Outsourcing clerical jobs, an exploratory analysis

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1 Introduction

This paper is an exploratory analysis of whether or not an organizations' gains from out-sourcing on-site clerical jobs have any impact on the clerical workers' compensation. For the purposes of this discussion, we consider a worker who works on site at company x, but paid by company y as "out-sourced." This analysis excludes the more classical definition of "out-sourcing" as a job sent overseas. The first part of this paper discusses whether economic gains from compensation drive firms' decisions to out-source. The second component examines where contracting firms locate and raises questions about the spatial mismatch. Finally, the third and primary sectino of the paper explores whether or not indirectly employed clerical workers receive lower compensation than do their directly employed counterparts. None of these analyses are conclusive, so the future research section sets an agenda for an inferential spatial analysis of the interaction between the demand and supply of clerical contractors, a model of spatial mismatch, and a longitudinal analysis of clerical workers, focusing on the importance of flexibility in the workers' decision to work indirectly. Ultimately, I hope to determine whether or not the longitudinal trend towards out-sourcing will negatively affect the low-skill female work force.

In the past decade firms increased their purchases of services significantly more than they increased their direct hires. From 1988 to 1997 'business services' grew by 5.8% per year. The rate of growth in business services increased at twice the rate of the rest of the economy over the past 2 decades. Business services is the larget category under the NAICS 54 to 56 categories. These include professional, scientific, and technical services, (legal

advice, accounting, bookeeping, architecture, consulting, research, etc) management of companies and enterprises (establishments holding sufficient securities to administer and oversee a company, and administrative and support and waste management (office administration, human resources, clerical, security, cleaning, and waste disposal.) Personnel services, a subcategory of business services, is the largest employer in the cateogry. The second largest is computer services.[**?**] The fastest increasing sub-sub sector is the temporary help industry (largely clerical), which grew 11 percent annually from 1979 to 1995, five times more quickly than all other non-farm employment.[**?**]

Contractors are gradually displacing their traditional direct-employment counterparts in some of the biggest sectors of the labor market. One-fifth of all wage and salary workers in the US are in administrative support jobs like clerical work.[**?**] This change is enough to transform the entire female low-skill labor market. Out-sourcing has already transformed the maintenance (janitorial) sector; by the late 1990's, 90% of all maintenance workers were subcontractors.[**?**] If this trend continues to diffuse, the effects could be enormous. If out-sourcing has different effects on compensation for low-skill and high-skill workers, there could also be an effect on overall inequality. Between 1973 and 2000 the average real income of the bottom 90% of Americans fell by 7% while the capital gains for the top one percent rose by 148%. [**?**] Organizational theories suggest that high skill jobs might be outsourced to tap into intellectual economies of scale or because of variable demand for flexible services. If the factors that drive low skill outsourcing are different; namely if they are savings firms compensation costs, outsourcing could widen the ever-growing gap between high and low skill labor.

If organizations are increasingly hiring workers indirectly, it must somehow be more efficient to outsource. However, it is uncertain that these gains come from saved compensation costs. While this is intuitively the most logical motivation, there is surprisingly little evidence that indirect hires earn less than direct hires of comparable ability and more surprising, there is also little evidence that firms realize any economic gain beyond maintaining a flexible labor force.

John Benson's qualitative analysis of four Australian manufacturing firms suggested that in the long run, outsourcing does realize returns through reducing compensation costs. However, this does not cause any harm to the indirect employees who maintain the same earnings. All saving must therefore come from the firm being able to adjust the workforce as the workload fluctuates.[**?**] In contrast, Young and MacNeil (studying two food processing

companies) found that out-sourcing can incur unexpected management costs, negating any negligible benefit from cutting compensation[?]

Broader data anlyses also find mixed evidence. Analyzing the BLS's Industry Wages Survey, Abraham and Taylor found that higher wage companies were more likely to outsource their janitorial, machine maintenance, engineering, and accounting services.[?] Similarly, Gramm and Schnell found that organizations with higher wages are more likely to contract out.[?]In contrast Deavers found evidence that they are not. [?] Deavers argued that technological change, a focus on organizational competencies, and labor flexibility are the primary motives for outsourcing. Howeveeer Deavers provided little empirical evidence to support the claim. Davis and Uzzi also failed to find evidence that externalizing the labor force save organizations on health insurance, pensions, unemployment insurance, and supervisory costs, or wages.[?] Mayal and Nelson found contradictory evidence; in their sample of 882 firms, they found that firms with higher benefit levels were much more likely to outsource to avoid these costs.[?] Mangum, Mayall, and Nelson found that firms use temporary and contingent workers to save money on the higher compensation associated with full time long-term employees. [?] Some of the variation in these findings is related to the different methods; some of these studies are qualitative, some estimate benefit levels based on the firm's interpolated likely payout. Most of these studies are cross sectional, and all focus on one of the two important building blocks of the argument: 1) does the firm outsource in response to economic pressure and 2) does the outsourced worker receive less compensation.

