased, evaluators have a great social and economic incentive to exercise these concerns within their organization’s popular notions of job value.

**Contextual Effects in Job-Evaluation Outcomes**

The previous point implies that organizational context, and specifically the values characterizing the organization as a social entity, can frame job-evaluation outcomes. However, before pursuing this more abstract line of inquiry, it is useful to introduce some of the more observable organizational characteristics that have been linked to pay inequalities in past research.

Some have presented evidence suggesting that the phenomenon of cultural devaluation can be too strong to be mediated by an organization’s structures (e.g., Huffman and Valesco 1997), but these types of findings are the exception. Generally, the structures and features of organizations are important for fostering or suppressing such inequality. For example, gender-based pay inequalities are often lesser in firms with more formalized personnel policies because, it is said, such formalization helps to keep subjectivity out of the decision-making process. The gender composition of an organization’s upper echelons has also been linked to gender pay inequalities, with the explanation that more gender diversity among the organization’s upper management can translate into more concern for gender egalitarian personnel practices throughout the organization. In addition, pay inequalities have been linked to an organization’s dependence on internal labour markets, most likely because internal labour markets play a role in determining the type and number of jobs an organization must compensate at external market rates. An organization’s business function and demographic composition have also been cited as correlates of pay differences within and between organizations (Anderson and Tomaskovic-Devey 1995; Cohen and Huffman 2003b; Huffman and Valesco 1997; Pfeffer and Ross 1990; Tolbert 1986).

Most of the in-depth research covering the organizational contexts behind pay inequalities has been sociological, and not discussed vis-à-vis the activity of job-evaluation (though see Bridges and Nelson 1989). This is understandable; since job evaluation is primarily an administrative task, job-evaluation outcomes have been studied primarily within the management literature. In
such literature, the organizational context usually receives some theoretical attention, but relatively little empirical attention (Dulebohn and Werling 2007; Werner and Ward 2004).

However, the administrative literature has paid substantial attention to the issue of group effects on job-evaluation outcomes. Research in this area has focused primarily on how the dynamics among job-evaluation committee members affect the evaluation process; and how the reliability of job-evaluation ratings compares in group versus independent settings (Benson and Hornsby 1988; Lewis and Stevens 1990; Montemayor and Fossum 1997). The very existence of a literature looking at such group effects is important because it suggests researchers recognize that job-evaluation outcomes do in fact have social and contextual determinants.

Despite the literature mentioned above, the question of how an organization’s social context is associated with job assessments remains unexplored. This lack of research is especially important since the relevant literature notes that evaluating jobs is heavily dependent on what the organization values (Arnault et al. 2001; Arvey et al. 1977; Lowe and Wittig 1989; Mount and Ellis 1989:154; Quaid 1993; Remick 1984; Treiman and Hartmann 1981). This implies that when a group of job-evaluation committee members assess the jobs and guide the evaluation process, their judgements are unlikely to deviate substantially from the (unobservable) value context of the organization. This is because what is traditionally valued within the physical and conceptual confines of the organization provides convenient, “common-sense,” boundaries within which to rationalize job value.

Thus, the above understanding has two implications: First, in the absence of information about the job-evaluation committee, examining the value context of the organization may provide some explanation for biases contained within job-evaluation results; and second, different values within each organization may be associated with different valuations of the same job, even if committee members’ job valuations were consistent within each organization.

From Gender Stereotypes and Role-Incumbent Schemas to Organizational Culture and Job-Evaluation Bias

It was introduced earlier in this chapter and in Chapter 3 that job evaluation biases are likely to be greater in organizations with more masculine cultures. But how would the increasing masculinity of an organization’s culture translate into greater levels of job-evaluation bias? To answer this, I draw on two main sources: Ridgeway’s (2011) broad theory on gender inequalities
and the salience of gender; and Gorman’s (2005) theory on how gender stereotypes and role-incumbent schemas, as informed by organizational culture, accentuate the impact of gender in an organization’s formal processes.

As Chapter 3 discussed, Ridgeway explains that historically, gender has been a primary frame for creating difference in societies (the gender frame). Through time, the relational processes (e.g. social interactions, formal and informal rules and regulations) that developed around these perceived differences eventually became associated with status beliefs about gender. As she goes on to clarify, the extent that status beliefs about gender actually modify people’s judgements depends on gender’s salience to them, given the situation and institutional setting.

This point has a crucial implication. To the extent that gender is more salient in an institutional setting (e.g. organizational culture), then greater gender inequalities may ensue in that setting. This follows for two reasons. First, those who view gender as less significant may still feel compelled to align their judgements with how the institutional setting views gender. Second, such settings likely reinforce the judgements of those who already view gender as highly salient. These implications are highly relevant for the present research because they provide a basis for expecting that gender inequalities in an organization’s job-evaluation outcomes are greater in more masculine organizational cultures. I elaborate below.

As Chapter 3 discussed, more masculine cultures logically have wider status distinctions based on notions of gender. Thus, it is reasonable to expect that more masculine organizational cultures comprise an institutional setting where gender is made more salient during the evaluation of jobs for the purposes of setting pay differences. What this suggests for more female-concentrated jobs is that in more masculine organizational cultures, job evaluators may be more sensitive to the gender-stereotypicality of such jobs as a basis for determining their relative contribution to the firm.

The above discussion approached the issue of organizational culture and job evaluation bias largely from an inter-organizational perspective. I now complement the above discussion with a more micro-level understanding. To do this, I draw on Gorman’s (2005) theory and research on gender stereotypes and role-incumbent schemas. By bringing these two complementary theories together, it becomes easier to see the theoretical importance of focusing on an organizational
culture’s level of masculinity when explaining gender biases in an organization’s job-evaluation outcomes.

Gorman sought to explain whether the gender-stereotypicality of an organization’s profile of the kind of person sought to occupy a position actually affected the extent to which men and women were selected for that position. Her findings confirmed that when selection criteria for jobs contained a greater number of stereotypically masculine characteristics, women comprised a smaller proportion of new hires, and vice versa. Her rationale for this outcome was based on the argument that organizational-decision makers typically rely on gender stereotypes from wider societal culture when they are forming impressions about the jobs they intend to fill. However, she argues, organizations typically contain well-developed schemas for the type of person thought to perform successfully in the role to be filled. These role-incumbent schemas, as Gorman calls them, develop largely from the organization’s culture. To the extent that the relevant gender stereotype is congruent or incongruent with the role-incumbent schema, gender stereotypes will matter for whether more males or females are hired for a particular job.

As Gorman notes, gender inequalities are accentuated when an organization’s structural mechanisms intersect with its interactional mechanisms. An organization’s structural mechanisms include such things as its established policies and practices, while its interactional mechanisms embody the formal and informal face-to-face or mediated social encounters that take place in everyday organizational life. Through these encounters, decision makers often form sex categorized impressions of other employees or candidates, and then use these impressions as a basis for judgements in selection decisions (2005).

Gorman’s theory is highly relevant to understanding gender bias in job evaluation. For job evaluators to properly participate in the formal organizational activity of job evaluation (a structural mechanism), they must first develop an understanding of the job they are evaluating by reading the job’s description. As mentioned earlier in this chapter, research shows that people can form gender-stereotypical impressions of a job just by reading the job’s description or its title. Thus, it is likely that job evaluators are already aware of any popular gender stereotypes associated with the jobs they are evaluating.

Job evaluators’ impressions of the gender of the jobs they are evaluating may also be further influenced by any interactions with organizational members who typically hold these types of
jobs. For example, the evaluator may recall the sex of the incumbents they interacted with in the past help to confirm or disconfirm the societally-implied gender of the job they are evaluating. Since people are more likely to notice and remember information that confirms an applicable stereotype than disconfirms it (review in Gorman 2005), evaluators are more likely to recall information from their interactions that confirm the stereotypical gender of the job they are evaluating.\(^7\)

But as Gorman (2005) also notes, seeing employees (or jobs) through the lens of gender stereotypes may not be sufficient to lead an evaluator to sex categorize the job in the immediate organizational setting. Also needed is some type of logic within the organization that helps rationalize the congruency of these broad stereotypes to the jobs at hand. On this point, I adapt Gorman’s (2005) concept of role-incumbent schemas to the activity of job evaluation.

Gender stereotypes are generally shared at the level of a society.\(^8\) But how these stereotypes result in gender inequalities within the organization depends more on how congruent these stereotypes are with the role-incumbent schemas unique to each organization. Role-incumbent schemas represent abstract mental representations of the characteristic attributes of persons found across an organization’s various roles. While such schemas can overlap with broader gender stereotypes originating from society, these schemas are largely informed by the attributes, categories, and characteristics associated with incumbents who have successfully performed these roles in the past. Role-incumbent schemas are therefore largely unique to each organization, and develop from as well as constitute an organization’s culture (Gorman 2005).

Consequently, an evaluator may draw on societal culture to gender stereotype a job, but the ultimate confirmation or disconfirmation of the job’s gender stereotypicality (e.g. its maleness or femaleness) depends on the organization’s unique role-incumbent schema for the job. Gorman (2005) indicates several mediums through which these schemas become known, but two are relevant for the present research. The first medium is the expression of role-incumbent schemas in an organization’s written texts. Since job evaluators must read the job’s description in order to evaluate the job, they have a prime opportunity to become aware of any role incumbent schemas

\(^7\) In the present research, the risk of past interactions influencing perceptions of the gender of the job being evaluated is especially likely. As I explain in the Data and Methods section, the job evaluators were themselves employees of the organizations conducting the job-evaluation initiative.

\(^8\) This is also exemplified by the discussion in Chapter 3 on Charles and Grusky’s (2004) explanation for gender stratification in the labour market.
that have crept into the language of the job description. Gorman’s second medium is through ethnographic observation. It was discussed earlier that evaluators’ impressions of a job’s gender stereotypicality may also be informed through interactional mechanisms. To the extent this has happened, evaluators will have formed an impression of a job’s role-incumbent schema through a form of ethnographic observation.

I have applied Gorman’s theory to explain how job evaluators may interpret the maleness or femaleness of the jobs they are evaluating. But this theory also explains how evaluators may attach different values to jobs based on their assumed gender appropriateness. Just as gender stereotypes in societal culture may help job evaluators form impressions of a job’s gender appropriateness, gender stereotypes in societal culture may also influence evaluators’ perceptions of a job’s relative status. As discussed in Chapter 3, Charles and Grusky (2004) explain that vertical inequalities in the labour market are ultimately explained by the deeply rooted tenet in most societies that whatever is associated with males is more status worthy. Therefore, to the extent job evaluators would be aware of a job’s gender appropriateness as prescribed by societal culture; they would also likely have some notion of the relative status societal culture would attach to the job because of its implied gender appropriateness.

The extent that a job’s implied gender appropriateness actually results in the job being viewed as more/less status worthy within the organization depends on more than societal culture. It also depends on the extent that an organization’s role-incumbent schema for more status-worthy jobs characterizes males as the preferred candidates. For example, consider an organization’s managerial, executive, or professional jobs. Legitimate reasons exist for perceiving these types of jobs as more status worthy because in most organizations, these jobs entail greater decision-making authority and responsibility. But, if the organization’s past experiences suggest that the most successful incumbents in these jobs have been male, this may contribute to a role-incumbent schema characterizing males as best suited for these higher-status jobs.\(^9\) Further, the association of males with these legitimately higher-status roles also likely fuels a schema within the organization that jobs more associated with male attributes are generally more status worthy.

\(^9\) This is not hard to imagine. Past research notes that while women’s representation in management positions has increased over time, this has occurred mostly in low and mid-level management positions. There continues to be a “think manager think male” mentality in most societies, resulting in the underrepresentation of women in management positions in general, and particularly in top management positions, and higher status leader roles (review in Basow 2013).
This understanding is more than a theoretical explanation. As Ridgeway (2011) notes, once status beliefs associated with males become established, male privilege (or female disadvantage) becomes rooted in the sex category itself.

To reiterate, I have adapted Gorman’s theory on gender stereotypes and role-incumbent schemas to explain how gender biases in job evaluation take hold. First, job evaluators may form gender categorizations of the jobs they are evaluating as informed through societal culture. In turn, these categorizations are confirmed or disconfirmed through the evaluator’s own interactions with persons in the organization who hold the job being evaluated; and the role-incumbent schema for the job that has developed out of the organization’s culture. The extent that a job is evaluated as more valuable because of its association with male attributes flows from a similar logic. Assumptions of male primacy abound in societal culture, but will likely affect the job-evaluation process to the extent that these assumptions match a schema within the organization that jobs more associated with males make an inherently greater contribution. As explained in the previous paragraph, there is good reason to expect that such a broader schema exists within most organizations.

Gorman (2005) presented evidence that organizations may hire a disproportionate number of males or females for a job to the extent the organization’s role-incumbent schema for the job embodies a greater number of stereotypically masculine or feminine characteristics. Because she argues that these schemas develop out of organizational culture, her research offers indirect evidence of how organizational culture can shape the actions of decision makers that lead to greater or lesser job-sex segregation within the organization. But also important is how organizational culture can shape the actions of decision makers that lead to greater or lesser job-evaluation biases based on the job’s association with male or female attributes.

I have offered a micro-level explanation for this vertical type of gender inequality based on Gorman’s ideas. Like Gorman, my explanation hinges on the understanding that the congruency of the job’s role-incumbent schema (as developed through organizational culture) with gender stereotypes accounts for the conditions in which gender is accentuated in organizations. But Gorman’s theory and my application of it raises a similar question. Some organizations are likely to have role-incumbent schemas that are highly congruent with gender stereotypes found in societal culture – leading to the expectation of greater gender inequalities in such
organizations. In other organizations, these schemas may be much less congruent – leading to the expectation of lesser gender inequalities. Since the role-incumbent schema develops out of organizational culture, as Gorman explains, what is it about an organization’s culture that enables these role-incumbent schemas to be so congruent with gender stereotypes in some organizations, but less so in others?

One potential answer to this question harkens back to Ridgeway’s (2011) theory about institutional settings and the salience of gender. Settings where gender is more salient are usually synonymous with greater gender inequalities because in such settings, gender becomes a more central feature for organizing differences. Thus, in organizational cultures that enable gender to be a more salient part of formal or informal organizational life, there is likely to be greater gender inequality. From a theoretical perspective, the type of organizational culture that best fits this profile (greater salience of gender and greater gender inequality) is a more masculine culture. This is because, as discussed in Chapter 3, more masculine cultures are typically characterized by more rigid distinctions between traditional gender roles, and greater status differences between these stereotypical roles.

If more masculine organizational cultures are characterized by a greater salience for gender (or gender differences), then logically, such cultures are also amenable to developing role-incumbent schemas that more closely match with traditional gender stereotypes found in society. In sum, the logic presented here leads to the prospect that more masculine organizational cultures provide a setting in which gender is likely to be a more salient feature in determining a job’s relative contribution to the firm – leading to two outcomes in more masculine organizations: greater levels of overall job evaluation bias, and; intensified levels of gender bias in more female-concentrated jobs located in such organizations.  

Based on the literature presented in this chapter and in Chapter 3, the first hypothesis is:

\[ \text{Gorman (2005) notes that the unthinking use of schemas constitutes the principal mechanism by which culture shapes and biases thought. Therefore, the greater salience of gender in more masculine organizations does not mean that organizational-decision makers in such organizations are necessarily conscious of its more prominent role in a job-evaluation decision.} \]
**H1:** The level of masculinity in an organization’s culture will be positively associated with the level of job-evaluation bias.

However, because more masculine organizational cultures would be characterized by stronger beliefs about male primacy, the devaluation of women’s work should be greater in more masculine cultures. As such:

**H2:** Job-evaluation bias will intensify in more female-concentrated jobs that are in organizations with more masculine cultures.

A more female-concentrated job indicates a job entailing more female-typed work. As explained in Chapter 3, this is supported by the observation that females are generally more numerous in jobs more associated with female stereotypes.

**Data and Methods**

The data used to test the hypotheses were described in detail in Chapters 2 and 3. What follows is an overview of the data as they relate to the present analysis. The analysis draws on data from two sources: a job-level dataset containing job-evaluation information on over 50,000 jobs from 68 government organizations of an OECD member country; and cultural information about these organizations compiled from a survey administered to their employees as part of a human resources initiative. For reasons relating to matching the job-evaluation data to the appropriate organization-level data, 10 of the 68 organizations had to be dropped from the analysis. This resulted in a reduction of 960 jobs in the job-level portion of the dataset, and 10 organizations. Therefore, the final sample size consists of 49,269 jobs in 58 organizations.\(^{11}\)

To reiterate an important point from Chapter 3: each organization assessed its own jobs, using an evaluation committee staffed by its own employees. This had both benefits and drawbacks. An evaluation carried out by a set of insiders should improve the intraorganizational reliability of the job-evaluation ratings, because their foreknowledge of the job and the organization might bring more validity and consistency to evaluation decisions. However, that same insider

\(^{11}\) Since the population of the organization-level and job-level data was known, sample weights were introduced to compensate for the dropped cases. However, preliminary analyses revealed that the model estimates were substantively similar between the weighted and unweighted data. For simplicity, unweighted versions of the model results are reported.
knowledge could also make job evaluation more susceptible to interorganizational differences, including organizational-cultural differences about job value.

