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Donald Tomaskovic-Devey

Dustin Avent-Holt, *Georgia Regents University*

Martin Hällsten, *Stockholm University*



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Where Do Immigrants Fare Worse? Modeling Workplace Wage Gap Variation with Longitudinal Employer-Employee Data¹

Donald Tomaskovic-Devey
University of Massachusetts, Amherst

Martin Hällsten
Stockholm University

Dustin Avent-Holt
Georgia Regents University

The authors propose a strategy for observing and explaining workplace variance in categorically linked inequalities. Using Swedish economy-wide linked employer-employee panel data, the authors examine variation in workplace wage inequalities between native Swedes and non-Western immigrants. Consistent with relational inequality theory, the authors' findings are that immigrant-native wage gaps vary dramatically across workplaces, even net of strong human capital controls. The authors also find that, net of observed and fixed-effect controls for individual traits, workplace immigrant-native wage gaps decline with increased workplace immigrant employment and managerial representation and increase when job segregation rises. These results are stronger in high-inequality workplaces and for white-collar employees: contexts in which one expects status-based claims on organizational resources, the central causal mechanism identified by relational inequality theory, to be stronger. The authors conclude that workplace variation in the non-Western immigrant-native wage gaps is contingent on organizational variation in the relative power of groups and the institutional context in which that power is exercised.

Sociologists have long recognized that workplaces are the primary site for the generation and distribution of earnings inequalities (Baron and Bielby

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1980). Most prior research on earnings distributions, however, has been limited to survey-based observations of individuals abstracted from workplaces and as a result has continued to use human capital theory from labor economics or status attainment sociology as a baseline model of the underlying processes (Tomaskovic-Devey, Thomas, and Johnson 2005). Recently, as longitudinal employer-employee data and other organizational data sources have become more widely available, observing and explaining workplace variation in inequality outcomes has become more empirically tractable (e.g., Cohen and Huffman 2003; Lazear and Shaw 2009; Avent-Holt and Tomaskovic-Devey 2012; Petersen, Penner, and Høgsnes 2014). In this article we make use of Swedish panel data matching workers to their workplaces, allowing us to develop dynamic models of the processes that generate workplace variation in categorical inequality.

While we increasingly can observe variation in wage inequality between and within workplaces, we are only now developing coherent explanatory models and empirical strategies. Research in the new structuralist tradition identified a variety of mechanisms that might generate workplace inequality, including worker power over the distribution of resources (Kalleberg, Wallace, and Althausen 1981), organizational division of labor (Fernandez 2001), managerial leadership (Baron 1991), and status-based segregation (Bielby and Baron 1986). Concurrently, the labor process literature, although not focused on earnings processes, made clear that organizational practices are typically the product of social negotiations and power struggles between actors over the division of labor, relative autonomy, and both material and status rewards (Hodson 2001; Vallas 2006). The new structuralist and labor process literatures are now combining into a more general relational model of inequality that places primacy on social relations within contextually embedded workplaces. Relational inequality theory (RIT) adopts the focus on division of labor, status segregation, and relative power among actors from new structuralism but, like the labor process literatures, locates the proximate inequality-generating dynamics inside workplaces themselves, rather than in occupational structures or external labor markets (Avent-Holt and Tomaskovic-Devey 2014). RIT has recently been linked explicitly to Status Characteristics Theory and dramaturgical so-

Social Research (SOFI), at Stockholm University, and Statistics Sweden. We acknowledge the comments of seminar participants at SOFI (both economics and sociology), the Sociology Department at Sciences Po, the Quantitative Sociology Laboratory at INSEAD-Crest, the industrial relations seminar at the Massachusetts Institute of Technology, the 2011 RC28 meeting in Essex, and the 2011 American Sociological Association meeting in Las Vegas. We thank the *AJS* reviewers as well as David Cort, Peter Jocabebbinghaus, Jennifer Glass, Lena Hensvik, and Ken-Hou Lin for their help. Direct correspondence to Donald Tomaskovic-Devey, W31 Machmer Hall, University of Massachusetts, Amherst, Massachusetts 01003. E-mail: tomaskovic-devey@soc.umass.edu

cial psychological theories as well (Campos-Castillo and Ewoodzie 2014; Tomaskovic-Devey 2014), further strengthening its model of individual action.

We make three primary contributions in this article. First, we use RIT to develop expectations about variance in workplace inequality and to make strong predictions as to the variability of inequality-generating categorical distinctions across institutional contexts. Second, we apply a dynamic analytic strategy for the exploration of workplace inequality using employer-employee panel data. And finally, we provide insight into immigrant-native wage dynamics across organizational contexts in contemporary Sweden and by extension to similarly situated contexts elsewhere. The case is particularly relevant in this historical moment, when anti-immigrant sentiment is spreading throughout Western Europe but is not yet deeply institutionalized in organizational routines.

In the next section we introduce the relational inequality approach, making a strong distinction between generic mechanisms and the role of institutional context. This is followed by a specific discussion of the nature of immigration to Sweden and the characteristics of the Swedish labor market. This discussion sets the stage for studying hypotheses tied to the specifics of the Swedish context and our observational strategy. We then develop our modeling strategy, present results, and develop conclusions.

RELATIONAL INEQUALITY THEORY

Tilly's *Durable Inequality* (1998) is typically referred to as the modern genesis of RIT, but there is a strong influence in the earlier work of Frank Parkin (1979) on social closure; Arne Kalleberg and colleagues (1981) on worker power; Peter Blau (1977) on consolidated status distinctions; and race/class/gender theorists, such as Patricia Hill Collins (1990) and Evelyn Nakano Glenn (2002), on the historically embedded intersection of status-based inequalities. In RIT inequality generation is described as a process in which actors contend over the distribution of organizational value (Avent-Holt and Tomaskovic-Devey 2014). Tilly (1998) identified two primary inequality-generating mechanisms: exploitation, where actors extract value from the work efforts of others, and opportunity hoarding, where actors monopolize valuable positions for themselves and similar others.² Both exploitation and opportunity hoarding are described as operating through a process of claims making in which categorically distinct actors attempt to secure claims on valuable resources such as respect, starting salary, jobs,

² Opportunity hoarding is also referred to as social closure in much of this literature (e.g., Weber [1921]1968; Parkin 1979; Weeden 2002).

promotions, and pay raises (Avent-Holt and Tomaskovic-Devey 2014). These claims can be explicit, such as a job application or request for a raise or promotion, or implicit, such as the taken-for-granted wage differences attached to job titles and the subtle status hierarchies that develop in interaction. Claims that are ratified by other, particularly powerful, actors direct the flow of resources and thus generate inequality. Status distinctions organized around categorical traits influence the persuasiveness of claims. Once ratified, claims tend to become more or less permanently associated with individuals or positions.

Actors can be either individuals or social groups. As individuals, actors can negotiate directly with supervisors over their pay or social recognition, making claims through individual interaction. At the individual level, status hierarchies, productivity, personal relationships with supervisors, human and social capital, and personality traits may enable successful claims. As well, social groups, such as unions, professional associations, departments, and spontaneously organized networks of employees, collectively approach employers to negotiate and make wage claims. Solidarity in intragroup networks, relative power over resources, capital ownership and control, and status hierarchies are likely to influence the persuasiveness of group-level claims making.

Socially salient categorical distinctions are expected to be influential in determining the frequency of explicit and implicit claims as well as their legitimacy through mechanisms such as workplace specific symbolic capital (Tatli and Özbilgin 2011), othering (Schwalbe et al. 2000), status expectations (Ridgeway 1997), stereotyping (Gorman 2005), and cognitive biases in information processing (Nosek et al. 2007). Low-status individuals and groups will make fewer claims on resources, and their claims are less likely to be ratified by powerful actors. This notion that actors create and use categorical distinctions to pursue individual and collective social closure and (re)produce inequality is widespread in social theory: in addition to Tilly (1998) on categorical inequality, see Bourdieu (Bourdieu and Wacquant 1992) on classification struggles, Abbott (2005) on jurisdictional claims, and Lamont and Fournier (1992) on cultural boundary work, but this list is far from exhaustive.

The relational power of actors has typically been observed in RIT research as the relative standing of distinct status groups within workplaces. The status composition of work groups helps explain organizational variation in class-linked wage gaps (Tomaskovic-Devey et al. 2009), bullying and sexual harassment among workers (Hodson, Roscigno, and Lopez 2006; Chamberlain et al. 2008), merit evaluation processes (DiTomaso et al. 2007; Castilla 2008), the relative autonomy of workers in the labor process (Choi, Leiter, and Tomaskovic-Devey 2008), and sex and race discrimination (Roscigno, Garcia, and Bobbitt-Zeher 2007; Kalev 2009).

Where Do Immigrants Fare Worse?

When cultural categorical distinctions overlap with internal division of labor, this magnifies the inequality that either alone would produce (Blau 1977; Tilly 1998). While inequalities are installed categorically, real actors/jobs stand in relation to other actors/jobs in the organization and will inhabit multiple categorical distinctions simultaneously and in historically specific interactional contexts (Collins 1990; Glenn 2002). Past research has shown that when status distinctions such as authority and race (or gender, language group, education, job skill level, temporary employment status) overlap, they reinforce each other, increasing inequality between positions (Hultin and Szulkin 1999, 2003; Avent-Holt and Tomaskovic-Devey 2010, 2012).

Thus, a key theoretical expectation of RIT is that when multiple salient categorical distinctions reinforce each other (e.g., immigrant worker facing native Swedish manager), inequalities will be exaggerated. More important, because each workplace has a more or less unique intersection of categorical distinctions, inequality regimes are largely produced locally (Acker 2006). The intersection of immigrant and native status with other salient categorical distinctions such as education, job, and authority will produce local status hierarchies and variation across workplaces in inequality regimes. Over time, categorical distinctions and their attached wage claims become institutionalized within organizations. Pay rates generated from past rounds of active claims making become institutionalized in positions, which then become the basis for opportunity hoarding.³

Relational approaches to inequality have stressed the importance of historical and institutional context for ratifying, exaggerating, or muting status-based claims on organizational resources (Kalev 2009; Avent-Holt and Tomaskovic-Devey 2012). Actors' claims are successful to the extent that others in the organization accept them as a legitimate. Legitimacy is an attribute of the organizational field and can be expected to vary from workplace to workplace as well as across industries, space, and time (Emirbayer and Johnson 2008; Tatli and Özbilgin 2011).

Thus, categorical distinctions should not be expected to uniformly generate legitimate claims. The opportunity-hoarding and exploitation mechanisms are about the allocation and generation of inequality but not the salience of any particular categorical distinction. Some distinctions, such as those associated with human capital differences among workers, are probably fairly salient across all or most contemporary workplaces; others, like Swedish immigrant-native distinction, may be less uniformly institutionalized and so can be expected to vary in intensity depending on con-

³ Opportunity hoarding at the state or national level in terms of control over certification and licensure is an additional, extraworkplace source of opportunity hoarding associated with some occupations (Weeden 2002).

text. Specific organizational practices may mute or exaggerate the cultural meanings associated with any categorical distinction.

The salience of particular categorical distinctions for employment inequalities has been shown to vary as a function of national labor market institutions (Avent-Holt and Tomaskovic-Devey 2012), the formalization of personnel policy (Tomaskovic-Devey et al. 2009), managerial equal opportunity accountability (Kalev, Dobbin, and Kelly 2006), local versus centralized wage setting (Hultin and Szulkin 1999, 2003; Castilla 2008; Avent-Holt and Tomaskovic-Devey 2010), product market competition (Avent-Holt and Tomaskovic-Devey 2010), team versus hierarchical labor process organization (Kalev 2009), and organizational orientation toward merit-based compensation (Castilla and Benard 2010). The general result in this research is that non-productivity-related status distinctions operate more powerfully when wage setting is more strongly influenced by local interactions and that productivity-linked attributes are more influential when firms face market competition pressures or use bureaucratic wage-setting practices.

NON-WESTERN IMMIGRATION TO SWEDEN

The focus of our empirical investigation is variation in immigrant-native wage inequality across Swedish workplaces. The foreign born now make up 12% of the Swedish labor market, and both workplace and job segregation between non-Western immigrants and native Swedes is high (Åslund and Skans 2010). As a case for examining the value added by a relational approach to workplace inequality, Swedish native–non-Western immigrant earnings inequalities provide a fairly restrictive test. Swedish earnings inequalities are low, and union-coordinated wage bargaining is common.⁴ Hence, we expect workplace wage bargaining to be at best low to moderate, at least compared to many other countries. Previous research using RIT (reviewed above) primarily focused on countries with high inequality, more decentralized wage-setting institutions, and status attributes like class, education, and gender that are probably more universally salient.