The problem with these studies is that they need to prove both to come close to proving that firms outsource to save money on compensation, and in the process, harm the same workers they would have otherwise hired directly. For the firm that is indifferent between indirectly and directly hiring a worker, the cost of an indirect employee (oversight search, and compensation) should equal the cost of a direct hire (compensation, search and oversight costs, and down time.) As such the firm could have incentives to outsource without reducing compensation. Similarly, compensation could decline for the outsourced worker without benefit to the employer, (for example if outsourcing increases the employer's search, training, or oversight costs, or if worker quality declines.) However, the literature generally assumes that if we can find evidence that firms with higher wages and benefits are more likely to outsource, the worker is worse off. Similarly, they attempt to show that if indirect employee receives less compensation than the direct employee, the workers are the same workers. Further, most of the literature focuses on a

case study of one or two firms, failing to make generalizable arguments.

The spatial diffusion of outsourcing is also important in telling the story of workers' welfare. The firm might be more likely to outsource if contractors are available locally. Local contractors could reduce the firm's search cost and reduce the cost of oversight and implementation. There is a literature examining the role of space in the diffusion of various organizational practices. Knoke used a pairwise distance measure to predict the spread of municipal reform, while Hedstrom (1994) examined the spread of unions and Nyers found that riots are more likely to happen in locations close to where other riots have occurred. While many studies find that economic and social practices diffuse in a spatially correlated manner, it is difficult to measure the cause, since spatial correlation in the social world can happen through many different mechanisms from social networks to marketplace pressures.[**?**] Space is important from the worker's side as well. As a sector's employment moves to indirect employment in an individual's labor market, that individual is more likely to be indirectly employed. Thus, if outsourcing diffuses through the Northeast first, or through the suburbs, the Northeastern or suburban worker might suffer lower compensation or enjoy shorter unemployment spells or more flexibility.

1

[1]The question of economic gains from lower benefits is more complicated than that of wages because it encompasses questions of tax law. US Code Title 26, subtitle A, Chapter1, Subchapter D, PartI, Subpart A, Section 401 a(4) states,

> if the contributions or benefits provided under the plan do not discriminate in favor of highly compensated employees (within the meaning of section414(q)). For the purposes of this paragraph, there shall be excluded from consideration employees described in section 410(b)(3)(A) and (C).

This section of the US code says that if an organization offers benefits to the only the top 20% of its paid employees, or only to those employees paid more than $ 50,000, their expenditures on pensions, health insurance, and life insurance will be taxed 25%. This law prevents discrimination in favor of the high skill worker but not against the low-skill worker. At the same time- the threat of additional taxes combined with the administrative costs of managing multiple plans and economies of scale in bargaining for single plans, might encourage firms to provide consistent benefits to all employees. As such, it is easy to imagine that a firm might realize gains in benefit costs by directly employ their workers whom they wish to compensate with one level of benefits, and out-sourcing those who they do not wish to compensate with comparable benefits.

2 Why does the firm outsource?

Firms would not indirectly employ clerical workers if it were not in their economic interest to do so. The 1997 National Organizational Survey (NOS), a survey of 1,002 work establishments from June 1996 to June 1997 asked firms about their outsourcing practices for maintenance, clerical, accounting, IT, and core production. It used a stratified random sample from 15 million work establishments. (It was stratified based on organization size since the majority of work organizations are small.)

In the 1997 NOS sample outsourcing low-skill labor was common, but constituted a small proportion of all clerical employment in the sample. Fifty-one percent of the surveyed organizations had employees that were not on the payroll (primarily through subcontractors or temp agencies.) However, on average only .42% of the organizations' jobs were outsourced. At most,organizations contracted between 1 and 15% of their jobs. The organizations were most likely to contract out clerical (16% of organizations), accounting (12% of organizations), and IT positions (13% of organizations.) These results mirror the BLS samples reported by Clinton and Abraham, who found that more than one half of businesses contract for one or more types of business or administrative support.[**?**; **?**; **?**] Seventy-one percent of the sample (710 of 1,002) was for-profit organizations, 20% was public non-profit, and 8% was private non-profit. The median organization had between 100 and 150 employees, 87% offered health insurance, 26% had unions in the workplace, and about half believed their industry was 'competitive.'

The survey asked managers why they outsourced and found that the overwhelming reasons cited wither variable work demand and contractors special skills. Lowering costs was not a common response, and interestingly, few firms claimed they did it because others do. Obviously, these categories are artificial separations. A firm could not outsource if other firms were not doing the same. Similarly variable work demand and simplifying administrative tasks, and recruitment strategy are all just various forms of lowering costs- down times costs, low productivity costs, and search costs. These answers are likely to have errors since the individual answering this question was generally not the individual who chose whether or not to outsource a given position and respondents probably preferred not to answer positively to unappealing responses like "willing to do unsavory tasks" even if this was the case.

	not important	slightly important	moderately important	very important	total
lowers costs	35.27%	26.91%	22.18%	15.64%	100%
demand for work varies	26.91%	13.27%	20.55%	39.27%	100%
contractors' special skills	27.54%	9.42%	17.54%	45.47%	100%
recruitment strategy	47.65%	16.61%	15.52%	20.22%	100%
simplifies tasks	35.51%	18.84%	23.55%	22.10%	100%
willing to do unsavory tasks	57.45%	17.82%	12.00%	12.73%	100%
other organizations do it	53.50%	16.45%	18.34%	11.72%	100%

In the NOS dataset outsourcing was common among organizations, but not among employees.