This analysis proposes that job-evaluation outcomes are to some extent nested within or conditioned by organizational context. For modelling relationships involving nested variables, a hierarchical linear model (HLM) is generally preferred. This is because such a model accommodates for the dependence of the lower level variable (e.g., the job-evaluation outcome) on the features of its assigned group (e.g., the organization). This not only permits the testing of group-level effects on the dependent variable, but also how the group level conditions the outcome at the lower level. It may not always be relevant to use HLM simply because a model contains nested data. However, it is conceptually important to do so in research that is interested in modelling contextual effects. One of the major reasons why is explained below.

Contextual effects on job-evaluation outcomes could also be modelled using an OLS regression that contains a dummy variable for each of the 58 organizations in the data. Though the model would be cumbersome, it would not be problematic if the organizational and job-level variables were truly independent of each other. However, since the outcomes associated with the job-level variables are likely dependent on the features of the organizations in which they are nested, the failure of an OLS model to account for this dependence might compromise the reliability of the estimates.

One of the principal assumptions in OLS regression is that errors in the model estimates are uncorrelated and randomly distributed. However, when running models based on grouped data, such as jobs within organizations, such errors are unlikely to be uncorrelated and randomly distributed. This is partly because the characteristics of the nested variable will be somewhat contingent on the characteristics of the group it is in. Failing to take into account the grouped nature of the data can thus result in correlated errors, and generate standard errors that are much smaller than they would otherwise be. Consequently, the estimate obtained from the grouped data would have an inflated level of statistical significance. Further, if the nested variable is correlated with the characteristics of the group it is in, then it would also imply that there are fewer degrees of freedom in the model than originally thought, also leading to downward bias in the standard errors of the coefficient estimates, and inflated statistical significance (see Bryk and Raudenbush 1992 for a more technical explanation). Therefore, this analysis uses HLM over a
more standard OLS regression to help reduce some of the problems that can occur when modelling nested data with OLS regression.

The Dependent Variable

The dependent variable is an indicator for job-evaluation bias. In the literature, this variable has typically been conceptualized as the deviation of a job’s actual pay from its “unbiased” pay as estimated with an OLS regression. The steps involved in calculating this variable are as follows. First, the compensable factors from the job evaluation are entered as a set of independent variables in a regression model, along with a control for the job’s percentage of females. The job’s designated pay is entered as the dependent variable. The coefficients from this model are then used to predict the job’s unbiased pay from its given job-evaluation ratings. The following illustrates the calculation of this variable, as developed by Treiman, Hartmann, and Roos (1984):

\[ E_{jk} = (\omega_j - \hat{\omega}_j)_k \]  \hspace{1cm} [4.1]

Where \( E_{jk} \) represents the deviation in job \( j \) between its actual and estimated unbiased pay in organization \( k \). The actual pay of job \( j \) in organization \( k \) is represented by \( \omega_{jk} \), and \( \hat{\omega}_{jk} \) is the unbiased pay predicted from the coefficient estimates of the OLS regression. The equation for the predicted unbiased pay \( \hat{\omega}_{jk} \) is as follows:

\[ \hat{\omega}_{jk} = \left( \alpha + \sum_{i=1}^{n} b_i \cdot x_{ij} \right)_k \]  \hspace{1cm} [4.2]

Where \( \alpha \) is the intercept, \( b_i \) is the estimated coefficient of job factor \( i \) from the jobs in organization \( k \); \( x_{ij} \) is the rating given to job factor \( i \) in job \( j \) of organization \( k \). The products of \( b_i \cdot x_{ij} \) (excluding the parameters for job percentage-female) and the intercept are summed to produce the estimated unbiased salary \( \hat{\omega}_{jk} \). The calculation is carried out for each of \( k \) organizations. A positive value from Equation 4.1 implies that the actual pay of job \( j \) in organization \( k \) is higher than its estimated unbiased pay. A negative value implies the opposite. To ensure data confidentiality as outlined in Chapter 2, the raw salary variable was converted into salary levels. Thus, the above measure of job-evaluation bias is based on the difference between the actual and predicted pay level of jobs. Lastly, the job attributes that were used in the above calculations consist of the seven uncorrelated variables that were derived from the
original set of 34 compensable factors in the job-evaluation data (see Chapter 2 and Appendix B).

The Focal Independent Variable

The main independent variable in the study was conceptualized as the level of masculinity in the organization’s culture. As described in detail in Chapter 3, the variable is constructed as an index based on indicators for three types of masculine stereotypes, and a measure of the likely strength of masculine stereotypes in the organization. The three types of masculine stereotypes include competitiveness; emotional detachment and lack of empathy; and the percentage of respondents in the organization who have experienced violence, harassment, or discrimination in their current workplace. The likely strength of masculine stereotypes in the organization was indicated by an organization’s percentage of male-concentrated jobs.

Control Variables

The following control variables were included in the study, based on evidence in past research of their pertinence as organizational and job-level correlates of gender inequality.

Organization size (logged). Measured as the number of employees. Larger organizations tend to be more bureaucratic, have higher levels of complexity, more job specialization, and greater access to financial resources; all of which have been linked to organizational gender inequalities in past research (Kimberly 1976).

Organization age. Measured as the year that the employee survey information was collected minus the year the organization was founded. As past research has pointed out through such theories as organizational inertia, gender inequalities can persist in organizations because of biased thinking and ways of doing things that linger from an earlier time in the organization’s history (Reskin and McBrier 2000).

Organization function. According to Sneed’s (2007) typology of organizational functions in the public sector, organizational function can also be a correlate of greater gender inequalities in certain public service organizations. Based on information contained in its annual report, each organization in the current study was assigned to one of Sneed’s four categories: financial, administrative and control, distributive, and redistributive.
**Level of formalization.** Formalized personnel policies can preempt gender inequalities in organizations by curtailing the amount of subjectivity in managers’ decisions (Konrad and Linnehan 1995; Reskin and McBrier 2000). But since formalization is traditionally high in most government service organizations, recording the presence or prevalence of codified employee policies would provide little useful information as a control variable. Instead, a measure of formalization was created from questions in the employee survey pertaining to employees’ level of agreement with four statements about the objectivity of their organization’s hiring practices (Strongly Agree = 1, to Strongly Disagree = 4; Cronbach’s alpha = .848). The questions were compiled into an index out of 100 so that higher scores indicated higher perceived levels of objectivity in the organization’s hiring practices.

**Percentage of male executives.** Since the gender composition of upper management often sets the tone of an organization’s priorities and policies regarding gender equity (Dolan 2000), the male composition of each organization’s executive employee group was added as a control.

**Job-level controls.** A standard practice when using an HLM to disentangle contextual effects from lower level effects is to use the deviation of the lower level variable from its group mean. Thus, all the job-level variables in this analysis are group mean–centred by subtracting the values of the variable from its organizational mean.

Based on the job-level research in Chapter 2, the model controls for a job’s number of incumbents, and level of union activism. Because the female density of the many unions in the data was not available on the basis of organization, it was not possible to use the same indicator for union activism as in Chapter 2. Instead, jobs protected by the union with the highest female density were dummy coded with a 1, and then group–mean-centred by organization.

A fourth control for **job ambiguity** was also added. Based on Baron and Newman (1990) and supported in theory by others, gender biases in assessing a job’s worth might be greater in more ambiguous jobs, where the duties are less concrete and performance more difficult to gauge. This is because stereotype-based expectations have been shown to fill in the blanks when evaluators are faced with insufficient or unclear information about the work (Caleo and Heilman 2014). The indicator for job ambiguity employed in this research is similar to that used by Baron and Newman (1990). Jobs with titles falling under the professional, managerial, and supervisory
category were coded as 1 for more ambiguous and 0 otherwise. Lastly, a group mean-centred measure of a job’s percentage of females in each organization was also included.

Model Specification

The analysis is shown in three models (see Table 4.1). Model 1 introduces the organization-level variables, including the focal independent variable indicating the level of masculinity in an organization’s culture. Model 2 introduces the organization-level variables and all of the job-level variables. Model 3 extends Model 2 by adding a job’s percentage of females to the random effects part of the model, and then including an interaction between a job’s percentage of females and organizational culture into the fixed effects part of the model. This is done to help explain away the variance of a job’s percentage of females in the random effects part of the model. These two variables are crucial as they help determine if: (a) job-evaluation bias varies across organizations as a result of interorganizational variations in a job’s female composition; and (b) if more female-concentrated jobs in organizations with relatively more masculine cultures can expect to have magnified levels of job-evaluation bias.

Diagnostics confirmed that the main effect of job percent-female in Model 3 was distorted by a high level of collinearity with the interaction term (job percent-female × organizational culture). This collinearity was effectively eliminated by substituting the original interaction term in the model for the residual part of the interaction after the shared variance from its component variables was partialled out (Draper and Smith 1998).

As explained in Chapter 2, the data are weighted to give more importance to jobs with more incumbents by organization. This ensures that the model results are not overly influenced by the sex composition of many single incumbent jobs in a particular organization.

Results

While indicators of statistical significance are reported out of convention, the substantive significance of the model results as they inform the hypothesized direction of the relationship are emphasized. The meaningfulness of statistical significance tests from model results that come from complete or substantively complete populations has been hotly debated in the social sciences (for three excellent examples, see Cowger 1984, 1985; Rubin 1985). At present, there is no consensus in this debate, but a recount of basic statistical theory helps clarify the position
taken in this dissertation. In statistical theory the standard error of the model estimate, which is based on the standard deviation of the sample distribution, is used to calculate the statistical significance of the estimate. This is done to determine whether the results from a sample can be generalized to the whole population from which it came. However, standard errors and statistical significance would be redundant when the model is estimated from data that comprise a complete or substantively complete population. \(^\text{12}\) Therefore, the substantive significance of an estimate would seem to be a more relevant piece of information when model estimates are based on a complete population.

A diagnostic one-way ANOVA with random effects confirmed that an HLM was an appropriate analytical approach through indicating that a nontrivial proportion of the variation in the job-evaluation bias variable was at the organization level. The intraclass correlation (ICC) calculated from the ANOVA, which shows the percent of variance in job-evaluation bias among organizations, indicated that approximately 12.5 percent of such variance is at the organization level. Though standard statistical tests are not emphasized, the ICC is highly significant \((p = .000; t = -21.37, \text{ with } 57 \, df)\).

**Organization-Level Effects**

Model 1 in Table 4.1 estimates the level of job-evaluation bias net of the organization-level control variables. Diagnostic calculations showed that these controls accounted for about 30 percent of the 12.5 percent interorganizational variance in the dependent variable. The intercept of -581.3 suggests that net of these controls, the average maximum annual salary is about 581 levels below the unbiased salary that was estimated using Treiman et al.’s (1984) technique. But as Model 1 also indicates, each additional point in an organization’s masculinity score increases the effect of job-evaluation bias by about 2.7 salary levels, net of the other controls.

\(^{12}\) It is my opinion that the data are a substantively complete population, since a model weighted for the full number of jobs and organizations produced substantively similar estimates as the results in Table 4.1.
Table 4.1.  Hierarchical Linear Regression of Effects on Job-evaluation Bias

<table>
<thead>
<tr>
<th>Fixed effects</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-581.30**</td>
<td>-521.80**</td>
<td>-511.81**</td>
</tr>
<tr>
<td><strong>Organization-level variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization masculinity level</td>
<td>2.77†</td>
<td>2.46†</td>
<td>2.62†</td>
</tr>
<tr>
<td>Age in years</td>
<td>-.35*</td>
<td>-.37**</td>
<td>-.27*</td>
</tr>
<tr>
<td>ln number of employees</td>
<td>0.44</td>
<td>-0.39</td>
<td>-2.97</td>
</tr>
<tr>
<td>Formalization level</td>
<td>5.39**</td>
<td>4.79*</td>
<td>4.76*</td>
</tr>
<tr>
<td>Proportion of male executives</td>
<td>0.32</td>
<td>0.27</td>
<td>0.23</td>
</tr>
<tr>
<td><strong>Organization type</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[Regulatory organizations]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finance administrative &amp; control</td>
<td>-2.24</td>
<td>-3.45</td>
<td>-1.41</td>
</tr>
<tr>
<td>Distributive</td>
<td>-24.14</td>
<td>-28.15†</td>
<td>-22.75</td>
</tr>
<tr>
<td>Redistributive</td>
<td>-30.28**</td>
<td>-31.12†</td>
<td>-32.16†</td>
</tr>
<tr>
<td><strong>Job-level variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job percent-females</td>
<td>-1.46***</td>
<td>-1.27***</td>
<td></td>
</tr>
<tr>
<td>Job ambiguity</td>
<td>10.31***</td>
<td>10.88***</td>
<td></td>
</tr>
<tr>
<td>Per 100 incumbents</td>
<td>1.58***</td>
<td>2.10***</td>
<td></td>
</tr>
<tr>
<td>Job covered by activist union</td>
<td>-73.71***</td>
<td>-74.13***</td>
<td></td>
</tr>
<tr>
<td><strong>Cross-level Interaction</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job percent-females x Organization masculinity level†</td>
<td></td>
<td></td>
<td>-.05**</td>
</tr>
<tr>
<td><strong>Random-effects parameters</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variance (intercept)</td>
<td>1,303.05***</td>
<td>1,282.03***</td>
<td>1,277.48***</td>
</tr>
<tr>
<td>Variance (job percent-females)</td>
<td>.44***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Covariance (job percent-females, intercept)</td>
<td>-5.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variance (residual)</td>
<td>13,132.93***</td>
<td>9,249.30***</td>
<td>8,938.89***</td>
</tr>
<tr>
<td><strong>Model fit statistics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIC (smaller is better)</td>
<td>607,331.60</td>
<td>590,119.10</td>
<td>588,602.20</td>
</tr>
<tr>
<td>Change in BIC</td>
<td>-17,212.50</td>
<td>-1,516.90</td>
<td></td>
</tr>
</tbody>
</table>

Note: *** < .001, ** < .01, * < .05, † < .10; n = 58 organizations, 49,269 jobs.

Dependent variable: difference between the actual and unbiased (predicted) salary level.

†Interaction has the collinearity with its component variables removed.

2Model results are based on proportional weights of the number of incumbents in the job (see pg. 40).

In Model 2, the effects of the organization-level variables remain relatively unchanged with the addition of the job-level variables. Meanwhile, the job percent-female variable has a predictably negative association with the level of job-evaluation bias. On average, each percentage increase in a job’s female composition is associated with a salary that is about 1.46 levels lower than what the job would otherwise be paid if there were no bias. Diagnostic analyses revealed that all
of the job-level variables combined explained about 32 percent of the variance in the dependent variable.

Model 3 introduces the job percent-female variable into the random effects part of the model. This part of the model estimates whether a job’s female composition has different effects on the dependent variable in each organization – something that would not be indicated by the job-percent female variable in the fixed-effects part of the model. A diagnostic analysis of the job percent-female variable in the random effects part of the model (not shown) determined that this effect did vary by organization ($p = .000; t = 4.67$ with 41 df). This leads to the preliminary interpretation that there are organization-level characteristics which might be moderating the relationship between a job’s percentage of females, and the level of job-evaluation bias.

Based on the results of this diagnostic model, a cross-level interaction was introduced in Model 3 between a job’s percentage of females, and the organizational culture variable. This was done to evaluate the claim in Hypothesis 2, which was that job-evaluation bias will intensify in more female-concentrated jobs that are in organizations with more masculine cultures. But before introducing the results associated with this hypothesis, I first introduce the results associated with Hypothesis 1.

Hypothesis 1 stated that the level of masculinity in an organization’s culture would be positively associated with the level of job-evaluation bias – implying that on average, jobs in more masculine organizations tend to be paid more than what their unbiased salary is predicted to be. This hypothesis was posited under the assumption that more masculine organizational cultures tend to attach higher rewards to their jobs, reflecting the relatively higher status that jobs in such organizations should garner. The results pertaining to this hypothesis are plotted in Figure 4.1.

Net of other factors, jobs in the most masculine organization were not paid more than what the unbiased salary was predicted to be. Instead, the actual salary in this organization is about 109 levels lower than what the unbiased salary was predicted to be. However, as Figure 4.1 also shows, this discrepancy is almost twice as large in the least masculine organization (about 214 levels below the predicted unbiased salary). This suggests that the level of job evaluation bias is larger in the less masculine organization, but the plotted relationship in Figure 4.1 appears positive because the discrepancy between the actual and the predicted unbiased salary is relatively narrower in the more masculine organization.
Figure 4.2 shows how the organization’s cultural context moderates the relationship between job female-composition and the level of job-evaluation bias. The results are largely consistent with Hypothesis 2. In the more masculine organization (the solid line), the deficit between a job’s actual salary and its predicted unbiased salary widens as a job’s female composition increases. Meanwhile, the relationship in the less masculine organization (the dashed line) is comparatively more subdued. I elaborate on these findings below.

In the more masculine organization (the solid line), a 100 percent male-concentrated job has an average salary that is about 234 levels above its predicted unbiased salary. For a 100 percent female-concentrated job in the same organization, the average salary is about 375 levels below its predicted unbiased salary. In the less masculine organization (the dashed line) a 100 percent male-concentrated job has an average salary is about 49 levels below its predicted unbiased salary. In a 100 percent female-concentrated job in the same organization, this discrepancy grows to about 342 levels below its predicted unbiased salary. Overall, the level of job-evaluation bias becomes increasingly disadvantageous for more female-concentrated jobs in both types of organization. However, this bias is especially disadvantageous for more female-concentrated jobs located in the more masculine organization, as suggested by comparing the

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13 The effect was plotted with all variables at their means except job percent-female and the organizational culture measure.
The steeper slope of the solid line in Figure 4.2, with the more moderate slope of the dashed line. The steeper slope of the solid line indicates that relative to the less masculine organization, the level of job-evaluation bias grows more severe as a job’s female composition increases.