Nevertheless there is good reason to expect that non-Western immigrants are treated as categorically subordinate to native Swedes in the Swedish labor market (le Grand and Szulkin 2002).⁵ Even seven years after immigration, non-Western immigrant's levels of employment are well below that

⁴In 2008, 71% of employees in Sweden belonged to labor unions, and in 2007, 91% were covered by collective bargaining (Kjellberg 2009).

⁵Admittedly, our contrast between all non-Western immigrants and native Swedes obscures ethnic variation among non-Western immigrants. The prior literature suggests, however, that it is non-Western immigrant status that is fundamental. Importantly,

Where Do Immigrants Fare Worse?

of native Swedes or Western immigrants (Nekby 2002). Compared to other European Union countries, employment rates are very low among recently arrived non-Western immigrants to Sweden (le Grand et al. 2012). There is also evidence of direct discrimination in the job-hiring process against non-Western immigrants (Carlsson and Rooth 2007; Bursell 2012). Non-Western immigrants face substantially higher unemployment risks (Arai and Vilhelmsson 2004), earn lower wages (le Grand and Szulkin 2002), and tend to be segregated into lower ranked jobs (Åslund and Skans 2010) than natives.

But, the gaps in employment between childhood immigrants with Swedish schooling and natives are generally small and converge over the career (Böhlmark 2009). Once workers are stably employed, earnings differences between native Swedes and childhood immigrants are relatively small as well (Hällsten and Szulkin 2009). Thus, while non-Western immigrants are categorically distinct from native Swedes, there is also evidence that this status distinction is not strongly institutionalized. In general, in the second generation Sweden displays a pattern of ethnic assimilation, rather than segmented assimilation (Alba and Nee 2005).

THE SWEDISH LABOR MARKET CONTEXT

There are two dimensions of the Swedish labor market that may influence the incidence of organizational wage bargaining and so the applicability of RIT. First is the distinction between white-collar and blue-collar work and its relationship to the historically important Swedish solidaristic wage-bargaining model. The second is the growing decentralization of wage bargains in contemporary Sweden.

The Swedish labor market has historically been strongly influenced by collective bargaining. The pre-1983 Swedish (“Rehn-Meidner”) wage model emphasized solidaristic wage bargaining, where all wages were centrally negotiated with reference to occupational skill level, not individual or workplace productivity or bargaining power. Wage negotiations tended to favor the lowest paid, and wage distributions were as a consequence compressed (Alexopoulos and Cohen 2003). The abandonment of central wage bargaining in 1983 has meant that collective bargaining has increasingly been brought back into the workplace. The key exception is that minimum

Åslund and Skans (2010) find that half of immigrant segregation is with other immigrants and that the wage effects of own-group and other-group immigrant segregation are equivalent across groups. Net of differences in individual traits such as human capital and family status, there is little difference between native Swedes and Western immigrants in terms of labor market integration and earnings (le Grand and Szulkin 2002). Thus, it makes little sense to think of Western immigrant/native Swede as a potential inequality-generating categorical distinction.

wage bargaining for blue-collar jobs is still to a large extent done on the industry level (Korpi and Tählin 2011). For white-collar workers, individual workplace-level wage bargaining is now widespread in both the public and private sectors. As a result, since 1983 workplace wage inequality has risen dramatically for white-collar workers, but the wage distribution among blue-collar workers remains compressed (Lundborg 2007). Thus, we expect that the within-workplace wage-bargaining mechanisms identified by RIT should be stronger for white-collar workers.

The second important element of the Swedish labor market is its comparatively low level of inequality. Certainly compared to the United States, but also compared to other industrialized capitalist democracies in the West, Sweden has among the lowest levels of measured income inequality. This overall low level of inequality has the effect of reducing wage inequality associated with categorical distinctions at the national level (Blau and Kahn 1992). In low-inequality contexts higher status groups have less social space to hoard or appropriate from lower status groups (Mayhew and Schollaert 1980). We apply this national level reasoning to the workplace level, predicting that higher levels of overall workplace inequality increase the influence of local wage-bargaining mechanisms and thus the influence of status group's relational power on wage inequality.

SAMPLE, MEASURES, AND HYPOTHESES

We use Swedish registry tax data combined with workplace registers of all permanent resident employed individuals in the Swedish economy for the years 1990–2007. Sample sizes as a result are very large. In order to manage the computational burden of estimations across the entire Swedish economy, our core models are restricted to observations in 2001, 2004, and 2007. Sampling years effectively controls sample size and so makes computations practical, produces increased variation in workplace composition, and allows us to match nearly all workers to all workplaces with 20 or more employees in each observation year. We use fewer years but a longer time span in order to maximize the proportion of cases that switch employers (which is needed to identify the workplace fixed effects models we employ) and to provide sufficient time for workplace wage inequalities to shift. Individuals are matched to the workplace in which they derived the largest proportion of their income in the observation year. To calculate attributes of workplaces, we use data on all employees in a workplace in a given year.⁶

⁶Our strategy misses the small, largely non-Western, undocumented population in Sweden. This is at most 35,000 individuals and 2% of all immigrants (Ministry of Health 2011, p. 88). They are likely either not employed or employed in the informal economy.

Where Do Immigrants Fare Worse?

Workplaces are defined as distinct establishments with distinct locations defined by the postal address of the workplace. Workplaces are where people work. They are not the same as the employing firm, except in the case of single establishment firms. We use the terms “workplace” and “establishment” interchangeably (the same unit is sometimes referred to as a plant; Lazear and Shaw 2009). In order to observe earnings variance within workplaces and to produce stable measures of establishment characteristics, we limit our sample to workplaces with 20 or more employees.

Workplace Variation in Immigrants’ Relative Earnings

We measure earnings as yearly earnings from the workplace, including work-related social transfers (sick leave, parental leave) but excluding other transfers (e.g., unemployment benefits, social assistance). We restrict our analyses to individuals who earn at least 120,000 SEK per year, pretax. This is 10,000 SEK per month, about half of the median wage in 2003. There is no information on hours of work, so we use this wage cutoff as a proxy for full-time work because it produces a wage distribution which approximates that of the population of full-time workers in Sweden. Our wage proxy correlates $>.85$ with time-adjusted monthly wages from a truncated sample of 2.2 million annual wage records from Statistics Sweden’s earnings structure database, and estimates of the return on education from the two data sources are very similar (Antelius and Björklund 2000). While we have access to those wage data, we do not use them because they include independent annual samples of smaller private firms that make the implementation of panel data methods impractical.

We focus on explaining the variance across workplaces in the wage gap associated with being a first-generation non-Western immigrant rather than a native Swede. We divided the immigrant population into a Western (Europe, United States, Australia, and New Zealand) and a non-Western group, each represented by its own dummy variable. First-generation non-Western immigrants include all permanent residents of Sweden who were born outside of Sweden in non-Western countries.

One of the key insights of RIT is that because workplaces develop unique intersections of categorical distinctions there should be substantial variation across workplaces in the inequalities associated with any particular categorical distinction. Figure 1 shows that, net of human capital and family status, the immigrant-native wage gap varies considerably across workplaces.⁷ Net of human capital controls, the average native workplace wage

⁷This figure is based on a random coefficient model estimated only to visualize heterogeneity in the non-Western effect. The normal curve is assumed. For our own research question, we use a fixed effects model that employs fewer assumptions and has better control for unobserved heterogeneity.

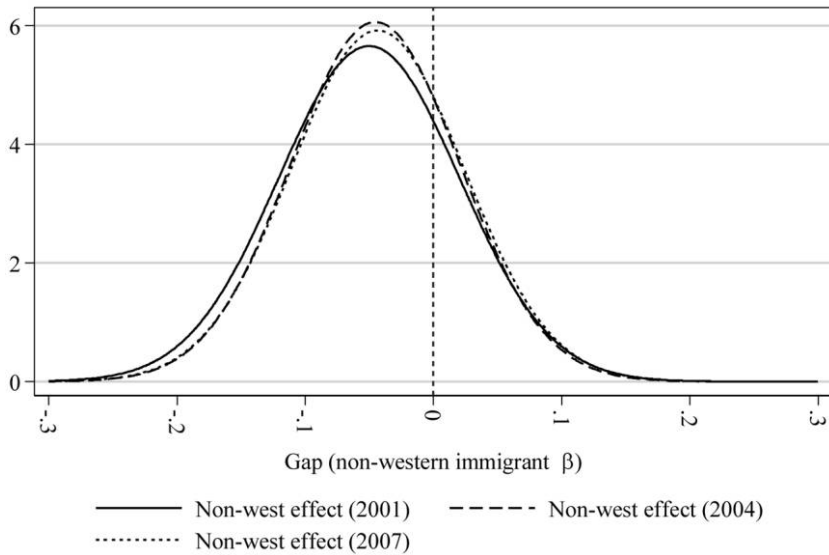


FIG. 1.—Distribution of non-Western immigrant earnings coefficients across Swedish workplaces for 2001, 2004, and 2007. Predicted random coefficients for a mixed model of \ln earnings on individual controls (see table 1 for an overview). Model is specified as $\ln Y = a + \mathbf{X}\mathbf{B} + \text{non-Western immigrant} \times (B + u_1) + u_0 + e$, where u_0 and $u_1 \sim N(0, \sigma)$, $\text{Cov}(u_0, u_1) = \rho$, and $\text{Cov}(\mathbf{u}, \mathbf{X}) = 0$, $\text{Cov}(\mathbf{u}, e) = 0$.

advantage is around 6%, but there are many organizations with much more and much less inequality. In many workplaces, even net of observed human capital, non-Western immigrants are actually paid more than native Swedes. One must remember that our research design is aimed at workplaces and the stably employed, excluding immigrants at the margins of the labor market, where discrimination in Sweden is most likely (Åslund and Skans 2010; Bursell 2012). Hence, what we observe is differences in wage outcomes given that an individual already has secured a foothold in the labor market.

Workplace Measures of Categorical Salience

Under RIT, the variance in workplace wage gaps displayed in figure 1 should reflect in part the bargaining position of immigrants relative to native Swedes in particular workplaces. The theory focuses on relative power as central to successful claims making over wages. The notion that bargaining power associated with status characteristics varies across workplaces leads us to ask, how might variation in bargaining power be observed? We see the literature as providing four places to look for empirical

Where Do Immigrants Fare Worse?

direction in the data at hand: immigrant composition in the workplace, immigrant composition in management, occupational rank segregation in the workplace, and workplace immigrant-native differences in human capital. Table 1 provides descriptive statistics that are computed uniquely for each workplace-year observation.⁸

We hypothesize that as the percentage of immigrants in a workplace increases, the wage gap between immigrant and native workers will decline. We reason that in Sweden more immigrants in a workplace reflects lower salience of non-Western immigrant as a subordinate status trait. As the negative salience of immigrant status declines, the power of native workers to claim higher wages or better jobs relative to immigrant workers will also diminish. As well, the power of immigrant workers to effectively counter native claims against them should increase as their collective voice is enhanced and their status penalty reduced. This hypothesis is consistent with the Becker model that employment exclusion is produced by differences in employer and coworker taste (Becker 1971), sociological models of stereotyping and token-based bias (Kanter 1977), and psychological predictions that increased equal status cross-group contact reduces prejudice (Pettigrew and Tropp 2006).⁹

HYPOTHESIS 1.—Net of individual traits, as the percentage of non-Western immigrants in a workplace increases, the wage gap will decline.

We also hypothesize that as the percentage of managers that are immigrants grows, the wage gap between immigrants and natives will decline. We again reason that when immigrant managerial representation increases, the salience of immigrants as a subordinate status group declines. In addition, the matching of immigrants to high-authority positions produces an intersectional contradiction that should reduce the negative salience of immigrant status. There is substantial empirical support for the proposition that as the proportion of female managers increases, the hiring of women into managerial and nonmanagerial jobs increases and gender wage gaps and gender segregation decline (see, e.g., Huffman, Cohen, and Pearlman [2010] and the summary of research in Stainback, Tomaskovic-Devey, and Skaggs [2010]; for evidence in Sweden, see Hultin and Szulkin

⁸Since we make a strong institutional distinction between white- and blue-collar work, we also experimented with computing workplace characteristics within the blue- and white-collar labor forces when workplaces had 20 or more employees in each class. All models reported in tables 3–6 were also estimated with these class specific workplace measures, and results were largely equivalent to those reported below (available on request).

⁹We see this proposition as limited to social contexts where a categorical distinction is not strongly institutionalized. The opposite prediction has been made for race (Blalock 1967) and gender (Avent-Holt and Tomaskovic-Devey 2012) when and where those categorical distinctions were strongly institutionalized and so inclusion in a workplace is consistent with increased discrimination and legitimated exploitation.