Table 1: Percent of workers that are contract employees in NOS data

Job	**Mean**	**Median**	**N**
clerical	11%	0%	698
janitorial	21%	0%	375
IT	6.8%	0%	438
accounting	7.5%	0%	616

Table 2: Percent of firms using outsourced workers in the following areas in the NOS

Area	**% outsourcing**
clerical	10%
janitorial	27%
IT	13%
accounting	12%

First I ran two logistic regressions examining why firms outsource clerical janitorial positions.

$$\ln \frac{\pi(Y)}{1-\pi(Y)} = \alpha + \beta_U U + \beta_{FP} FP + \beta_M M + \beta_V V + \beta_S S + \beta_C C + \beta_{MC} MC + \beta_{SE} SE$$

where:

Y	=	1 if the organization contracted out clerical positions
α	=	constant
U	=	1 if union present
FP	=	1 if for-profit
M	=	1 if medical benefits offered
V	=	1 if paid vacation
S	=	size of the organization
C	=	perceives own industry as competitive
MC	=	perceives own industry as increasingly competitive
SE	=	seasonal work

For-profit organizations are much more likely to outsource clerical positions than are larger firms. Those organizations offering medical benefits are less likely to outsource clerical positions. Health care benefits might be highly correlated with 'high skill industries" since these industries are both more likely to offer benefits and less likely to contract out. But even that explanation is suspect; more likely there is so little variance in offering benefits that the results are unreliable. It would be preferable to measure the percent of employees actually receiving benefits. Organizations with seasonal work are more likely to outsource and oddly, those organizations that perceive themselves to be in a "competitive" environment are less likely to outsource.

The strongest results are those for "for-profit" status and the size of the organization. Both of these results are intuitive. Smaller organizations have less flexibility both in terms of revenue and in terms of shifting staff within the organization. Thus small firms must outsource to maintain flexibility that larger firms inherently have. There are multiple hypotheses why non-profits might be less likely to outsource- one of which is that they face a less economically competitive environment. Other reasons cross into the organizational theory literature.[2]

[2]I should include a measure of the level of skill in the industry. While the NOS codebook lists an industry code, the codes do not match the NAICS or the SIC industry codes, and the codebook does not specify their meaning.

Table 3: Outsourcing clerical positions: logit

Variable	β **Model 1** **odds ratio** **Std. Error**	β **Model 2** **odds ratio** **Std. Error**
unionized employees	-0.096 .908 (0.362)	
for-profit	0.483 1.62 (0.320)	.618 1.85 (.302)
medical benefits	-0.505 .604 (0.250)	-.515 .597 (.246)
paid vacation	-0.117 .890 (0.217)	
size of the organization	-0.164 .849 (0.023)	-.164 .848 (.848)
competitive market	-0.373 .689 (.155)	-.337 .714 (.154)
increasingly competitive	0.175 1.19 (.265)	
seasonal work	0.484 1.62 (0.378)	.469 1.60 (.598)
Intercept	-0.104 (0.383)	-2.06 (.344)

3 The geography of outsourcing clerical jobs

3.1 kriging and cokriging

For this analysis I generated some continuous maps displaying the number of firms offering contract services in four cities across the U.S. by zipcode. I also conducted analyses, not displayed here, for the total revenue, payroll, and the number of employees in these firms. The firms are all firms falling under the NAICS code 56, Administrative and Support and Waste Management and Remediation Services. The majority of this category includes those firms I am interested in: administrative support, temporary help, employee leasing, etc. However, it also includes collection agencies, travel agencies, security services, janitorial and landscaping services, and waste management services. Thus it is a very imperfect measure of contractor accessibility. Some of these categories, like waste management services, vary almost entirely by population. However, others, like locksmiths, might distort the data. However, without access to the business census microdata, spatial analyses of firms are limited.