![Figure 4.1](image)

**Figure 4.1.** Job-Percent Female and Level of Masculinity in Organizational Culture, and Level of Job-evaluation Bias

But the reason such bias is more disadvantageous for more female-concentrated jobs in the most masculine organization is interesting. The discrepancy between the actual and the predicted unbiased salary in more female-concentrated jobs is similar in both types of organization. However, compared to more male-concentrated jobs in the less masculine organization, more male-concentrated jobs in the more masculine organization receive a salary that, on average, is substantially higher than what the unbiased salary is predicted to be.

**Discussion and Conclusions**

Using a quantitative approach, this chapter explored questions about the role of organizational culture in influencing job-evaluation outcomes. It brought together research on job-evaluation bias, organizational-contextual explanations for gender inequality, and theories on how gender inequalities are accentuated in organizations. More specifically, this chapter questioned the extent to which the level of masculinity characterizing an organization’s culture was associated with job-evaluation bias. Through looking at job-evaluation data, this chapter also asked whether
the characteristically negative effect that a job’s female-composition would have on job-evaluation bias was greater in more masculine organizations.

The results relevant to Hypotheses 1 suggested that net of other factors, there is a positive association between the level of job evaluation bias and the masculinity of an organization’s culture. But this relationship does not come about because jobs in the more masculine organization are paid more than what their unbiased levels of pay were predicted to be. Instead, this relationship exists because jobs the level of bias is much greater in the less masculine organization. That is, jobs in this organization are paid much less on average than what their unbiased levels of pay were predicted to be.

With regard to Hypothesis 2, the masculinity of an organization’s culture appears to moderate the relationship between a job’s sex composition and the level of job-evaluation bias. However, this moderating effect is not entirely as hypothesized. It was originally expected that this bias would intensify in more female-concentrated jobs that are located in more masculine cultures. More female-concentrated jobs do experience intensified job-evaluation bias when they are located in more masculine organizational cultures, but this occurs primarily because in such cultures, more male-concentrated jobs have salaries that greatly surpassed what their unbiased salaries were predicted to be. In the less masculine organization, this was not the case for more male-concentrated jobs.

Five substantive conclusions come from this research. The first concerns how these findings connect to the issue of gender inequality in organizations. If one is concerned with gender inequality and the individual, a female employee’s financial benefit is primarily maximized when she is in a more male-concentrated job that is nested within a more masculine organization – as the solid line in Figure 4.2 suggests. But if one is concerned with gender inequality and the group, then overall, the job-evaluation bias is more equitable in the less masculine organization. This is suggested by the fact that in such an organization, the difference between a job’s actual and predicted salary is much narrower as its sex composition changes (the dashed line in Figure 4.2).

Secondly, the results in Figure 4.2 raise a controversial point. Rather than focusing on the cultural devaluation of more female-concentrated jobs as the main problem behind job-evaluation bias, the cultural overvaluation of more male-concentrated jobs may also be a
problem—at least in contexts where such overvaluation would be most likely to flourish (e.g., more masculine organizations). This is clearly suggested by the results in Figure 4.2, in which an organization’s culture seems to have less of an impact on job-evaluation bias in more female-concentrated jobs. At the same time however, the masculinity of an organization’s culture can profoundly raise the salary of more male-concentrated jobs beyond their predicted unbiased levels.

Thirdly, Figures 4.1 and 4.2 are especially important for stimulating further debate about how certain dimensions of culture matter in the formal process of rewarding jobs for their relative value. By contrast, the more popular (methodologically individualistic) view is that the value of a job mirrors the productivity attributes of its incumbents. But since the job-pay data examined here are detached from the particular characteristics of their incumbents, any inequalities and biases in pay detected in these results cannot be adequately explained by such arguments. As the results in Chapter 2 suggested, more female-concentrated jobs might pay less because to some extent, such jobs might have lower human-capital demands. But it is also suggested that a substantial female-composition effect on pay remains. The results in this chapter go one step further. To the degree a job’s formally assigned value is influenced by its sex composition, this gender bias is intensified in more masculine organizational cultures. If this were not the case, then the two interactions with organizational culture in Figure 4.2 should be more parallel, suggesting that no cultural factors in the organization moderate the pay outcome attached to a job’s sex composition.

The fourth implication is more policy-oriented, and raises questions about the limits of strategies commonly used to keep gender bias out of an organization’s job reward schemes. Even job-evaluation systems with high levels of internal consistency would do little to correct gender-pay inequalities in the whole labour market if organizations varied substantially in their cultural schemas for job value. In countries with the relevant antipay-discrimination legislation in place, this problem would be mitigated somewhat by having all organizations follow a standard set of criteria for determining job value. However, because there is often no nationally centralized or standardized approach to applying these criteria, the outcome of the job-evaluation system could vary greatly from organization to organization. The labour market can thus comprise organizations that fully comply with antipay-discrimination legislation on a case-by-case basis, but still contain large interorganizational discrepancies in job rewards that are connected to each
organization’s interpretation and application of the standard evaluation criteria, as influenced by organizational culture.

Complementing this issue is a related point raised by Ridgeway. Ridgeway notes that contemporary organizations are acutely aware of the need to implement procedures and processes that limit gender biases in their personnel policies, whether for legal reasons, or to keep up with current social expectations. However, the intended outcomes of these procedures and processes are often blunted in the social-relational processes through which they are carried out (2011). As the literature discussed earlier and the results of this research suggest, the culture of the organization may greatly frame the degree such procedures and process are blunted by social-relational processes.

The fifth issue calls attention to England’s cultural devaluation theory. Culture in general undoubtedly matters for how we value the work that men and women do. But based on the consistency of the results in this chapter with the conceptual frameworks of Gorman (2005) and Ridgeway (2011), further research is warranted on how the more local cultural contexts of organizations fit into this thesis. Ridgeway makes clear that the surrounding institutional context is extremely important for framing gender’s salience in a particular situation. This is because the extent that people draw on stereotypical beliefs about gender depends largely on the institutional setting that enables or restricts the salience of such beliefs. In the present research, the level of masculinity characterizing an organization’s culture can be viewed as one element of an institutional setting that is extremely relevant for how salient gender becomes in an organization’s job-evaluation outcomes. Likewise, the masculinity of an organization’s culture is theoretically important for elaborating on Gorman’s theoretic. Gender inequalities in organizations may be accentuated by the degree that their role-incumbent schemas, as developed from the organization’s culture, are congruent with gender stereotypes held in society. But arguably, the masculinity of the organization’s culture is the underlying factor that enables these schemas to become so congruent with gender stereotypes in the first place.

Limitations

The results in this chapter offer some intriguing evidence on the debate about how organizational culture matters for shaping the valuation of jobs, but the research also acknowledges four main limitations. First, the results are based on a population of government
service organizations from a single country. As mentioned in Chapter 2, the results herein may not be representative of other sectors, industries, labour markets, or of organizations in other countries. They may be especially unrepresentative of job-evaluation biases in more flexible and less formalized private sector organizations, where formal job-evaluation schemes have been largely forgone in favour of more market-driven and incumbent-based pay policies. Future research in this area would benefit from multilevel perspectives that also considered organizational culture’s relationship to job-evaluation biases across sector and cross-national lines.

Second, this research emphasized the direction and size of the relationships of interest, rather than their statistical significance. Some may find this approach incomplete because it does not address the issue of generalizability. That is, are the findings in this research generalizable to any other population of organizations? But aside from this, the fact that the analysis was conducted on a substantively complete population of organizations in the particular sector of a single country also renders the statistical significance of the model estimates relatively redundant.

The third limitation concerns the validity of the organizational culture measure. Given the inspiration of this metric from Bird’s (2003) quantitative measure of masculine stereotype dissimilarities in organizations, the present measure may be open to criticism about content validity through the absence of a suitable measure of so-called breadwinner beliefs. This shortcoming is mitigated somewhat by adding a measure of the prevalence of violence, harassment, and discrimination in the workplace (see Chapter 3). Arguably, the prevalence of such behaviours in an organization is a much clearer indicator of stereotypically masculine culture than a more passive attitudinal measure of breadwinner beliefs. Further, Chapter 3 addressed at length the previous research and theory on masculine stereotypes in organizations, and their many measurement problems.

The professionally designed and administered survey from which several of the organizational culture measures were derived was never intended to measure the masculinity of an organization’s culture. Therefore, a certain degree of measurement error in the organizational culture metric is likely. Nevertheless, the present study has done its best to deal with the problems inherent in measuring such an elusive concept (see Chapter 3). Further, the validity of
these items as indicators for the level of masculinity in an organization’s culture would be more questionable if the model estimates differed substantially from the intuitive hypotheses that more masculine organizational contexts are associated with greater levels of gender inequality.

The fourth limitation concerns inferences about causality in the model results. Since the data in this study represent a cross section of organizations at one point in time, it would be tenuous to claim that more masculine organizational cultures cause the greater devaluation of female-concentrated jobs, or cause pay to be higher than its unbiased level. It is more appropriate to say that with the available measures, such conditions seem synonymous. Longitudinal research would more completely address questions about directionality, including what can be said to cause these relationships.

In closing, a key point to consider is to what degree the level of masculinity characterizing an organization’s culture explains the job-evaluation bias. The models considered here suggested that organizational culture may represent some of the organization-level effects related to job-evaluation outcomes, but there are also many other unspecified organizational factors behind these outcomes. This is clarified in the following examples. It was stated earlier that the interorganizational variance in job-evaluation bias was estimated to be about 12.5 percent. However, a diagnostic analysis (not shown) suggested that less than one percent of this variance was traceable to the organizational culture variable. Furthermore, Model 3 in Table 4.1 shows that the random variation in the slopes of the job percent-female variable was still far from being completely specified by its interaction with organizational culture; Model 3 shows that this variance was .44 ($p = .000; t = 4.65$ with 40 $df$), but prior to introducing the interaction, a diagnostic model (not shown) indicated that the random variation in the same variable was only somewhat larger, at .50 ($p = .000; t = 4.63$ with 41 $df$).

Organizational culture therefore accounts for a relatively small amount of the interorganizational variance in job-evaluation bias. It also accounts for a relatively small part of the variable effect of a job’s female composition. However, as Figures 4.1 and 4.2 suggested, the masculinity of an organization’s culture can profoundly affect the level of job-evaluation bias both within and across organizations. Thus, the modest amount of variance in job-evaluation bias explained by the organizational culture variable does not necessarily imply that organizational culture has a negligible influence on an organization’s job-evaluation outcomes.
It is commonly recognized that job evaluation is ultimately a subjective, value-driven process. This means that the standards and criteria for valuing a job can be heavily tied to each organization’s unique history and environment. It has been shown in previous research that the structural features of organizations, such as their industry, size, complexity, age, or level of formalization can shape gender inequalities in pay. However, the present research is one of the first attempting to quantify the effect that differences in organizational culture have on such inequalities.

The next chapter expands upon the findings from Chapter 2, and considers how the structure of the job-evaluation process can create some counterintuitive job-evaluation outcomes in more female-concentrated jobs. I then examine this issue with regard to how the masculinity of an organization’s culture moderates these counterintuitive outcomes.
Chapter 5
Stereotyping Effects in Job Evaluation

This chapter focuses on explaining a counterstereotypical relationship that was first uncovered in Chapter 2. As suggested by Figure 2.4, more female-concentrated jobs with high motor and sensory demands receive relatively greater returns for this characteristic than equivalently rated male-concentrated jobs. The relationship is counterstereotypical because it opposes a wide body of theory and research suggesting that more male-concentrated jobs that are rated high on some attribute would receive greater returns.

This chapter has two aims. First, with the aid of recent social psychological theory and research on stereotyping outcomes, I explain what facilitates this counterintuitive type of relationship. Second, as explained below, I investigate how the cultural context of the organization moderates this unusual outcome.

Recent social psychological research has been extremely useful for explaining what produces counterintuitive stereotyping outcomes. However, this literature has not directly addressed the background role of culture in shaping such outcomes. In the experiment-dominated field of social psychology, this oversight is understandable because measuring the influence of culture in a controlled setting is almost impossible. Nevertheless, culture scholars would generally agree that it is hard to fully understand the nature of a stereotype without considering the culture in which the stereotype is being applied.\(^1\) Therefore, until the social psychological research incorporates culture in its models of stereotyping, researchers are left with a relatively incomplete and individualistic understanding of what drives a stereotyping outcome. However, since Chapter 4 suggested that the (stereotypical) devaluation of more female-concentrated jobs intensifies in organizations with more masculine cultures, there is some empirical basis for asking about how organizational culture fits into the social-psychological theory on stereotyping.

This chapter makes three main contributions, all of which are explained in greater detail later in this chapter. First, by focusing on organizational culture, it addresses a gap in the relevant social

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\(^1\) Culture provides a set of beliefs and practices that help individuals in that culture make sense of the world in a similar way (Trice and Beyer 1993:80–86). However, even when a stereotype ostensibly looks the same across different cultures, the logic behind the application of the stereotype can vary according to the logic used by the culture (see Schein and Mueller 1992).
psychological research. The relevant literature has shown some interest in how background considerations frame stereotyping outcomes. However, this literature has largely confined its examination of background considerations to mean an individual’s prior experiences and mental state. Broader background considerations, like the values and beliefs embodied in a culture, have largely been overlooked.

Second, through drawing on the social psychological research on stereotyping as it applies to the administrative activity of job evaluation, this chapter makes a contribution to the job-evaluation literature. In particular, it illustrates that the inherent subjectivity of job-evaluation scales, combined with the methods of selecting comparison jobs for evaluation, create a perfect scenario in which counterstereotypical job-evaluation outcomes can manifest.

The third contribution centres on the novelty of the phenomenon under investigation. Research focusing on the anomaly of gender-atypical job rewards is rare. Since most research exploring gender inequality in the work world focuses on gender-stereotypical inequalities, the current focus on gender-counterstereotypical inequalities is a novel contribution to the literature.

Chapter 5 proceeds by introducing the social psychological theory and research on stereotyping effects. It then situates this theory within a framework that is useful for understanding job-evaluation outcomes. This framework is then placed within the backdrop of research and findings from Chapter 4, which highlighted the importance of an organization’s culture for moderating its job-evaluation outcomes. Several hypotheses about stereotyping outcomes as they relate to rating jobs for their human-capital demands are then introduced. The chapter concludes with a discussion of the findings and implications for future research.

**Stereotyping Outcomes: Assimilative and Contrast Effects**

Stereotyping refers to the differentiation of individuals according to characteristics that they are believed to possess by virtue of their association with a social category. For instance, a traditional female-gender stereotype would be to assume that an individual female is better for a

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2 Jacobs and Steinberg’s (1990) research on the compensating-differentials explanation for gender pay inequality finds that, ironically, male-dominated jobs are more heavily penalized for undesirable working conditions than jobs dominated by women with the undesirable working conditions typically found in male-dominated jobs. In a study by Mount and Ellis (1987), comparable-worth specialists rating one “male” and one “female” job rated female jobs slightly higher.
nursing job because females are more nurturing. A traditional male-gender stereotype would be to assume that an individual man is better for a managerial job because males are better leaders.

According to the social psychology literature, the outcomes of gender stereotyping are typically classified into one of three types of effects: an assimilative (stereotypical), contrast (counterstereotypical), or null (neutral) effect. An assimilative effect would be an observation conforming to the presumption that individuals identified as members of a particular group are assumed to embody characteristics expected of their group membership (Biernat 2003, 2005). For example, males are traditionally expected to demonstrate management behaviour that is authoritative and decisive, which is consistent with the stereotypical notion that males as a category are good leaders. On the other hand, a woman might be expected to manage through empathy and consensus, which is consistent with the historical notion that women are more nurturing and have an aptitude for building cooperation.

The second, less-often observed, contrast effect is considered counterstereotypical in that individuals are rated high on the very characteristics assumed to be lacking in the social categories to which they are historically identified (Biernat 2003, 2005). For example, a female manager who exhibits the same level of authoritative behaviour expected from a typical male might be perceived as more authoritative than the average male. Such a perception would arise because her behaviour would stand out strongly against popular assumptions that women are relatively deficient in the attribute of authoritativeness.

The third type of stereotyping outcome, the null effect, is a diluted version of the contrast effect (Biernat 2003, 2005). For example, when a male manager and a female manager are ranked with the same score on a scale of authoritativeness, this does not necessarily indicate that they have been judged according to some objective standard as equally authoritative. The female would still be ranked against the lower expectations held for women on the attribute of authoritativeness. She may therefore rank much higher in authoritativeness than the stereotypical woman, but be perceived as authoritative as the average male.

According to Biernat and colleagues, contrast effects (i.e., counterstereotypical rating outcomes) are aggravated by the use of subjective measurement scales (Biernat 1995, 2003, 2005; Biernat
and Fuegen 2001; Biernat and Kobrynowicz 1997; Biernat et al. 1991; Biernat and Manis 2007; Biernat and Vescio 2002). The result of using such scales can be the appearance of a counterstereotypical outcome where a stereotypical outcome would otherwise have been expected. The reasons for this will be explained in the next section.