TABLE 1
DESCRIPTION OF WORKPLACE-LEVEL VARIABLE MEANS (SD): ALL WORKPLACE
VARIABLES COMPUTED ON ALL EMPLOYEES, 2001, 2004, AND 2007

	EFFECTIVE SAMPLE		ALL EMPLOYEES	
	All	At Least One Non-Western Immigrant	All	At Least One Non-Western Immigrant
% female . . . . .	.487 (.313)	.540 (.297)	.484 (.311)	.538 (.296)
% white-collar . . . . .	.522 (.362)	.529 (.360)	.503 (.361)	.505 (.359)
Average education years	11.979 (1.484)	12.203 (1.498)	11.964 (1.449)	12.157 (1.464)
Average occupation rank . . . . .	.498 (.263)	.495 (.267)	.479 (.266)	.470 (.271)
Average seniority	6.226 (3.063)	6.033 (2.865)	5.957 (3.047)	5.761 (2.846)
% non-Western immigrants = 0 . . . . .	.548 (.498)	.002 (.049)	.531 (.499)	.003 (.056)
% non-Western immigrants . . . . .	.030 (.064)	.067 (.083)	.035 (.075)	.077 (.099)
% non-Western in management . . . . .	.005 (.050)	.011 (.076)	.007 (.064)	.014 (.094)
Non-Western immigrant– native mean occupational rank	–.025 (.109)	–.062 (.165)	–.025 (.107)	–.061 (.162)
Non-Western immigrant– native mean education . . . . .	.054 (1.273)	.104 (1.882)	.039 (1.280)	.069 (1.856)
ln firm size	5.976 (2.324)	6.525 (2.301)	5.856 (2.324)	6.408 (2.319)
Entrepreneurial firm . . . . .	.113 (.317)	.082 (.275)	.134 (.341)	.101 (.301)
N	100,856	40,876	135,341	54,666

NOTE.—Effective sample refers to sample with predicted individual earnings in 1990–2000.

[1999, 2003]]. Consistently, Åslund and Skans (2010) find that in Sweden an increase in immigrants in managerial positions leads to increased immigrant hiring. We also suspect that this will legitimate immigrant wage claims by giving them allies in managerial positions and will reduce the negative status associated with being a non-Western immigrant.

HYPOTHESIS 2.—*Net of individual traits, as the percentage of non-Western immigrant managers in a workplace increases, the wage gap will decline.*

Where Do Immigrants Fare Worse?

The most basic prediction of RIT is that the matching of external status characteristics to jobs influences the relative power of both jobs and people (Tilly 1998). We expect that segregation of immigrants into less desirable jobs will reduce the bargaining power of all immigrants in those workplaces. Our measure of workplace job segregation is the within-workplace average difference between non-Western immigrants and natives on the rank of their respective occupations. We have information on the three-digit ISCO-88 (COM)—the European Union variant of the International Standard Classification of Occupations—occupation for each person-job match from 2001 onward (and this defines the beginning of our workplace panel). We treat occupation as a proxy for the internal job structure of workplaces.¹⁰

In order to convert what is essentially a set of nominal distinctions (occupation codes) into a measure of job quality consistent with status-based sorting, we created a measure of occupational rank. This required arraying occupations on a continuous dimension, independent of any particular workplace. We use information on average national earnings associated with occupations to produce this ranking. We first regress log earnings (above 120,000 SEK) on year, non-Western and Western immigrant background, gender, marriage (including cohabitation), the presence of children in the household, and the interactions between gender and marriage and gender and children. We then aggregate the residuals into three-digit ISCO occupations (113 categories). The average of the residuals produces an occupational rank that is constant across years and not influenced by labor supply or discriminatory wage setting associated with immigrant, gender, or family composition. The ranks are computed as the cumulative distribution function of the occupation average of residuals, and thus for each occupation it is the proportion of occupations ranked below that occupation. This measure correlates .85 with the international socioeconomic index and .87 with Treiman's standard international occupational prestige scale but is superior to both as it is purged of any gender or immigrant-based status devaluation process. Under an opportunity-hoarding mechanism, sorting of individuals into jobs of different ranks is the primary process through which immigrant-native wage gaps are expected to be created.

¹⁰ Because these are employer reports, they are likely to be closer conceptually to job titles than self-reports of occupation in surveys of individuals. Large employers report yearly, and small employers are sampled on a rotational basis. Eighty-two percent of occupation codes are for the observation year, 91% are within one year of the observation, and 97% are within three years. The residual 3% are the last known occupation for recent labor market entrants and for people whose employers did not return the survey.

To capture how job segregation influences the relative status of immigrants, we measure the average immigrant-native (immigrant minus native) distance between occupation ranks for each workplace year.¹¹ Non-Western immigrants tend to be sorted into lower-ranked jobs than native Swedes. As table 3 will reveal, the average occupation rank of non-Western immigrants is well below that of the native population (.39 vs. .54). Following the insight that intersecting status characteristics install larger inequalities, we hypothesize that net of individual-level characteristics, decreases in workplace rank segregation will be associated with declining immigrant-native wage gaps.

HYPOTHESIS 3.—Net of individual traits, as non-Western immigrants' workplace occupational rank relative to natives' increases, the wage gap will decrease.

Educational credentials may be influencing wages beyond their individual productivity and sorting effect by influencing the relative status of groups as well (Blau 1977). To capture this credential-based status influence, we measure the workplace average non-Western immigrants' education minus average native education.¹² Following the insight that intersecting status characteristics install larger inequalities, we hypothesize that increases in immigrants' education relative to natives will reduce wage gaps.

HYPOTHESIS 4.—Net of individual traits, as non-Western immigrants' average education rises relative to natives, immigrants' relative wages will rise.

Importantly, our measures of immigrant potential bargaining power vary tremendously across workplaces. In a large proportion of workplaces non-Western immigrants have on average higher education and higher occupational rank than do native Swedes. There are even some workplaces where non-Western immigrants are a majority of all workers and managers. None of these measures are highly correlated with each other, confirming that immigrant-native status distinctions are not highly institu-

¹¹ We estimated similar models based on the Spearman correlation between occupational rank and non-Western immigrant, and substantive results were uniformly equivalent to the difference measure we employ here. We also experiment with alternative segregation measures including the Index of Dissimilarity (Duncan and Duncan 1955), Charles and Grusky's A (2004), and the square root index (Hutchens 2004). Results tended to be similar, but less stable across model specifications. While these traditional segregation measures are less conceptually appropriate because they ignore rank, they are also less robust measures in the presence of sparse data across people-occupation cells.

¹² We also measured this concept as the Spearman correlation between non-Western status and education; substantive results were in all cases equivalent. We also experimented with an immigrant-native difference human capital scale, but it was heavily loaded on education and produced the same substantive results as below.

tionalized and that they represent distinct attributes of the social relations within workplaces.¹³

Controls for Other Time-Varying Workplace Characteristics

Our analysis strategy is focused on workplace changes in the relative status of immigrant and native workers. Workplaces may change in other ways as well, and so we include a series of controls for skill levels (average education, average tenure, average occupational rank), status characteristics (percentage female, percentage white-collar), and organizational characteristics (size, entrepreneurial firm). We do not comment on these coefficients in the text, but they are available in the appendix tables.

Controls for Individual Skills and Labor Supply

The most plausible alternative to RIT is human capital theory. In human capital theory, wages reflect individual differences in productivity, skill, and training. An analogous explanation for immigrant-native wage gaps is the degree of assimilation into the national social and economic mainstream (Alba and Nee 2005). The conventional human capital objection to workplace bias accounts of wage inequality is that statistical models typically have inadequate controls for individual skills and behaviors that employers can easily observe. We take this objection seriously and introduce a statistical model that simultaneously observes within-workplace wage changes and controls for both observed and unobserved individual traits.

We employ a fairly standard set of observed characteristics as controls for skills, labor market opportunities, and labor supply. These include individual education, labor market experience before hire in the current workplace, workplace tenure, sex, marital status, presence of children age 0–15 in the home, the interaction of sex and children, and self-employment.¹⁴

¹³ The highest correlation is .35 between occupational rank segregation and educational difference, both of which are essentially uncorrelated with workplace composition. The two composition measures are correlated at .31. In a society in which status distinctions are highly institutionalized, such as they were for gender in the middle of the 20th century in most countries or race in the United States or South Africa before their race-based social movements, we might expect strong correlations across dimensions (Blau 1977). This pattern of low correlations is consistent with an expectation for second-generation assimilation, rather than segmented assimilation, among non-Western immigrants to Sweden.

¹⁴ This measure is based on the relation between self-employment earnings and earnings from labor. We use a 50% threshold to characterize someone as self-employed. Given that our sample is restricted to workplaces, this measure is not restricted to self-employment as ownership but also includes consulting and managerial salaries for people who also earn wages from self-employment. For example, individuals owning large firms often employ themselves and thus receive labor earnings.

We do not have exact information on labor market entry or time in/out of work, and so we have defined experience as age minus years of education minus seven.

There are probably unobserved individual-level selection processes that leave these observed control variables open to criticism. Among immigrants these might include schooling in the sending country and accented or poor Swedish language skills. To address this concern we control for individual selection with a fixed effects estimate of individual labor market value before the observation period. In order to get an estimate of the individual selection process (which will be used in our analytical model presented later), we directly follow Hensvik (2011), who in turn developed her estimation approach from Abowd, Kramarz, and Margolis (1999), in estimating this model:

$$\log(w)_{iwt} = \delta_{it}Age + \delta_{it}Age^2 + \theta_i + \varphi_{w(i,t)} + \varphi_t + \epsilon_{ijt},$$

where θ_i is an individual fixed effect, estimated net of age and workplace $\varphi_{w(i,t)}$ and time φ_t fixed effects. Our measure $\hat{\theta}_i$ captures both prior productivity-linked traits and prior cumulative discrimination. We include $\hat{\theta}_i$ as a control in all our estimation models. It is important to purge the individual fixed effect of workplace effects since careers tend to reflect not only individual traits but also cumulative advantages and disadvantages based on prior employment (DiPrete and Eirich 2006) and because recent research suggests that stable individual and workplace wages are only weakly associated (Abowd, Haltiwanger, and Lane 2009). This model is estimated on 1990–2000 earnings. Parameter θ_i is thus an estimate of the labor market value of individual traits up to 2000. The advantage of using a predicted $\hat{\theta}_i$ instead of a simultaneously estimated θ_i is that the latter requires movement across firms to be identified (in a two-way fixed effects model), which is likely to be nonrandom, and $\hat{\theta}_i$ is weakly exogenous to the model because it is based on labor market experience before our analysis period (2001, 2004, and 2007).

This approach reduced our sample to those who were in the Swedish labor market before 2000. Table 1 shows that the sample is not strongly influenced by this restriction, although not surprisingly the positive selection of non-Western immigrants is strengthened by this sampling constraint. There is, however, no influence of this further selection on the ethnic composition of workplaces or of management. The estimated individual fixed effect, because it captures prior earnings history, is our primary control for national origin heterogeneity as well.

Table 2 describes individual measures and their distributions for Swedes, non-Western immigrants, and Western immigrants. Full-time-employed

TABLE 2
DESCRIPTION OF INDIVIDUAL-LEVEL VARIABLE MEANS (SD), 2001, 2004, AND 2007

	EFFECTIVE SAMPLE			ALL EMPLOYEES		
	All	Non-Western	Native	All	Non-Western	Native
Non-Western immigrant . . . . .	.026 (.160)			.037 (.188)		
European immigrant . . . . .	.065 (.246)			.070 (.255)		
Predicted individual fixed effect (1990–2000)* . . . . .	.083 (.325)	.023 (.301)	.090 (.325)			
Earnings (2003 prices)	303.002 (187.081)	271.858 (126.890)	304.92 (190.712)	291.779 (178.261)	251.612 (119.691)	294.495 (181.899)
Female gender . . . . .	.488 (.500)	.443 (.497)	.487 (.500)	.491 (.500)	.464 (.499)	.490 (.500)
Married status (including cohabitation) . . . . .	.513 (.500)	.571 (.495)	.509 (.500)	.473 (.499)	.541 (.498)	.465 (.499)
Female gender × married status (including cohabitation) . . . . .	.257 (.437)	.245 (.430)	.256 (.436)	.241 (.428)	.251 (.433)	.238 (.426)
Children 0–15 years in household . . . . .	.384 (.486)	.507 (.500)	.382 (.486)	.372 (.483)	.493 (.500)	.367 (.482)
Female gender × children 0–15 years in household . . . . .	.194 (.395)	.234 (.424)	.193 (.395)	.192 (.394)	.249 (.432)	.190 (.392)
Years of education	12.249 (2.587)	12.088 (2.925)	12.280 (2.554)	12.305 (2.548)	12.080 (2.876)	12.333 (2.508)
Workplace tenure (since 1985)	7.545 (6.453)	5.641 (5.218)	7.637 (6.498)	6.740 (6.312)	4.519 (4.787)	6.894 (6.381)
Workplace tenure ²	98.563 (129.703)	59.055 (91.251)	100.540 (131.116)	85.268 (123.848)	43.333 (79.138)	88.252 (125.983)
Potential experience	25.710 (11.119)	22.817 (9.619)	25.678 (11.168)	23.539 (12.142)	19.984 (10.242)	23.598 (12.223)
Potential experience ²	784.620 (588.806)	613.136 (467.129)	784.087 (590.483)	701.531 (598.388)	504.262 (452.449)	706.266 (602.257)
Self-employed . . . . .	.006 (.077)	.004 (.059)	.006 (.079)	.006 (.079)	.004 (.062)	.007 (.081)
Occupation rank . . . . .	.548 (.284)	.419 (.293)	.556 (.282)	.530 (.287)	.385 (.287)	.541 (.285)
Management . . . . .	.058 (.234)	.016 (.124)	.062 (.240)	.052 (.222)	.013 (.112)	.056 (.229)
N	5,964,151	156,829	5,250,362	7,183,424	258,052	6,213,190