Kriging is an interpolation method that originated in mining. It is similar to linear regression, however the weights (coefficients) are re-calculated for each interpolated point and the variance-covariance matrix is based not on the covariance of variables, but on the variance of the single outcome variable based on the distance between all pairs of points. In essence it is a weighted average. [**?**]

$\hat{Z} = \lambda z_i(d)$ where d is distance and z is the variable being interpolated.

the weights are calculated by experimentally finding the variance between two points as a function of distance. For a single interpolated point,i, the weights on each observed point are calculated as the betas are calculated in an OLS regression, based on the variance-covariance matrix. The formula for variance is generated by calculating for every pair of points in the data set the distance between them on the x axis and the difference in their values on the y axis. The functional form of variance is often exponential or gaussian, declining as the distance between two points increases. V_0 is the vector for the variance between the observed points and the interpolated point.

$$\begin{bmatrix} \lambda_i \\ \nu \end{bmatrix} = \begin{bmatrix} \underline{\underline{V}} & \underline{1} \\ \underline{1} & 0 \end{bmatrix}^{-1} \begin{bmatrix} \underline{V_0} \\ 1 \end{bmatrix}$$

CoKriging, the second method used here, is simply an extension of kriging, drawing in another spatially correlated variable that is correlated with the variable of interest. [3] In my case, coKriging is an important extension because I used zipcodes. Incorporating population does not 'control' for population in the traditional statistical sense. Rather, it uses data on the covariance between population and the number of firms to create a better estimate of the number of firms. While firm level data is by zip code, population level data is by 'place.' This is an important adjustment in my analysis because in dense cities the organizational correlation is distorted. For example, imagine that I am kriging the number of organizations in New York City. My dataset is bounded by Northern New Jersey, Westchester County, and Farfield County, Connecticut. In Manhattan some zip codes include only one building. Depending on that buildings zoning, it might have 50 or 100 firms in it. The adjacent building might be zoned residential and have zero firms. Thus, in the densest part of the city I will have a lot of variability-thus I will show a lot of variability between those points that are close together. The pairs of data that are furthest apart are those on the periphery of my data set. Given the geographic distribution of organizations, the majority of these zip codes have zero organizations in them. Thus, the zip codes furthest apart are the most similar. Incorporating population takes care of this problem because it is positively correlated with the number of organizations. Thus, cokriging gives me more realistic contour maps. All analyses here used a ln transform for kriging and then transformed back for presentation. I used a ln transform because the data was heavily skewed to the right.[4]

It should be noted that none of this analysis is inferential. I will incorporate spatial regression and inferential statistics in future analyses. These maps are simple descriptions of the supply side of the market. The mean zip code has 12 contractors. However, establishments are strongly skewed with the median zip code only having 4 establishments and the maximum being 459 (in New York City.)In 1997 the average zip code had between 20 and 49 employees in the clerical services and waste management category. Again, this measure is skewed with some zip codes having up to 50,000 employees in the sector.

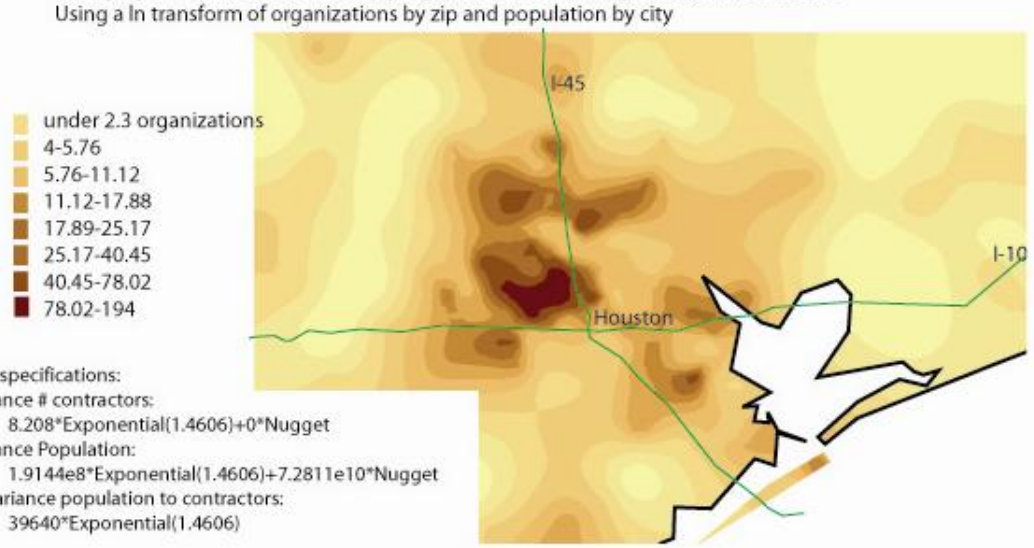
These maps show first, that the number of contractors varies by population within the city, as expected. In addition, we notice that Detroit has an over-

[3]See Wackernagel for an explanation of CoKriging

[4]I was unsure how much background to give you on kriging. I think that in geostatistics this is the most basic method- like OLS- and thus it generally does not need to be outlined as thoroughly as I do here.

