

**Online Appendices for
“Domestic Outsourcing and Young-worker Entry into the Formal Sector,”
by Mayara Felix and Michael B. Wong**

A Institutional Setting

The fact that Brazil's regional courts differed in their permissiveness to outsourcing prior to Súmula 331 is well-known to industry insiders, but is poorly documented. During a field trip in September 2019, we conducted interviews with managers of security service firms, managers of businesses that either employed or outsourced security services, numerous security guards, labor lawyers, and staff of a security guard union in Recife. In one interview, we asked the CEO of a family-run security service firm incorporated in the 1970s how the legalization of outsourcing by Súmula 331 in 1993 affected her firm. She insistently responded that outsourcing had never been considered illegal. This response contradicted various legal articles that suggest outsourcing had been declared illegal by Súmula 256 in 1986 (da Cruz 2009; Biavaschi and Droppa 2011; Cooney et al. 2015).

We consulted several labor lawyers, who informed us that local courts in Brazil's South, which had historically been friendlier to labor, likely enforced the ban on outsourcing much more vigorously than courts in the rest of Brazil. To further investigate local court permissiveness toward outsourcing, we submitted formal requisitions to all 24 regional labor courts asking if: (1) lawsuits from 1985-1993 were available, (2) it would be possible for us to have a list of all lawsuits concerning outsourcing, and (3) they still had the cases listed as precedents for Súmula 256 and 331. Sadly, almost all local courts answered in the negative; most no longer kept cases before 1993.

Given the obstacles in obtaining individual rulings within each regional labor court, we gathered available primary and secondary sources to glean as much information on the stances of regional courts as possible. The materials include interviews and review of individual cases appealed to the Superior Court and cited by Súmula 331. We classify the regional courts based on our best reading of these materials. We say that a court is restrictive if the materials suggest that the regional court consistently ruled against the legality of the outsourcing arrangement. We say that a court is permissive either if it did not, or if materials are unavailable.

Appendix Table A.6 summarizes our classification of Brazil's 24 regional labor courts. Columns (5) and (6) summarize the information from legal precedents, while columns (7)–(9) summarize the information from available interview transcripts. Columns (10)–(12) then show the prevalence of outsourcing of security guards before and following the reforms for each region.

One set of supporting documents for the classification comes from research performed by Magda Biavaschi and Alisson Droppa, two Brazilian legal historians who interviewed prominent judges and lawyers regarding the history surrounding Súmula 331, as well as a set of 28 interview transcripts that they generously provided. Appendix Tables A.3 and A.4 display all quotes from these interviews concerning Courts' interpretation on the legality of outsourcing.

Another set of supporting documents are regional labor court precedent rulings that were appealed to the Superior Labor Court between 1986 (when Súmula 256 was in place) and 1993 (when Súmula 331 took place), as these were centrally stored at the Superior Labor Court's archives. Appendix Table A.5 summarizes the key decisions in each ruling. Column (6) shows that Southern regional labor courts tended to find a direct employment link with the end-firm, meaning that they did not recognize the legality of the outsourcing arrangement. In contrast, Column (7) shows that the Superior Labor Court tended to reverse these regional courts' decisions, finding the direct employment link with the contract-firm instead.

The interviews and legal precedents point to very restrictive interpretations in Brazil's South,²⁹ including

²⁹While evidence that Southern courts were more restrictive abound, the reasons why are less clear. One possibility is the South's leftist legal tradition, Rio Grande do Sul being the center of the Alternative Law Movement, an intellectual movement that emerged in the 1980s and was grounded on Marx's critical theory of law (Barreto and de Lyra, 2016). Another possibility is the influence of Italian and German immigration on the region's positive attitude toward labor unions (Batistella, 2009).

Rio Grande do Sul (4th regional court), Paraná (9th), and Santa Catarina (12th), and a restrictive—though to a lesser extent—interpretation in the countryside of São Paulo state (15th region, Campinas), in contrast with the permissive city of São Paulo (2nd region).

At the same time, we found little scholarship and written record about the legality of outsourcing during the pre-reform period for most regions ultimately classified as permissive. The lack of written record is likely driven by outsourcing being less contested/litigated outside Brazil’s South or major urban centers, like the city of São Paulo (2nd region), where courts were permissive.

Based on these findings, we define regional courts 4, 9, 12, and 15 as restrictive toward outsourcing prior to the reforms, while the remaining regional courts are defined as permissive toward outsourcing. As mentioned in the main text, we are uncertain about the correct classification of the 15th region, but our local labor market results are robust to dropping observations from the São Paulo state (see Appendix Table C.1).

Table A.1: Legal status of outsourcing by activity, pre-1986 to 2017

Activity	Pre-1986	1986–1993 (Súmula 256)	1993–2017 (Súmula 331)
<i>Panel A: Permitted nationally throughout period</i>			
Temporary work via agency	Allowed since 1974 (Law 6.019/1974 ^a)	Allowed (statutory exception)	Allowed (item I)
Bank security	Allowed since 1983 (Law 7.102/1983 ^b)	Allowed (statutory exception)	Allowed (item III)
External legal, accounting, audit, consulting	Allowed (civil/commercial contract, not labor)	Allowed (civil/commercial contract, not labor)	Allowed under generic clause; <i>personalidade</i> absent
<i>Panel B: Legalized nationally in 1993 (Súmula 331)</i>			
Non-bank private security	Doctrinally contested; some courts treated as illegal <i>locação de mão-de-obra</i>	Illegal under 256 (case law contested)	Allowed (item III, after Law 8.863/1994 ^c)
Cleaning and conservation	Civil contract in principle, but courts often re-classified as direct employment when on-site/personal	Illegal under 256 (case law contested)	Allowed (item III, named explicitly)
Reception, telephony, copying, typing (on-site)	Civil contract in principle; risk of reclassification	Illegal under 256 (case law contested)	Allowed under generic <i>atividade-meio</i> clause only if <i>personalidade</i> absent
<i>Panel C: Forbidden nationally throughout period</i>			
Core production tasks (assembly line; teachers in a school; pulp-wood cutting in paper firms)	Civil contract on paper; courts often pierced	Illegal under 256	Illegal (<i>atividade-fim</i>) ^d

Notes. This table shows the legal status of outsourcing by activity under the pre-1986, 1986–1993 (Súmula 256), and 1993–2017 (Súmula 331) regimes. Cells under “Pre-1986” and “1986–1993” summarize the most common labor-court resolutions, not statutory rules, except where a statute is cited (Panel A). Cited laws: ^a Lei 6.019/1974; ^b Lei 7.102/1983; ^c Lei 8.863/1994; ^d Lei 13.467/2017.

Table A.2: De jure regulatory environment for outsourcing vs. direct-hiring, by activity

Activity	Legal cost of outsourcing		Legal cost of direct-hiring	
	Pre-1994 (1)	Post-1994 (2)	Pre-1994 (3)	Post-1994 (4)
Armed security	High (Súmula 256, 1986)	Low (Súmula 331, Dec 1993)	Low (Lei 7.102/1983 applies to banking security only)	High (Lei 8.863/1994 extends Lei 7.102 to all firms directly hiring armed security)
Cleaners	High (Súmula 256, 1986)	Low (Súmula 331, Dec 1993; cleaning named explicitly)	Low (no statutory requirements; generic CLT)	Low (no statutory requirements; generic CLT)
Other <i>atividade-meio</i> (reception, telephony, copying, on-site typing)	High (Súmula 256, 1986)	Medium (Súmula 331 generic clause: outsourcing allowed only if <i>pessoalidade</i> is absent)	Low (no statutory requirements; generic CLT)	Low (no statutory requirements; generic CLT)

Notes. This table summarizes the de jure legal cost of outsourcing and of directly hiring workers in each activity, before and after the 1993–1994 reforms. “High”/“Medium”/“Low” refer to the de jure cost imposed by the cited statutory or jurisprudential instrument. “Generic CLT” refers to the general labor framework of Decreto-Lei 5.452/1943. See Table A.1 for the detailed outsourcing column.

Table A.3: Quotes from interviewees who worked in Restrictive regions prior to Súmula 331

Interviewee's position at the time (1)	Regional Labor Court (2)	Original quote (3)	English translation (4)	Interpretation (5)	Interview date (6)	Source (7)
Regional Labor Court Justice	4	"Na época, os juízes da 4ª Região aplicavam - seguindo a linha do magistério do mestre de todos nós, João Antônio Guillembernard Pereira Leite – o entendimento da Súmula 256 do TST que levava ao reconhecimento da relação de emprego direta entre trabalhador e tomador dos serviços, seu real beneficiário. E, dessa forma, reconhecia-se a produção dos efeitos jurídicos que a fraude visava a impedir, retirando-se a máscara e responsabilizando-se diretamente a empresa tomadora dos serviços."	"At the time, judges at the 4th Regional Labor Court upheld - in line with the juridical practice of our master João Antônio Guillembernard Pereira Leite - the understanding that the Superior Court's Súmula 256 recognized a direct employment relationship between the worker and the services-contracting firm, which is the actual beneficiary [of the employment relationship]. And, in this way, we accepted as valid the legal consequences that the fraud[lent] [outsourcing relationship] aimed to avoid, taking off its mask and ruling the services-contracting firm to be directly responsible [for such legal consequences]."	Restrictive	Feb 2008	2
Prosecutor for the District Attorney's Labor Office	4	"E o entendimento era o stricto sensu do Enunciado 256: [a terceirização] só era permitida no serviço de vigilância bancária e no trabalho temporário. Adotava-se integralmente esse entendimento."	"And the interpretation of Enunciado 256 was stricto sensu: [outsourcing] was only allowed in the case of security services for banks and for temporary work. That interpretation was wholeheartedly adopted."	Restrictive	Jul 2008	2
Regional Labor Court Justice	4	"... naquele momento tínhamos o Enunciado 256 do TST que só excluía aquele trabalho temporário e, depois, os vigilantes [bancários]."	"... at that time we had Enunciado 256 from the Superior Labor Court which only made exceptions for temporary work and, afterwards, for [banking] security."	Restrictive	Jul 2008	2
Regional Labor Court Justice	4	"Os vigilantes do quadro estavam sendo substituídos por vigilantes contratados via agora essas empresas... Nós entendíamos que aqui a legislação ressaltada pela 256 não se aplicava... Então eu conhecia a natureza do vínculo de emprego diretamente com os bancos. Muitas dessas minhas decisões foram confirmadas pelo Tribunal e depois no Tribunal Superior do Trabalho, que era quem editava a súmulas. Se foram reformadas, eu não sei porque não acompanhava... nós não nos preocupávamos muito em acompanhar o andamento das nossas decisões, mas não eu não julgava sozinha."	"Security guards were being replaced by guards contracted now via these firms... Our understanding was that the exceptions made under 256 were not applicable here... so I recognized the employment link directly with banks. Many of my decisions were upheld by the Regional Labor Court and then by the Superior Labor Court, which edited súmulas. If they were revised, I do not know because I did not follow... we did not concern ourselves with what happened after our decisions, but no I did not rule alone."	Restrictive	Apr 2020	1
Labor judge	4	"Nas minhas decisões, eu não me apego muito à teoria, à doutrina... Gosto de analisar o caso concreto. E naquele processo [de 1991], ao analisar a forma pela qual havia sido feita a terceirização, (...) o que me levou a entender que o que estava sendo praticado (...) não era correto (...) é o fato de que não poderia admitir que um empregado que estava integrado no corpo da empresa, galgando uma carreira, com esperança de subir na vida, fosse, de repente, excluído daquele processo. Uma empresa deve crescer, mas é obrigatório que leve seus empregados a crescer junto com ela. Não aceito outra forma de empresariado. (...) Colocava-me na pele de um empregado, por exemplo, na pele do chefe do departamento de pessoal. Que havia, enfim... Era um excelente empregado, merecia estar no quadro de empregados, com todas as vantagens decorrentes, sendo um bom empregado."	"In my decisions, I don't cling much to theory, to doctrine... I like to analyze each specific case. And that [1991] case, in analyzing the way in which outsourcing had been done, (...) what made me understand that what was actually being practiced (...) was not right (...) is the fact that I could not accept that an employee who had been part of the staff, who was building a career, with hopes to ascend in life, could, out of a sudden, be excluded from that process. A company needs to grow, but it is compulsory that it allows it brings its employees to grow with it. I cannot accept any other form of business. (...) I put myself in the employee's shoes, for example, (...) in the shoes of the human resources department's head. That had, anyway... He was an excellent employee, he deserved to be in the employee roster, with all its advantages, being a good employee."	Restrictive	May 2008	2
		"Então, não posso dizer que no meu íntimo seja favorável à terceirização. Não sou. A empresa deve ser uma grande família em que todos evoluam juntos. Todos."	"So, I cannot say that deep inside I am favorable to outsourcing. I am not. The firm must be a great family in which all grow together. All."			