NOTE.—Effective sample refers to sample with predicted individual earnings in 1990–2000.
* Expressed in units of log earnings with mean = 0 in estimation sample.

non-Western immigrants earn about 14% less per year than native Swedes. They are also more likely to be men, married, and parents. The latter two traits tend to be associated with higher earnings among men and lower earnings among women. Non-Western immigrants have about a third less of a year of schooling but also higher variance in education levels than native Swedes. Not surprisingly, the biggest differences are labor force experience (3.5 years) and tenure (2.3 years). The literature is clear that gaining access to full-time work is difficult for non-Western immigrants to Sweden. This is also evident in the high proportion of non-Western immigrants excluded by our focus on full-time workers (34.1%, compared to about 17.9% for both Native Swedes and Western immigrants). The predicted individual fixed effect, which is constrained to average zero in the underlying population sample, is .08 log units above zero in our estimation sample, which indicates a positive selection of the entire sample. This positive selection exists for both non-Western immigrants and natives, although non-Western immigrants have a lower level of prior earnings than native Swedes and Western immigrants.

MODELING STRATEGY

We employ a dynamic workplace fixed effects model, thus stable unobserved workplace compositional, meritocratic, or bias tendencies are leveled out. When we estimate models with establishment fixed effects, we are also controlling for other stable unobserved differences across localities, industries, and firms, leaving within-workplace variance to be explained.¹⁵ Our basic modeling strategy is to observe the influence of changes in workplace bargaining resources on changes in the immigrant-native wage gap net of observed individual-level differences between persons. These changes are induced by new hires and separations, determining the percentage of immigrants overall and in management and immigrant-native difference in education. Around 15% of workers change workplaces each year, and across three years the figure is 35%. Including every three years in the sam-

¹⁵ One might worry that our models have not controlled for the influence of residential segregation on workplace segregation. Because we use workplace fixed effects, any influence of workplace neighborhood on segregation is controlled by definition. Proximity to residentially segregated areas might still be of concern. Strömberg et al. (2014) show that Swedish immigrants are more segregated from native Swedes at work when they live in segregated neighborhoods. However, when they control for individual fixed effects, this influence, while still statistically significant, is very small. For these reasons we think that our estimates on wage setting within workplaces are not at risk from these processes.

Where Do Immigrants Fare Worse?

ple creates a rough balance between movers and stayers at the workplace level. The model is written as follows:

$$\log(w)_{iwt} = \delta_0 + \delta\text{NWI}_i + \delta X_{wt} + \delta\text{NWI} \times X_{wt} + \delta X_{it} + \hat{\theta}_i + \varphi_{w(i,t)} + \varphi_t + \epsilon_{ijt},$$

where δNWI_i indexes non-Western immigrant status, δX_{wt} is a vector of workplace characteristics, $\delta\text{NWI} \times X$ is the interaction between immigrant status and workplace bargaining indicators (percentage immigrant, percentage managers immigrant, immigrant-native rank segregation, and immigrant-native educational differences), $\delta X_{it} + \hat{\theta}_i$ represent observed and unobserved individual traits, and $\varphi_{w(i,t)} + \varphi_t$ are workplace and temporal fixed effects. The hypotheses outlined above are tested with the estimated coefficients $\delta\text{NWI} \times X_{wt}$. Standard errors of all estimates are adjusted for within-person clustering. The correlation between individual and workplace fixed effects for the whole sample is .21, suggesting a moderate amount of positive selection of high-productivity people into high-wage workplaces.

Inferring Opportunity-Hoarding and Exploitation Mechanisms

RIT argues that workplace inequalities are produced via two basic mechanisms: opportunity hoarding and exploitation. A simple way to test whether opportunity hoarding is a plausible mechanism through which these inequalities emerge is to analyze whether individual's current occupation mediates the effect of immigrant status and workplace bargaining indicators. In our model occupational controls represent shifts in jobs (e.g., promotions or shifts in jobs between workplaces) that generate wage changes. Since we employ models with strong controls for individual productivity-linked traits via observed human capital and the estimated person fixed effect, to the extent that the four workplace bargaining resources' effects on workplace wage gaps are mediated by the inclusion of occupational controls, our model will be consistent with an opportunity-hoarding mechanism.

After we include individual occupation as a mediator, the residual effects of our measures of workplace bargaining resources represent immigrant-native difference in individual salary increments within occupations within workplaces. We treat such residual effects as weak evidence of contemporary exploitation of actors within particular positions (income transfers between actors). In addition, we interact non-Western immigrant status with occupational rank to see whether immigrant's jobs are devalued relative to those held by natives in the same workplace, which would suggest exploitation of particular positions rather than just exploitation of actors within positions. While the residual strategy provides weak inference that an exploitation mechanism is present, the devaluing of jobs in the context

of a dynamic wage model with strong controls for individual human capital is stronger evidence.

Institutional Distinctions

As discussed above, two institutional distinctions in the Swedish case stand out as central for relational inequality theorizing: the blue-collar/white-collar distinction and workplace levels of inequality. We nest our estimates in workplaces that vary in their degree of earnings inequality (defined by workplaces grouped into quartiles of the coefficient of variation in earnings) and by whether jobs are blue-collar or white-collar. These institutional distinctions then generate results in a series of 2×4 tables in which we observe the hypothesized processes separately for blue- and white-collar workers in low- to high-inequality workplaces. We repeated the workplace fixed effects estimates for workplaces of different sizes and sectors for economy-wide models, and results were largely replicated. Thus, the class-by-organizational inequality estimates we display below are not proxies for organizational size or sector-specific processes.

RESULTS

We report results for each hypothesis nested within class and inequality contexts. Complete models are available in the appendix (tables A1–A4). The appendix reports economy-wide models (table A1) and workplaces grouped into inequality quartiles (table A2). In the text we focus on class within inequality quartile estimates, corresponding to the full models in tables A3 and A4. In tables 3–5 we present the estimated influence of workplace bargaining proxies on the non-Western immigrant-native Swede wage gap, net of the control variables in tables 1 and 2 and a workplace fixed effect (models 1 and 2 in tables A3 and A4). To estimate the degree to which these estimates are produced by occupational sorting, model 2 introduces individual occupational rank as a mediating variable. Finally, in table 6 we explore differences in returns to education and occupation across class and inequality contexts (model 3 in tables A3 and A4).

Table 3 reports the estimated effects of workplace immigrant and immigrant-management composition on immigrant-native wage inequality. For blue-collar workers the presence of more immigrants in a workplace leads to increased wages relative to native Swedes (thus a declining wage gap) at all inequality levels. In contrast and also regardless of the level of inequality, for white-collar workers non-Western immigrant man-

TABLE 3
EFFECT OF IMMIGRANT DENSITY AMONG STAFF AND MANAGERS ON EARNINGS (2001, 2004, AND 2007)
BY LEVEL OF WORKPLACE EARNINGS INEQUALITY (COV) AND CLASS

	MIN-Q ₁		Q ₁ -Q ₂		Q ₂ -Q ₃		Q ₃ -MAX	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Blue-collar workers:^a								
Non-Western immigrant × % non-Western immigrants . . . . .	.059*** (5.391)	.064*** (5.787)	.054*** (5.012)	.056*** (5.236)	.111*** (8.539)	.112*** (8.642)	.118*** (4.064)	.112*** (3.833)
Non-Western immigrant × % non-Western in management	-.024 (-1.682)	-.019 (-1.335)	-.023 (-1.321)	-.018 (-1.018)	-.046* (-2.410)	-.047* (-2.215)	-.046 (-.967)	-.040 (-.839)
White-collar workers:^a								
Non-Western immigrant × % non-Western immigrants	-.039 (-1.298)	-.034 (-1.173)	.021 (1.042)	.046* (2.360)	-.025 (-1.026)	-.025 (-1.036)	.022 (.472)	.019 (.428)
Non-Western immigrant × % non-Western in management . . . . .	.098*** (4.197)	.068** (3.049)	.139*** (6.181)	.103*** (4.796)	.180*** (5.943)	.143*** (5.107)	.094* (2.179)	.081* (1.998)
Predicted individual fixed effect, 1990-2000 . . .	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Workplace fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Current occupation rank	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

NOTE.—In earnings restricted to earnings above 120,000 SEK (a proxy for full-time employees); *t*-statistics in parentheses. Models contain controls for variables shown in tables 1 and 2. Coefficients refer to models 1 and 2 in tables A3 and A4.

^a Workplace characteristics computed with white- and blue-collar pooled.

* $P < .05$ (based on individual cluster robust SEs).

** $P < .01$.

*** $P < .001$.

agerial representation increases immigrant's relative wages.¹⁶ Thus, hypothesis 1 is confirmed only for working-class jobs, and hypothesis 2 is supported only for white-collar workers. On the whole both sets of results are stronger in higher inequality workplaces, although for white-collar workers the very highest inequality workplaces produce an attenuation of the management composition effect. Taking these findings together it appears that as the social space for local wage bargaining expands and the opportunities for higher wage gains emerge, so does native-immigrant inequality.

When we introduce individual occupation rank as a mediating variable (model 2), it slightly but consistently explains the positive effects of managerial immigrant composition on the white-collar wage gap. There is no such mediating influence of occupation on immigrant composition effects among blue-collar workers. Thus, for white-collar workers, access to better jobs is one mechanism through which non-Western immigrant managers are favorable for non-Western immigrant employees.

Table 4 explores the linkage between rank segregation and the workplace immigrant-native wage gap. Model 1 shows, consistent with hypothesis 3, that as the average rank segregation between immigrants and natives in a workplace decreases, immigrant wages relative to native Swedes increase. This segregation effect is confirmed for all class-by-inequality contexts. However, consistent with our institutional expectations, the influence of segregation on wages is higher for white-collar workers and in high-inequality workplaces. For blue-collar workers the coefficients are similar in the lowest-inequality contexts but markedly higher in the highest-inequality workplaces. For white-collar workers the coefficients get progressively larger the more inequality there is in a workplace. In addition, coefficients for white-collar workers are 27%–78% larger than those for blue-collar workers in organizations with similar levels of overall inequality. The effect of occupational rank segregation is quite large in white-collar, high-inequality settings: a 10 percentile difference in occupational rank yields a wage difference of around 4% ($.380 \times .10 = .038$).

Figure 2 summarizes these results. It is important to remember that in about 20% of workplaces non-Western immigrants actually have superior average occupations to native Swedes. In these workplaces, in the upper right of figure 2, where immigrants enjoy occupational status advantages,

¹⁶ A significant effect is found for blue-collar workers in workplaces with modestly high inequality, but the effect is in the wrong direction, increasing the wage gap. This result is not found in other settings and is not in the theoretically expected direction, and we have no explanation for it.

TABLE 4
EFFECT OF NON-WESTERN IMMIGRANT-NATIVE MEAN OCCUPATIONAL RANK SEGREGATION ON
EARNINGS (2001, 2004, AND 2007) BY LEVEL OF WORKPLACE EARNINGS INEQUALITY (COV) AND CLASS

	MIN-Q ₁		Q ₁ -Q ₂		Q ₂ -Q ₃		Q ₃ -MAX	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Blue-collar workers:^a								
Non-Western immigrant × non-Western immigrant-native occupational rank segregation . . . . .	.067*** (4.055)	.018 (1.065)	.064*** (3.694)	.024 (1.397)	.055** (3.125)	.026 (1.465)	.086*** (3.807)	.070** (3.073)
White-collar workers:^a								
Non-Western immigrant × non-Western immigrant-native occupational rank segregation . . . . .	.092*** (3.753)	-.073** (-3.020)	.144*** (6.637)	-.062** (-2.936)	.189*** (8.732)	-.033 (-1.574)	.380*** (16.484)	.099*** (4.427)
Predicted individual fixed effect, 1990-2000	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Workplace fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Current occupation rank		Yes		Yes		Yes		Yes

NOTE.—In earnings restricted to earnings above 120,000 SEK (a proxy for full-time employees); *t*-statistics in parentheses. Models contain controls for variables shown in tables 1 and 2. Coefficients refer to models 1 and 2 in tables A3 and A4.