Houston:

Cokriging the number of contracting organizations controling for population trends
Using a ln transform of organizations by zip and population by city

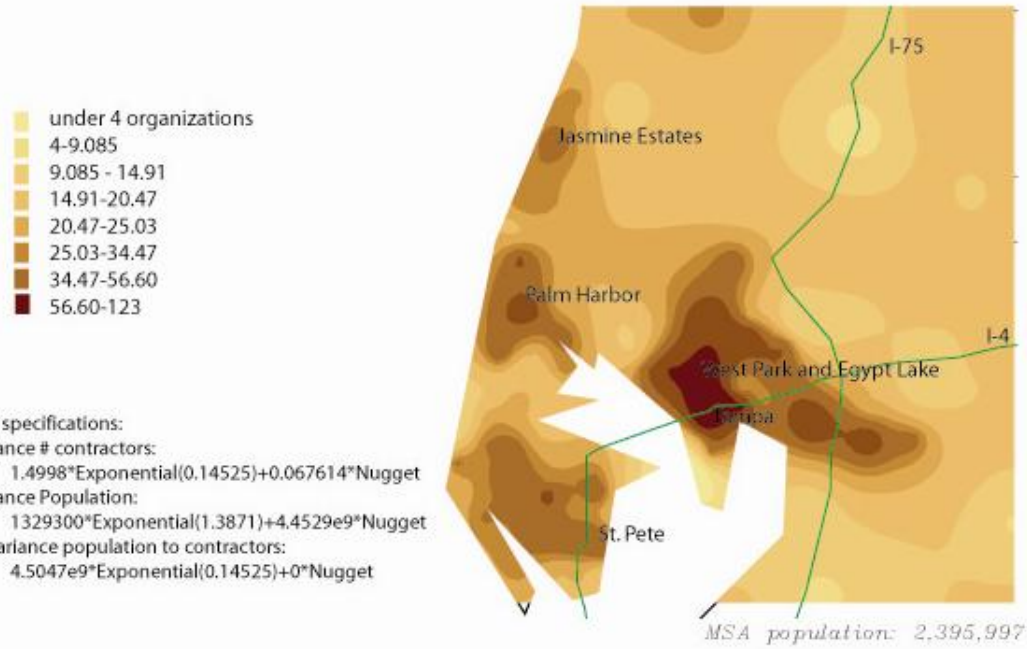


Model specifications:
1) variance # contractors:
8.208*Exponential(1.4606)+0*Nugget
2) variance Population:
1.9144e8*Exponential(1.4606)+7.2811e10*Nugget
3) Covariance population to contractors:
39640*Exponential(1.4606)

MSA population: 4,669,571

Tampa:

Cokriging the number of contracting organizations controling for population trends
Using a ln transform of organizations by zip and population by city

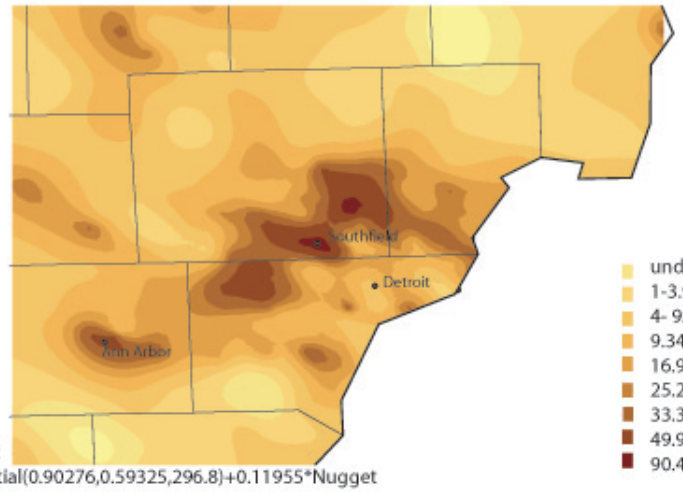


Model specifications:
1) variance # contractors:
1.4998*Exponential(0.14525)+0.067614*Nugget
2) variance Population:
1329300*Exponential(1.3871)+4.4529e9*Nugget
3) Covariance population to contractors:
4.5047e9*Exponential(0.14525)+0*Nugget

MSA population: 2,395,997

Detroit:

the number of contracting organizations controling for population trends
transform of organizations by zip and population by city

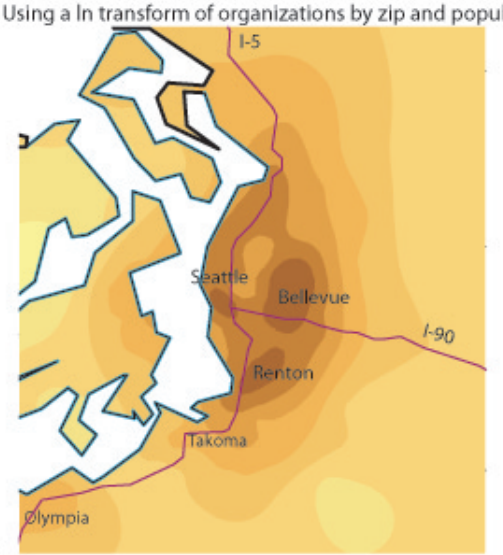


Model specifications:
1) variance # contractors:
2.5567*Exponential(0.90276,0.59325,296.8)+0.11955*Nugget
2) variance Population:
6982000*Exponential(0.90276,0.59325,296.8)+1.6325e10*Nugget
3) Covariance population to contractors:
4225*Exponential(0.90276,0.59325,296.8)