Notes: This table shows quotes from interviews concerning regional labor courts' interpretation of the legality of outsourcing prior to Súmula 331, from interviewees who worked in restrictive regions. Source 1 in Column (5) is interviews conducted by the authors, whereas Source 2 is transcripts from interviews conducted by (now retired) Regional Labor Court Justice Magda Biavaschi and legal historian Alisson Droppa.

Table A.3: Quotes from interviewees who worked in Restrictive regions prior to Súmula 331 (Cont.)

Interviewee's position at the time (1)	Regional Labor Court (2)	Original quote (3)	English translation (4)	Interpretation (5)	Interview date (6)	Source (7)
Journalist and lawyer. Representative for Worker Syndicates at RS court (1985-1991), Representative of Worker Syndicates at Superior court (1993 onwards)	4	"Mas penso que no Rio Grande do Sul (e aqui não tem bairrismo ou gauchismo) temos uma visão mais esclarecida sobre a questão. Até sobre o papel da Justiça do Trabalho. Esta existe justamente para assegurar aos trabalhadores os direitos previstos na CLT, para que a lei seja cumprida. Se querem modificar a decisão da Justiça do Trabalho, mudem-se as leis, no Congresso Nacional, democraticamente. Mas o que não pode acontecer é que determinadas interpretações sejam complacentes." "Pessoalmente, como advogado e como pessoa que conhece a Justiça do Trabalho, como eu conheci, que conhece as relações de trabalho, não vejo como alguém pode se beneficiar com a locação de mão-de-obra, com a terceirização. Algum passe mágico nessa contratação acontece. Não posso compreender que uma empresa que deixa de contratar telefonistas para contratá-las por uma terceira, locadora de mão-de-obra, pague para essa locadora X e ela pague o seu empregado. O que ela vai pagar ao empregado seu? Qual o lucro? Por evidente, há lucro nessa intermediação. Mas quem ganha? Quem perde? Alguém sai lesado. O trabalhador, possivelmente. (...) É uma matemática que não fecha. É a minha conclusão. Por isso, não consigo entender, ainda, a razão de ser da terceirização."	"But I think that in Rio Grande do Sul (and here I mean no state chauvinism) we have a much clearer understanding of this topic. Even of the role of Labor Courts. The courts exist precisely to assure workers of their rights according to labor laws, so that the law be followed. If they want to change the Labor Courts' decision, then they must change the laws, in Congress, democratically. But what cannot happen is that certain interpretations be complacent." "Personally, as a labor lawyer and as someone who understands the Labor Courts as I do, that knows labor relationships, I don't see how someone can benefit from the contracting of labor, from outsourcing. Some magical step in this form of contracting must happen. I cannot understand how one firm that stops to directly hire phone operators to outsourcing them from an outsourcing firm instead, can pay this outsourcing firm X and then this firm pays its employee. What is the outsourcing firm going to pay its employee? What is the profit? Evidently, there is profit in this intermediation. But who wins? Who loses? Someone gets hurt. The worker, possibly. (...) This is math that doesn't make sense. This is my conclusion. For that reason, I cannot understand, still, outsourcing's <i>raison-d'être</i>."	Restrictive	Jul 2008	2
Jerônimo Leiria, lawyer for large end-firm in Rio Grande do Sul; Creator of word "terceirização" to denote outsourcing, with the goal of avoiding explicit violations of Súmula 256	4	"E como havia o entendimento da Súmula 256 do TST, que proibia a contratação de serviços, era necessário que houvesse uma nomenclatura para essas atividades contratadas que não recebesse o título de prestação de serviços. E, ainda, que não tivesse uma tradução em qualquer outra língua. Era necessário achar uma palavra oca, que não tivesse significado nenhum... Ai eu criei umas 40 palavras: [dentre elas a] terceirização (a partir da idéia de que se contrato uma empresa, vêm os empregados de outra empresa, eles são alheios, terceiros)... Então se procedeu a uma votação... Daí a palavra mais simpática e mais "nada a ver" foi terceirização. "O que é que vocês estão fazendo?", perguntariam. E responderíamos: "Estamos fazendo terceirização". Como a fábula roupa nova do rei (...) Como era uma palavra nova, que não estava registrada em lugar nenhum, eu media os centímetros quadrados quando a mesma era publicada, pois tinha sido inventada por nós. Tenho o registro de que ela [a palavra] foi publicada pela primeira vez em 23 de janeiro de 1991, pela revista Exame." "<u>Pergunta:</u> Mas havia resistências internamente a Justiça do Trabalho, não? <u>Resposta:</u> Sim. <u>Pergunta:</u> Eram importantes, eram significativas essas resistências na época? <u>Resposta:</u> Sim, era a totalidade."	"Because there was an understanding from Súmula 256, which forbade the contracting of services, it was necessary for that to be a nomenclature for contracted activities that did not use that [exact] term. And, still, it had to be a term that did not have a translation from any other language. It was necessary to find a hollow word, devoid of meaning... So I created 40 words: [among which was <i>terceirização</i> (starting from the idea that if I contract with a company, the employees from that company are the ones who come, they are third-parties)... Then we voted... and the more sympathetic word and the one that had 'nothing to do with anything' was <i>terceirização</i> [, which can be translated as outsourcing]. They would ask: 'What are you guys doing?', and we would answer 'We are outsourcing'. It is like the fable of the Emperor's New Clothes (...) Because it was a new word, that was not registered anywhere, I was able to track whenever it was published, as the word had been created by us. I have records that show that the first time it [the word] was published was on January 23, 1991, by the Exame magazine." "<u>Question:</u> But was there important internal resistance from the Labor Courts? <u>Answer:</u> Yes. <u>Question:</u> Were they important, were this resistance significant at the time? <u>Answer:</u> Yes, they were all there was."	Restrictive	Sep 2008	2
Regional Labor Court Justice	9	"A Terceirização é um processo que veio para ficar, em que a classe trabalhadora se subdividiu e se fracionou, dificultando a ação sindical... buscando uma acomodação com o movimento do capital que continua avançando em seu sistema de exploração... Pela análise daquele processo, cuja cópia digital vocês me enviaram antes da entrevista, percebi que a Juíza de primeiro grau... concluía pela ilegalidade da Terceirização... No Tribunal, mantínhamos a ilegalidade e [reconhecíamos] o vínculo de emprego."	"Outsourcing is a process that is here to stay, in which the working class got subdivided and fractioned, making it harder for unions to operate... searching for its place with the capital movement that keeps advancing in its exploitation system... According to [my] analysis of that case, whose three digital copies you sent me before this interview, I noticed that the district judge... ruled that outsourcing was illegal. At the Regional Court, we would uphold this illegality and [recognized] the employment link with the end employer."	Restrictive	May 2011	2