^a Workplace characteristics computed with white- and blue-collar pooled.

* $P < .05$ (based on individual cluster robust SEs).

** $P < .01$.

*** $P < .001$.

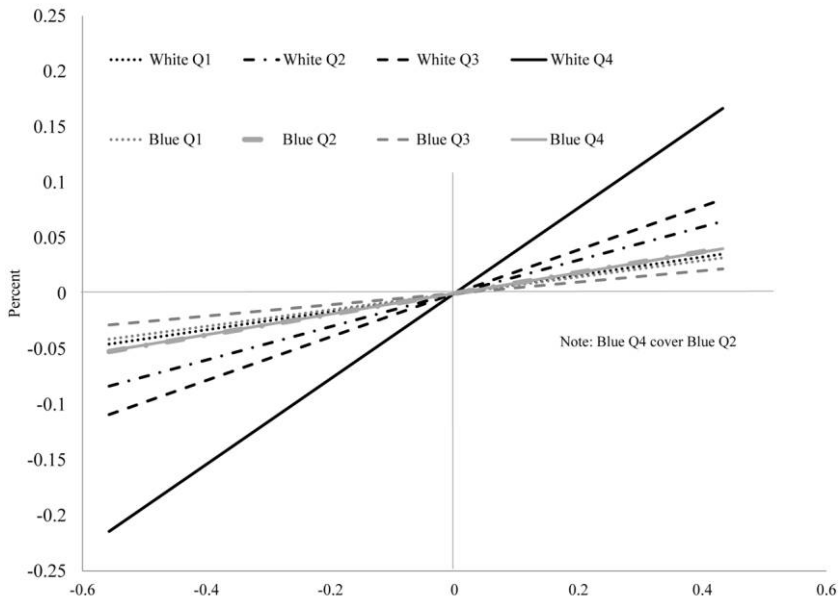


FIG. 2.—Influence of workplace rank segregation on non-Western immigrant-native earnings gaps, by class and workplace inequality quartile. (Color version available as an online enhancement.)

we see a narrowing of the wage gap. This effect is strongest in white-collar, high-inequality workplaces where the social space for wage claims is largest. In most workplaces, occupational segregation favors native Swedes, and here their advantages are exaggerated by this positive intersection between nativity and occupation. Again, the influence of segregation is more powerful for white-collar workers and high-inequality workplaces.

Turning again to table 4, note that occupational sorting mediates the influence of workplace rank segregation in all contexts. Looking at model 2 for blue-collar workers in the three lower inequality contexts, note that the segregation coefficients become quite small and in two contexts nonsignificant, suggesting that essentially all of the segregation effect on wages is explained by occupational sorting. This is true as well for white-collar workers in the three lowest inequality workplace contexts. In fact the sign reverses for white-collar workers in the two lower inequality quartiles. The only context in which occupational sorting does not fully explain the segregation effect on the immigrant-native wage gap among blue- and white-collar workers is the highest inequality quartiles, but even here coefficients are substantially reduced. Except in the highest inequality con-

texts, the influence of segregation is consistent with an opportunity-hoarding process.

The fact that in higher inequality workplaces rank segregation remains significantly associated with immigrant native wage gaps even after controlling for an individual's occupation could be evaluated as evidence for exploitation. The lower bargaining power of all immigrants produced by segregation leads to lower bargaining power even within the same job and a resulting transfer of income to native Swedes. It is, however, also possible that our measure of occupation is not sufficiently precise and that there are unobserved within-occupation job shifts producing these results.

Table 5 examines the effect of educational advantages for native Swedes relative to non-Western immigrants on the immigrant-native wage gap. From a RIT perspective, we expect that increased relative immigrant education in workplaces would produce increased immigrant interactional power and therefore a decrease in the wage gap. Only for blue-collar workers in low-inequality contexts, exactly where we expect the theory to be least applicable, is the relational inequality hypothesis (hypothesis 4) supported. Among blue-collar workers, model 1 estimates are otherwise close to zero. Among white-collar workers, model 1 estimates are primarily in the wrong direction but very small. In all but the lowest-inequality workplaces, among white-collar workers, and net of individual human capital, as the educational credentials of immigrant workers relative to natives increase, immigrant wages decrease slightly. These results appear in line with statistical discrimination processes in which non-Western immigrants are sorted into lower-quality white-collar jobs than they appear to be formally qualified for. In statistical discrimination models, employers attempt to avoid hiring less productive workers and to the extent that they believe lower-status groups are less productive they will be less likely to hire them (Aigner and Cain 1977). If hired under a statistical discrimination regime, immigrants would tend to be educationally overqualified relative to their native counterparts. That immigrant wages decline when immigrant education rises relative to native Swedes suggests that such a process is going on for white-collar workers. After the model 2 inclusion of individual occupation, all of these coefficients become significant and positive. Although these results are in the predicted direction, we do not see them as confirming RIT predictions, since those predictions were for organizational effects before job sorting. A post hoc interpretation might be that when immigrant education rises relative to native Swedes, within-job inequality declines. While this is consistent with RIT, it is a pretty subtle distinction for the data at hand.

We explore the idea of statistical discrimination further by investigating variations in the returns to human capital between non-Western immigrants and natives. In some versions of the statistical discrimination model, employers are expected to mistakenly undervalue non-Western immigrant

TABLE 5
EFFECT OF NON-WESTERN IMMIGRANT-NATIVE MEAN EDUCATION ON EARNINGS (2001, 2004, AND 2007)
BY LEVEL OF WORKPLACE EARNINGS INEQUALITY (COV) AND CLASS

	MIN-Q ₁		Q ₁ -Q ₂		Q ₂ -Q ₃		Q ₃ -MAX	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Blue-collar workers: ^a								
Non-Western immigrant × non-Western immigrant-native								
mean education	.002*	.003**	.000	.001	-.002	-.001	-.004	-.003
	(2.007)	(2.788)	(-.243)	(.558)	(-1.077)	(-.691)	(-1.563)	(-1.182)
White-collar workers: ^a								
Non-Western immigrant × non-Western immigrant-native								
mean education	.000	.007***	-.005**	.004*	-.004*	.004*	-.008***	.005*
	(-.116)	(3.401)	(-2.929)	(2.155)	(-1.978)	(2.243)	(-3.356)	(2.148)
Predicted individual fixed effect, 1990-2000	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Workplace fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Current occupation rank	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

NOTE.—In earnings restricted to earnings above 120,000 SEK (a proxy for full-time employees); *t*-statistics in parentheses. Models contain controls for variables shown in tables 1 and 2. Coefficients refer to models 1 and 2 in tables A3 and A4.

^a Workplace characteristics computed with white- and blue-collar pooled.

* *P* < .05 (based on individual cluster robust SEs).

** *P* < .01.

*** *P* < .001.

Where Do Immigrants Fare Worse?

productivity (Tomaskovic-Devey and Skaggs 1999). Presumably this undervaluation would be discovered after hire by nonbiased employers. Thus, if employers did not have a taste for discrimination and were in the presence of stereotype-based statistical discrimination, we might expect immigrants to have higher within-workplace returns to human capital than native Swedes. Table 6 shows differences in returns to education and confirms that, after hire, immigrants received higher income returns to education than native Swedes among both white- and blue-collar workers. We also analyze differences in the returns to tenure and experience. These are nonsignificant for white-collar workers. Blue-collar non-Western immigrants also tend to have higher returns to experience (see tables A3 and A4). This is good evidence that the strong positive selection of immigrants into the labor market associated with statistical discrimination at hire is discovered by the average employer posthire and to some extent remedied via steeper returns to education and for blue-collar workers experience. Further confirming this interpretation, the unexplained positive coefficients for organizational differences in education in model 2 of table 5 are by and

TABLE 6
HETEROGENEOUS EDUCATIONAL AND OCCUPATIONAL RETURNS BY
LEVEL OF WORKPLACE EARNINGS INEQUALITY (CoV) AND CLASS

	Min-Q ₁	Q ₁ -Q ₂	Q ₂ -Q ₃	Q ₃ -Max
Blue-collar workers:				
Education . . . . .	.009***	.010***	.012***	.016***
Non-Western immigrant × years of education . . . . .	.003***	.004***	.006***	.004**
Occupational rank . . . . .	.146***	.177*	.157***	.156***
Non-Western immigrant × occupational rank	-.021*	-.027**	-.031*	-.032*
White-collar workers:				
Education . . . . .	.020***	.023***	.027***	.032***
Non-Western immigrant × years of education . . . . .	.005***	.003**	.006***	.008***
Occupational rank . . . . .	.343***	.386***	.417***	.533***
Non-Western immigrant × occupational rank	-.021	-.074***	-.075***	.027
Predicted individual fixed effect,				
1990–2000	Yes	Yes	Yes	Yes
Workplace fixed effect	Yes	Yes	Yes	Yes
Current occupation rank	Yes	Yes	Yes	Yes

NOTE.—In earnings restricted to earnings above 120,000 SEK (a proxy for full-time employees). Equations contain controls for variables shown in tables 1 and 2. Outcome is earnings in 2001, 2004, and 2007. Coefficients refer to model 3 in tables A3 and A4.

* $P < .05$ (based on individual cluster robust SEs).

** $P < .01$.

*** $P < .001$.

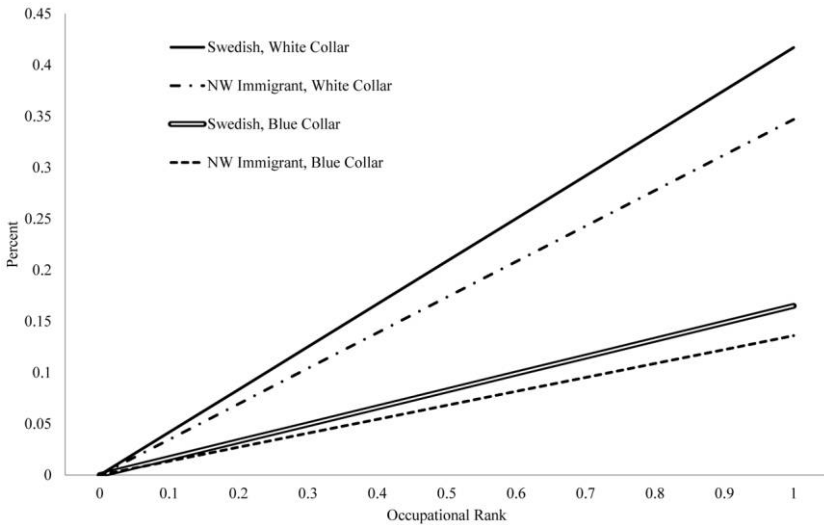


FIG. 3.—Immigrant-native differences in income returns to occupational rank, median inequality firm. (Color version available as an online enhancement.)

large reduced to zero once controls for differential returns to education are included in the models (compare to tables A3 and A4, model 3).

Table 6 also explores immigrant-native differences in returns to occupational rank. Non-Western immigrants, in both white- and blue-collar work, receive lower income returns to occupational rank than do native Swedes. Since these are within-workplace wage changes, this result is consistent with a process in which occupational skill is devalued when associated with immigrants.¹⁷ Figure 3 displays this result for the median workplace. This pattern has been documented for gender in many studies and is a central prediction of RIT (Tilly 1998). Since these are dynamic estimates of wage changes, they also suggest an exploitation mechanism in which occupations are devalued when non-Western immigrants enter them.

Since occupation and occupational rank are outcomes of claims making and thus part of the outcome process we study, it is not surprising that occupational rank is strongly associated with wages in its own right (note that our interest in occupation is as a mediating variable). Importantly, for white-collar workers the estimated effect of job rank on wages rises dramatically with the level of organizational inequality. Thus, for white-collar workers the influence of occupation is not simply in its indexing of general

¹⁷ We have not shown that this devaluation process spreads to native Swedes, which devaluation theory would predict, although in certain circumstances this might be a plausible result.

Where Do Immigrants Fare Worse?

skill levels but also in its persuasiveness in local claims making. It is not surprising that this trend is absent for blue-collar workers since their industry wage bargains tend to center around occupational skill distinctions, leaving little room for local wage claims on occupation. White-collar workers, however, bargain locally for wages. They convert occupation rank to higher wages at twice the rate of blue-collar workers in low-inequality workplaces and 3.5 times the rate in high-inequality workplaces.

DISCUSSION

We began this article by proposing that RIT might help us understand the organizational processes that shape workplace wage inequality distributions. To empirically assess the phenomenon, we examined Swedish and immigrant-native workplace wage gaps using longitudinal employer-employee panel data. Data linking employers to employees allow us to develop unusually strong models of workplace wage dynamics. While studying Swedish immigrant-native inequality with individual and workplace panel data clearly provides observational advantages, it is also a difficult test case for RIT as Sweden has historically used centralized bargaining to set wages, it is a relatively low-inequality country, and immigrant-native status distinctions are not strongly institutionalized.