The findings of Biernat and colleagues regarding contrast effects are theoretically important for a highly measurement-based activity like job evaluation, because job evaluation is almost exclusively carried out using subjective measurement scales. As a consequence, job-evaluation outcomes are particularly vulnerable to appearing as contrast effects. Take, for example, a stereotypically male-typed job characteristic such as physical demand. The conventional logic of stereotyping suggests that a female-concentrated job with intrinsically equivalent or greater physical demands than a male-concentrated job may be rated as less physically demanding. However, a view inspired by the research of Biernat and colleagues would be that the physical demands in more female-typed jobs may be rated higher on average. If less is traditionally expected of females in such areas of work, evaluators might be more easily impressed or sensitive to the physical demands of female-concentrated jobs. The result could then be that evaluators would give a female-concentrated job a relatively higher rating on its physical demands than a male-concentrated job with intrinsically equivalent demands.

This chapter tests hypotheses about the presence of such counterstereotypical relationships within the highly measurement-centred activity of job evaluation. The analysis is guided by some of the findings in the job-level research in Chapter 2, and the organization-level research in Chapter 4. Chapter 2 examined the debate between human capital and devaluation at the job level, and found that a job’s sex composition substantially moderates the level of pay connected to the motor and sensory aspects of a job’s human-capital demands. The novelty of this finding was the counterintuitiveness of the relationship, which suggested that more female-concentrated jobs with motor and sensory demands would receive greater returns than equivalently rated jobs held by males. Chapter 4 considered the role of an organization’s culture in explaining job-

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3 Subjective measurement scales (e.g., Likert-type scales), may have ordered numeric values but no universally agreed-upon standard of cordiality or cardinality. Thus, measurement with subjective scales may vary according to rater interpretation. Objective scales (e.g., metres, kilograms) have ordered numeric values based on an externally agreed-upon standard.
evaluation bias. The findings in Chapter 4 suggested that more female-concentrated jobs are associated with greater devaluation in more masculine organizations.

The job-level insights in Chapter 2 and the organization-level insights in Chapter 4 thus introduce a two part question:

Once the effect of organizational context is factored in, is the relationship between a job’s female composition and the job’s motor and sensory rating stereotypically negative or counterstereotypically positive? Second, what would be the outcome of the respective relationship in more masculine organizational cultures?

Explaining Stereotyping Outcomes

According to Biernat and colleagues, explanations for an assimilative outcome rest in a status characteristics model of judgement. In this model, the relative status traditionally associated with the group to which an individual belongs is instrumental in fashioning the judgement associated with that particular individual. For example, the notion that an individual male is more competent than an individual female is because males are historically viewed as more status worthy.

Because such a judgement model serves to reconfirm stereotypes that were presupposed to be true, it is a popular explanation for assimilative stereotyping outcomes. For example, in a hypothetical test of competency between the sexes, stereotypes about women’s historically lower competency may lead evaluators to lower their expectations for an individual woman on such a test. To reconfirm this stereotype, they may interpret her performance according to standards that would ensure she gets a lower score than equivalently performing men. At the same time, stereotypes about men’s historically higher competency would lead to evaluators' reconfirming this stereotype using more lenience when assessing a male’s performance.4

Also according to Biernat and colleagues, a shifting standards model of judgement helps explain counterstereotypical outcomes. In such a model, evaluators still harbour lower expectations for an individual who is a member of a historically lower status group. However, the lower psychological bar that evaluators set for the low-status group member ironically makes it easier

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4 Note that this model of judgement is invaluable for explaining gender discrimination in general.
for their biased expectations to be exceeded—giving the appearance that a historically low-status group member has scored higher than a member of the historically favoured high-status group.

Biernat and colleagues have shown that the objectivity of the metric used to record the judgement is crucial to the type of stereotyping effect exhibited. Assimilative effects are commonly observed when using more objective scales (e.g., dollars earned, height in centimetres, or weight in kilograms) to rate some criterion. This is because the referent used in such measures is incapable of being altered in accordance with the category membership of those being evaluated. For example, experiments requiring evaluators to estimate the height of males and females along some fixed scale (e.g., centimetres) have shown that estimates tend to be consistent with the (accurate) gender stereotype that males on average are taller than females, even when measurements by experimenters had confirmed that all individuals were actually the same height (Biernat 1995, 2003, 2005; Biernat and Fuegen 2001; Biernat and Kobrynowicz 1997; Biernat and Manis 2007; Biernat et al. 1991; Biernat and Vescio 2002).

On the other hand, more subjective scales can lead to stereotyping effects that are consistent with contrast effects, because their lack of objective referents may facilitate comparisons based on within-group standards. For example, evaluators may tend to use their within-group perception of other females when asked to estimate an individual female as “tall,” “short,” or “average” in height. When an individual female is rated as “tall,” the judge may be thinking; “tall for a woman because on average, women are shorter than men.” Similarly, a man measuring below average height for men might be rated on a subjective scale as “short” because he appears “short for a man,” even if he were objectively taller than the average woman.

Since contrast effects are most likely when the measurement scale being used is subjective, the risk of contrast effects is particularly serious in job evaluations. As discussed in the next section, it is likely that when faced with the practical task of rating jobs with subjective scales, evaluators base their referents at least partly on within-group comparisons (e.g., to other female-concentrated jobs, or to other male-dominated jobs).

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5 For example, the job-evaluation data used in the current study had a relatively subjective measure for level of required intellectual effort. A score of 1 denoted “Problems are straightforward,” while a score of 6 denoted “Discovery.” A scale measuring the same concept with a more objective referent might have been achieved by basing intellectual effort on the amount of time (e.g., seconds, minutes, weeks) required to plan and complete a job’s main tasks.
Assimilation and Contrast Effects in a Job Setting

For the most part, the relevant literature has explained contrast and assimilative effects as they unfold in interpersonal contexts, such as when evaluators and the individuals being evaluated are physically present in the same room. However, Biernat and Kobrynowicz’s (1997) research implies that there is no reason why these types of outcomes are limited to interpersonal contexts. Their research assigned stereotypically male and female job titles (executive chief of staff and executive secretary, respectively) to an identical job description. Then, with a 7-point Likert scale, evaluators were given a set of criteria to assess the competence level of candidates for one of the two jobs, based on their résumés. The outcomes of the evaluators’ evaluations were consistent with a contrast effect—female candidates for the “male” job were, on average, considered more competent than the male candidates, and vice versa. When evaluators were given a more objective measure to rate candidates’ competences, the ratings then became more stereotypical.6

Biernat and Kobrynowicz’s (1997) research has arguably limited generalizability, because it was experimental. Nevertheless, it is important for showing that any evaluation setting may be vulnerable to contrast effects if the measurement scale is subjective. It is also important for showing that indirect information about the targets under evaluation is sufficient for contrast effects to occur. In the following paragraphs, I build on this understanding by explaining how the theory of contrast and assimilative effects in a job setting would apply more specifically to the organizational activity of job evaluation.

As Chapter 4 discussed, the job description is usually a key piece of information for evaluating the job’s contribution to the organization. As such, the necessary step of becoming informed about the job, by reading its job description, creates an unavoidable opportunity to form both accurate and inaccurate preconceptions about its gender appropriateness. Just as Biernat and Kobrynowicz’s (1997) research showed, even changing the title of a job in an otherwise identical job description can trigger gender-stereotypical assumptions about the job’s status, the value of the job’s content, and the job’s gender appropriateness (also see Alksnis, Desmarais, and Curtis 2008; Naughton 1988).

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6 For example, based on an interval/ratio measure, evaluators were asked to predict the percentage of work responsibilities at which the applicant would be competent. In another example, evaluators were asked to predict a probability of the candidate’s promotion.
Subjective rating scales are the core explanation for counterstereotypical outcomes, because they make evaluators vulnerable to drawing on within-group standards (see Explaining Stereotyping Outcomes, above). Because job-evaluation systems typically rely on relatively subjective and descriptive scales (see example in fn. 5), the activity would be particularly vulnerable to generating contrast effects. The following paragraphs explain.

Figure 5.1 illustrates the theory of contrast and assimilation effects as applied to a job evaluation. For simplicity, the example is based on a job rated for its level of physical exertion. The figure begins with a stereotype associated with the job characteristic under analysis, and the individuating information about the job that helps to establish how that stereotype is applied. After understanding the job through reading the job description, there may be an overall sense that, according to societal gender stereotypes, the job is a more female-typed job. Such a preconception has consequences for the way certain job characteristics would be rated.

In the case of a job rated for its level of physical exertion, the stereotypical understanding might be the following: male-concentrated jobs (or jobs with male-typed work) generally contain higher levels of physical exertion. Further, according to the stereotype, a unit of physical exertion in a male-typed job would contribute relatively more to the organization than a unit of exertion in a female-typed job. As such, the physical intensity score for female-concentrated jobs might be lower relative to male-concentrated jobs, even if both types of jobs contained the same level of exertion.

The assimilation effect just described is illustrated in Figure 5.1 by the two solid vertical arrows. Even if both jobs had the same intrinsic level of physical exertion, the male-concentrated job would receive a higher rating on this attribute (7), while the female-concentrated job would receive a lower rating (3.5). The thought process behind the discrepancy could be stated as follows: because those in female-concentrated jobs are likely to be mostly females, and females cannot do work that is as physically demanding as males, the physical exertion required of the job cannot possibly be as high as it is for male-concentrated jobs.
Figure 5.1. Illustration of Stereotypes Leading to Assimilation and Contrast Effects in Job Evaluation (adapted from Biernat 2003 and Biernat et al. 1991)

The two broken vertical arrows in Figure 5.1 illustrate a contrast effect. In this case, a female-concentrated job might receive a higher rating for its level of exertion (6) while a male-concentrated job with the same intrinsic level of exertion would receive a 5. An example of the thought process behind this counterstereotypical rating would be as follows: female-concentrated jobs are occupied mostly by females, who are a less capable sex. Therefore, the level of physical exertion required in this particular female-concentrated job might be perceived as more demanding for most incumbents than the level of exertion found in the average female-concentrated job. Further, this sexist preconception about physical exertion would be especially likely if the female-concentrated job being evaluated were being compared against a highly stereotypical “female” benchmark job; a real possibility when rating jobs in a female-concentrated job family. The reason is that such a benchmark job is likely to score relatively low on physical exertion to begin with. I elaborate on this in the next section.

The presentation of the scales in Figure 5.1 as numerically equivalent but of different lengths communicates an important point. Even when rating jobs on the same numeric scale, standards of reference may shift according to the assumed gender dominance of the job and the nature of the benchmark job. As such, a score of 6 on a female-concentrated job may be perceived as higher than the score envisioned in the average “female” job it is being compared against, but implicitly equivalent to a score of 5 in a male-concentrated job.
Until recently, evidence supporting Biernat’s shifting standards model in a specific job-evaluation context was largely circumstantial. For example, Alksnis et al. (2008) noted that job-evaluation studies had often yielded counterstereotypical or null results when subjective scales of job value (e.g., judgements of how well a particular adjective describes a job) were employed; but they yielded stereotypical results when employing more objective measures of job value (e.g., dollar amount of salary). But since these studies were not expressly testing for a shifting standard model, Alksnis et al. limited their comments to saying only that that the inconsistent results seen in these types of studies “fit well” with Biernat’s shifting standards model (2008:1421). As far as I am aware, Alksnis et al.’s (2008) study is the only piece of research that has explicitly considered the evidence for a shifting standards model in a job-evaluation context. While their main aim was to establish whether “men’s work” was valued more than “women’s work,” Alksnis et al. found strong direct evidence for the shifting standards model. When male- and female-typed jobs were rated in more objective monetary terms, the outcomes were consistent with traditional gender stereotypes. However, when the same jobs were rated according to a descriptive, Likert-type scale according to four compensatory dimensions common in job evaluation (skill, effort, responsibility, and working conditions), these stereotypical outcomes were either masked or reversed.

In an experimental setting the evidence suggests that using subjective scales can facilitate a counterstereotypical job-evaluation outcome. But in nonexperimental contexts, where job evaluation was actually designed to be used, a counterstereotypical outcome would be even more likely. This is because job-evaluation systems are inadvertently structured to encourage the rating of jobs by different standards. This is achieved mainly through the common procedure of rating jobs against benchmark jobs, which act as references (or typical) jobs against which all other jobs in the same job family are compared. In theory, benchmark jobs are supposed to keep the evaluation of nonbenchmark jobs in each job family consistent. But since benchmark jobs would come from the same job family as the jobs being rated, benchmark jobs reinforce a system of comparison based on within-group standards.

In job families that are more female-concentrated, this would be especially problematic for encouraging the use of shifting standards. As benchmark jobs are usually selected to represent the typical job in that job family, a more female-concentrated job family is also likely to have a
more female-concentrated job as its benchmark. The result is a system of comparison whereby a female-concentrated job or a perceived female-concentrated job in a female-dominated job family is rated against its more typical female-typed benchmark. Additionally, the measurement scales employed to rate jobs are for the most part descriptive, thereby enabling evaluators to draw on within-group comparisons when they make their assessments. In the next section, I connect these sources of within-group comparison in a job evaluation to a hypothesis about gender-counterstereotypical job-evaluation outcomes.

**Hypotheses of Contrast Effects**

Figure 5.1 illustrated how the subjectivity of job-evaluation measures could lead to counterstereotypical ratings on a job characteristic. But what qualifies a job-evaluation outcome as stereotypical? To clarify this, it is useful to recall Charles and Grusky’s (2004) theoretical explanation for the persistence of gender stratification in the labour market. They argued that the ultimate source of such stratification comes from deeply rooted tenets in most societies about the primacy of males.

The assumption of male primacy is therefore instrumental to understanding what constitutes a stereotypical and counterstereotypical outcome in a job evaluation. A stereotypical outcome would be evident when the characteristics of a job more typically associated with males rates higher on a set of criteria than a job more typically associated with females, even when both of these jobs make a substantively equivalent or comparable contribution to the firm. Thus, in a job evaluation, a counterstereotypical outcome would manifest when a more female-typed (e.g., female-concentrated) job is ranked higher on its set of compensable factors relative to a male-typed (e.g., male-concentrated) job making a substantively equivalent contribution.

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7 Bridges and Nelson (1989: Table 2) found strong evidence of this type of relationship. Their study of benchmark and nonbenchmark jobs in the California civil service showed that the female composition of a benchmark job increases steadily with the female composition of the job class it represents.

8 The male primacy concept, as applied to the concept of a stereotypical and counterstereotypical job-evaluation outcome, is more than a theoretical argument. Researchers have consistently noted that one of the most common problems in job-evaluation initiatives is that jobs held predominantly by males are systematically associated with higher levels of some attribute, while predominantly female jobs are systematically associated with lower levels of the same attribute (see Pay Equity Task Force 2004). In some cases, these disparities may be warranted by differences in the content of male- and female-concentrated jobs. But for the most part, the research implies that male-concentrated jobs are often viewed by evaluators as making a greater contribution to the organization, even when the content is similar to female-concentrated jobs.
Based on the theory of contrast effects by Biernat and colleagues, a gender-counterstereotypical outcome in a job evaluation could be explained by job evaluators having traditionally lower expectations about the contribution of jobs more typically associated with females in the firm. For example, if an organization’s role-incumbent schema is likely to characterize certain jobs within the firm as more typically associated with females, it is also likely to contain a schema that such jobs are generally less status worthy (see Chapter 4). For job evaluators, this creates a set of expectations that such jobs contribute relatively less to the organization than more male-typed jobs.

As discussed earlier by Biernat and colleagues, when a person’s expectations are lower in the first place, it can be easier for those expectations to be exceeded once the person is faced with information that is relevant to their assessment. Thus, job evaluators’ interactions within the organization, combined with their reading of the job description, might communicate an overall impression that a particular job is more appropriate for females and therefore inherently less status worthy. But because evaluators’ overall impressions of such jobs might be so low in the first place, they might be more easily impressed about the contribution that certain aspects of the job make to the organization if these aspects seem less consistent with the job’s overall schema as a female-typed job.⁹

A job evaluator who draws on this thought process has essentially used a within-group standard of comparison to evaluate a job. That is, the evaluator is only more easily impressed by a certain aspect of the job because this aspect is being compared against notions of what a female-typed job typically entails. In turn, this judgement is formally encoded in the organization’s job-evaluation results because, as discussed earlier, the descriptive nature of job-evaluation rating systems can encourage evaluators to draw on within-group standards. The end result is that on certain job characteristics, a female-typed job may appear to score higher than a male-typed job with essentially the same content because the semantic nature of the job-evaluation instrument enables the evaluator to compare the job not against some objective standard, but against the notion of the “typical” female-typed job.

⁹ This thought process refers back to the shifting standards model of judgement illustrated in Figure 5.1.
Additionally, this kind of counterintuitive outcome is also encouraged by the traditional reliance of job-evaluation systems on benchmark jobs. As discussed earlier, for administrative convenience, it is common in job evaluations to cluster similar jobs into job families. From each job family, a benchmark job is selected to represent a typical job found in that family. Using job-evaluation criteria, each benchmark job is assessed for its relative value to the organization. Then, in turn, the remaining jobs in the job family are evaluated against the respective benchmark job. But here is the problem: when jobs in each job family are rated against their respective benchmark job, the evaluation is based on within-group standards. As the theory on stereotyping effects suggests, an evaluation drawing on within-group standards is prone to generating contrast effects. Therefore, in theory, the structure of a job evaluation is biased towards producing contrast effects.