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Labor judge	9	"Então a terceirização, a meu ver, não deixa de ser uma precarização fruto dessa modernização onde se abrem as portas para um novo formato da prestação de serviço. (...) [E]u diria que 99% das ações questionavam sim a terceirização e buscavam vínculo com a [tomadora de serviços]... bom, não preciso nem te dizer que todas as sentenças foram no sentido de reconhecer o vínculo e a responsabilização ali eu acho que dei solidariedade em todos, devido ao ato ilícito, a fraude, eu 'canetiei' pesado, as sentenças foram confirmadas pelo Tribunal, não sei se chegou ao TST, mas eu lembro que não teve nenhuma dúvida"	"Outsourcing, in my view, is nothing but a worsening of working conditions that is a product of this modernization where doors are open to a new way of services contracting (...) [I] would say that 99% of cases did question outsourcing and wanted a direct employment link with [the end-firm]... well, I don't even need to say that all of our rulings were to recognize the direct employment link and find the end-employer jointly liable ['responsabilidade solidária'], I think I found joint liability on all cases, due to the illicit nature, the fraud, I 'ruled' heavily, the rulings were upheld by the Regional Court, not sure if they were brought to the Superior Court, but I remember we had no doubts about it."	Restrictive	Nov 2011	2
Labor lawyer	9	"Nos idos de 1979, 1980, assessorava a categoria dos vigias e vigilantes que, à época, não tinha legislação específica... Nessa época, os vigilantes trabalhavam nas portas dos bancos como vigilantes e exerciam diversas funções. Na verdade, eles eram porteiros: davam informações, ajudavam a abrir conta bancária, fichários, arquivos. Então, comecei a ajuizar reclamações... invocando que quem exercia serviços de portaria [em bancos] era bancário... Em decorrência desse trabalho, as serventes que trabalhavam em bancos começaram a me procurar. Comecei, assim, a ajuizar reclamações contra os bancos advogando a tese de que, na realidade, essas serventes eram bancárias e não "locadas". Sendo a locação de mão de obra ilegal, essas ações começaram a ser vitoriosas."	"Around 1979, 1980, I assisted security guards, for which, at the time, there was no specific legislation... At that time, security guards worked in front of banks as security guards and took on a variety of tasks. In truth, they were doormen: they gave out information, helped customers open accounts, filing, archival. So, I began filing lawsuits... arguing that who exercised doorman services [at banks] was a bank employee... Because of this work, servers who worked in banks started seeking me out. I started, then, filing lawsuits against banks arguing that, in reality, these servers were bank employees and not "outsourced". Given that outsourcing was illegal, I started winning these lawsuits."	Restrictive	Dec 2012	2
Laywer and Congressman. Helped found Workers Party with Lula.	9	<u>Pergunta:</u> Então, vimos que nas sentenças da Vara, da Junta, eram nesse sentido. Reconheciam o vínculo direto com [uma grande empresa do Paraná]. O Tribunal, em regra, a mantinha. Mas [essa empresa] recorria para o TST, não mais questionando sua condição de empregadora, mas o mérito. [Por quê?] <u>Resposta:</u> Não adiantava, porque ela ia perder."	<u>Question:</u> So, we saw that the District Court rulings were in line with this. They would recognize the direct link with [a large firm in Paraná]. The Regional Court, in general, upheld that decision. But [the firm] would appeal to the Superior Court, no longer questioning that it was the direct employer, but only [questioning] the allged damages. [Why?] <u>Answer:</u> Because it was to no avail, the firm knew it would lose."	Restrictive	May 2011	2
Layer of large end-firm in Paraná and Santa Catarina	12	"[A empresa] passou nesse tempo por processos de terceirização, nessa década de 1980 e início de 2000, mas verificasse o seguinte as terceirizações que foram para baratear não deram certo, as terceirizações que foram para adquirir tecnologia, essa deram certo e estão ai até hoje... [T]emos [essa discussão sobre terceirização] em Santa Catarina... porque [lá houveram] várias terceirizações anuladas, é um problema isso."	[The firm] went over a process of outsourcing during this time, between the 1980s and early 2000, but we found out the following: the outsourcing decisions made to cut costs didn't work out, the outsourcing made to acquire technology did and are here through today... [W]e have [this discussion about outsourcing] in Santa Catarina... because [there, there were] many nulled outsourcing decisions, this is a problem."	Restrictive	Aug 2011	2
President of worker syndicate	15	"Depois da regulamentação... [p]ode-se terceirizar em algumas atividades. Por exemplo, a vigilância que, hoje, é legal; não era. A vigilância, a alimentação, a limpeza, todas atividades da nossa categoria. (...) Terceirização, eu acho, é uma fraude nas relações de trabalho. Ela maquia a relação. As empresas dela fazem uso para reduzir custo e, também, para se eximirem da responsabilidade trabalhista frente àqueles funcionários. (...) Em todas as convenções reivindicamos o fim da terceirização..."	"After legalization...we could outsource in some activities. For example, security services which, today, is legal, was not. Security services, food services, cleaning, all activities our our syndicate. (...) Outsourcing, I think, is a fraud to work relationships. It masks the relationship. Its firms make use of it to reduce costs and, also, to bypass labor laws for those workers. (...) In all conventions we pushed for the end of outsourcing..."	Restrictive	Apr 2009	2
Prosecutor for the state of São Paulo from 1990 to 1993	15	"O 256 era perfeito. Havia dois tipos de trabalho que poderiam ser terceirizado: vigilância [bancária] e de caráter temporário, em casos excepcionais, tudo documentado, fundamentado, perfeito. Quanto veio a Súmula 331 ela abriu "a porteira" para o empregador usar um instrumento de administração e de excelência, como se fosse uma ferramenta de precarização[.]"	"256 was perfect. There were two types of jobs that could be outsourced: [banking] security and temporary work, in exceptional cases, everything documented, argued, perfect. When Súmula 331 arrived it opened the "flood gates" for the employer to use an exceptional administrative provision as a tool for worsening labor conditions[.]"	Restrictive	Jun 2009	2

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Labor judge	15	"Na carreira de magistrado deparei-me com... pouquíssimos processos questionando a terceirização, buscando o reconhecimento do vínculo com a tomadora do serviço. Isso é muito raro. Nem me recordava, aliás, do processo em que atuei, cujas cópias vocês me encaminharam previamente e, muito menos, da decisão que então prolatei. Não me recordava porque são muito esporádicos."	"In my career as a judge I encountered very few lawsuits questioning outsourcing, asking for recognition of the employment link with the end firm. That is very rare. In fact, I did not even remember the lawsuit I ruled on, whose copies you previously forwarded me, let alone the decision I ruled on it then. I did not remember because they are very few and far-between."	Unclear	Apr 2009	2
Clerk (1987-1991), lawyer (1991-1995), judge (1995 onwards)	15	"Por princípio, penso que a terceirização é negativa, porque descategoriza e precariza os trabalhadores, além de prejudicar a própria dimensão da responsabilidade patrimonial pelos créditos trabalhistas."	"In principle, I think that outsourcing is negative, because it makes worker groups more disconnected and fragile, in addition to harming the very dimension of employer responsibility for labor claims."	Restrictive	Jul 2007	2
		"Por aqui na 15ª, a impressão que eu tenho é que, com a mudança da Súmula (da 256 para 331), as pessoas passaram a assimilar a ideia de que a terceirização era sempre lícita, sem atentar para as próprias ressalvas feitas pelo TST. "	"Here at the 15th, the impression I have is that, once the Súmula changed (from 256 to 331), people started to accept the idea that outsourcing was always licit, even disregarding the exceptions made by the Superior Labor Court."			
		"[E]m 1985, o Estado de São Paulo contava com 60.476 trabalhadores terceirizados, número que ampliado para 129.951 em 1993 e saltou para 179.836 em 1994... Esse aumento foi intensificado a partir de 1994, quando da implantação do Plano Real mas também época em que houve a modificação do entendimento predominante no TST a respeito do tema. (...) É claro que esse não foi o único fator que levou a esse fenômeno amplificador da terceirização, mas não se pode subestimar a capacidade que as decisões judiciais possuem de influenciar as diretrizes de atuação empresarial."	"[I]n 1985, the State of São Paulo had 60.476 outsourcing workers, a number that expanded to 129.951 in 1993 and jumped to 179.836 in 1994... This increase was intensified starting in 1994, at time of the Real Plan, but also the time when there was a change in the Superior Court's understanding of the topic. (...) Of course this was not the only factor that led to the expansion of outsourcing, but one cannot underestimate the ability that legal decisions have to influence how firms behave."			

Notes: This table shows quotes from interviews concerning regional labor courts' interpretation of the legality of outsourcing prior to Súmula 331, from interviewees who worked in restrictive regions. Source 1 in Column (5) is interviews conducted by the authors, whereas Source 2 is transcripts from interviews conducted by (now retired) Regional Labor Court Justice Magda Biavaschi and legal historian Alisson Droppa.

Table A.4: Quotes from interviewees who worked in Permissive regions prior to Súmula 331

Interviewee's position at the time (1)	Regional Labor Court (2)	Original quote (3)	English translation (4)	Interpretation (5)	Interview date (6)	Source (7)
Regional Labor Court Justice	6	"The parameter we would use (to judge outsourcing cases) was [that] a bank could have as an employee, an armed guard, but we would consider in terms of outsourcing it to legal or not if the company, the intermediate company was a company specialized in armed security. So he could be outsourcing to a bank or to any other sort of company and it would be legal."	N/A	Permissive	May 2020	1
Public Prosecutor's Labor Office	14	"Para mim, o problema não está na terceirização em si, como disse antes, há hipótese em que ela é admissível e, até certo ponto, necessária em momentos muito específicos da atividade empresarial. O problema está na terceirização da atividade fim, o que acontece com muita frequência."	"To me, the problem is not with outsourcing per se, as I said before, there are cases in which it is admissible and, up to a certain point, needed at very specific moments of firms' [lifecycles]. The problem is with outsourcing of end-activities, which happens frequently."	Permissive	Mar 2011	2
Labor judge	2	"Na verdade, isso começou em 1974 com a lei do trabalho temporário, alastrando-se, depois, para a vigilância [bancária], o que possibilitou a "Terceirização" no trabalho bancário dos vigilantes. A idéia era exatamente essa e ela não se vinculou apenas aos bancos. Acabou se estendendo para outras atividades [econômicas]."	"Actually, this started in 1974 with the temporary law work, spreading, afterwards, to [banking] security, which allowed "Outsourcing" of security services for banks. The idea was exactly this and it did not restrict itself just for banks. It ended up spreading to other [economic] activities."	Permissive	Sep 2009	2
Regional Labor Court Justice	2	"[A] terceirização é importante para maior eficiência da empresa, para maior produtividade da empresa, para baratear custo... É preciso haver uma justificativa para a terceirização: a busca da maior produtividade, da maior eficiência e não do menor custo da mão de obra... O gaúcho tem uma postura mais contenciosa mesmo em relação à vida e as coisas... O paulista tem talvez uma visão mais econômica, mais pragmática..."	"Outsourcing is important for firm efficiency, for more productivity, for cutting costs... There must be a justification for the outsourcing: a search for productivity, for more efficiency and not cutting labor costs [specifically]... the Southerner has a more contentious view even with regards to other things in life... The <i>paulista</i> perhaps has a more economical, more pragmatic view..."	Permissive	May 2009	2
Union leader	2	"Quando o Sindicato questionava, a empresa dizia que precisava de pessoas especializadas em determinadas atividades... O mesmo diziam para a vigilância, treinar guardas, ter problemas com porte de arma, então seria ideal que tivesse uma empresa de segurança... Houve sim questionamentos na Justiça do Trabalho em alguns momentos, mas as sucessivas derrotas judiciais serviram para desanimar os Sindicatos, uma vez que nós não conseguimos êxito nas ações que sindicatos ingressavam e os patrões faziam questão de propagandear isso – 'está vendol A Justiça do Trabalho considera legal a terceirização!'"	"When the Union questioned, the firm said it needed specialized people in certain activities... They said the same for security, train guards, face issues with gun licensing, so it would be ideal if there was a security services firm... Yes, the Labor Court questioned this at times, but the high frequency of lawsuit losses ended up wearing down the Unions, because as we could not win lawsuits the employers made sure to promulgate -- 'you see! The Labor Court considers outsourcing legal!'"	Permissive	Apr 2009	2

Notes: This table shows quotes from interviews concerning regional labor courts' interpretation of the legality of outsourcing prior to Súmula 331, from interviewees who worked in permissive regions. Source 1 in Column (5) is interviews conducted by the authors, whereas Source 2 is transcripts from interviews conducted by (now retired) Regional Labor Court Justice Magda Biavaschi and legal historian Alisson Droppa.