Nevertheless and consistent with RIT and net of human capital endowments at the individual level, the immigrant-native wage gap shows large systematic variation across Swedish workplaces. For both blue- and white-collar workers, increased immigrant-native job segregation leads to growing wage gaps. Further, shifts in immigrant composition of the workplace and among managers as well as in job rank segregation all influence changes in the workplace-level wage gap between immigrants and native Swedes. The dominant mechanism producing these results is job closure, although there is additional evidence that in high-inequality workplaces both between- and within-job income is being transferred from non-Western immigrants to natives, both directly and through the devaluation of jobs with immigrant incumbents. Changes in immigrant composition of the workplace only shape the immigrant-native wage gap among blue-collar workers, while immigrant managerial composition only affects the wage gap among white-collar workers. Segregation increases status distinctions across all contexts but is most powerful among white-collar workers and in high-inequality workplaces.

RIT proposes two primary mechanisms to explain variation in workplace wage gaps: opportunity hoarding and exploitation. In Sweden immigrant-native job segregation is high, and there is strong evidence that as job segregation rises, so too does the workplace immigrant-native wage gap. Importantly, this result is net of workplace fixed effects, individual fixed

effects, and observed individual human capital and family characteristics and despite the strong positive selection of immigrants into the labor market. Job segregation tends to have a stronger effect on white-collar workers and in higher inequality workplaces.

Since we see the wage structure attached to jobs as the historical product of past rounds of wage claims as well as the object of contemporary opportunity hoarding, we expected this segregation effect largely to be mediated by individual job allocation (our measure of opportunity hoarding). This is the case in all but the most unequal workplaces. In the most unequal workplaces there is a fairly large residual after we have accounted for occupational sorting. This suggests that in these workplaces there is also a contemporary transfer of income from immigrants to natives—in our theoretical account, plausibly produced through the weakened claims making power of immigrants in highly segregated and highly unequal workplaces. There is also more direct evidence of exploitation in the devaluing of jobs as immigrants enter them across the range of blue- and white-collar inequality contexts.

Although this analysis was not designed to test classic assimilation theory, that theory might predict declining non-Western immigrant effects on wages for older immigrants. Our observed higher posthire income returns to education among these immigrants might be evidence of economic integration. But, to us it looks more like declining employer discrimination in the face of their familiarity with individual immigrants. We did examine the experiences of recent versus longer-term immigrants to Sweden and found that the inequality-exaggerating influence of rank segregation was somewhat stronger for recent immigrants. Conversely, the inequality-reducing influence of higher immigrant density among workers and managers was stronger for longer resident immigrants (results available from authors). All three results suggest within-workplace age-based sorting favoring immigrants with longer residence in Sweden.¹⁸ These results, like the literature on second-generation Swedish immigrants reviewed earlier, suggest that the dominant pattern in Sweden at this moment in history is immigrant social incorporation, even among non-Western immigrants.

¹⁸ We also explored gender differences in these processes, but the interpretation of our results is ambiguous. In general the results in this article are stronger for male non-Western immigrants. But, we cannot tell from our models whether this means that there is a weaker status valence associated with being a non-Western immigrant among women or whether the female wage distribution is compressed because of the high level of occupational sex segregation in Sweden. In future research we will first develop a gender-based extension of these models, which can then be followed by a systematic examination of the further intersection of immigrant \times gender status.

CONCLUSION

We have long known that wages tend to rise with human capital endowments and tend to lag for people with subordinate status attributes. The conventional model explains these results in terms of two conflicting mechanisms, returns to individual productivity and discrimination. RIT explains both outcomes as a function of status-mediated claims making in workplaces. The conventional productivity model is not clear as to the interactional mechanisms that produce wage distributions, referring abstractly to labor market pricing or meritocratic values. In the relational inequality model, both labor markets and meritocratic values may operate as contexts that influence the claims making processes, but wage setting is described as governed by the same set of interactional mechanisms as any other set of social relationships. In the conventional model individual traits are treated as causally fundamental. In the relational model social relations embedded in particular organizational contexts generate inequalities.

Does RIT add any theoretical value? We think so. First, by focusing on claims making in particular institutional contexts, RIT provides a theory that both predicts and explains workplace variation in wage-setting processes. It is particularly useful for understanding the recently discovered substantial independence of workplace wage setting from individual human capital (see Abowd et al. 2009; Lazear and Shaw 2009). Second, rather than treating status-based deviations from a market model as anomalies requiring new theories of wage setting or to be explained within the dominant model as unobserved productivity differences, it treats all wage setting as embedded in a common interactional process of relational claims making. In this way it treats wage setting as organized by the same interactional processes as other social exchanges. We see this theory as advantaged not only by its parsimony and empirical utility but also by its consistency with general social psychological and sociological models of inequality production (see the extended discussion in Tomaskovic-Devey [2014]).

But, the article also generated a set of results that suggest the need for more explicit scope conditions for RIT. Relational claims making as a microlevel mechanism requires actors to be able to make claims. That blue-collar immigrants were supported by ethnic density and white-collar immigrants by managerial composition suggests that on average their claims are of a different kind. Blue-collar workers seem to benefit from familiarity, perhaps declining stereotypes and tastes for discrimination as they become more numerous in a workplace. Non-Western immigrant white-collar workers benefit more directly as individuals from the presence of presumably influential non-Western immigrant managers, and some of these benefits are produced by access to better jobs.

While high levels of occupational rank segregation seem to undermine immigrant's claims making power, human capital shortfalls do not have a similar influence. On the contrary, among white-collar workers immigrant human capital advantages seem to index a weak statistical discrimination process at the point of hire, rather than an internal wage negotiation process.

Beyond the support for and clarification of the generic relational model, we think this article makes three contributions to the literature. The first two are specific to RIT, while the latter generates insights into the process of immigrant-native inequalities in Sweden.

Institutional Distinctions and RIT

RIT stresses the institutional distinctions that give meaning to social relationships and the claims that emerge out of them within workplaces. In this article we find strong support for this assumption in terms of Swedish class-specific wage-setting practices. When wages are set locally (white-collar) immigrant-based claims making processes are heightened relative to the national wage bargains common for blue-collar workers. Among both blue- and white-collar workers the effects of occupational segregation and immigrant composition tend to get stronger in more unequal workplaces as well. The RIT model was empirically most robust in high-inequality settings and for white-collar workers. Bargaining proxies, with the exception of relative education, behaved as predicted, and results were generally robust to organizational context. All of this suggests that this model is worth further development and exploration in other nations and for other status distinctions.

The finding that immigrant-native education sorting seemed to be produced by a hiring process is a useful reminder that internal workplace wage-setting processes are likely to be influenced by external labor market processes. In this case the process seems to have been statistical discrimination in the context of an insider-outsider labor market leading to overeducation for white-collar non-Western immigrants relative to actual job requirements. We think future development on the influence of labor market context will be important for evaluating the utility of RIT. Conventional labor market theory leads us to expect that skill specific supply/demand ratios in local labor markets are likely to influence the claims making power of groups.

An Analytic Strategy for Workplace Inequality Research

Our second contribution is to develop a statistical model for RIT that more explicitly addresses both the over-time dynamics of relational claims making

Where Do Immigrants Fare Worse?

and controls for the supply-demand processes of human capital theory. Because we employ fixed effects controls at both the individual and workplace levels, these models represent strong improvements over prior relational inequality research. Prior research has not been able to control for selection effects into workplaces. Because there was substantial positive selection of immigrants into full-time work and all models controlled for individual portable skills before our observation period, the normal caveat about unobserved individual heterogeneity is substantially weakened for our models.

This modeling strategy builds on existing work that uses multilevel models to tease out such effects (e.g., Avent-Holt and Tomaskovic-Devey 2012) but captures a broader array of human capital indicators and through its longitudinal nature can more effectively capture causal relationships. In this way our strategy enables researchers to develop causal accounts of changes in wages within workplaces over time.

We have also developed a methodological approach that enables us to distinguish between opportunity-hoarding and exploitation mechanisms. After adding occupation to the model, any drop in the effect of our bargaining proxies indicates that the claims making is operating through occupational closure processes. And since our models are temporal, any remaining effect of the bargaining proxies is a function of contemporary income shifts between people and positions. Given our conceptualization of exploitation, we see such income shifts as evidence of exploitation. Of course, this is weak evidence if we measure occupation with error. We go a step further and examine whether the presence of non-Western immigrants directly devalues the returns to occupational rank. Consistently, we find that increased immigrant presence in an occupation is associated with declining relative earnings for immigrant workers.

The primary attraction of models of the type employed here is to provide relatively strong evidence of workplace wage-setting processes in the presence of strong controls for unobserved individual and workplace traits. Our models imposed great data requirements; we essentially used information on all employees and all workplaces in Sweden from 1990 to 2007.

There is also a general analytic strategy employed in this model, which does not require such comprehensive data. That strategy is to investigate the impact of status characteristics on inequality generation in their specific institutional and workplace contexts. Qualitative, historically embedded case studies have been the dominant example of this approach in past research (e.g., Kanter 1977; Reskin and Padavic 1988; Hodson 2001; Glenn 2002; Rivera 2012). One of the great strengths of relational inequality theorizing is that it suggests strategies for quantitative researchers to incorporate into their models the historical and institutional contexts in which inequalities are actually generated.

We think that the basic modeling strategy deployed in this article can be easily generalized to other categorical distinctions. The most obvious is gender, since the basic argument that gender job segregation and the devaluation of women's work is well known and was, in fact, foundational to Tilly's (1998) original model. The distinction between the exclusion of women from good jobs and the devaluation of jobs associated with women has been easier to make at the level of theory than of empirical observation.

Similarly, the observation of invariance in occupational ranking across time and place in the status attainment literature (Treiman 1977) could be examined more seriously with the models developed in this article. Our finding that the income associated with occupational rank declines when jobs are filled by non-Western immigrants certainly suggests a mutability to occupational rankings not recognized in the status attainment literature. The finding that returns to occupational skill rise in high-inequality workplaces is further confirmation of this insight. An inspection of the appendix tables shows that this is true for the individual fixed effect as well. It seems that stable unobserved individual traits are unstable, providing interactional resources that depend on the inequality context they are deployed within.

Immigration and Assimilation

Our substantive contribution is to the empirical literature on non-Western immigration to Sweden. We have shown that there is substantial workplace-level variation in native-immigrant wage gaps in Sweden. We expect that similar processes occur in other countries with large immigrant populations. Stereotypes and nativism in immigrant-receiving countries often lead to the perception that immigrants are universally disadvantaged. In Sweden this is clearly not the case. In some workplaces non-Western immigrants are advantaged relative to native Swedes. Importantly, in Sweden hiring more immigrant workers and immigrant managers and reducing occupational segregation all lead to lower wage gaps.

As we pointed out earlier, the correlations among our four indicators of workplace bargaining power are low. This is a good indicator that ethnic distinctions are not durable in Tilly's (1998) or institutionalized in Blau's (1977) sense. In addition, inequalities between child immigrants and native Swedes are relatively low (Böhlmark 2009; Hällsten and Szulkin 2009). Even in workplaces that appear to be practicing statistical discrimination, our models suggest that non-Western immigrants have steeper returns to education—and for blue-collar workers, experience—than native Swedes, suggesting that individual-level discrimination tends to decline in Sweden over time. But, as we discussed, non-Western migrants to Sweden have substantial difficulties finding stable employment.

Where Do Immigrants Fare Worse?

These findings have implications for the literature on immigrant assimilation. The ability to observe the degree to which various status disadvantages are correlated not only with immigrant status but with each other in specific workplaces might be a useful tool to help distinguish between the traditional and the segmented assimilation approaches to immigration (e.g., Alba and Nee 2005). When these correlations are low, as they are here, then we would predict that the institutionalization of particular ethnic backgrounds as signaling subordinate status is less likely.

The literature on ethnic enclaves has produced very mixed evidence on whether ethnic enclaves increase or decrease earnings for immigrants (Xie and Gough 2011). The RIT model suggests that the mixed evidence is likely a function of the historical and institutional contexts of immigrant incorporation. Enclaves are likely to influence immigrant earnings differentially, depending on the reactions of natives in the destination country or regions, the cultural and resource backgrounds of immigrant groups, resource inequalities within enclave workplaces, the resource base of the enclave, and the institutional environment in which such workplaces are situated. RIT is therefore well suited to explain mixed findings by suggesting that immigration scholars should be examining institutional variation in the creation and development of specific ethnic enclaves. Of course, direct observation of workplace data such as those used in this article would be useful to accomplish this task.