MSA population: 5,456,428

Seattle:

Cokriging the number of contracting organizations controling for population trends
Using a ln transform of organizations by zip and population by city



Model specifications:
1) variance # contractors:
2.5754*Exponential(1.3871)+1.3044*Nugget
2) variance Population:
1329300*Exponential(1.3871)+4.4529e9*Nugget
3) Covariance population to contractors:
1850.2*Exponential(1.3871)

MSA population: 3,554,760

all higher number of contractors than do the other three cities- but it also has a larger population (and CoKriging did not 'control' for population. Initially Houston seems to have many contractors, but given its large MSA population, we see that we might rank the cities in terms of contractor availability as Houston, Seattle, and then Detroit and Tampa. Second, it is clear that these organizations prefer to settle in satellite cities like Bellevue and Palm Harbor rather than in the central business district. Results were consistent kriging with the number of employees, total revenue, and total payroll, using ordinary kriging, and kriging by square mile. Results were inconsistent when I kriged New York City since New York is so densely populated and zoned mixed business residential, that there was no spatial correlation and a much higher mean number of organizations.

Suburban clustering could have two effects. First, it might mean that firms in the satellite cities are more likely to use contractors. Second, it might mean that suburban workers are more likely to work at these firms. The location of the contracting organization is where the worker interviews and perhaps trains for their placement, but is not actually where they work. Thus, the worker only needs to go to the firm at the beginning of their employment spell.

Much of the spatial mismatch literature is plagued by the problem that workers simultaneously choose their place of employment and their workplace, an analysis of indirect employees avoids this problem. Who moves to a new city to be closer to a temp job? Thus, we can be certain that if there is an association between the existence of contractors in an employee's area and an employee's status as an indirect employee, the proximity of the employers is causally related to their indirect employment status.

4 Indirect versus direct clerical employment: a difference in compensation?

The dispersion of outsourcing and organizations' motivations for outsourcing do not tell us anything about how these changes are affecting the outsourced worker. There are multiple positive and negative outcomes that could result from the geographic and organizational shifts. Workers in areas with indirect employment opportunities might suffer shorter unemployment spells as contractors decrease search costs and increase the match rate between firms

and employees. Workers in these areas might enjoy more flexibility, choosing to work fewer weeks or hours. Indirect hires might be paid less assuming that they are willing to pay for more flexibility or if they are lower quality workers. The firms might pay more in compensation and contractors' fees if they value flexibility or lower search costs; but they will pay less if the workers are lower quality. While this preliminary analysis will not be able to parse out the reasons behind pay differential- it will examine whether or not there is a pay differential between indirect and direct employees. Insofar as the total demand for clerical workers is not increasing, any pay differential could suggest an overall shift over time in clerical pay- and a regional shift in clerical pay where outsourcing practices have diffused.

For this final analysis I analyzed compensation differentials for direct and indirectly employed clerical workers. I pooled data from the 1994 through 2000 March Current Population Survey (CPS), randomly selecting one observation for each respondent, and using a sub-sample of women reporting paid employment as secretaries, typists, receptionists, administrative support, and data entry workers. I split this data into two groups, those reporting that their employer's industry as a personnel supply services company, management services, or miscellaneous business services, and those reporting working in some other industry. There is some automatic error in this classification scheme since even the contractors do hire some direct clerical workers. The final sample of clerical workers under 30 included 710 indirectly employed clerical workers and 20,409 directly employed workers. Because I was unable to control for labor force attachment beyond hours and weeks worked, some analyses focus on female clerical workers under 30. All numbers presented are unweighted because of the narrow population of interest; however results using CPS person weights were almost identical. All wages are in 2000 dollars using the CPI (not the Urban CPI)

Indirectly and directly employed clerical workers are not identical groups- in fact indirect hires seem to be a higher skill group. Indirect hires have significantly more education, are about three years younger(36 versus 39), and are much more likely to be single. Indirect hires are more urban; only 10% of the indirect hires live in non-metro areas and 32% are in central cities while 20% of the direct hires live in non-metro areas and only 23% are in the central city. Indirect hires are also about twice as likely to be black than direct hires.[5]

Education of female clerical workers, all ages

[5]All significant differences

	direct employee	indirect employee
< 12 years edu	3.83%	3.94%
grade 12	42.94%	33.66%
1 to 3 years of college	42.07%	45.07%
4+ years college	11.16%	17.32%
total	100%	100%

Marital status of female clerical workers, all ages

	direct employee	indirect employee
married spouse present	58.34%	45.63%
divorced widowed other	19.83%	20.14%
never married	21.83%	34.23%
total	100%	100%

On average, the indirect employee earns less compensation than does the direct employee and is less likely to receive a pension.