Table A.5: Variation in dissent over legality of outsourcing across regional labor court precedents appealed to the Superior Labor Court prior to Súmula 331

Regional Precedent Number	Regional Court (1)	Year of Superior Court ruling (2)	Parties involved			Rulings: Which firm was found to have the direct employment link?	
			What type of job did the plaintiff worker do? (3)	Party that appealed Regional Court's ruling to Superior Court (4)	End employer type (5)	Regional Court (6)	Superior Court (7)
Panel A: Precedents by Regional Labor Courts classified as Restrictive							
RR 35607-78.1991.5.04.5555	4	1992	Cleaning services	End employer	Federal Agency	End employer	Outsourcing Firm
RR 45956-68.1992.5.09.5555	9	1992	Security services	End employer	Federal Agency	End employer	Outsourcing Firm
RR 41486-28.1991.5.09.5555	9	1992	Cleaning services	End employer	Federal Government	End employer	Outsourcing Firm
RR 24086-98.1991.5.09.5555 ¹	9	1992	Cleaning services	Outsourcing firm	Bank	End employer	Outsourcing Firm
RR 41974-21.1991.5.04.5555	4	1993	Cleaning services	End employer	State Government	End employer	Outsourcing Firm
RR 43279-06.1992.5.04.5555	4	1993	Security services	Worker	Federal Agency	Outsourcing Firm	Outsourcing Firm
ERR 211-52.1990.5.12.5555	12	1993	Cleaning services	Worker	Bank	Outsourcing Firm	Outsourcing Firm
Panel B: Precedents by Regional Labor Courts classified as Permissive							
RR 226-34.1989.5.02.5555	2	1989	Cleaning services	Worker	Bank	Outsourcing Firm	Outsourcing Firm
RR 42286-78.1991.5.01.5555	1	1992	Cleaning services	End employer	Federal Agency	Outsourcing Firm	Outsourcing Firm
RR 44058-74.1992.5.07.5555	7	1992	Not mentioned	End employer	State-owned firm	End employer	Outsourcing Firm
RR 62835-48.1992.5.02.5555	2	1993	Not mentioned	End employer	City Government	End employer	Outsourcing Firm

Notes: This table shows regional labor court rulings on outsourcing that were appealed to the Superior Labor Court prior to Súmula 331, including each regional court's finding on the direct employment link and whether the Superior Labor Court dissented. [1] The outsourcing firm appealed this case to the Superior Labor Court because the regional labor court found the outsourcing firm, Orbram Organizacao E Brambilla Ltda, jointly liable for damages the worker was suing for, despite having established a direct employment link with the end employer. The Superior Court found the outsourcing firm solely liable as it dissented from the regional labor court's decision on which firm had the direct employment link with the worker.

Table A.6: Classification of regional labor courts

Regional Labor Court (1)	States under jurisdiction (2)	Classification (3)	Geographic Region (4)	Total appeals (5)	Count summary of Regional Labor Court classification materials						
					Appeals where Regional Labor Court ruled the end-firm as the employer (6)	Total Interviews (7)	Interviews where legality of outsourcing is discussed (8)	Court's interpretation of outsourcing described as Restrictive (9)	Prevalence of security guard outsourcing across Regional Labor Court's jurisdictions		
									1992 contract-firm share of guard employment (10)	1992-1999 change in contract-firm share (11)	Chow test p-value (12)
4	Rio Grande do Sul	Restrictive	South	3	2	8	7	7	0.37	0.20	0.00
9	Paraná	Restrictive	South	3	3	6	4	4	0.32	0.14	0.00
12	Santa Catarina	Restrictive	South	1	0	1	1	1	0.39	0.19	0.00
15	Campinas (São Paulo state, excl. capital)	Restrictive	Southeast	0		5	4	3	0.32	0.25	0.00
1	Rio de Janeiro	Permissive	Southeast	1	0	0			0.45	0.16	0.32
2	São Paulo (capital)	Permissive	Southeast	2	1	3	3	0	0.40	0.18	0.29
3	Minas Gerais	Permissive	Southeast	0		0			0.34	0.13	0.02
5	Bahia	Permissive	Northeast	0		0			0.42	0.20	0.09
6	Pernambuco	Permissive	Northeast	0		1	1	0	0.40	0.06	0.74
7	Ceará	Permissive	Northeast	1	1	0			0.41	0.07	0.04
8	Amapá and Pará	Permissive	North	0		0			0.51	0.09	0.07
10	Distrito Federal and Tocantins	Permissive	Central-West	0		0			0.52	0.10	0.01
11	Amazonas and Roraima	Permissive	North	0		0			0.42	0.23	0.89
13	Paraíba	Permissive	Northeast	0		0			0.37	0.08	0.00
14	Acre and Rondônia	Permissive	North	0		1	1	0	0.54	-0.03	0.00
16	Maranhão	Permissive	Northeast	0		0			0.48	0.03	0.34
17	Espírito Santo	Permissive	Southeast	0		0			0.41	0.10	0.02
18	Goiás	Permissive	Central-West	0		0			0.36	0.17	0.48
19	Alagoas	Permissive	Northeast	0		0			0.39	0.10	0.29
20	Sergipe	Permissive	Northeast	0		0			0.35	0.10	0.00
21	Rio Grande do Norte	Permissive	Northeast	0		0			0.39	0.04	0.21
22	Piauí	Permissive	Northeast	0		0			0.35	-0.01	0.02
23	Mato Grosso	Permissive	Central-West	0		0			0.37	0.09	0.09
24	Mato Grosso do Sul	Permissive	Central-West	0		0			0.43	-0.04	0.52

Notes: This table shows, for each regional labor court, counts of the qualitative materials (legal precedents and interviews) underlying our restrictive/permissive classification, along with the prevalence of security guard outsourcing in its jurisdiction. Column (5) lists the number of regional court rulings on outsourcing brought to the Superior Labor Court between 1986 (Súmula 256 in place) and December 1993 (Súmula 331 in place). See Appendix Table A.5 for a summary of each ruling. Column (7) lists the number of interviews (with regional labor court justices, jurists, lawyers, circuit court judges, and union leaders) conducted by the authors and/or by Brazilian jurist and former regional labor court justice Magda Biavaschi and legal historian Alisson Droppa, concerning Regional Courts' interpretation of the legality of outsourcing prior to Súmula 331. See Appendix Tables A.3 and A.4 for summary quotes, and Biavaschi and Baltar (2013) for the legal research documenting regional disparities across regional labor courts' rulings on outsourcing prior to Súmula 331. Columns (10)–(12) show the prevalence of security guard outsourcing in each regional labor court's jurisdiction, as measured by the baseline share of all guards that are employed by contract-firms in column (10), the 1992-1999 change in that share in column (11), and the p-value on the Chow test detecting a trend break in that share after 1993.

B Data

Microregion definition. We use the “microregion” definition of the Brazilian Statistical Agency (IBGE), which groups together economically integrated contiguous municipalities (counties) with similar geographic and productive characteristics (IBGE 2002), to define the boundaries of local labor markets. To ensure that we consistently define microregions over time, we combine microregions whose boundaries changed during our sample period, following [Kovak \(2013\)](#). This process leads to a set of 494 consistently identifiable microregions within the period 1985-2006.

Entropy-balancing covariates. The entropy-balancing weights used in the market-level analysis balance restrictive and permissive microregions on baseline values of log total formal employment, the homicide rate, the unemployment rate, the share of employment in tradeable industries, and import competition exposure. Data on import competition exposure and the tradeable employment share are from [Felix \(2026\)](#); homicide rate data are from [Dix-Carneiro et al. \(2018\)](#); the unemployment rate is computed from the 1991 Census; and total formal employment from RAIS.

RAIS sample restrictions. Our sample includes all workers between the ages of 18 and 64 who were employed as of December 31 of each year. If a worker is seen working for more than one firm, we keep the employment link with the highest-paying firm, and drop employment records with missing earnings data. We drop workers in public administration and those without valid information on their industry of employment. We also drop two government occupation groups—diplomats and civil servants (CBO94 two-digit codes 22 and 31)—and, within the protection-and-security group, the government-staffed occupations described below. For our analysis of local labor markets for security guards, we restrict our sample to the large occupational groups listed in [Table 2](#)—the two-digit groups with at least two workers in every included market and year—and only include local labor markets with at least 30 security guards and 30 cleaners in every year between 1985-2002, yielding an analysis sample of 262 local labor markets, covering 98 percent of all security guards. These restrictions yield a set of microregions with similar occupational composition and in which contract firms could in principle have operated, given the underlying demand for guards and cleaners throughout the period. Given the occupation’s high contract-firm share prior to the reforms despite the lack of law bindingness ([Figure 2](#)), potentially driven by high levels of informality, we exclude cleaners from the estimation of treatment effects.

RAIS variable definitions. We use the establishment’s geographic location (municipality) and industry, and worker-level information including gender, age group (five categories), education (nine categories), occupation, and December earnings, reported as multiples of that year’s federal minimum wage. To convert those into total real earnings, we multiply the RAIS multiples-of-the-minimum-wage earnings variable by each year’s federal minimum wage, available from Brazil’s Instituto de Pesquisa Econômica Aplicada (IPEA) and converted to 2017 reais. Reported earnings include salaries, holiday bonuses, tips, performance bonuses, commissions, and profit-sharing.

RAIS measurement of outsourcing. We use the 1994 *Código Brasileiro de Ocupações* (CBO 94) at the two-digit level to define occupations, which is consistent with predecessor (CBO) occupational codes; the construction of the security-guard treatment group and the occupation aggregation we apply are detailed in the two paragraphs below. We identify whether an establishment in the RAIS dataset is part of a contract firm

based on the establishment's economic activity code, which follows the *Classificação Nacional de Atividades Econômicas* (CNAE) system. We identified contract firms as those with CNAE95 numbers 74608 (“Atividades de investigação, vigilância e segurança”), 74160 (“Atividades de assessoria em gestão empresarial”), 74500 (“Seleção, agenciamento e locação de mão-de-obra”), 74705 (“Atividades de limpeza em prédios e domicílios”), and 74993 (“Outras atividades de serviços prestados principalmente às empresas”), which fall under industry class 74 “Serviços prestados principalmente às empresas.” For firms that exited prior to 1995 and therefore do not have a CNAE code, we used a concordance between “IBGESUBATIVIDADE” codes (reported prior to 1995) and CNAE codes, constructed using firms that are present in the data before and after 1995 and report the former code before, the latter after.