A linked process might be ethnic competition effects tied to particular geographies. In classic competition theory (Blalock 1967), minority economic and political threats are tied to geographic concentration. It is well recognized in the literature that racial or ethnic residential segregation consolidates disadvantage (Blau 1977). It is, of course, possible that in particular places high concentrations of immigrants might serve to heighten native-Swedish prejudice and resentment. For example, support for welfare state expenditures is lower in Swedish counties with high levels of immigration (Eger 2010). But there is no evidence of such a process for a local political threat (Rydgren and Ruth 2013). If such places exist in Sweden we might expect that a rise in the percentage of non-Western immigrants in a workplace might be consistent with increased status-based discrimination. One of the things that is truly exciting about employer-employee panel data is the possibility of examining hypotheses that embed actors in increasingly complex organizational, institutional, and spatial contexts.

We do not think that all immigrant-receiving countries will show similar patterns of incorporation of non-Western immigrants to those we observe in contemporary Sweden. We do think that our orientation toward both the degree to which a status distinction is institutionalized and the sensitivity to contextual and organizational variation might be useful in identi-

fyng which countries risk developing stable ethnic distinctions and which are unlikely to do so. Importantly, analyses such as ours, which emphasize contextual variation in discrimination processes, also point to the contexts in which discrimination is most likely to occur. In Sweden this appears to be in high-inequality and high-segregation workplaces. Policy attention to these contexts is warranted.

APPENDIX

TABLE A1
ESTIMATES OF THREE NESTED MODELS (M1-M3) FOR ALL, BLUE-, AND WHITE-COLLAR WORKERS, SWEDEN 2001-7

	ALL			BLUE			WHITE		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
$t = 2004$ (ref. $t = 2001$) . . . . .	.009***	.012***	.012***	.019***	.019***	.019***	.012***	.014***	.014***
$t = 2007$ (ref. $t = 2001$) . . . . .	.032***	.037***	.037***	.044***	.045***	.045***	.040***	.043***	.043***
Immigrant-workplace interactions:									
Non-Western immigrant \times									
% non-Western immigrants . . . . .	.045***	.051***	.037***	.077***	.079***	.067***	-.003	.020	.026
Non-Western immigrant \times									
% non-Western in management . . . . .	.029***	.026**	.028***	-.024*	-.020*	-.022*	.097***	.067***	.074***
Non-Western immigrant \times education									
difference	-.009***	-.001*	-.002**	.000	.000	-.002**	-.006***	.004***	-.001
Non-Western immigrant \times occupational									
rank difference . . . . .	.188***	.043***	.055***	.060***	.029**	.049***	.271***	.049***	.055***
Individual characteristics:									
Non-Western immigrant . . . . .	.025***	.018***	-.015**	.019***	.018***	-.053***	.020***	.014***	-.100***
European immigrant . . . . .	.011***	.012***	.012***	.016***	.016***	.016***	.007***	.009***	.009***
Female gender	-.031***	-.023***	-.022***	-.037***	-.034***	-.034***	-.026***	-.017***	-.017***
Married status (including cohabitation) .	.020***	.016***	.017***	.008***	.008***	.008***	.020***	.016***	.016***
Female gender \times married status									
(including cohabitation)	-.007***	-.008***	-.007***	-.008***	-.008***	-.008***	-.002**	-.004***	-.004***

TABLE A1. (Continued)

	ALL			BLUE			WHITE		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Children 0–15 years in household	.021***	.019***	.019***	.005***	.005***	.005***	.025***	.023***	.022***
Female gender × children 0–15 years in household	-.089***	-.091***	-.091***	-.072***	-.073***	-.073***	-.109***	-.109***	-.109***
Years of education	.032***	.025***	.025***	.012***	.011***	.011***	.038***	.028***	.028***
Workplace tenure	.003***	.003***	.003***	.006***	.005***	.005***	.001***	.001***	.001***
Workplace tenure ²	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***
Potential experience	.033***	.032***	.032***	.025***	.025***	.025***	.039***	.037***	.037***
Potential experience ²	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***
Self-employed	.045***	.026***	.026***	.067***	.069***	.069***	.037***	.013***	.013***
Workplace characteristics:									
% female	.031***	.011***	.011***	.011**	.006	.006	.026***	.004	.004
% white-collar	-.036***	-.050***	-.050***	-.054***	-.055***	-.055***	-.040***	-.052***	-.052***
Average education years	.013***	.018***	.018***	.014***	.014***	.014***	.013***	.021***	.021***
Average occupation rank	.200***	-.180***	-.180***	.034***	-.125***	-.124***	.151***	-.237***	-.237***
Average seniority	-.003***	-.003***	-.003***	-.004***	-.004***	-.004***	-.002***	-.002***	-.002***
% non-Western immigrants = 0	-.002***	-.002***	-.002***	-.002***	-.002***	-.002***	-.001*	-.002***	-.002***
% non-Western immigrants	-.092***	-.106***	-.105***	-.070***	-.072***	-.072***	-.075***	-.100***	-.101***
% non-Western in management	-.010**	-.009*	-.009**	-.013**	-.013***	-.013***	-.008	-.003	-.003
Occupational rank difference	.004**	.008***	.008***	.008***	.010***	.010***	.005**	.008***	.008***
Education difference	.000	.000	.000	.000	.000	.000	.000*	.000	.000
ln firm size	-.002***	.002***	.002***	.000	.000	.000	.003***	.003***	.003***
Entrepreneurial firm	-.004***	-.002**	-.002**	-.002*	-.002*	-.002*	-.006***	-.002	-.002

Individual rank and productivity:									
Predicted individual fixed effects									
(1990–2000)	.721***	.654***	.499***	.492***	.773***	.695***	.696***		
Current occupation rank	.433***	.433***	.161***	.162***		.434***	.434***		
Human capital/skill interactions:									
Non-Western immigrant × years of education	.002***	.002***		.004***			.008***		
Non-western immigrant × occupation rank	-.017***	-.017***		-.024***			-.013		
Non-Western immigrant × workplace tenure	.001*	.001*		.000			.001		
Non-Western immigrant × workplace tenure ²	-.000***	-.000***		.000			.000		
Non-Western immigrant × potential experience	.001**	.001**		.002***			.001		
Non-Western immigrant × potential experience ²	.000	.000		-.000***			.000		
Constant	4.325***	4.372***	4.736***	4.742***	4.224***	4.287***	4.290***		
<i>N</i>	5,817,819	5,817,819	2,390,196	2,390,196	3,427,623	3,427,623	3,427,623		
No. individuals	2,526,499	2,526,499	1,140,398	1,140,398	1,540,068	1,540,068	1,540,068		
No. workplace fixed effects	51,438	51,438	45,545	45,545	48,912	48,912	48,912		
Adjusted <i>R</i> ²	.68	.696	.575	.577	.666	.685	.685		
Correlation of individual-workplace fixed effects	.243	.246	.279	.28	.233	.239	.239		

NOTE.—SEs omitted to save space.

* $P < .05$ (based on individual cluster robust SEs).

** $P < .01$.

*** $P < .001$

TABLE A2
ESTIMATES OF THREE NESTED MODELS (M1–M3) FOR ALL WORKERS BY WORKPLACE EARNINGS INEQUALITY QUANTILES (Q1–Q4), SWEDEN 2001–7

	Q1			Q2			Q3			Q4		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
$t = 2004$ (ref. $t = 2001$)	.021***	.023***	.023***	.009***	.011***	.011***	.014***	.016***	.016***	.009***	.012***	.012***
$t = 2007$ (ref. $t = 2001$)	.044***	.048***	.048***	.026***	.030***	.030***	.041***	.045***	.045***	.034***	.040***	.040***
Immigrant-workplace interactions:												
Non-Western immigrant ×												
% non-Western immigrants	.042***	.048***	.026*	.046***	.051***	.018	.066***	.067***	.029*	.046	.027	.035
Non-Western immigrant ×												
% non-Western in management	.013	.012	.019	.059***	.054***	.061***	.047**	.044**	.049**	.054	.058	.062
Non-Western immigrant ×												
education difference	.000	.003**	.003***	-.005***	.001	.001	-.008***	-.002	-.001	-.013***	-.001	-.004*
Non-Western immigrant ×												
occupational rank difference	.054***	-.049***	-.027	.054***	-.058***	-.005	.094***	-.037**	.011	.351***	.137***	.133***
Individual characteristics:												
Non-Western immigrant	.017***	.012***	-.001	.010***	.006**	.027**	.002***	.002	.001	.036***	.024***	-.028*
European immigrant	.009***	.010***	.010***	.008***	.010***	.010***	.006***	.007***	.008***	.011***	.011***	.011***
Female gender	-.029***	-.024***	-.024***	-.026***	-.020***	-.020***	-.024***	-.016***	-.016***	-.034***	-.020***	-.020***
Married status (including												
cohabitation)	.011***	.009***	.009***	.018***	.014***	.014***	.022***	.019***	.019***	.021***	.019***	.019***
Female gender × Married status												
(including cohabitation)	-.008***	-.007***	-.007***	-.009***	-.008***	-.008***	-.006***	-.006***	-.006***	.000	-.006***	-.006***
Children 0–15 years in household	.003***	.003***	.003***	.009***	.007***	.007***	.018***	.016***	.016***	.055	.049***	.049***
Female gender × children												
0–15 years in household	-.061***	-.062***	-.062***	-.077***	-.077***	-.077***	-.092***	-.094***	-.094***	-.146***	-.145***	-.145***
Years of education	.018***	.015***	.015***	.024***	.019***	.019***	.031***	.025***	.025***	.042***	.030***	.030***
Workplace tenure	.003***	.003***	.003***	.003***	.004***	.004***	.003***	.003***	.003***	.002***	.002***	.002***
Workplace tenure ²	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***
Potential experience	.026***	.025***	.025***	.031***	.029***	.029***	.032***	.032***	.032***	.040***	.038***	.038***
Potential experience ²	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***
Self-employed	.029***	.013***	.013***	.047***	.030***	.030***	.062***	.046***	.046***	.056***	.040***	.040***
Workplace characteristics:												
% female	.002	-.007	-.007	.034***	.022**	.023***	.061***	.040***	.040***	.005	-.027**	-.027**
% white-collar	-.039***	-.044***	-.044***	-.047***	-.058***	-.058***	-.064***	-.079***	-.078***	-.014**	-.047***	-.047***

Average education years	.010***	.012***	.015***	.019***	.014***	.019***	.019***	.013***	.024***
Average occupation rank	.243***	-.047***	.253***	-.073***	.234***	-.124***	-.123***	.123***	-.321***
Average seniority	-.003***	-.003***	-.001***	-.001*	-.004***	-.004***	-.004***	-.003***	-.002***
% non-Western immigrants = 0	-.004***	-.004***	.000	.000	-.001	-.001	-.001	-.011***	-.011***
% non-Western immigrants	-.044***	-.049***	-.049***	-.046**	-.097***	-.114***	-.110***	-.188***	-.209***
% non-Western in management	-.009	-.009	-.001	.002	-.010	-.012	-.026*	-.021	-.021
Occupational rank difference	.001	.004	.016***	.019***	.002	.004	.004	.001	.005
Education difference	.000	.000	-.001***	-.001***	.000	.000	.000	.001	.001
ln firm size	.004***	.004***	.007***	.007***	.003***	.002***	.002***	.003***	-.004***
Entrepreneurial firm	-.005***	-.005***	-.008***	-.008***	-.011***	-.010***	-.010***	.006*	.010***
Individual rank and productivity: Predicted individual fixed effects (1990–2000)	.531***	.492***	.620***	.563***	.707***	.641***	.641***	.812***	.727***
Current occupation rank	.310***	.311***	.365***	.366***	.406***	.407***	.407***	.543***	.543***
Human capital/skill interactions: Non-Western immigrant × years of education		.001		.000		.001*		.004***	
Non-Western immigrant × occupation rank		-.031***		-.057***		-.049***		-.006	
Non-Western immigrant × workplace tenure		.000		.000		.002*		.002*	
Non-Western immigrant × workplace tenure ²		.000		.000		-.000***		-.000***	
Non-Western immigrant × potential experience		.001*		.000		.000		-.001	
Non-Western immigrant × potential experience ²		.000		.000		.000		.000**	
Constant	4.588***	4.625***	4.626***	4.405***	4.327***	4.372***	4.373***	4.226***	4.274***
N	1,435,955	1,435,955	1,435,955	1,454,107	1,442,836	1,442,836	1,442,836	1,484,900	1,484,900
No. individuals	885,711	885,711	1,003,003	1,003,003	977,108	977,108	977,108	811,483	811,483
No. workplace fixed effects	22,857	22,857	20,047	20,047	18,461	18,461	18,461	12,677	12,677
Adjusted R ²	.654	.664	.626	.643	.657	.674	.674	.703	.72
Correlation of individual-workplace fixed effects	.275	.279	.207	.211	.214	.218	.218	.227	.227

NOTE.—SEs omitted to save space.