However, the emergence of contrast effects should be particularly prominent among more female-concentrated jobs located in more female-dominated job families. Past research has suggested that statistically, as the proportion of females increases in a job family, the accompanying benchmark job chosen to represent the “typical” job in this family is also likely to be more female concentrated (see fn 7). But, as a more typical “female” job, this benchmark job would likely receive lower ratings relative to the benchmark jobs in less female-dominated job families. The benchmark job from the female-dominated job family would therefore set a low standard against which the other jobs in the same job family are compared. Under this scenario, a more female-concentrated job may rate counterintuitively high on some of its factors because the benchmark job used as a reference was rated so low on these factors.

The theory and literature on stereotyping outcomes explained that counterstereotypical outcomes are encouraged by the use of descriptive rating scales. While the outcomes in question may look counterstereotypical, the literature explains that it only appears this way because these types of scales facilitate comparisons based on within-group standards of reference. Drawing on this literature, I explained that an organization’s job-evaluation results are particularly vulnerable to gender-counterstereotypical outcomes because job-evaluation systems are widely based on descriptive and semantic rating scales. But as I also explained, job-evaluation systems are doubly prone to generating counterstereotypical outcomes because the practice of using benchmark jobs encourages comparisons based on within-group standards of reference.
The following hypothesis about gender-counterstereotypical job-evaluation outcomes is introduced with regard to a counterstereotypical finding from Chapter 2. This finding suggested that more female-concentrated jobs that scored higher on the motor and sensory aspects of a job’s human-capital demands would receive greater returns for this attribute than more male-concentrated jobs with equivalent scores. This finding is counterintuitive because it contradicts a more stereotypical assumption that more male-concentrated jobs with equivalent demands would receive greater rewards. Based on the two conditions that are expected to facilitate contrast effects in a job-evaluation context (subjective rating scales and the source of benchmark jobs), the hypothesis is as follows:

**H1:** More female-concentrated jobs are likely to have counterintuitively higher ratings on motor and sensory demands when these jobs are located in a more female-dominated job family, and intuitively lower ratings when they are located in a less female-dominated job family.

**A Hypothesis about Background Considerations: Organizational Culture**

As previously mentioned, the relevant research on stereotyping outcomes has been exclusively experimental. Its perspective is also best described as methodologically individualistic because of its preoccupation with studying the behaviours of individuals to explain the outcome. Nevertheless, the research in this area has differed in some important ways. The earlier research focused on explaining stereotyping outcomes as they were generated in interpersonal settings. The later research showed that a shifting standards model of stereotyping was also extremely useful for understanding stereotyping outcomes as they are generated in less interpersonal contexts (Alksnis et al. 2008; Biernat and Kobrynowicz 1997). For example, later studies have begun to ask how broader background considerations might contribute to shifting standards in stereotyping (Biernat and Manis 2007). But this research is also largely characterized by methodological individualism.\(^{10}\)

As such, sociological perspectives on shifting standards have been largely overlooked in the relevant literature. For example, while this literature is receptive to the idea that shifting standards in stereotyping may be affected by an evaluator’s recent experiences or prior

\(^{10}\) For example, such research asks how an individual’s recent experiences and prior knowledge shape the stereotyping outcome.
knowledge, it has not explicitly asked how these outcomes could be mediated by cultural context. This is an important oversight because, as first introduced in Chapter 4, organizational culture is theoretically important for how salient gender becomes in the job-evaluation process.

Specifically, Chapter 4 found that in more masculine organizational cultures, more female-concentrated jobs exhibited intensified devaluation. The reason for this outcome was theorized to be that gender is more salient in more masculine organizational cultures. That is, such cultures were expected to have role-incumbent schemas for jobs that overlapped more strongly with traditional gender stereotypes in society about work. This would subsequently be translated into exaggeratedly lower pay for female-concentrated jobs in more masculine organizations, even when females were doing work that made the same contribution to the organization as males.

The social contingency of individuals’ judgments, as proposed by reference group theory (see Job-Evaluation Bias, in Chapter 4), offers further insight into this outcome. If evaluators failed to adequately emulate popular organizational values and views in their assigned task of rating jobs, they would risk being denied organizational membership through some form of social or economic sanction. As such, when evaluators conduct so-called objective assessments of job value, they still have a tremendous personal incentive to balance these assessments against the normative values of the organization, and the role-incumbent schemas prescribed by the organization’s culture.

Since the theory and research in Chapters 3 and 4 suggest that more masculine organizational contexts generally place a higher value on a job’s characteristics, it is reasonable to expect that the motor and sensory aspects of a job’s human-capital demands also receive a higher rating in more masculine organizations. Therefore:

\[ H2a: \quad \text{There will be a positive relationship between the level of masculinity in an organization’s culture and the rating given to a job’s motor and sensory demands.} \]

But how would the masculinity of an organization’s culture moderate the relationship proposed in Hypothesis 1? For example, would such a relationship become even more positive in more female-concentrated jobs, and thus even more counterstereotypical? Would it become negative in more female-concentrated jobs and thus stereotypical, or would the relationship remain
unchanged? Applying the theory and research on counterintuitive stereotyping outcomes offers some insight into these questions.

Counterintuitive Stereotyping

As explained earlier, counterintuitive stereotyping outcomes manifest when circumstances facilitate within-group standards of comparison. Therefore, the masculinity of the organizational culture should have little responsibility for triggering the counterstereotypicality of the outcome proposed in Hypothesis 1. However, the masculinity of the culture should be instrumental for intensifying the respective outcome. This follows, since more masculine organizational cultures are expected have greater status differences between that which is associated with males, and that which is associated with females.

**H2b:** *The relationship proposed in Hypothesis 1 will be moderated by organizational culture. Specifically, the positive relationship stated in Hypothesis 1 will be greatest when (a) the organizational culture’s level of masculinity is high, and (b) the job is at its highest female composition and is located in a female-dominated job family.*

For clarity, Hypotheses 1, 2a, and 2b are illustrated in Figure 5.2.

![Figure 5.2. Hypotheses 1, 2a, and 2b](image)

**Data and Methods**

The data for the analysis are the same data that were used for the analyses in Chapter 4; they comprise 49,269 jobs across 58 government service organizations of an OECD member.
country. As explained in previous chapters, the data are weighted to give more importance to jobs in organizations with more incumbents. This was meant to ensure that the model results were not overly influenced by the sex composition of many single-incumbent jobs, which may not be strongly sex typed, but only appear as such because of the sex of the incumbent at the time the job data were collected.

To reiterate an important point from previous chapters: each organization assessed its own jobs via a job-evaluation committee staffed by its own employees. One benefit of such an arrangement is that a set of insiders can help improve the intraorganizational validity and reliability of the evaluation. This is because insiders are likely to have more accurate and consistent information about the jobs they are evaluating in their own organization. However, this arrangement would also open the door for more interorganizational inconsistencies in how jobs are rated. As argued throughout Chapter 4, a job with substantively similar content could be valued quite differently across different organizations, depending on what each organization traditionally considered to be the source of the job’s value.

The present chapter works from similar assumptions; namely, the relative value assigned to a job’s content is to some extent conditioned by the organizational context in which the job is nested. For reasons explained in Chapter 4, a hierarchical linear model (HLM) is generally the preferred statistical model when researchers are interested in how the outcome of some variable might be dependent on its clustering within a set of broader variables. Such models can account for the dependence of the lower level variable (e.g., a job’s assigned value) on the features of its assigned group (e.g., the organization). This not only permits the testing of organization-level characteristics (e.g., organizational culture) directly on the job-level outcome, but also how differences in such organization-level characteristics moderate the relationship.

The following reviews the variables in the analysis. The rationale and coding scheme for the independent variables is given only cursory attention since it was already explained at length in Chapters 2 and 4.

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11 The dataset originally contained 68 organizations and 50,229 jobs, but some organizations had to be dropped from the analysis because the job-level data could not be matched to the appropriate organization-level data. Also see the Data and Methods section of Chapter 4.
Dependent Variable

The *motor and sensory skills* variable was used as a proxy for the motor and sensory aspects of a job’s human-capital demands, and was originally derived as one of two dependent variables for the analyses conducted in Chapter 2.\(^ {12} \) To reiterate, the motor and sensory skills variable indicates the demands of a job relating to coordination and dexterity, the intricacy and repetitiveness of body movements, and discernment required by the body’s senses. In the original job-evaluation data, this variable was rated on a numeric scale ranging from 1 to 5; higher scores indicated that relatively more of such job content was represented in the job. Since this variable had no zero point and its 1 to 5 point range was largely arbitrary, it was standardized as a meaningful way to compare the relative effects of the independent variables.

Independent Variables

Three key independent variables—*a job’s percentage of females, the presence or absence of a female-dominated job family, and a measure of the level of masculinity characterizing an organization’s culture*—were used in the analysis. A job’s percentage of females was calculated for each organization through information provided in the job-evaluation dataset. As conceptualized in Chapter 3 and applied in the analyses in Chapter 4, the organizational culture variable was based on a four-component indicator of masculine stereotypes. The first three components comprised an organization-level measure of competitiveness; an organization-level measure of emotional detachment and lack of empathy; and the percentage of respondents in the organization who had reported violence, harassment, or discrimination in their current workplace. The fourth component indicated the likely prevalence of masculine stereotypes in the organization, as inferred by an organization’s percentage of male-concentrated jobs. This measure was originally inspired by Bird’s (2003) research on masculine stereotype dissimilarities in organizations as inferred from the male composition of work groups. The present data included no information about work groups, so the analysis used the related measure of an organization’s percentage of male-dominated jobs.

\(^ {12} \) As discussed in Chapters 2 and 4, the original number of compensable factors in the job-level dataset was 34. However, they had to be condensed into a smaller set of seven variables because of high levels of intercorrelation (see Data and Methods and Table 2.1 in Chapter 2). Further, the second indicator for human-capital demands (the cognitive aspects) is not included in the present analysis because there was nothing unusual about its relationship in the analyses in Chapter 2.
The data contained 75 job families, which, according to the job-evaluation initiative, were classified by main area of work. Examples of these included administrative services, communications, medicine, nursing, law, commerce, and social work. For the purposes of this research, a job family was dichotomously coded as female dominated if its female composition was equal to or greater than 75 percent. Since a job family’s female dominance was coded according to the sex composition of the job family in each organization, the gender dominance of the same job family might vary across different organizations.

Control Variables

The control variables were the same job and organization-level variables introduced in Chapter 4. At the organization level, controls were added for organization size and age, organizational function, level of formalization, and percentage of executives in each organization who were male. At the job level, controls were supplied for the number of incumbents, protection by an equity-driven union, and level of job ambiguity.

Model Specification

Because part of the analysis had to do with the effects of organizational culture, the preferred analytic approach was a hierarchical linear model (HLM). As explained in Chapter 4, an HLM may be warranted when researchers are confronted with nested data, such as jobs nested within organizations. Because nested data structures usually contain multiple sources of error that cannot be adequately dealt with using a standard OLS regression, unreliable model estimates may result. An HLM helps identify and assign these multiple sources of error to their appropriate levels of analysis, thus helping ensure more reliable estimates of the effect of the independent variables on the dependent variable. The standard test for the suitability of an HLM determined that such a model would be highly appropriate for the present data.\footnote{The intraclass correlation (ICC), or proportion of intergroup (interorganizational) variance in the dependent variable, was a substantial 26.6 percent ($p < .001$, 55 df).}

The results are presented in three models. Model 1 shows the estimated effects of all organization- and job-level variables in the fixed effects part of the model. Model 2 introduces a job’s percentage of females into the random effects part of the model, to help determine whether
the effect of a job’s percentage of females on its human-capital rating varied substantially by organization. Model 3 shows the results that were pertinent to Hypotheses 1, 2a, and 2b.

Hypothesis 2b focuses on the effects of an interaction between organizational culture and a job’s percentage of females located in a female-dominated job family. The hypothesis was tested using a three-way interaction across two levels of analysis, which may seem complex compared to the two-way cross-level interactions more commonly used in two-level HLMs. However, a review of the literature shows many examples of social-psychological and organizational research employing HLMs that use the same three-way interaction structure (e.g., Duffy, Shaw, and Scott 2006; Fedor, Caldwell, and Herold 2006).

Lastly, model diagnostics revealed a common problem researchers face when using linear models with interaction terms. Quite often, introducing interactions into such models can produce unacceptably high levels of collinearity between the interaction term and its lower-order components which, if not remedied, can result in highly unreliable coefficient estimates. However, this problem was virtually eliminated by including the interactions in the model after the collinearity with their component variables had been partialled out (Draper and Smith 1998).14

Results

The relevant results for Model 1 are reviewed first, followed by the results for Models 2 and 3. As explained in previous chapters, statistically significant model estimates were indicated but not emphasized. The convention of statistical significance as a measure of effect size becomes less meaningful when the data being analyzed comprise a complete or substantively complete population. Tests of statistical significance, through relying on the size of the sampling error, provide a benchmark for determining if the relationships detected in the sample are generalizable to the target population. However, no meaningful sampling error exists when the data represent a complete or substantively complete population. The data for the present analysis are considered a

14 Prior to using this technique, the average variance inflation factor (VIF) among all variables in the model was 99.14, which was exclusively caused by the high collinearity among the interactions and their components. The average VIF became negligible (1.80) after employing the technique.
substantively complete population of organizations and jobs located within the public service of a single country.\textsuperscript{15}

As in Chapter 4, the independent variables at the job level were group-mean-centred before being entered in the model to facilitate interpretation of their effects on the dependent variable. Further, since the dependent variable was standardized, the estimated effect of these job-level independent variables should be interpreted in standard deviation units. For example, one of the coefficient estimates in Model 1 suggest that a 10 percent increase in a job’s female composition (from the overall within-group average) would be associated with a drop in a job’s motor and sensory skills rating of about -.15 of a standard deviation, net of other factors. Among jobs filled entirely by females, this drop would be even larger at -1.5 standard deviations.

As Model 1 suggests, jobs in a female-dominated job family were predicted to have a motor and sensory rating that was counterintuitively higher than in male-dominated or mixed job families (.047 of a standard deviation). However, this rating was stereotypically lower by Model 3 (-.083) once all variables had been specified. Models 1 to 3 also suggested that net of other factors, jobs rated higher on this aspect of skill when they were located in more masculine organizations.

This is consistent with the earlier argument that organizations with more masculine cultures were generally more likely to place a higher status on their job characteristics. However, this outcome is predicted to be substantial only in extreme cases. For example, based on the model estimates in Table 5.1, jobs in the organization with the highest masculinity score (49.99 points) are predicted to have a motor and sensory rating that is half a standard deviation above the mean score. For jobs in the least masculine organization (9.86 points), this rating is predicted to be much lower, at .05 of a standard deviation above the mean score.

\textsuperscript{15}A substantively complete population is described to mean that differences between the model estimates from the sample and what would be expected from the population data are too minute to be considered meaningful.
Table 5.1. Hierarchical Linear Regression of Effects on a Job’s Motor and Sensory Skills Rating

<table>
<thead>
<tr>
<th>Fixed Effects</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intercept</strong></td>
<td>-.73009</td>
<td>-.79214</td>
<td>-.96534</td>
</tr>
<tr>
<td><strong>Organization-level variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization masculinity level</td>
<td>.00547</td>
<td>.00107</td>
<td>.00501</td>
</tr>
<tr>
<td>Age in years</td>
<td>-.00052</td>
<td>-.00022</td>
<td>-.00015</td>
</tr>
<tr>
<td>In number of employees</td>
<td>.03793</td>
<td>.03187</td>
<td>.04336</td>
</tr>
<tr>
<td>Formalization level</td>
<td>.02151</td>
<td>.02447</td>
<td>.02345</td>
</tr>
<tr>
<td>Proportion of male executives</td>
<td>-.00081</td>
<td>-.00084</td>
<td>-.00100</td>
</tr>
<tr>
<td><strong>Organization type</strong> [regulatory organizations]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finance administrative and control</td>
<td>-.40575†</td>
<td>-.30247</td>
<td>-.24669</td>
</tr>
<tr>
<td>Distributive</td>
<td>-.17894</td>
<td>-.11951</td>
<td>-.09951</td>
</tr>
<tr>
<td>Redistributive</td>
<td>-.16759</td>
<td>-.09874</td>
<td>-.04422</td>
</tr>
<tr>
<td><strong>Job-level variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job percent female</td>
<td>-.01476***</td>
<td>-.00545***</td>
<td>-.00600***</td>
</tr>
<tr>
<td>Job ambiguity</td>
<td>-.46403***</td>
<td>-.39618***</td>
<td>-.37539***</td>
</tr>
<tr>
<td>Per 100 incumbents</td>
<td>-.00001</td>
<td>.00171</td>
<td>.00034†</td>
</tr>
<tr>
<td>Job covered by activist union</td>
<td>.36011***</td>
<td>.30723***</td>
<td>.31138***</td>
</tr>
<tr>
<td>Female-dominated job family</td>
<td>.04668***</td>
<td>.01555</td>
<td>-.08300***</td>
</tr>
<tr>
<td><strong>Interactions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization masculinity level x Job percent female</td>
<td>-.00059*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization masculinity level x Female-dominated job family</td>
<td></td>
<td>-.02798***</td>
<td></td>
</tr>
<tr>
<td>Female-dominated job family x Job percent female</td>
<td>.01847***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization masculinity level x Female-dominated job family x job percent female</td>
<td>.00032†</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Random-effects parameters</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variance (intercept)</td>
<td>.34756***</td>
<td>.33667***</td>
<td>.33397***</td>
</tr>
<tr>
<td>Variance (job percent female)</td>
<td>.00014***</td>
<td>.00014***</td>
<td></td>
</tr>
<tr>
<td>Covariance (job percent female, intercept)</td>
<td>-.00140</td>
<td>-.00117</td>
<td></td>
</tr>
<tr>
<td>Variance (residual)</td>
<td>.91421***</td>
<td>.85815***</td>
<td>.84446***</td>
</tr>
<tr>
<td><strong>Model fit statistics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIC (smaller is better)</td>
<td>135,824.9</td>
<td>132,921.5</td>
<td>132,172.9</td>
</tr>
<tr>
<td>Change in BIC</td>
<td>-7903.4</td>
<td>748.6</td>
<td></td>
</tr>
</tbody>
</table>

*Note:* *** < .001, ** < .01, * < .05, † < .10; n=58 organizations, 49269 jobs. Dependent variable is standardized.