Defining the security-guard occupation. We define the treated occupation—private-sector security guards—using CBO94. The two-digit group 58 (“Trabalhadores de serviços de proteção e segurança”) bundles five three-digit subgroups, only one of which is private security, so we restrict group 58 to the private-sector-eligible protection occupations and drop those staffed by government. We keep CBO94 codes 58320 (“guarda de segurança”), 58330 (“vigia”), 58340 (“agente de segurança de aeroporto,” an outsourceable activity), 58390 (“outros guardas de segurança”), and the residual 58990 (“outros trabalhadores de proteção e segurança n.c.”). We drop firefighters (subgroup 581), police and detectives (582), municipal traffic guards (584), prison guards (58930), and lifeguards (58950, who in Brazil are typically members of the *Corpo de Bombeiros*), all of which are public-sector occupations not affected by the outsourcing reforms. The restriction is applied at the worker level, before any aggregation, so the two-digit security cell used throughout the analysis contains only private-sector security workers; private security accounts for 85–93% of group-58 employment in every sample year.

The cleaner group. The excluded cleaner comparison group is the two-digit CBO94 group 55 (“Trabalhadores de serviços de administração, conservação e limpeza de edifícios e logradouros públicos”), which bundles building-administration and cleaning occupations in a single two-digit code; unlike the security group, we apply no within-group restriction. Its three-digit subgroup 551 covers building administration and services: building managers (55115), caretakers (55120, *zeladores*), doormen (55125, *porteiros*), garage attendants (55135), sacristans (55140), elevator operators (55150, *ascensoristas*), and a residual category (55190). Subgroup 552 covers cleaning: cleaners (55220, *faxineiros*), window cleaners (55230), street sweepers (55250, *garis*), garbage collectors (55260, *lixeiros*), and a residual category (55290). In the Census analysis the corresponding codes are 804 and 844 (1991) and 5142 (2000).

Occupation aggregation. We measure occupations with CBO94 at the two-digit level. To keep occupation cells comparable over time we make two adjustments using the official RAIS occupation dictionary. First, 187 five-digit codes that were phased in or out over the sample period, and are therefore not consistently reported across years, are assigned to a residual category (code 99). Second, whose definitions are very similar and whose counts shift across the boundary between them over time: medical and nursing occupations (6 into 7), teaching occupations (13 into 14), sales and commerce occupations (43 and 49 into 45), housekeeping, food-service and attendant occupations (52 and 53 into 54), and agricultural occupations (61–66 into 67). The control occupations in the triple-difference design are therefore consistently defined two-digit groups, parallel to the two-digit security treatment group.

Census data. We complement RAIS with the 1991 and 2000 Brazilian Demographic Censuses, using the extracts assembled by [Dix-Carneiro and Kovak \(2017\)](#). Unlike RAIS, the Census covers formal and informal workers alike. We classify an employed respondent as a formal wage worker if they report employment with a signed work card (*carteira assinada*) and as an informal wage worker if they report wage employment without a signed card; self-employment is reported as its own Census category. “Informal employment” pools informal wage work and self-employment. We keep respondents aged 18–64, excluding public administration; descriptive statistics additionally condition on employment and non-missing earnings, while the triple-difference sample below keeps all labor-force participants (employed or unemployed). The Census reports monthly earnings in the main job as multiples of the contemporaneous minimum wage; we convert earnings to 2000 reais using the July 1991 minimum wage expressed in 2000 R\$ (R\$126.51) and the 2000 minimum wage (R\$151), and trim earnings below the 1st and above the 99th percentile within year before taking logs. All statistics use Census person weights, and municipalities are aggregated to the same time-consistent microregions as in the RAIS analysis, following [Kovak \(2013\)](#).

The two censuses code occupations under different household classifications, neither of which is the CBO94 system used in RAIS: the 1991 Census uses the three-digit 1991 Census occupation code (cbodom91), and the 2000 Census uses the four-digit CBO-Domiciliar code (cbodom00); the mapping between the two systems is not one-to-one. We define security guards as codes 843 (*vigias*) and 869 (*guardas vigias de organizações particulares*) in 1991, and as codes 5173 (*vigilantes e guardas de segurança*) and 5174 (*guardas e vigias*, which includes porters) in 2000. Cleaners are codes 804 (*faxineiras*) and 844 (*serventes*) in 1991 and code 5142 (building maintenance and conservation workers) in 2000; Table [B.1](#) reports each of these codes as separate rows. year-specific Census codes into the guard treatment group and into the RAIS control-occupation groups of Table [2](#) via a year-specific crosswalk (ten of the eleven RAIS two-digit control groups can be matched in the Census coding; cleaners are excluded), and we define fine-grain occupation cells using each year’s two-digit code (the first two digits of cbodom91 and of cbodom00). The crosswalk is as follows (CBO-94 control group—Census codes [1991; 2000]): 03 Technicians [1991: 112, 131, 133, 163, 168, 183, 191, 192, 302, 401, 402, 403, 405, 406; 2000: 3000–3999]; 32 Secretaries and typists [1991: 56, 59; 2000: 2523, 4121]; 33 Cashiers and tellers [1991: 53, 603; 2000: 4211, 4212]; 39 Office administration [1991: 40, 52, 60, 63, 64; 2000: 4110, 4122, 4131, 4132, 4142, 4151, 4221]; 45 Salesmen [1991: 602, 621; 2000: 3541, 5201, 5211, 5241, 5242, 5243]; 54 Attendants [1991: 812, 813, 814, 815, 818, 821, 822; 2000: 5132, 5134, 5135, 5151, 5162]; 77 Food and beverage processing [1991: 535, 537, 539, 545; 2000: 7842, 8401, 8411, 8412, 8413, 8421, 8482, 8491, 8492, 8493]; 84 Machine installers and mechanics [1991: 419, 420, 422, 423, 424, 425; 2000: 7250, 7251, 7411, 9111, 9112, 9113, 9131, 9141, 9142, 9143, 9144, 9193, 9503]; 85 Electricians and electronics workers [1991: 502, 503, 506; 2000: 7156, 7301, 7311, 7321, 8611, 8612, 9501, 9502, 9511, 9531]; and 98 Drivers, sailors, and conductors [1991: 725, 742, 751, 752; 2000: 5112, 7820, 7823, 7824, 7825, 7826, 7828]. The remaining RAIS control group (99, Other manual occupations) has no clean Census analog and is excluded. Because the 1991 and 2000 coding systems differ, all specifications include occupation-by-year fixed effects, which absorb any year-specific coding differences that are common across regions.

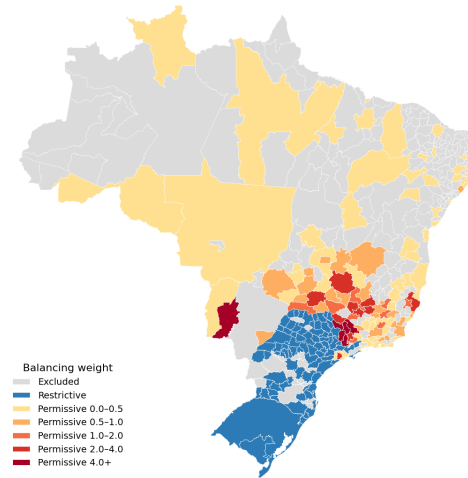
Table B.1: Employment composition and monthly earnings by occupation, 1991 and 2000 Censuses

Year	Code	Occupation label	Tot. emp.	Employment shares		Demographics		Wage percentiles (mult. min wage)				
				Formal	Informal	% Male	Educ (yrs)	p10	p25	p50	p75	p90
Panel A: All workers (aged 18–64, employed, non-missing wages, excl. public admin.)												
1991	–	All workers	42,370,596	0.413	0.587	70.9	5.39	0.46	0.69	1.38	2.77	5.53
2000	–	All workers	52,447,250	0.390	0.610	62.3	7.10	0.79	1.13	1.99	3.97	7.95
Panel B: Plausible cleaning-related occupation codes												
1991	804	Faxineiras	241,830	0.000	1.000	4.6	3.52	0.41	0.58	1.05	1.66	2.65
1991	844	Serventes	592,676	0.867	0.133	40.7	3.63	0.47	0.64	1.11	1.52	2.21
2000	5142	Trab. manut. e conservacao de edificios	1,067,923	0.615	0.385	42.5	4.69	0.86	1.00	1.40	1.99	2.65
Panel C: Plausible security-guard-related occupation codes												
1991	843	Vigias	398,238	0.866	0.134	98.6	3.96	0.64	1.04	1.66	2.49	3.59
1991	869	Guardas vigias de organizacoes particulares	261,140	0.921	0.079	98.2	5.53	0.83	1.22	1.94	2.77	4.15
2000	5173	Vigilantes e guardas de seguranca	627,508	0.756	0.244	97.5	6.58	1.00	1.72	2.52	3.31	4.64
2000	5174	Guardas e vigias (incl. porteiros)	461,503	0.747	0.253	96.2	5.26	1.00	1.39	1.99	2.74	3.97

Notes. This table shows total employment, formal and informal employment shares, demographics, and wage percentiles for cleaner- and guard-related occupation codes in the 1991 and 2000 Censuses. Sample: workers aged 18–64, employed, with non-missing monthly wages, excluding public administration. Earnings expressed in 2000 R\$; wage percentiles computed from `mw_ymain` (monthly earnings as multiples of that year's minimum wage), trimmed at the 1st/99th percentiles.

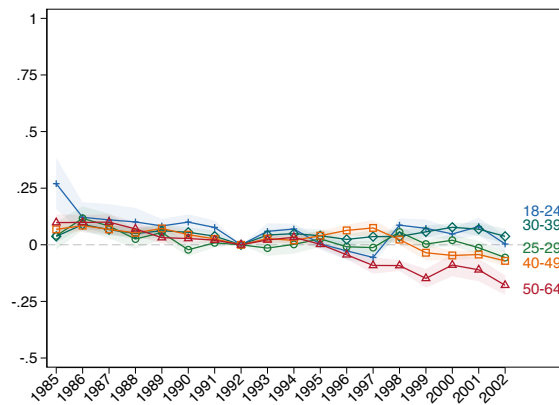
C DDD Appendix Tables and Figures

Figure C.1: Map of microregions with entropy-balancing weights



Note: This figure plots a map of the microregions used in our main specifications, where observations are weighted using entropy balancing weights. Entropy balancing weights are computed using 1992 values of log total formal employment, the homicide rate, the unemployment rate, the share of employment in tradeable industries, and import competition exposure.

Figure C.2: Effect of pro-outsourcing reforms on employment of direct-hire incumbent guards



Note: This figure plots year-by-year DDD estimates of the effect of the pro-outsourcing reforms on log employment by age group among direct-hire incumbents. See notes to Figure 7. The sample includes all workers in guard and control group occupations who were directly employed in 1992.