* $P < .05$ (based on individual cluster robust SEs).

** $P < .01$.

*** $P < .001$.

TABLE A3
ESTIMATES OF THREE NESTED MODELS (M1–M3) FOR BLUE-COLLAR BY WORKPLACE EARNINGS INEQUALITY QUANTILES (Q1–Q4), SWEDEN 2001–7

	Q1			Q2			Q3			Q4		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
$t = 2004$ (ref. $t = 2001$)	.027***	.027***	.027***	.015***	.015***	.015***	.018***	.018***	.018***	.014***	.014***	.014***
$t = 2007$ (ref. $t = 2001$)	.054***	.055***	.055***	.042***	.043***	.042***	.045***	.046***	.046***	.023***	.024***	.024***
Immigrant-workplace interactions:												
Non-Western immigrant ×	.059***	.064***	.048***	.054***	.056***	.043***	.111***	.112***	.088***	.118***	.112***	.108***
% non-Western immigrants												
Non-Western immigrant ×	-.024	-.019	-.018	-.023	-.018	-.023	-.046**	-.042*	-.046*	-.046	-.040	-.043
% non-Western in management												
Non-Western immigrant ×	.002*	.003**	.001	.000	.001	-.001	-.002	-.001	-.004*	-.004	-.003	-.006*
Non-Western immigrant ×												
occupational rank difference	.067***	.018	.033	.064***	.024	.050**	.055**	.026	.058**	.086***	.070**	.087***
Individual characteristics:												
Non-Western immigrant	.021***	.018***	-.040***	.025***	.022***	-.044***	.013***	.010**	-.077***	.019***	.020***	-.005
European immigrant	.014***	.014***	.014***	.017***	.017***	.017***	.020***	.020***	.020***	.013***	.014***	.014***
Female gender	-.030***	-.027***	-.027***	-.039***	-.034***	-.034***	-.042***	-.039***	-.038***	-.030***	-.028***	-.028***
Married status (including												
cohabitation)	.005***	.005***	.005***	.009***	.008***	.008***	.012***	.011***	.011***	.012***	.011***	.011***
Female gender × married status												
(including cohabitation)	-.006***	-.006***	-.006***	-.007***	-.006***	-.006***	-.009***	-.009***	-.009***	-.013***	-.013***	-.013***
Children 0–15 years in household	.001**	.001**	.001*	.006***	.006***	.005***	.008***	.008***	.008***	.017***	.017***	.017***
Female gender × children												
0–15 years in household	-.061***	-.061***	-.061***	-.075***	-.076***	-.076***	-.081***	-.081***	-.081***	-.088***	-.088***	-.088***
Years of education	.009***	.009***	.009***	.011***	.011***	.011***	.013***	.012***	.012***	.017***	.016***	.016***
Workplace tenure	.005***	.004***	.004***	.006***	.006***	.006***	.008***	.008***	.008***	.005***	.005***	.005***
Workplace tenure ²	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***
Potential experience	.022***	.022***	.024***	.024***	.024***	.024***	.026***	.026***	.026***	.032***	.031***	.031***
Potential experience ²	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***
Self-employed	.041***	.042***	.042***	.062***	.063***	.063***	.089***	.091***	.092***	.136***	.138***	.138***
Workplace characteristics:												
% female	-.011	-.013	-.013	.044***	.039***	.039***	.036**	.030*	.030*	-.020	-.024	-.024
% white-collar	-.032***	-.033***	-.033***	-.032***	-.033***	-.033***	-.074***	-.075***	-.075***	-.033*	-.034*	-.035*

Average education years	.011***	.011***	.020***	.020***	.017***	.017***	.012***	.013***
Average occupation rank	-.052***	-.092***	-.028***	-.146***	-.145***	-.144***	-.027	-.178***
Average seniority	-.003***	-.003***	-.003***	-.003***	-.003***	-.007***	.001	.001
% non-Western immigrants = 0	-.004***	-.004***	-.003*	-.003*	-.003*	.003	-.001	-.001
% non-Western immigrants	-.025*	-.027*	-.061**	-.064***	-.064***	-.080***	.040	.038
% non-Western in management	-.006	-.007	-.004	-.003	-.003	-.005	-.094***	-.096***
Occupational rank difference	.007	.008*	.030***	.032***	.032***	-.003	.011	.013
Education difference	.000	.000	-.002***	-.002***	-.002***	.001*	.000	.000
ln firm size	-.001	-.001	.005***	.005***	.005***	-.001	-.001	-.001
Entrepreneurial firm	-.006***	-.006***	-.003	-.003	-.003	-.003	.010*	.011*
Individual rank and productivity: Predicted individual fixed effects (1990–2000)	.440***	.435***	.495***	.485***	.486***	.526***	.587***	.580***
Current occupation rank	.146***	.146***	.176***	.176***	.177***	.156***	.157***	.156***
Human capital/skill interactions: Non-Western immigrant × years of education	.003***	.003***	.004***	.004***	.004***	.006***	.004***	.004***
Non-Western immigrant × occupation rank	-.021*	-.021*	-.027**	-.027**	-.027**	-.031*	-.032*	-.032*
Non-Western immigrant × workplace tenure	.000	.000	-.001	-.001	-.001	.000	.002	.002
Non-Western immigrant × workplace tenure ²	.000	.000	.000	.000	.000	.000	-.000*	-.000*
Non-Western immigrant × potential experience	.002**	.002**	.002***	.002***	.002***	.003***	-.001	-.001
Non-Western immigrant × potential experience ²	.000	.000	.000	.000	.000	-.000**	.000	.000
Constant	4.829***	4.833***	4.647***	4.656***	4.659***	4.723***	4.576***	4.587***
N	963,287	963,287	652,277	652,277	652,277	464,617	310,006	310,006
No. individuals	572,133	572,133	469,082	469,082	469,082	338,904	190,999	190,999
No. workplace fixed effects	21,011	21,011	17,979	17,979	17,979	15,710	9,853	9,853
Adjusted R ²	.633	.635	.582	.584	.584	.533	.489	.491
Correlation of individual-workplace fixed effects	.325	.326	.273	.275	.275	.207	.234	.233

NOTE.—SEs omitted to save space.

* $P < .05$ (based on individual cluster robust SEs).

** $P < .01$.

*** $P < .001$.

TABLE A4
ESTIMATES OF THREE NESTED MODELS (M1–M3) FOR WHITE-COLLAR BY WORKPLACE EARNINGS INEQUALITY QUANTILES (Q1–Q4), SWEDEN 2001–7

	Q1			Q2			Q3			Q4		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
$t = 2004$ (ref. $t = 2001$)	.019***	.021***	.021***	.011***	.013***	.014***	.010***	.017***	.017***	.013***	.015***	.015***
$t = 2007$ (ref. $t = 2001$)	.044***	.049***	.049***	.027***	.030***	.030***	.045***	.049***	.049***	.046***	.051***	.051***
Immigrant-workplace interactions:												
Non-Western immigrant ×	-.039	-.034	-.038	.021	.046*	.032	-.025	-.025	-.031	.022	.019	.010
% non-Western immigrants							.180***	.143***	.159***	.094*	.081*	.097*
Non-Western immigrant ×	.098***	.068**	.073**	.139***	.103***	.116***						
% non-Western in management												
Non-Western immigrant ×	.000	.007***	.004	-.005**	.004*	.001	-.004*	.004*	.001	-.008***	.005*	.000
education difference												
Non-Western immigrant ×	.092***	-.073**	-.056*	.144***	-.062**	-.015	.189***	-.033	.011	.380***	.099***	.077**
occupational rank difference												
Individual characteristics:												
Non-Western immigrant	.008	.011**	-.067**	-.002	-.003	.02	.003	.000	-.017	.031***	.021***	-.119***
European immigrant	.000	.002	.002	.001	.004***	.004***	-.002	.001	.001	.011***	.011***	.011***
Female gender	-.021***	-.017***	-.017***	-.017***	-.014***	-.014***	-.017***	-.010***	-.010***	-.040***	-.024***	-.024***
Married status (including cohabitation)	.019***	.014***	.014***	.021***	.016***	.016***	.021***	.017***	.017***	.017***	.016***	.016***
Female gender × married status												
(including cohabitation)	-.012***	-.010***	-.010***	-.010***	-.009***	-.009***	-.002	-.003**	-.003**	.007***	.000	.000
Children 0–15 years in household	.004***	.002	.002	.008***	.005***	.005***	.017***	.015***	.015***	.051***	.046***	.046***
Female gender × children												
0–15 years in household	-.065***	-.067***	-.067***	-.082***	-.082***	-.082***	-.102***	-.103***	-.103***	-.153***	-.153***	-.152***
Years of education	.027***	.020***	.020***	.030***	.023***	.023***	.035***	.027***	.027***	.045***	.032***	.032***
Workplace tenure	.001***	.001***	.001***	.002***	.002***	.002***	.001***	.001***	.001***	.002***	.002***	.002***
Workplace tenure ²	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***
Potential experience	.033***	.030***	.030***	.037***	.034***	.034***	.038***	.035***	.035***	.043***	.042***	.042***
Potential experience ²	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.000***	-.001***	-.001***	-.001***
Self-employed	.054***	.022***	.021***	.047***	.021***	.021***	.049***	.027***	.027***	.023***	.007	.007
Workplace characteristics:												
% female	.006	-.007	-.007	.014	.001	.002	.054***	.033***	.033***	-.001	-.036***	-.036***
% white-collar	-.037***	-.045***	-.045***	-.042***	-.053***	-.054***	-.066***	-.081***	-.081***	-.067***	-.090***	-.090***
Average education years	.008***	.013***	.013***	.014***	.019***	.019***	.015***	.022***	.022***	.014***	.026***	.026***

Average occupation rank	.178***	-.128***	-.129***	.175***	-.173***	-.172***	.145***	-.227***	-.226***	.084***	-.382***	-.382***
Average seniority	-.001***	-.001**	-.001**	.000	.001	.001	-.002***	-.002***	-.002***	-.003***	-.003***	-.003***
% non-Western immigrants = 0	-.004*	-.004*	-.004*	.002*	.002	.002	-.001	-.001	-.001	-.011***	-.012***	-.012***
% non-Western immigrants	-.065**	-.077**	-.076**	-.003	-.032	-.03	-.080**	-.111**	-.112***	-.278***	-.294***	-.293***
% non-Western in management	-.038**	-.030*	-.030*	.005	.011	.01	-.007	-.008	-.007	-.010	-.003	-.004
Occupational rank difference	-.010	-.007	-.007	.006	.009**	.009**	.007	.009*	.009*	.005	.009*	.009*
Education difference	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.000	.000
In firm size	.011***	-.011***	-.011***	.008***	.008***	.008***	.004***	.004***	.004***	-.004***	-.004***	-.005***
Entrepreneurial firm	-.012***	-.006	-.006	-.015***	-.013**	-.013**	-.010***	-.016***	-.016***	.002	.005	.005
Individual rank and productivity:												
Predicted individual fixed effects												
(1990–2000)	.619***	.543***	.543***	.671***	.593***	.593***	.747***	.669***	.669***	.826***	.740***	.740***
Current occupation rank	.343***	.343***	.343***		.385***	.386***		.416***	.417***		.534***	.533***
Human capital interactions:												
Non-Western immigrant ×												
years of education			.005***			.003**			.006***			.008***
Non-Western immigrant ×			-.021			-.074***			-.075***			.027
occupation rank			.001			.001			.002			.001
Non-Western immigrant ×			.000			.000			.000			.000
workplace tenure			.000			.000			.000			.000
Non-Western immigrant ×			.001			-.001			-.001			.001
potential experience			.000			.000			.000			.000
Non-Western immigrant ×			.000			.000			.000			.000
potential experience ²			4.401***	4.473***	4.261***	4.337***	4.269***	4.333***	4.333***	4.260***	4.321***	4.325***
Constant	472,668	472,668	472,668	801,830	801,830	801,830	978,219	978,219	978,219	1,174,894	1,174,894	1,174,894
N	336,385	336,385	336,385	556,134	556,134	556,134	662,080	662,080	662,080	639,747	639,747	639,747
No. individuals	20,799	20,799	20,799	19,187	19,187	19,187	17,871	17,871	17,871	12,388	12,388	12,388
No. workplace fixed effects	.626	.65	.65	.616	.64	.64	.646	.666	.666	.687	.705	.705
Adjusted R ²												
Correlation of individual-workplace												
fixed effects	.209	.219	.219	.228	.235	.236	.227	.233	.233	.194	.196	.196

NOTE.—SEs omitted to save space.

* $P < .05$ (based on individual cluster robust SEs).

** $P < .01$.

*** $P < .001$.

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