1Interactions are orthogonalized to eliminate harmful collinearity with their component variables.

Model 3 provided support for two of the three hypotheses, and also validated the use of cross-level interactions to verify these three hypotheses. The BIC (Bayesian Information Criterion) values at the bottom of Table 5.1 show the substantially improved fit of Model 3 over Model 1 and Model 2, as well as the improved fit of Model 2 over Model 1, just by letting the effect of a
job’s percentage of females vary by organization. The following paragraphs discuss the results from Model 3 that are relevant to each hypothesis.

To reiterate, Hypothesis 1 predicted that, net of other factors, more female-concentrated jobs located in a female-dominated job family would have higher motor and sensory skill ratings. Model 3 confirmed this. First, expectedly, each percentage increase in a job’s female composition was associated with a decline in a job’s motor and sensory skills rating. Second, also as expected, jobs in a female-dominated job family had a lower motor and sensory skills rating (-.083 of a standard deviation) compared to jobs in a male-dominated or mixed job family. However, relative to these job families, more female-concentrated jobs in a female-dominated job family received an exaggeratedly higher score on motor and sensory skills. For clarity, Figure 5.3 plots this relationship with all the control variables at their means except for a job’s percentage of females.

![Figure 5.3](image-url)

**Figure 5.3.** Job-percent Female, Job Family Gender Dominance, and Rating on a Job’s Motor & Sensory Skills

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When comparing models, lower BIC values indicate a better model fit. A reduction in the BIC value of 10 or more is usually considered very strong evidence of improved model fit. In addition, the BIC approximation does not rely on measures of model fit that are rooted in asymptotic statistical theory. This makes the BIC extremely useful for assessing model fit in large datasets, where statistical significance thresholds based on asymptotic theory become less informative. The BIC approximation also penalizes models with a higher value when they are overparameterized, thus balancing model fit with model parsimony (Raftery 1995).
Consistent with Hypothesis 1, the dashed line in Figure 5.3 shows that more female-concentrated jobs would have exaggeratedly higher scores on motor and sensory skills when they are in a female-dominated job family. First, a 0-percent female-concentrated job in a female-dominated job family would have a predicted rating that is -.27 of a standard deviation lower than the average score. Meanwhile, a 100-percent female-concentrated job in this job family would receive a higher than average rating on this factor (1.84 standard deviations above the average). It was proposed earlier that the mechanism behind this counterstereotypical outcome originates from the benchmark job in such a job family being a more stereotypically female job. As such, the benchmark job may be given a lower score on this aspect of a job’s demands. This may create a situation where female-concentrated nonbenchmark jobs appear to have higher motor and sensory demands relative to the benchmark job, and are thus rated relatively higher on this attribute. In addition, this outcome would be facilitated if evaluators assessed more female-concentrated jobs with lower expectations to begin with on this attribute. This is because, according to the theory behind counterintuitive stereotyping outcomes, their expectations would be more easily exceeded.

For comparison, Figure 5.3 also plots the motor and sensory skills ratings of more female-concentrated jobs that are located in a male-dominated or mixed job family (the solid line). As this plot suggests, more female-concentrated jobs in this job family instead experience exaggeratedly lower motor and sensory skills ratings. This relationship is consistent with the other side of the argument discussed above. Benchmark jobs in more male dominated and mixed job families are likely to be viewed as less female-typed jobs. Whether warranted or not, such benchmark jobs would likely score higher across most of their job characteristics, and thus set a higher standard against which more female-concentrated jobs in these job families are compared.

Model 3 also supports Hypothesis 2a (not plotted). Hypothesis 2a stated that on average, jobs in more masculine organizations are likely to rate higher on their motor and sensory demands. As the estimate in Model 3 shows, net of other factors, each point increase in an organization’s

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17 All calculations are based on information in Table 5.1, and from the dataset. For example, the predicted motor and sensory rating for a 100-percent female-concentrated job in a female-dominated job family (1.84) was calculated as follows: \( \hat{Y} = -0.9654 + ((\text{org. mean masculinity score} \times 0.00501)) + ((\text{org. mean age} \times -0.00015)) + ((\text{org. mean percentage of male executives} \times -0.0001)) + ((\text{org. mean formalization score} \times 0.02345)) + ((\text{mean ln incumbent count} \times 0.04336)) + ((100\text{-percent female-concentrated job} \times -0.006)) + ((\text{female-dominated job family} \times -0.083)) + ((100\text{-percent female-concentrated job} \times \text{female-dominated job family} \times 0.01847)). \)
masculinity score would be associated with an increase in a job’s motor and sensory rating of about .005 of a standard deviation. This seemingly minute effect is quite robust because jobs in the most masculine organization would score on average about .25 of a standard deviation higher on this skill demand. Meanwhile, jobs in the least masculine organization would score only .04 of a standard deviation higher.

Hypothesis 2b stated that the counterstereotypical outcome illustrated in Figure 5.3 would be magnified in organizations with more masculine cultures. But as the dashed line in Figure 5.4 shows, this hypothesis is not supported. For comparison, the relationship is also plotted in the least masculine culture. In both cases, plots are calculated with all variables at their means except a job’s percentage of females, and organizational culture.

Contrary to what was expected in Hypothesis 2b, the inequality in the most masculine organization is more stereotypical. As the dashed line shows, a 100-percent female-concentrated job in a female-dominated job family in the most masculine organization can expect a motor and sensory rating that is almost half a standard deviation lower (-.48). A male-concentrated job in the same job family would score slightly higher than this, at about one-third of a standard deviation lower (-.31). Nevertheless, comparing the slope of this relationship against the relationship plotted in the less masculine organization (the solid line) reveals an interesting
contrast. The inequality plotted in the more masculine culture (the dashed line) is clearly stereotypical because female-concentrated jobs are predicted to receive a relatively lower rating on this skill dimension. However, this inequality is marginal compared to the counterstereotypical inequality in the least masculine culture (the solid line). The solid line in Figure 5.4 suggests that in the least masculine organization, a 100-percent female-concentrated job in a female-dominated job family would have a skill rating that is about 1.24 standard deviations higher than the average. Meanwhile, a male-concentrated (0 percent female) job in a female-dominated job family in the same organization would score -0.42 of a standard deviation lower than the average. Thus, while the inequality in the more masculine organization is stereotypical, it is relatively subdued. In the less masculine organization, this inequality is relatively more severe, and counterstereotypical. I discuss these results in the next section.

**Discussion**

The following section discusses the significance and implications of the findings. To open the discussion, Table 5.2 summarizes the variance in the motor and sensory skills variable explained by Models 1, 2, and 3, and by selected variables.

<table>
<thead>
<tr>
<th>Model</th>
<th>Org-level variance (%)</th>
<th>Percent of org level explained</th>
<th>Job-level variance (%)</th>
<th>Percent of job level explained</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-way ANOVA with random effects</td>
<td>26.6</td>
<td>--</td>
<td>73.4</td>
<td>--</td>
</tr>
<tr>
<td>Job percent-female only</td>
<td>26.6</td>
<td>--</td>
<td>73.4</td>
<td>8.9</td>
</tr>
<tr>
<td>Job-level variables except job percent-female</td>
<td>26.6</td>
<td>--</td>
<td>73.4</td>
<td>5.2</td>
</tr>
<tr>
<td>Organizational culture only</td>
<td>26.6</td>
<td>0.4</td>
<td>73.4</td>
<td>--</td>
</tr>
<tr>
<td>Org-level variables except org culture</td>
<td>26.6</td>
<td>9.8</td>
<td>73.4</td>
<td>--</td>
</tr>
<tr>
<td>Model 1 – Fixed effects</td>
<td>26.6</td>
<td>10.2</td>
<td>73.4</td>
<td>14.1</td>
</tr>
<tr>
<td>Model 2 – Fixed and random effects</td>
<td>26.6</td>
<td>10.2</td>
<td>73.4</td>
<td>19.4</td>
</tr>
<tr>
<td>Model 3 – Full model</td>
<td>26.6</td>
<td>13.4</td>
<td>73.4</td>
<td>20.6</td>
</tr>
</tbody>
</table>

As Table 5.2 shows, a substantial 26.6 percent of the total variance in a job’s motor and sensory skills rating comes from the organizations under examination. Additional analysis showed that of this organization-level variance, only about 0.4 percent of such variance was accounted for by the organizational culture variable. Though the effect size of culture appears modest in these results, it is difficult to make a definitive statement about its substantive significance in the
absence of previous research. However, according to prior relevant research, such a modest effect size may not be unusual for this aspect of organizational culture. In their multilevel analysis of cultures in 30 organizations, Marchand, Haines, and Dexter-Gauthier (2013) found that the types of cultures identified as hierarchical and rational had some of the smallest levels of interorganizational variation. As the concepts of hierarchy and rationality have high concurrent validity with the concept of masculinity, Marchand et al.’s (2013) research is useful for putting into perspective the modest effect size of culture detected in this research.\(^{18}\) Column 3 in Table 5.2 suggests that 73.4 percent of the total variance in a job’s motor and sensory skills rating is attributed to the job level. Of this job-level variance, about 20.6 percent is accounted for by the variables in the model, with a job’s percentage of females being one of the most prominent contributors (8.9 percent in Column 4).

Allowing for the effect of a job’s percentage of females to vary across organizations was informative. Doing so increased the variance explained in a job’s motor and sensory skills rating from 14.1 percent, in Model 1, to over 19 percent, in Model 2. However, the interactions and their necessary components introduced in Model 3 did not explain away much of the random variance in a job’s percentage of females.\(^{19}\) This is evident from the relatively unchanged variance in this variable in the random effects part of Table 5.1, which remains at .00014 in Models 1 and 2. However, as the following paragraphs clarify, these interactions were still vital for verifying Hypotheses 1 and 2b.

Hypothesis 1 correctly predicted that more female-concentrated jobs received counterintuitively higher ratings on their motor and sensory demands when they were evaluated in a female-dominated job family. Further, the inequality associated with this relationship is potentially large. For example, the dashed line in Figure 5.3 suggested that a 100-percent female-concentrated job in a female-dominated job family is predicted to have a human-capital rating of +1.84 standard deviations above the average. This is despite calculations showing that net of other factors, a

\(^{18}\) The study was based on the widely cited organizational cultural profile of O’Reilly, Chatman, and Caldwell (1991), and quantitatively measured four types of cultures in 30 organizations through questionnaires administered to over 1,600 employees. The types of cultures measured include rational, hierarchical, developmental, and group culture. The percentage of organization-level variance in the scores of these culture types was 3, 5, 8, and 14 percent respectively.

\(^{19}\) Organization masculinity level x job percent-female, organization masculinity level x female-dominated job family, female-dominated job family x job percent-female, organization masculinity level x female-dominated job family x job percent-female.
100-percent female-concentrated job in a male-dominated or mixed job family would score relatively lower on this characteristic (at +.56 of a standard deviation). This is also despite the fact that overall, a female-dominated job family would score stereotypically lower on this characteristic (about -.083 of a standard deviation lower).

Despite the support for Hypothesis 1, important questions remain. First, it was inferred from previous research and theory that the benchmark job used to rate jobs in a female-dominated job family would likely be a typically female-typed job. The interpretation of the dashed line in Figure 5.3 as a contrast effect in support of Hypothesis 1 hinges on this assumption. However, because the data in this research do not identify the benchmark jobs that were used during the job evaluation, this assumption cannot be empirically verified. Nevertheless, based on the available research by Bridges and Nelson (1989), a strong basis exists for expecting that benchmark jobs in a female-dominated job family tend to be stereotypically female-typed jobs.

Another question arises about the counterstereotypical results in Figure 5.3 that support Hypothesis 1: namely, whether the results are an artifact of the data-weighting strategy. As explained in the methods section, jobs with more incumbents were given more weight in the analysis. Such jobs also tended to have higher proportions of female incumbents, so the moderating effect of a job’s percentage of females would be positively biased, especially if female-concentrated jobs were also regular targets of content review for pay equity purposes.20 Running Model 3 with unweighted data produced slightly more subdued results, but the results were still consistent with Hypothesis 1. Therefore, it is unlikely that the counterstereotypical results in Figure 5.3 are an artifact of the data-weighting strategy. To strengthen the results in support of Hypothesis 1, future research in this area would need to identify and rank the benchmark jobs in each job family by their respective score. Doing so would be helpful for verifying whether benchmark jobs in female-dominated job families actually set a lower standard for other jobs to be compared against because they were ranked so low in the first place.

The results were also consistent with Hypothesis 2a, according to which jobs in more masculine organizations would have a higher score on the motor and sensory aspects of a job’s human-

20 A similar issue was also raised by Baron and Newman (1990). They found that jobs with more females (which coincidentally also had more incumbents), were more frequent targets of job content reviews for pay equity purposes. This tended to positively bias their model estimates when the data were weighted for the number of incumbents.
capital demands. Specifically, jobs in the most masculine organization were predicted to score about two-tenths of a standard deviation higher on this attribute than jobs in the least masculine organization. This relationship is consistent with the proposition that masculine cultures place a relatively higher status on job characteristics. But, as discussed earlier, the direct effect of organizational culture does not appear to be large (about 0.4 percent of the interorganizational variance detected in a job’s motor and sensory skills rating).

Hypothesis 2b predicted that a more masculine organizational culture would exacerbate the counterstereotypical job-evaluation outcome predicted in Hypothesis 1. Hypothesis 2b was not supported. The predicted effect in the most masculine organization was almost insubstantial (see the dashed line in Figure 5.4). Meanwhile, the outcome in the least masculine organization appears to be counterstereotypical. The results pertaining to Hypothesis 2b raise four points. First, there is the negligible inequality between more male- and female-concentrated jobs in a female-dominated job group when they are located in a masculine organization. Traditionally, it would be expected that such inequality would be greater in more masculine organizations because those organizations are also expected to have stronger status differences associated with a job’s gender appropriateness. Therefore the outcome plotted in the masculine organization requires further explanation. I will return to this explanation in the fourth point.

Second is the lack of support for Hypothesis 2b in Figure 5.4. This lack of support would also challenge the assumption that masculine organizations are characterized by wider status differences based on notions of gender. But if this assumption is inaccurate, then the amount of inequality in the motor and sensory skills ratings of male and female-concentrated jobs in a male-dominated and mixed dominated job group should also be marginal. When this scenario was tested using the data and the model results from Table 5.1 (not shown), there was substantial inequality favouring male-concentrated jobs. Therefore, it cannot be assumed that the lack of

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21 In Figure 5.3, the slope of the dashed line is 2.11 when the human capital rating is compared using a 0- and 100-percent female-concentrated job in a female-dominated job family. This slope reduces dramatically to -.17 in Figure 5.4 (the dashed line) when the same relationship is plotted while incorporating the culture of the most masculine organization. In the least masculine organization, the solid line in Figure 5.4 shows that the slope reduces only slightly, to 1.66. Thus, the more masculine culture clearly has a more equitable effect on a job’s motor and sensory rating.
support for Hypothesis 2b in Figure 5.4 reflects a lack of wider status differences based on gender in more masculine organizations.  

The third point focuses on a comparison of the relationships in Figure 5.3 and Figure 5.4. Overall, such a comparison would suggest that status differences based on a job’s gender appropriateness are relatively weak in less masculine organizations. This was surmised through taking the slope of the dashed line in Figure 5.3 (2.11), which showed the effect of a more female-concentrated job in a female-dominated job family, and comparing it against the relatively unchanged slope of the solid line in Figure 5.4 (1.66), where the moderating effect of the least masculine culture was added. However, comparing the slope of the dashed line in Figure 5.3 (2.11) against the slope of the same relationship plotted in the most masculine organization (the dashed line in Figure 5.4 with a slope of -.17), shows that the latter context greatly subdues the inequality. The implication is that in a female-dominated job family, a female-composition effect on a job’s motor and sensory rating is more subdued in more masculine organizations.