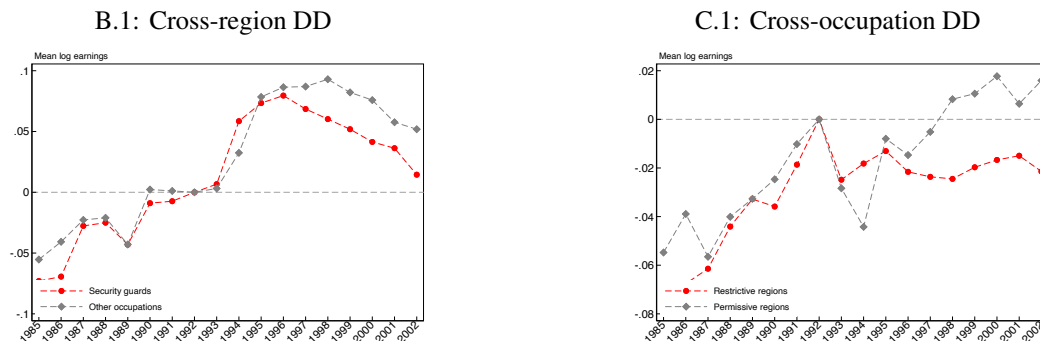
Table C.1: Robustness to excluding São Paulo: Effect of pro-outsourcing reforms on key outcomes

	Policy effect (DDD)		
	Main (1)	Excl. SP metro (2)	Excl. SP state (3)
Outsourced share	0.045*** (0.013)	0.048*** (0.013)	0.021 (0.016)
Log total employment	0.038*** (0.011)	0.041*** (0.011)	0.024* (0.011)
Log employment 18–24	0.351*** (0.032)	0.358*** (0.033)	0.289*** (0.041)
Log employment 50–64	-0.132*** (0.022)	-0.131*** (0.023)	-0.110*** (0.025)
Log earnings (cond. on demographics)	0.011 (0.015)	0.001 (0.016)	0.041*** (0.010)

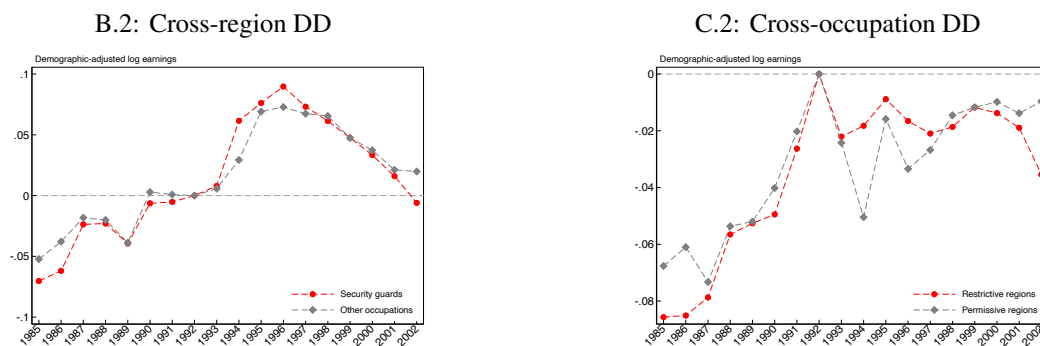
Notes: This table shows the effect of the pro-outsourcing reforms on key outcomes when São Paulo observations are excluded from the sample. See notes to Table 5. Columns report the weighted DDD estimate for the main sample, excluding the São Paulo metropolitan area, and excluding the state of São Paulo.

Figure C.3: Differences in wages: Region Effect (Restrictive vs. Permissive, “Court Restrictiveness”) and Guard Effect (Guards vs. Others, “Law Bindingness”).

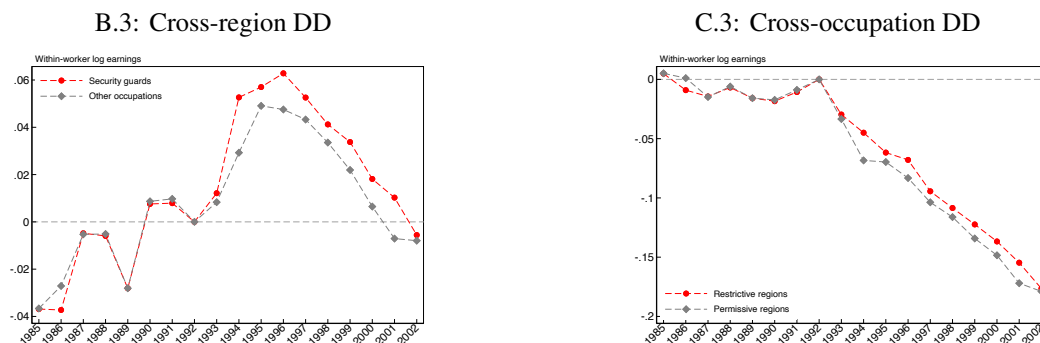
1. Log earnings (as reported)



2. Log earnings conditional on demographics (age, education, gender)

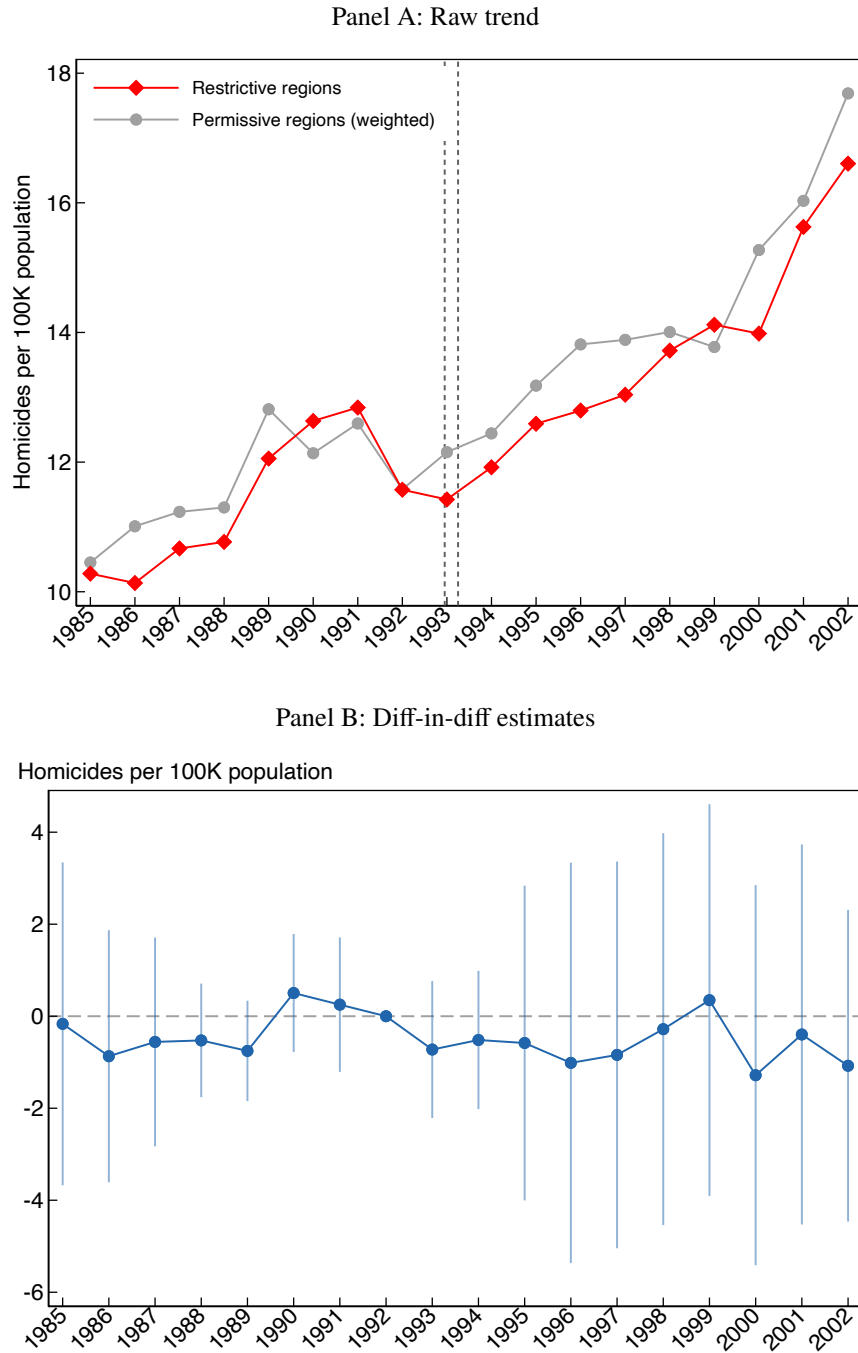


3. Log earnings conditional on worker fixed-effects and demographics



Note: This figure plots the cross-region DD series (restrictive versus permissive, by occupation; Panel B) and the cross-occupation DD series (guards versus other occupations, by region; Panel C) for log real December earnings, as reported and adjusted for demographics and worker fixed effects. The specifications of both DD series are given in footnote 17. Results are based on a balanced sample of 262 microregions and 12 large 2-digit occupational groups, with at least two workers in all microregions in all years, accounting for over 98% of all security guards in the data; see Appendix B for details. The baseline year of 1992 is omitted. Outcomes are cell-level average log real December earnings for the microregion-occupation pair: as reported, without adjustment (row 1); demographic-adjusted, netting out gender $\times$ age-group $\times$ education-category fixed effects (row 2); and additionally netting out worker fixed effects (row 3). Adjusted outcomes are computed on the sample excluding public-sector workers.

Figure C.4: Regional differences in homicide rates



Note: This figure plots homicide rates in restrictive versus permissive microregions over time. Data on homicide rates are from the replication files of [Dix-Carneiro et al. \(2018\)](#). Panel A plots the mean homicide rate for restrictive and permissive microregions, respectively. Panel B plots the coefficients from a DD regression comparing restrictive microregions to permissive microregions, with controls for year and microregion fixed effects. The omitted year is 1992. Sample is weighted by entropy balancing weights. Standard errors are clustered at the regional labor court level.