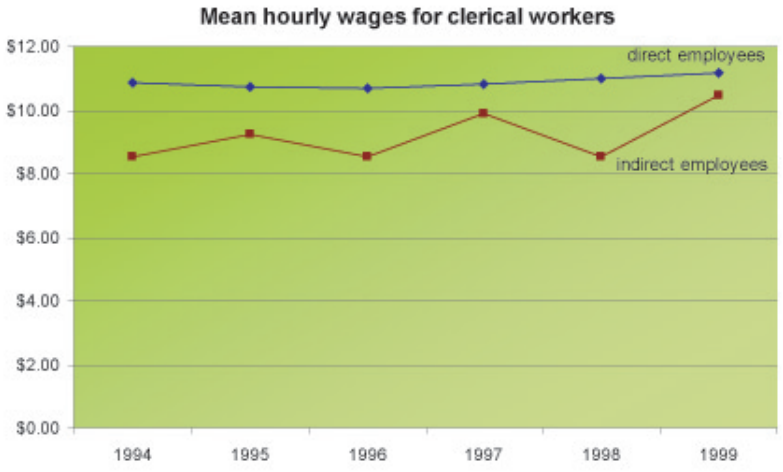


Figure 1: Wages for indirect and direct female clerical employees

	direct employee	indirect employee	all secretaries
no pension plan	38.41%	70.56%	39.49%
pension not included	15.33%	16.62%	15.37%
pension included	46.26%	12.82%	45.13%
total	100%	100%	100%

One possible reason for the difference in compensation is labor force attachment. Since this is cross sectional data, I was unable to analyze how long teach type of worker remains in the clerical sector, though it is likely that the contracted worker might be more transient worker, moving onto some other career. Thus, they might accept lower wages for a short term position, just as a new college graduate accepts a position as an assistant in a prestigious firm, ultimately moving up to a better position in the firm. Without the promise of higher future wages, the career clerical worker may expect higher wages in the current period.

While I was not able to examine long term attachment to clerical work, I was able to determine their short- term labor force attachment. Indirectly employed clerical workers fewer weeks per year but the same number of hours per week. This seems to suggest that indirect employees are under-employed, not voluntarily seeking more flexibility. The contract worker who is pursuing a secondary career as an artist or the part time mother likely wants fewer hours regularly, to cover bills and to have free time with their children or secondary career. Intermittent full time work seems to speak to an under-employment problem.

Labor force attachment for clerical workers under 30 years old

	direct employees	indirect employees
mean hours per week	35.39	34.06
mean weeks in the past year 45.40	33.28	

Of course indirect and direct clerical employees are not exactly the same populations. Controlling for their individual characteristics indirect employment might not influence their compensation. Because of the minimal labor-force attachment data in the CPS, I ran a simple OLS regression on the subset of female clerical workers under thirty years old.Initial results suggest that indirect clerical workers earn lower hourly wages. However, using cross-sectional data, this data is no more than suggestive of some possible inequality.

Female Clerical Workers under 30, Compensated less?

	OLS hourly wages			Logit, pension access		
	Coefficient	95% conf int		Odds Ratio	95% conf int	
indirect employee	-1.210***	-1.562	-.858	.305***	.19	.48
some college	.565***	.432	.698	1.053	.91	1.21
BA or more	1.525***	1.318	1.733	1.019	.82	1.26
single	-.632***	-.804	-.460	.874*	.75	1.01
rural	-1.877***	-2.037	-1.717	1.127	.95	1.34
age	.051***	.046	.056	1.204***	1.18	1.23
African American	.052	-.170	.275	.820	.66	1.02
time trend	.059***	.025	.093			
weeks worked	.049***	.044	.054	1.056***	1.05	1.06
firm size	.257***	.230	.284	1.300***	1.26	1.34

OLS: R-square = .11
Logit: LogLikelhiood is significant with a test statistics of 1348 and a pseudo R-square of .20.
6

These regressions show that, at least in a cross sectional analysis, young female clerical contractors earn 87 cents less per hour than their direct counterparts (or about 9 percent less.)They are also about a third as likely to be offered a pension, though the average worker in both groups is unlikely to be offered a pension. A similar analysis of all female clerical workers (relaxing the age constraint) shows that the indirect employee earns $1.80 less per hour than the direct employee and that the indirect employee only has 11% the chance of getting a pension as does the direct employee. Compared to other important factors, like firm size, education, and rural/ urban markets, only urbanity is more important than contractors status in determining compensation.

Of course, these results are far from conclusive. The CPS offers insufficient control for worker quality and labor force attachment. A future analyses should use panel data, controlling for the worker's work history, their tenure in the clerical workforce. Further, it would be interesting to consider a hazard analysis of indirect workers, testing the chance that they move to direct employment. Perhaps the indirect labor market works as a matching mechanism, bringing inexperienced workers into the marketplace and eventually matching them with firms. If this is the case, the worker accepts lower compensation in exchange for an ultimate placement with a direct placement.

[6]Models also included year dummies, continuous measures of education, more finite ordinal measures of education, CPS weights, and using the total sample of female clerical workers. I also tested an interaction between hours and indirect employment, which was insignificant. All regressions had similar results.