Why did the interaction in the more masculine organization fail to appear as Hypothesis 2b predicted? Based on the literature discussed earlier, a plausible explanation is that the subjectivity of the job-evaluation instrument did not facilitate a definitive counterstereotypical job-evaluation outcome. Instead, the instrument facilitated an outcome explained earlier as a null effect. Null effects are more diluted versions of counterstereotypical contrast effects. At first glance, null effects appear to suggest a situation where historically status superior and historically status inferior targets are rated equally without bias. In actuality, the evaluator’s stereotypically lower expectations of the inferior target may be exceeded only enough to rate a low status target (e.g., a female-concentrated job) as worthy on some criteria as the average score of a status superior group (e.g., a male-concentrated job).

The relationship represented by the dashed line in Figure 5.4 is best interpreted as a null effect for two reasons. Based on the theory and research presented in previous chapters, it is illogical to think that more masculine organizational cultures value the skill demands of male- and female-

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22 The diagnostic plot using male- and female-concentrated jobs in a male-dominated job group showed a substantial negative slope of -6.00 in the masculine organization. This inequality is substantially more severe than the slope of -1.01 observed in the relationship in the male-dominated job family alone in Figure 5.3.
concentrated jobs equally. The second reason for interpreting the dashed line in Figure 5.4 as a null effect is partly supported by the fact that the relationship looks more stereotypical when the subjective measure of motor and sensory skills is replaced in the model by the more objective measure of salary. As previously discussed, past research has found that the rating an evaluator assigns to a male- or female-concentrated job may appear counterstereotypical because of the scale’s subjectivity. However, when evaluators are asked to assign a monetary value to such jobs, the more objective measure of salary usually exposes a gender stereotypical relationship between job female-composition and job rewards.23 When a diagnostic model was run with the job’s salary level as the dependent variable in place of its motor and sensory skills rating, the outcome became stereotypical. In masculine organizations, female-concentrated jobs in a female-dominated job group were predicted to have a salary that was only 55 percent of the salary that more male-concentrated jobs in the same job family were predicted to have. The stereotypical results generated when using salary level as the dependent variable lends a great deal of support to interpreting the dashed line in Figure 5.4 as a type of null effect.

Conclusions

This chapter examined how the phenomena of contrast and assimilative effects in stereotyping can be applied to understand job-evaluation outcomes. It did this through looking at the relationship between a job’s female composition and the score assigned to the motor and sensory aspects of a job’s human-capital demands. The research was motivated by findings in Chapter 2, which suggested that more female-concentrated jobs rating high on this characteristic enjoyed counterstereotypically higher levels of pay for this attribute than equivalently rated male-concentrated jobs. This chapter examined this type of finding through drawing on recent social psychological theory and research on counterintuitive stereotyping outcomes.

More importantly, the current study built on such social psychological theory and research by demonstrating that the cultural context of the organization may be relevant for altering the stereotypicality of a job-evaluation outcome. By demonstrating the relevance of the organization’s cultural context, this research merged a valid but methodologically individualistic

23 In their job-rating experiments, Alksnis et al. (2008) used this approach to support their interpretation of a null effect, while Biernat and Kobrynowicz (1997) used this approach to corroborate their findings of a contrast effect.
understanding of the mechanisms behind stereotyping outcomes, with a more cultural understanding. In the remainder of this section, I summarize the main findings and their significance.

Two of three hypotheses were directly supported by the data. Consistent with Hypothesis 1, more female-concentrated jobs in a female-dominated job family received counterstereotypically higher ratings on the motor and sensory skills variable. Based on the theory and argument presented earlier, this finding adds to the understanding that job-evaluation schemes are vulnerable to producing gender-counterstereotypical outcomes because their reliance on descriptive scales may facilitate within-group comparisons on the job-evaluation criterion. These findings also support the argument that job-evaluation schemes are vulnerable to gender-counterstereotypical outcomes because their standard use of benchmark jobs to aid in the evaluation process also fosters an evaluation setting based on within-group standards of comparison.

The first source of this problem might be minimized through using rating scales that are less descriptive, thereby increasing the likelihood that more male- and female-typed jobs are evaluated based on between-group standards of comparison. But to the extent that benchmark jobs contribute to counterstereotypical outcomes by facilitating within-group standards of comparison, this problem is harder to fix. As discussed earlier, benchmark jobs still play a vital role in job-evaluation systems by ensuring that a group of similar jobs is evaluated consistently in the organization. Therefore, eliminating the use of benchmark jobs altogether may introduce more serious inconsistencies in the job-evaluation system. It may be a better option for organizations to more heavily scrutinize their selection and evaluation of benchmark jobs, and be aware of how such choices may distort the comparison of other jobs against these reference jobs.

Consistent with Hypothesis 2a, jobs in more masculine organizations were predicted to have relatively higher scores on a job’s motor and sensory skills, net of other factors. This was theorized to reflect more masculine organizational cultures being associated with stronger gender stereotypical beliefs about the status of job characteristics. Overall, this finding is consistent with previous theory and research noting that gender stratification in the labour market stems from long-standing beliefs that what is associated with the male tends to be viewed as more status
Hypothesis 2a was largely an intermediary hypothesis, providing a theoretical and empirical foundation for the more complex Hypothesis 2b.

Hypothesis 2b predicted that the contrast effect predicted in Hypothesis 1 would be greatest in more masculine organizational cultures, where stronger status differences between male- and female-typed jobs would exaggerate the appearance of any gender-counterstereotypical outcomes. This hypothesis was not directly supported. Instead, Figure 5.4 suggested that in more masculine organizations, little difference exists in the way male- and female-concentrated jobs in a female-dominated job group would be rated for their motor and sensory demands. However, a closer examination of this result suggested that the relationship is best understood as a more diluted version of a counterstereotypical outcome known as a null outcome. This interpretation was supported through diagnostics, as well as through theory.

It is important to note that the contrast effect that is clearly visible in the dashed line shown in Figure 5.3 does not prove that a shifting standard of judgement is behind this relationship. Similarly, the null effect observed in the dashed line in Figure 5.4 does not prove that shifting standards of judgement are moderated by more masculine organizational cultures. Nevertheless, the semantic nature of a job-evaluation instrument provides the right conditions for shifting standards of judgement to manifest, should they exist. It also makes theoretical sense that if such shifting standards are present when rating more male and female-concentrated jobs, these standards would be modified in cultures where there are greater status differences associated with gender.

The dependent variable was just one of many job-evaluation criteria in this dataset. It is beyond the scope of this research to speculate on how organizational culture affects the evaluation of other job characteristics. But as mentioned in this and previous chapters, research has suggested that a job’s productivity-related characteristics (e.g., human-capital demands) account for the bulk of the job’s rewards. Therefore, any unusual or unique relationship between organizational culture and the rating of a job’s skill demands is highly relevant for the literature focusing on the mechanisms behind gender inequalities in paid work.

Further, the results presented in this chapter stimulate further research about stereotyping effects as they are manipulated by the broader phenomenon of organizational culture. I have already mentioned that nonexperimental and experimental approaches could be used to build upon the
findings presented here. However, research looking at the effect of broad concepts like organizational culture and masculinity would have to be nonexperimental because of the difficulty of reproducing these conditions in a controlled setting. Further, it is desirable for future research in this area to improve on ways to measure a concept as abstract as an organizational culture’s level of masculinity in order to assess its impact on stereotyping outcomes.

Most importantly, this chapter highlights the merits of including some type of measure of organizational culture when exploring the argument that “women’s work” is culturally devalued. This is because it provides some ability to quantitatively assess such an intuitive but difficult to demonstrate explanation. This chapter also highlights that the metrics and standards used to assess the value of a job may not always work to disadvantage more female-concentrated jobs in terms of pay. Though conventional gender stereotypes may still guide the assessment of a job’s characteristics, this research suggests that the subjectivity of such metrics can sometimes work to the advantage of more female-concentrated jobs by bolstering the way they are rated on certain job characteristics. But since this counterstereotypical outcome would be based on a patronizingly chauvinistic precept of what more female-concentrated jobs contribute to the organization, it is difficult to call this an advance for women in work.
Chapter 6
Conclusions

Over 20 years have passed since England’s (1992) seminal treatise on comparable worth, and researchers have still been unable to fully refute her conclusion that the female-composition effect on pay reflects the cultural devaluation of work that is associated with women. The endurance of this conclusion is an invitation for research that is more explicit about how culture shapes our perceptions of the value of work.

Though England’s (1992) cultural-devaluation thesis was based on patterns she observed in workplace data, these observations were used to support conclusions about societal culture. This approach is informative, but incomplete because it overlooks the conceptually important role that organizational culture plays in framing perceptions of job value. This is a valid concern since this dissertation repeatedly mentioned that jobs are the units where work and its rewards are formally linked, and decisions about who will do the work are made. And since organizations are the sites where all of these considerations are formally brought together, a more organizational approach to understanding the cultural-devaluation argument is essential. Therefore, the present research focuses on culture at the level of analysis where evidence supporting the cultural devaluation argument was originally observed by England. Fortunately, analytical techniques have advanced since England’s (1992) time, making this type of inquiry more feasible.

But this invites additional questions; if cultural biases against the value of women’s labour are pivotal to explaining gender-pay differences, how do we measure culture and its effects? Further, what aspects of culture are most relevant to explaining gender-pay inequalities, and under what contexts are such aspects most influential? The broad aim of this dissertation has been to provide insight into these types of questions through examining the effect of more masculine organizational cultures on job evaluation – the organizational activity that reifies culturally-based assumptions about the relative value of work in organizations.

I have done this by restricting the study of culture to the organization level rather than the societal level. Doing so was motivated not only by the previously discussed conceptual relevance

of organizational culture, but also by practical concerns. The concept of organizational culture was more meaningful to measure and quantify in this research than the concept of societal culture – especially since the data came from a single country.

I explained my first aim is to anchor the cultural-devaluation argument to the organization level. I have also aimed to advance theory and research on different aspects of this argument as it pertains to the formal activity of evaluating and rewarding jobs based on their relative contribution to the organization. This was done through four interrelated chapters.

Before proceeding to more complex analyses of how organizational culture is related to devaluation, I began with Chapter 2. This chapter introduced the two main explanations for the female-composition effect on pay: cultural devaluation, and the methodologically individualistic human-capital explanation. As an introduction to the more complex analyses in subsequent chapters, Chapter 2 considered these two explanations using job-level data. Specifically, Chapter 2 asked how much a job’s human-capital demands explained the female-composition effect on pay. It also asked to what degree the returns to a job’s human-capital demands were moderated by a job’s female composition.

These two questions were important because more recent sociological research has suggested that if properly specified, the human-capital demands of the work itself can explain most if not all of the female-composition effect on pay (Tam 1997, 2000; Polaveija 2005, 2007, 2008, 2009). However, since the measures in these studies have come almost exclusively from occupation-level data, their findings cannot be generalized to the job level, where connecting work to rewards and hiring people to do the work occurs. Additionally, focusing on this debate at the job-level was important to expose idiosyncrasies in the female-composition effect on pay that would normally be masked at the broader occupation level of analysis. Hence the rationale for the second question asking about how returns to a job’s human-capital demands may be moderated by a job’s female composition.

Chapter 2 highlighted two sets of results. First, net of the other characteristics in the model, the female-composition effect on pay is far from being completely explained by a job’s human-capital demands. However, these demands explain about half of the effect on pay, which is more than any other single variable in the model. Second, inconsistent with the hypothesis, more
female-concentrated jobs scoring high on the cognitive aspects of a job’s human-capital demands did not have more pronounced pay penalties. In fact, returns remained stable at either high or low levels of cognitive skill. Thus, the female-composition effect on pay still increases in more-female concentrated jobs, but this effect does not interact with the returns to a job’s cognitive demands. This suggests that, in general, reallocating more females to jobs with higher cognitive demands may not exaggerate the female-composition effect on pay in organizations.

On the motor and sensory aspects of a job’s human-capital demands, the results contradicted the hypothesis. More female-concentrated jobs with greater motor and sensory demands had disproportionately greater returns on this characteristic than more male-concentrated jobs with equivalent demands. This is despite the fact that on average, more female-concentrated jobs had lower scores on this attribute than more male-concentrated jobs. This finding is counterintuitive because more male-concentrated jobs rated higher on average across most of the characteristics in the job-evaluation system. According to traditional gender stereotypes, more-male concentrated jobs should also receive greater returns for their job characteristics—simply because the status of these characteristics is elevated by their association with the male sphere. These counter-stereotypical results have an intriguing implication for policies reducing the female-composition effect on pay. Namely, reallocating more females to jobs with higher motor and sensory demands may attenuate the female-composition effect on pay in these organizations.

Chapter 2 also illuminated that the female-composition effect on pay is much more complex to explain at the job-level. Tam (1997) and Polaveija’s (2005, 2007, 2008, 2009) occupation-level research demonstrated the exclusiveness of the human-capital explanation; so did the single job-level study by Tomaskovic-Devey and Skaggs (2002). However, this explanation is not so unequivocal in my research. About 53 percent of the female-composition effect on pay is attributed to the human-capital demands of the jobs in which the sexes are concentrated. The other 47 percent of this effect is unexplained and according to convention, classified as evidence of devaluation. So while a little over half of the female-composition effect on pay may reflect females’ concentration in jobs with lower and less specialized human-capital demands, this conclusion is countered by the other results suggesting that more male-concentrated jobs with equivalently-rated demands are paid more. Overall, these findings must be considered in light of their relatively small effect sizes in the model. For example, 78.9 percent of the variance in salary level was explained in the full model. Meanwhile, the female-composition effect on pay
net of all variables except human capital explained 4.9 percent of this variance. The female-composition effect reduced to 2.3 percent of the explained variance once the human capital variables were added. However, in later paragraphs, I return to the fallacy of relying solely on statistical effect sizes when studying gender issues.

Lastly, the more pronounced returns to more female-concentrated jobs with high levels of motor and sensory skill is important. It challenges the almost automatic assumption that a job’s demands and its assigned rewards are divested from cultural notions about who would be expected to do the job. If these assumptions were completely divested from such cultural notions, then no interaction effect would be present between a job’s sex composition and the returns for its rated level of motor and sensory skill. Also, the counter-stereotypicality of these findings provided a basis for inquiring about the social-psychological phenomenon of counterintuitive-stereotyping effects. I return later to this issue in the review of findings from Chapter 5.

Chapter 3 was a theory and conceptualization chapter. Its main purpose was to explain the rationale for a more organizational-cultural approach to explaining gender-pay inequalities. It pointed out that the gendered-organizations literature has paid increasing attention to the role of organizational context in shaping gender and gender inequalities in work. However, this literature has been less clear about how organizational context genders the structures of the work in the first place.

Chapter 3 explained that how the structures of the work become gendered in the first place was largely explained in Acker’s (1990) seminal work on gendering jobs through job evaluation. I then developed an argument that organizational culture, and more specifically, the level of masculinity in such culture, had a logical relationship to the amount of vertical-gender inequality in an organization. The masculinity of an organization’s culture was thus introduced as an important organizational-contextual factor that influenced the female-composition effect on pay often evident in an organization’s job-evaluation initiatives. Chapter 3 also laid out a framework for quantitatively measuring an organizational culture’s level of masculinity, which was necessary for the organization and job-level research that followed in Chapters 4 and 5.

From analyzing the female-composition effect on pay within organizations in Chapter 2, Chapter 4 examined how the cultural context of the organization accounts for the severity of the female-
composition effect on pay. It did this through examining if organizations with relatively more masculine cultures had higher levels of gender bias in their job-evaluation outcomes. Chapter 4 showed that overall, jobs in organizations with less masculine cultures seem to have a greater discrepancy between what they are actually paid, and what they “should” be paid if jobs were evaluated equitably – suggesting a greater level of job-evaluation bias in less masculine organizations. However, Chapter 4 also found that net of other organization and job-level factors, more female-concentrated jobs are subject to greater levels of devaluation in more masculine organizational cultures. These findings were important for substantiating much of the theory and background arguments introduced in Chapter 3. These findings also lend further credibility to Nelson and Bridges (1999) research, which posited that devaluation’s effect on pay inequalities would be exacerbated in interaction with the culture and structure of organizations.

It is important to note that the effect size of culture in the statistical models in Chapter 4 were modest. For instance, while substantial variance in the job-evaluation bias measure was attributed to variations in organizational context (about 12.5 percent), organizational-culture accounted for a numerically small amount of this variance (about 1 percent). And while job evaluation biases were more pronounced in more female-concentrated jobs nested within more masculine organizational cultures, the culture variable captured relatively little of this variation. Nevertheless, predictions based on model estimates suggested that the masculinity of an organization’s culture substantially moderated the female-composition effect on pay. Therefore, the culture variable included in this research may not explain much of the interorganizational variance in job-evaluation bias, but it still had a formidable impact by exaggerating the pay penalty associated with more female-concentrated jobs. Therefore, these findings reiterate a key point made by Alksnis et al., who warn that when researching gender issues, it is not always good practice to dismiss results because the effect sizes are small according to statistical conventions. Over time and in conjunction with other variables, many of these seemingly small effects can accumulate to produce large gender inequalities (2008:1433-1434).

From a theoretical perspective, the results in Chapter 4 were important for exploring the linkage between culture and the gender stratification of work across organizational contexts. Chapter 4 also underscored the dilemma in most societies between the policy oriented ideals of ameliorating gender-pay inequalities, and the practical limits of what such policies achieve. For example, even if every work organization could effectively control for the inequalities created by
the organization’s cultural context, gender-equitable job rewards will only be achieved on an intraorganizational basis. On an interorganizational basis, disparities related to the female-composition effect on pay would still persist to the degree that masculine organizational cultures vary from one organization to the next.