Table C.2: Robustness of DDD employment effects to the valuation of zero-employment cells

	Main	Chen–Roth corrections				Obs. (6)
	Arcsinh	Calibrated log, $m(0) = -x$			Extensive	
	DDD (1)	$x = 0$ (2)	$x = 1$ (3)	$x = 3$ (4)	$1\{Y > 0\}$ (5)	
Log total employment	0.038*** (0.011)	0.038*** (0.011)	0.038*** (0.011)	0.038*** (0.011)	0.000 (0.000)	56,592
<i>Log employment by worker age group</i>						
18–24	0.351*** (0.032)	0.356*** (0.032)	0.355*** (0.032)	0.352*** (0.034)	-0.001 (0.001)	56,592
25–29	0.150*** (0.027)	0.152*** (0.027)	0.149*** (0.027)	0.144*** (0.028)	-0.002* (0.001)	56,592
30–39	0.046* (0.022)	0.046* (0.022)	0.046* (0.022)	0.046* (0.022)	0.000 (0.000)	56,592
40–49	-0.048 (0.031)	-0.050 (0.032)	-0.047 (0.031)	-0.042 (0.029)	0.003 (0.002)	56,592
50–64	-0.132*** (0.022)	-0.135*** (0.020)	-0.130*** (0.022)	-0.122*** (0.024)	0.004*** (0.000)	56,592

Notes: This table re-estimates the pooled DDD effects on log total employment and log employment by age group under alternative treatments of cells with zero employment, following [Chen and Roth \(2024\)](#). All columns use the weighted DDD specification of Table 3 (entropy balancing weights, the same fixed effects and sample, standard errors two-way clustered by regional labor court and occupation). Column (1) reports the main specification, in which outcomes are inverse hyperbolic sine transforms of employment counts, used because employment is zero in a small share of occupation-microregion-year cells. Columns (2)–(4) instead use $m_x(Y) = \ln Y$ for $Y \geq 1$ and $m_x(0) = -x$, so that a transition from zero to one worker is explicitly valued at $100x$ log points, for $x \in \{0, 1, 3\}$. Column (5) reports the DDD effect on an indicator for positive employment, estimated by OLS. Column (6) reports observations. Total employment has no zero-employment cells in the estimating sample by construction. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C.3: Robustness to balancing baseline covariates: Effect of pro-outsourcing reforms on employment composition

	Policy effect (DDD)				
	Main (1)	+Informality (2)	No unemp. bal. (3)	No trade bal. (4)	Obs. (5)
<i>Log employment by worker age group</i>					
18–24	0.351*** (0.032)	0.243*** (0.028)	0.317*** (0.022)	0.285*** (0.025)	56,592
25–29	0.150*** (0.027)	0.193*** (0.019)	0.149*** (0.024)	0.092*** (0.021)	56,592
30–39	0.046* (0.022)	0.053 (0.036)	0.019 (0.025)	0.011 (0.023)	56,592
40–49	-0.048 (0.031)	-0.074 (0.045)	-0.109*** (0.027)	-0.081** (0.032)	56,592
50–64	-0.132*** (0.022)	-0.158*** (0.037)	-0.193*** (0.006)	-0.134*** (0.019)	56,592

Notes: This table shows the effect of the pro-outsourcing reforms on employment composition, estimated with the weighted DDD specification under alternative sets of balancing baseline covariates. See notes to Table 3. As in Table 3, employment outcomes are inverse hyperbolic sine transforms of employment counts.

Table C.4: Characteristics of new hires as a function of occupation-specific and firm-level scale, with scale measured the year before hiring

	(1) Outside RAIS	(2) Ever formal	(3) Age	(4) Education	(5) Log wage
Log number of employees in occupation o at firm z in region m at year $t - 1$	0.0030*** (0.0002)	-0.0104*** (0.0002)	-0.6736*** (0.0050)	-0.0935*** (0.0020)	-0.0236*** (0.0004)
Log number of employees at firm z in region m at year $t - 1$	-0.0175*** (0.0005)	0.0077*** (0.0003)	0.3242*** (0.0073)	0.0524*** (0.0032)	0.0362*** (0.0008)
Occ×MMC×Year FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Observations	11635985	11635985	11592336	11565755	11610714
Adj. R ²	0.142	0.208	0.303	0.620	0.712
Mean of outcome	0.7078	0.6700	29.5740	7.5819	7.0101

Notes. This table shows the all-occupations panel of Table 8 with the two scale regressors measured at the end of year $t - 1$, before the year- t new hires arrive, rather than at the end of year t . The sample therefore includes only firm $\times$ occupation $\times$ microregion cells that also exist at $t - 1$. All other details as in Table 8.

D Mechanism: Additional Evidence and Model

Section 4 shows that, conditional on total firm size, employers with greater occupation-specific scale hire disproportionately from outside the formal sector—younger workers without a formal record—and at lower hiring wages. This appendix interprets those gradients, and the market-level effects of Section 3, through a single model. The model has one evidence-based key assumption: an entrant from outside the formal sector is cheaper than an experienced worker but can be hired only after the firm pays an occupation-specific fixed cost. Scale determines who pays that cost, and hence who hires entrants; contract firms pay it for many clients at once. That fixed cost stands for a family of occupation-specific investments a specialized firm can amortize and a small employer cannot: screening record-less entrants, training beyond the statutory minimum, centralized monitoring, and reassignment across client sites. The hiring gradients do not distinguish these functions, so we formalize the representative one, screening.

The model delivers three results, built up in turn. First, occupation-specific scale governs which firms pay the fixed cost and hence whether they hire experienced workers or entrants—negative assortative matching between scale and worker experience (Proposition D.1). Second, the entrants are hired at strictly lower wages, at no lower productivity (Proposition D.2). Third, contract firms reach the required scale by aggregating demand across many clients, so a policy that lowers the cost of outsourcing weakly raises formal-sector employment (Proposition D.3). Two further features of the policy response, short-run dynamics and spillovers to non-adopting firms, are consistent with the same friction (Section D.4).

D.1 A Screening Model of Occupation-Specific Scale in Hiring

We build the model up one piece at a time: a single position, then a firm of many positions, then the market of contract firms. It is partial equilibrium, in the spirit of Jovanovic (1979).

Setup. Consider the labor market for one occupation. Firms are indexed by j . Firm j has productivity y_j , drawn from a distribution with full support on $[\underline{y}, \infty)$, and needs $n_j \geq 1$ workers in the occupation; n_j is its

occupation-specific scale, the object measured in the data conditional on total firm size. A filled position produces y_j .

A position can be filled by an *experienced worker* or an *entrant*, equally productive once hired but differing in their outside option and in whether hiring them requires screening.

- An *experienced worker* carries a portable formal record and can be hired directly by any firm. His outside option is b_X .
- An *entrant* is young, from informality or non-employment, and has no record; he cannot be hired until the firm runs a *screening* technology. His outside option is $b_E < b_X$.

The gap $b_X - b_E$ is an experience premium in outside options, not in output: a portable record lets rival employers bid for an experienced worker, raising his outside option above the entrant's. An entrant is therefore cheaper, not worse.

Screening is a fixed-cost technology. A firm that pays K can hire entrants for all n_j of its positions; equivalently it buys screening from a contract firm at a fee c per position (contract firms enter in §D.3).

Timing. Each period has three steps.

1. *Screening.* Each firm decides whether to operate screening—paying K itself, or the fee c per position—or not.
2. *Hiring.* A screening firm fills its positions with entrants; a non-screening firm fills them with experienced workers where that is profitable, and otherwise leaves them empty.
3. *Wages.* Each hired worker and the firm split the match surplus—output minus the worker's outside option—by Nash bargaining, the firm keeping a share $\beta \in (0, 1)$. A worker of output y_j and outside option b is therefore paid $w = b + (1 - \beta)(y_j - b)$, leaving the firm $\beta(y_j - b)$.

Standing assumption. Throughout, $0 \leq b_E < b_X$ and $\underline{y} < b_E$, so the least productive firms cannot profitably fill a position with either worker.

One position: the gain from screening. Take a single position at a firm of productivity y_j . Filled by an experienced worker it earns the firm

$$U(y_j) = \max\{\beta(y_j - b_X), 0\}; \quad (4)$$

filled by a screened entrant it earns

$$W(y_j) = \max\{\beta(y_j - b_E), 0\}. \quad (5)$$

Since the entrant is cheaper and equally productive, $W \geq U$, and the per-position gain from screening is

$$\bar{g}(y_j) \equiv W(y_j) - U(y_j) = \begin{cases} 0, & y_j \leq b_E, \\ \beta(y_j - b_E), & b_E \leq y_j \leq b_X, \\ \beta(b_X - b_E), & y_j \geq b_X. \end{cases} \quad (6)$$

The gain is zero at unproductive firms (no worker is worth hiring), rises over the range where only an entrant is worth hiring ($b_E < y_j < b_X$), and flattens at the wage saving $\beta(b_X - b_E)$ once an experienced worker is profitable too ($y_j > b_X$). It is continuous and nondecreasing.

D.2 The Firm: Scale, Screening, and Hiring Wages

Screening is paid for once and used for all n_j positions, so a firm operates it exactly when the total gain covers the cost, $n_j \bar{g}(y_j) \geq K$. Scale, not productivity alone, makes screening worthwhile; because n_j is set by demand for its services, a firm cannot inflate it to harvest the gain.

Proposition D.1 (Occupation-specific scale and screening). *There is a threshold $n^*(y_j) = K/\bar{g}(y_j)$, weakly decreasing in y_j , such that a firm screens if and only if $n_j \geq n^*(y_j)$. A screening firm hires entrants; a non-screening firm hires experienced workers where profitable, else leaves positions unfilled. Higher occupation-specific scale therefore shifts new hires from experienced workers to entrants—in the data, younger, record-less workers hired from outside the formal sector.*

Proof. See Appendix D.6. □

This is negative assortative matching between occupation-specific scale and worker experience: the mirror image, within firms across occupations, of the positive assortative matching between large firms and high-wage workers documented at the level of the whole firm (Song et al., 2019; Card et al., 2013; Alvarez et al., 2018). It is the sign pattern of Table 8.

Proposition D.2 (Hiring wages). *At any firm, an experienced worker is paid $w_X = b_X + (1 - \beta)(y_j - b_X)$ and a screened entrant $w_E = b_E + (1 - \beta)(y_j - b_E)$, so the entrant is cheaper by exactly*

$$w_X - w_E = \beta(b_X - b_E) > 0. \quad (7)$$

Proof. Immediate from the wage rule; see Appendix D.6. □

Higher-scale firms therefore pay lower hiring wages because they hire from a cheaper pool, not because they mark wages down: given a worker's output and outside option, bargaining pays the same wage at any firm. The lower entry wage is a compositional shift toward workers the market cannot yet price, so the as-reported hiring wage falls with scale while the demographic-adjusted wage does not—consistent with the near-zero outsourcing wage differential conditional on worker fixed effects (Table D.1) and the flat demographic-adjusted wage at the market level (Section 3).

D.3 The Market: Contract Firms and Aggregate Employment

A firm with $n_j < n^*(y_j)$ cannot cover K on its own. A contract firm can: operating screening once over the positions it fills for many clients, it reaches a scale at which the fixed cost clears even though no single client does, and it sells access at the fee c . A client outsources a position whenever the fee is below the per-position gain, $c < \bar{g}(y_j)$; a policy that lowers the cost of outsourcing lowers c and extends entrant hiring to progressively smaller, lower-productivity clients.