Based on this cross sectional analysis, I cannot answer any of the above hypotheses. However, given the longitudinal trend in the out-sourcing market, these 'positive- spin' stories seem unlikely. Assuming that there has not been a dramatic increase in the overall demand for secretaries (and given the innovations in office computing- it seems likely that there might even be a decline)there has been a dramatic shift among secretaries towards indirect employment. Did clerical workers always have an unsatiated demand for a more flexible work schedule? for job matching? Rather, it seems more likely that the firm faces pressure to minimize variance among its office employees, particularly in fringe benefits. Hiring a worker indirectly can relax these pressures, allowing the firm to compensate low skill workers less, without facing legal, bureaucratic, and social pressures to offer less dispersed compensation.

This analysis also fails to consider the spatial mismatch question posed in the second part of this paper. Indirect employees are more likely to live in urban areas with the indirect employers located in satellite cities. Does the relative location of the firm and the contracted worker influence the worker's decision to work at that firm? This question can be pursued using two sorts of data sets, the first is a set of workers linked with their firms, with addresses of both. Also, given a data set including workers' addresses I could use the data used in section two to krig a "job acessibility" measure for each worker. This measure would simply be the spatially weighted average of the number of indirect employers divided by total employers in the worker's commuting area. The spatial weight would use a decay function, giving extra weight to those organizations closest to the worker and less weight to those at the perimeter of their commuting area (say forty miles out.) Access to both types of data is limited because of the confidential address data. I am currently working on two applications for access to data, one to the RDC to use the LEHD to work with firm-worker data. The second application is to work with my advisor's datasets on Chicago Health. (This survey includes extensive information about employment in Chicago and includes addresses.)

5 Conclusions... or questions

This analysis raises more questions than it answers. These questions fall in three overlapping categories: wage inequality, space and the labor market, and organizational practices diffusion.

The first set of questions this analysis creates relate to inequality. Clearly, we found that outsourced workers are compensated less. It is uncertain whether or not this differential is due to workers desiring flexibility or to some sort of selection. However, it seems likely that outsourcing release the firm from bureaucratic and social pressures to offer low-skill workers higher compensation, no par with their other workers. If this is the case, what does the trend toward outsourcing mean for low skill laborers? As more firms outsource will low skill laborers be less likely to earn a living wage, receive pensions and health coverage? If the answer to these questions is 'yes' there are clear public policy concerns related to retirement benefits and public health insurance.

The second set of questions motivated by this analysis relate to space. First, why do contractors locate in satellite cities? Is it the lower overhead costs? Are they closer to the firms they contract with? To the workers they employ? Do these firms' locational decisions contribute to the spatial mismatch? If workers find permanent positions through these firms, will inner city workers be unable to take advantage of these firms because they interview and train in satellite cities? Are suburban firms more likely to outsource because they are closer to contractors? If inner city firms are less likely to hire contractors, this might negate the spatial mismatch problem.

All of the above questions rely on the question of how this organizational practice diffuses. Has it already diffused in the clerical market? If not, what is its equilibrium point? What types of organizations will maintain direct hires and where will they be located? If this phenomena has not played itself out, what will the low skill labor market look like when it does?

In this analysis we established that for profit organizations and organizations with variable workflows are significantly more likely to outsource their clerical workers, contracted clerical workers earn significantly less than their direct hire counterparts, and that the contractors are located disproportionately in satellite cities. Given the strong longitudinal trend towards outsourcing, it seems unlikely that the compensation differentials are entirely explained by workers' demands for flexibility. Furthermore, if the firm also desires flexibility, why does the contractors' fee primarily come out of the worker's paycheck and not from the firm? In conclusion, this analysis seems to provide suggestive evidence that this trend towards outsourcing low skill jobs like janitorial and clerical services might exacerbate the trend towards growing inequality.

5.1 Appendix: Next steps?

I still have not attacked the research question that motivated this project, an analysis of whether or not the density of contractors encourages firms to outsource. (In other words, is there a spatial covariance between the decision to outsource and the number of contractors? The predictor of interest would be the percent of business in the region that is business services. Spatially weighted (by zip) economic controls will include the average wage rate, average unemployment, average education, etc. Individual level predictors will include classic controls like education, work experience, etc.

$$B = \beta_E E_i + \beta_Y Y_i + \beta_M M_i + \gamma_O O_{ij} + \gamma_U U_{ij} + \gamma_C C_{ij} + \gamma_S S_{ij}$$

B	=	receives health benefits from the employer
E	=	years education
Y	=	work experience
M	=	Married
O	=	average relative value of business services industry in surrounding area
U	=	unemployment rate for local area
C	=	cost of living index for local area
S	=	average level of education in local area

There might be positive outcomes associated with more employment through business services organizations. The most likely positive outcome is a more fluid labor market. This might be related to shorter unemployment spells for clerical workers. I think I'll probably *propose* a hazard model testing whether or not individuals in area with more outsourcing are more likley to have shorter unemployment spells.