Chapter 5 built on the job-level research in Chapter 2, and the organization-level research in Chapter 4. Chapter 5 focused on the social-psychological concepts of contrast and assimilation effects in stereotyping. It showed how the structure and process of a highly measurement-based activity like job evaluation would be especially prone to creating contrast effects. The chapter also explored how an organization’s culture would moderate these effects.

Chapter 5 explained that contrast effects in stereotyping are common when using subjective rating scales (e.g., Likert-type scales) to evaluate targets on some characteristic that is prone to stereotyping. This is because the subjective nature of the rating scale has been shown to encourage a reliance on within-group comparisons when rating a target on some characteristic. The end result is that the target of the evaluation appears to rate counterstereotypically higher on the very attribute the target would have been expected to receive a lower rating.

The chapter argued that job-evaluation outcomes are especially prone to contrast effects because the subjectivity of the rating scales may encourage evaluators to make within-group comparisons (e.g., comparing a female-concentrated job to the stereotypical female-concentrated job). Also, job-evaluation systems are usually structured to encourage within-group comparisons of job value because they are based on evaluating jobs against a benchmark (comparison) job from within the same job family (e.g., comparing a female-concentrated job to the stereotypical female job in the same job family).

Because a contrast effect is an artifact of the measurement instrument, organizational culture was argued to have little responsibility for triggering this effect. However, because more masculine organizational cultures may emulate stronger beliefs about the relative status associated with work, it was expected that more masculine cultures would exaggerate any contrast effects observed in the job-evaluation outcome.

The analysis in Chapter 5 largely supported the hypotheses. In a more female-dominated job family, which was argued to contain a more stereotypically-female job as the benchmark job,
more female-concentrated jobs scored counterintuitively higher on motor and sensory skills. I also found that more masculine organizational cultures moderated this contrast effect, but not in the predicted way. Further testing and diagnostics suggested that a more masculine organizational culture was diluting this contrast effect to appear as a null effect. In other words, within-group standards of comparison on this job characteristic still existed, and male- and female-concentrated jobs only appeared to rate similarly in more masculine organizations.

Chapter 5 contributed to the literature by highlighting the shortcomings of using job-evaluation instruments based on descriptive measures. It also questions whether the benefits of using benchmark jobs outweigh the problems it creates by masking gender inequalities in the job-evaluation outcome – all of which would be further suppressed in more masculine organizational cultures, the very cultures where gender inequalities in an organization’s policies and practices are most vulnerable to taking root.

Limitations

I have conscientiously acknowledged the limitations in my research as they pertain to each chapter. However, the following highlights some of the limitations common to the entire dissertation, most of which come from shortcomings in the data, and in the measurement of concepts.

A weakness common to all three research chapters is that they draw from cross-sectional data. Ideally, longitudinal data would have helped clarify some of the questions about causality raised by all three research chapters. For example, in Chapter 2, more female-concentrated jobs pay less because their human-capital demands are still devalued to some degree. Nevertheless, discriminatory hiring and socialization may also play a role in sorting females into jobs with lower human-capital demands, and into jobs with human-capital demands that are devalued. This research cannot answer whether such jobs became devalued after they accumulated with females, or whether more females entered these jobs after they might have lost their status. Nor can it answer how much discriminatory hiring, socialization, or personal choice played a role in this relationship. These types of questions apply to the research in Chapter 4 and 5 as well. If the appropriate longitudinal data were available, the relationships investigated in these three chapters could be more explicitly stated as causal. There is also the possibility that the net effect of a job’s female composition has been underestimated through its potential endogeneity with the other job
variables, and through the aggregation of the job skills measures in the interests of model parsimony.

A second limitation is the reliance on organization and job data from a single sector of the economy (the government service sector). Data based on all sectors of the economy would increase the generalizability of the findings. However, the scarcity of appropriate organization-level data often means that researchers of organizations must focus on scope over scale. I have remained faithful to the principle of research scope through a multilevel data analytic strategy. Yet my research is also of substantial scale because this analytic strategy is only suited for datasets with a large number of organizations (at least 30).

The findings of this research have tremendous relevance. The data used in this dissertation was already explained as a substantially complete population of organizations and jobs from the government service sector – a sector that represents large percentage of women employed in “good paying jobs”. It therefore has a high level of generalizability regarding the nature gender-pay inequalities because of this sector’s representation of women in the workforce. The many jobs included in this data are also representative in a sense that they encompass a broad spectrum of human-capital demands found across many industries. Also, it might have been extremely difficult to research the questions asked in this dissertation with data from the private sector, which has increasingly migrated away from formal and comprehensive job-evaluation systems.

Lastly, this research studied culture through a top-down approach to studying culture. In this approach, culture is conceptualized as a higher-level force influencing individuals’ behaviours at a lower level. In reality, organizational culture’s relationship to behaviour and structure are not so unidirectional. However, the impact of context on organizational behaviour is generally conceptualized in seven interrelated ways (for an excellent review see Johns 2006), one of which is to treat context as a cross-level effect. In this approach, variables at one level of analysis (culture) affect variables at another (job-evaluation outcomes). My adoption of this approach was dictated primarily by the nature of the data, which provided few alternatives for analyzing context in any other way.
Future Research

Two areas of future inquiry are especially germane in light of recent trends in the literature. The first area involves extending the research on organizational culture and pay inequalities to private-sector organizations in a way that is not limited by their declining use of methodical job-evaluation techniques. The second area involves the opportunity to study the relationship between organizational culture and gender-pay inequalities under the increasing adoption of performance-based pay systems.

As mentioned in previous chapters, nonunionized and private sector organizations have shifted increasingly away from using methodical job-evaluation techniques. Such workplaces have not become apathetic towards the gender-equitable allocation of work rewards; however, in management parlance, the concept of an equitable reward is typically a euphemism for pay based on market pricing and/or an individual’s productivity. In contemporary organizations, it is not uncommon to forgo the complexities of evaluating the job altogether, and determine its pay from information in compensation surveys collected by external consultants. The job data in such surveys, which may be procured on the basis of job type, industry, etc., typically contains the job’s title, a job description, and its corresponding pay range. After deciding which jobs best apply to the organization’s own jobs under review, the manager in the organization then adjusts the pay of the organizations’ jobs accordingly. In the contemporary era, this approach to linking pay and work is often seen by management as more economical, flexible, and less time consuming than methodically assessing jobs.

The growing popularity of market pricing techniques would have complicated the study of organizational culture and the valuation of jobs as it was explored in this dissertation. But it becomes a valid topic of study in other ways. For example, how is organizational culture correlated with managers’ judgements to revise the pay of some jobs with this expeditious technique while ignoring other jobs, and why? How does organizational culture relate to managers’ selection, processing, omission, and prioritizing of the job information used to compare against the organization’s jobs?

The second area of inquiry takes its cue from the proliferation of performance-based pay systems in nonunionized and private sector organizations. Rubery et al. (1997) note that the individualized nature of performance-based pay makes it a potentially serious source of gender-
pay inequality in the modern workplace. This is a fascinating form of pay inequality to connect to organizational culture for two reasons. Performance-based pay systems ultimately pay out to an individual employee, but for equity purposes the structure of such systems would usually be shared among certain sets of jobs. Therefore, gender inequalities arising from the unequal payout of performance-based pay will partly reflect differences in the structure of the pay system if males and females in the organization are concentrated in different types of jobs. Further, to the extent the design of such systems and the allocation of the sexes into different jobs were based on gender-driven assumptions about the work, organizational culture clearly becomes relevant for understanding why inequalities related to the structure of performance-based pay systems is not entirely a gender-neutral issue.

Performance-based pay may be tied to a more results-oriented measure (e.g., revenue, sales, units produced), or a relatively subjective measure (e.g., a manager’s ratings on a Likert-type scale). To the extent more results-oriented measures are used, the masculinity of an organizational culture may help explain if and how female incumbents experience differential access to the resources they need to meet their performance threshold, and differential treatment in setting their performance targets. The most immediate way this could be explored is through a theory of pay inequality based on social closure perspectives (see Tomaskovic-Devey and Skaggs 2002).

On the other hand, subjective performance measures are more directly relevant for inequalities in performance-based pay. For example, past research has shown that subjective performance-evaluation systems are typically rife with bias, and have difficulty differentiating employees (Rynes, Gerhart, and Parks 2005). Further, recent longitudinal research by Castilla (2012) links gender and racial differences in performance-based pay at least partly to the score given at the performance evaluation stage. Lastly, researchers are only just beginning to understand the links between the culture encouraged in an organization, and how such culture will be mediated in managers’ evaluations of male and female employees for performance pay purposes (Castilla and Benard 2010). Therefore the current research on gender inequality in performance-based pay is a relevant next step for future research on how interorganizational variations in culture connect to, or exacerbate gender-pay inequalities in organizations.

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2 E.g., the maximum payout of the plan or the combination of performance components being measured.
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Appendices

Appendix A: Job Evaluation - An Overview

Most developed countries have some type of legislation in place requiring pay and work to be linked through some type of methodical process that first ascertains the relative value of the work to the organization. The reason this process is legislatively mandated, is to prevent organizations from undervaluing types of work that are associated with historically marginalized groups in society (e.g., females). This process is most commonly carried out within workplaces, and at the job level. After the organization assesses the characteristics of its jobs based on the list of legislatively mandated criteria, the jobs are ranked for their relative value to the organization. The organization then assigns each job to a corresponding pay level or pay range based on its rank.

Accomplishing this requires organizations to collect information about each job—its tasks, required behaviours, knowledge skills and abilities, as well as its working conditions. The information may be obtained through interviews with incumbents and managers, as well as through a job analysis. The information is then compiled into a job description. Based on information in the job description, jobs are then assessed against a predefined set of criteria for their relative contribution to the organization. These criteria, commonly referred to as compensable factors, encompass four main areas: a job’s required skills, its effort, responsibilities, and its working conditions. A job’s content, as informed by the job description, is then rated against each of these four factors using a numeric scale. The ratings on each factor are then summed to provide a total point score for the job. In theory, the higher the total score, the greater the job’s overall contribution to the organization.

Through one of two approaches, a cash value is then attached to each job based on its total score. In one approach, pay may be set relative to the external market. Here, a subset of evaluated jobs, known as benchmark jobs, is chosen and then matched to the pay of comparable jobs in the external labour market. A linear regression is then run, using the assigned points of the benchmark jobs as the independent variable, and the market pay of the comparable jobs as the dependent variable. In theory, the resulting regression estimates give the market cash value of the attributes comprising the organization’s benchmark jobs. These estimates are then used to approximate the market value of the organization’s nonbenchmark jobs based on their assigned points. Each job is then slotted into a hierarchy of administratively predetermined salary grades.

In the second approach, the organization is primarily concerned that the cash value of its jobs is internally consistent, so there is no need for pay information from the external market. Instead, regression estimates are produced using the organization’s existing pay for the chosen benchmark jobs. The resulting estimates are then used to set the pay of the organization’s nonbenchmark jobs.

Of course, this procedure is still susceptible to having its results distorted by racial or gender biases, and this problem is discussed in depth in Chapters 4 and 5.
Appendix B: Compensable Factors Comprising the Universal Job-Evaluation System

<table>
<thead>
<tr>
<th>Original Item List</th>
<th>Scale</th>
<th>Condensed Item List</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RESPONSIBILITY</strong></td>
<td></td>
<td><strong>RESPONSIBILITY</strong></td>
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</tr>
<tr>
<td>Well-being of individuals</td>
<td>1-5</td>
<td>Well-being of individuals</td>
<td>1-5</td>
</tr>
<tr>
<td>Physical assets and products: Impact</td>
<td>1-3</td>
<td>Physical assets: Impact and purpose</td>
<td>2-9</td>
</tr>
<tr>
<td>Physical assets and products: Purpose</td>
<td>1-6</td>
<td>Ensuring compliance</td>
<td>1-5</td>
</tr>
<tr>
<td>Ensuring compliance</td>
<td>1-5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information for use of others: Impact</td>
<td>1-4</td>
<td>Information for use of others: Impact</td>
<td></td>
</tr>
<tr>
<td>Information for use of others: Responsibility</td>
<td>1-5</td>
<td>Information for use of others: Responsibility</td>
<td></td>
</tr>
<tr>
<td>Leadership of human resources</td>
<td>1-7</td>
<td>Leadership of human resources</td>
<td></td>
</tr>
<tr>
<td>Money: Planning and control</td>
<td>1-5</td>
<td>Money: Planning and control</td>
<td></td>
</tr>
<tr>
<td>Money: Acquiring funds</td>
<td>1-5</td>
<td>Money: Acquiring funds</td>
<td></td>
</tr>
<tr>
<td>Money: Spending funds</td>
<td>1-4</td>
<td>Money: Spending Funds</td>
<td></td>
</tr>
<tr>
<td><strong>SKILL</strong></td>
<td></td>
<td><strong>SKILL</strong></td>
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</tr>
<tr>
<td>Job content: Prime knowledge</td>
<td>2-8</td>
<td>Job content: Prime knowledge</td>
<td></td>
</tr>
<tr>
<td>Job content: 2nd knowledge</td>
<td>1-8</td>
<td>Job content: 2nd knowledge</td>
<td></td>
</tr>
<tr>
<td>Job content: 3rd knowledge</td>
<td>1-7</td>
<td>Job content: 3rd knowledge</td>
<td></td>
</tr>
<tr>
<td>Job content: 4th knowledge</td>
<td>1-6</td>
<td>Job content: 4th Knowledge</td>
<td>19-97</td>
</tr>
<tr>
<td>Contextual knowledge: Work unit</td>
<td>1-5</td>
<td>Contextual knowledge: Work unit</td>
<td></td>
</tr>
<tr>
<td>Contextual knowledge: Own dept.</td>
<td>1-5</td>
<td>Contextual knowledge: Own dept.</td>
<td></td>
</tr>
<tr>
<td>Contextual knowledge: Other dept.</td>
<td>1-5</td>
<td>Contextual knowledge: Other dept.</td>
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</tr>
<tr>
<td>Contextual knowledge: Private sector</td>
<td>1-5</td>
<td>Contextual knowledge: Private sector</td>
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<td>Contextual knowledge: Legislation</td>
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<td>Contextual knowledge: International</td>
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<td>Communication skills: In</td>
<td>1-4</td>
<td>Communication skills: In</td>
<td></td>
</tr>
<tr>
<td>Communication Skills: Out</td>
<td>1-4</td>
<td>Communication skills: Out</td>
<td></td>
</tr>
<tr>
<td>Motor and sensory skills</td>
<td>1-5</td>
<td>Motor and sensory skills</td>
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<tr>
<td><strong>EFFORT</strong></td>
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<td><strong>EFFORT</strong></td>
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<tr>
<td>Intellectual effort: Constraints</td>
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<td></td>
<td></td>
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<tr>
<td>Intellectual effort: Difficulty</td>
<td>1-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustained attention: Difficulty</td>
<td>1-5</td>
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<td></td>
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<tr>
<td>Sustained attention: Distraction</td>
<td>1-2</td>
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<tr>
<td>Psychological effort: Intensity</td>
<td>1-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological effort: Control</td>
<td>1-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical effort: Intensity</td>
<td>1-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical effort: Time</td>
<td>1-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>WORKING CONDITIONS</strong></td>
<td></td>
<td><strong>WORKING CONDITIONS</strong></td>
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<tr>
<td>Impact: Psychological</td>
<td>1-5</td>
<td>Working conditions</td>
<td>3-14</td>
</tr>
<tr>
<td>Impact: Physical</td>
<td>1-5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk to Health</td>
<td>1-4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix C: Analyses Supporting Chapter 2

Partial Correlations between a Job’s Skill Demands, and Maximum Annual Salary (N=50229)

<table>
<thead>
<tr>
<th>Skill Demands</th>
<th>Maximum Annual Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive skills (SK1)¹</td>
<td>.770***</td>
</tr>
<tr>
<td>Motor and sensory skills (SK2)²</td>
<td>.108***</td>
</tr>
</tbody>
</table>

¹ Controlling for the pay-determining effects of Motor and sensory skills; Responsibility for well-being, physical assets, and ensuring compliance; Effort; and Working conditions

² Controlling for the pay-determining effects of Cognitive skills; Responsibility for well-being, physical assets, and ensuring compliance; Effort; and Working conditions

The coefficient of variation (CV) is a normalized measure of dispersion that is calculated by dividing the standard deviation by the average. The CV was calculated based on the average and standard deviation in each percentile.

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![Graph of Pay Dispersion of Jobs by Salary](image1)

![Graph of Pay Dispersion by a Job's Male Composition](image2)
Partial Correlations between a Job’s Male Composition, and Skill Demands (N=50229)

<table>
<thead>
<tr>
<th>Skill Demands</th>
<th>Percentage of Males in Job</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive skills (SK1)¹</td>
<td>.323***</td>
</tr>
<tr>
<td>Motor and sensory skills (SK2)²</td>
<td>.256***</td>
</tr>
</tbody>
</table>

¹ Controlling for the pay-determining effects of Motor and sensory skills; Responsibility for well-being, physical assets, and ensuring compliance; Effort; and Working conditions

² Controlling for the pay-determining effects of Cognitive skills; Responsibility for well-being, physical assets, and ensuring compliance; Effort; and Working conditions

![Graph showing pay dispersion by a job's skill demands (N = 50229)](image)