Proposition D.3 (Contract firms and aggregate employment). (i) *A contract firm serving clients at fee c operates screening once its served scale $N = \sum_j n_j$ satisfies $cN \geq K$, even when $n_j \bar{g}(y_j) < K$ for every*

individual client. (ii) A position is outsourced if and only if $c < \bar{g}(y_j)$; so as c falls, the outsourced share of employment rises, entrant employment weakly rises, experienced-worker employment weakly falls, and total employment weakly rises.

Proof. See Appendix D.6. □

The two employment margins are visible in $\bar{g}$. At firms with $y_j > b_X$ a cheaper entrant replaces an experienced worker: the composition shifts, total employment does not. At firms with $b_E < y_j < b_X$, where an experienced worker was too costly to hire, a screened entrant fills a position that was empty: total employment rises. This is the market-level counterpart of Proposition D.1: the reforms of Section 3 raised the aggregate scale of screening by reallocating guard employment to contract firms, and the experienced workers displaced are the older, formally-recorded guards the market-level results document.

Two limitations. First, the model is partial equilibrium: entrant supply is elastic at b_E and wages do not clear, so the level of the total-employment effect is not a general-equilibrium claim. Second, being static, it speaks to neither the short-run transition path nor the spillovers to non-adopting firms; both are documented next (§D.4) and lie outside the model.

D.4 Additional Policy Effects: Short-Run Dynamics and Spillovers

Two additional patterns of the policy response are consistent with the information friction that occupation-specific scale overcomes. First, the short-run adjustment path. If entrants from outside the formal sector could be hired as easily as experienced guards, the reforms would have reallocated employment smoothly: direct-hire employment would fall as outsourcing expanded, and wages would not move. Unlike this smooth path, total direct-hire employment *temporarily increased* after the reforms, then permanently declined (Figure D.1, Panel A.2). Similarly, guard wages temporarily rose before returning to their prior path (Figure 8), though the average post-reform effect on wages is statistically insignificant (Table 5).

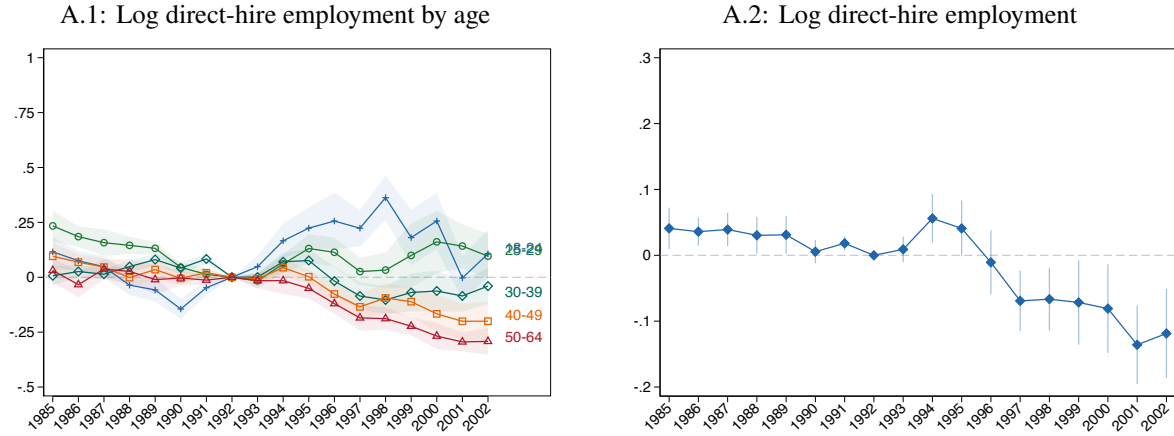
These short-run dynamics are consistent with the information friction binding while the technology that relaxes it scaled up: workers from outside the formal sector could not fill positions until screened and certified, and the capacity to screen and certify them—the contract firms that supply it—took time to build. In the interim, employers competed for the only workers the market could already price, the existing stock of experienced guards, temporarily raising both their direct-hire employment and their wages; both effects dissipated as conversion capacity and entry caught up.

Second, spillovers to firms that never adopted outsourcing. Figure D.1, Panel A.1, shows that the pro-outsourcing reforms persistently increased the direct employment of younger guards and reduced that of older guards in restrictive relative to permissive regions—mirroring the pattern in total employment but occurring among firms that did not adopt outsourcing. This is inconsistent with the reform’s effects being confined to adopting firms, and consistent with the friction being relaxed at the level of the market: entrants screened and certified through the contract-firm pipeline form a pool that any employer can hire from, so the recomposition toward young entrants appears among direct-hire employers as well.

D.5 Differentials

This section reports auxiliary evidence in support of the occupation-specific scale mechanism we discuss in Section 4. We report differences between contract-firm and direct-hire guards post-reform (1997–2002), conditioning on demographics and, in some specifications, worker fixed effects.

Figure D.1: Effect of pro-outsourcing reforms on direct-hire employment



Note: This figure plots year-by-year DDD estimates of the effect of the pro-outsourcing reforms on log direct-hire employment by age group (Panel A.1) and on total log direct-hire employment (Panel A.2). See notes to Figure 4.

These differentials are the signature the scale efficiency reading predicts: if contract firms substitute fixed-cost investments for the experienced worker's record rather than stripping rents, outsourced guards should be paid close to comparable direct hires and be no worse off after hire. Outsourced guards earn only 1.6–1.9% less than comparable direct hires, with tenure–wage growth about one-third flatter rather than steeper (Table D.1); their exit hazard from formal employment is about one percentage point lower at entry and converges with tenure (Table D.2); and they switch occupations 2.6 percentage points less per year, almost entirely among within-firm stayers (Table D.3). Section 4.3 draws on these differentials in weighing scale economies against rent-stripping, monopsony, and regulatory arbitrage: a rent-stripping account would predict the large wage penalties and more precarious jobs found for outsourcing elsewhere, which we do not see.

Table D.1: Outsourcing wage differential

	(1)	(2)	(3)	(4)
Contract firm	-0.016*** (0.001)	-0.019*** (0.001)	0.059*** (0.001)	-0.007*** (0.001)
Contract firm × tenure			-0.020*** (0.000)	-0.008*** (0.000)
Tenure			0.050*** (0.000)	0.026*** (0.000)
Observations	2870865	2456800	2870865	2456800
R ²	0.34	0.91	0.45	0.91

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: Worker-level regressions of log real hourly wages on a contract-firm indicator, using all private-sector security guards aged 18–64 in RAIS during 1997–2002 (workers with imputed age excluded). All columns absorb microregion and year fixed effects and education-category-specific cubics in age. Columns (2) and (4) additionally absorb worker fixed effects; columns (3) and (4) add tenure and its interaction with the contract-firm indicator.

Table D.2: Outsourcing hazard differential

	(1)	(2)	(3)	(4)
Contract firm	0.004*** (0.001)	0.003*** (0.001)	-0.010*** (0.001)	-0.007*** (0.001)
Worker FE		-0.128*** (0.001)		-0.093*** (0.001)
Contract firm $\times$ tenure			0.003*** (0.000)	0.002*** (0.000)
Tenure			-0.012*** (0.000)	-0.009*** (0.000)
Observations	2870865	2836925	2870865	2836925
R^2	0.30	0.31	0.31	0.32

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: Worker-level regressions in which the outcome is an indicator for exiting formal employment (not appearing in RAIS) the following year. Sample and baseline controls as in Table D.1. Columns (2) and (4) control for an estimated worker fixed effect, whose coefficient is reported; columns (3) and (4) add tenure and its interaction with the contract-firm indicator.

Table D.3: Outsourcing occupation switching differential

	(1)	(2)	(3)	(4)
Contract firm	-0.026*** (0.000)	-0.026*** (0.000)	-0.027*** (0.000)	0.001*** (0.000)
Contract firm $\times$ tenure		-0.000*** (0.000)		
Tenure		-0.000*** (0.000)		
Observations	2870865	2870865	2870865	2870865
R^2	0.02	0.02	0.02	0.00

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: Worker-level regressions in which the outcome is an indicator for switching two-digit occupation the following year, coded zero for workers who do not appear in RAIS the following year. Sample and controls as in Table D.1. Column (2) adds tenure and its interaction with the contract-firm indicator; columns (3) and (4) split the outcome into within-firm and across-firm switches.

D.6 Proofs

Proof of Proposition D.1. From (6), $\bar{g}$ is continuous, nondecreasing (slopes 0, β , 0), and strictly positive for $y_j > b_E$; hence $n^*(y_j) = K/\bar{g}(y_j)$ is weakly decreasing where $\bar{g} > 0$, and $n_j \bar{g}(y_j) \geq K \iff n_j \geq n^*(y_j)$. A firm that has paid K earns $W(y_j) \geq U(y_j)$ per position and so fills every profitable position ($y_j > b_E$) with an entrant; a firm that has not cannot hire entrants and fills a position with an experienced worker when profitable ($y_j > b_X$), else leaves it empty. Thus screening firms hire entrants and non-screening firms hire the experienced, and raising n_j past $n^*(y_j)$ switches the firm's new hires from experienced workers to

entrants. $\square$

Proof of Proposition D.2. With output y_j common to both workers, the wage rule gives $w_X = b_X + (1 - \beta)(y_j - b_X)$ and $w_E = b_E + (1 - \beta)(y_j - b_E)$; subtracting, $w_X - w_E = \beta(b_X - b_E) > 0$. $\square$

Proof of Proposition D.3. (i) A client outsources a position iff $W(y_j) - c > U(y_j)$, i.e. $c < \bar{g}(y_j)$, and then pays c on each of its n_j positions; a contract firm serving such clients collects $c \sum_j n_j = cN$ against the one-time cost K and operates once $cN \geq K$. A large enough base of clients with $\bar{g}(y_j) > c$ —each possibly sub-threshold, $n_j \bar{g}(y_j) < K$ —meets this, since it is the fee revenue cN , not the total surplus $\sum_j n_j \bar{g}(y_j)$, that must cover K . (ii) Fix c . A client with $n_j \geq n^*(y_j)$ already screens and hires entrants regardless of c , so it is invariant to c and set aside. Among clients with $n_j < n^*(y_j)$, a position is outsourced iff $c < \bar{g}(y_j)$; since $\bar{g}$ is nondecreasing, the outsourcing set $\{y_j : \bar{g}(y_j) > c\}$ is an interval of higher-productivity firms that expands as c falls. A position entering it with $y_j > b_X$ was filled by an experienced worker, now an entrant (composition shifts, total unchanged); one with $b_E < y_j < b_X$ was empty, now an entrant (total rises). Hence as c falls the outsourced share and entrant and total employment weakly rise while experienced employment weakly falls. $\square$