FINAL REPORT

Skills Training in the Temporary Help Sector: Employer Motivations and Worker Impacts

A report to the Department of Labor
Employment and Training Administration

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1 Introduction

It is widely believed that job skill requirements are changing so rapidly that there is a developing need for people to continuously upgrade skills (Bartel and Sicherman, 1998). Facility with computer software is an important example of a skill that needs frequent upgrading. Policy makers appropriately wonder where the supply of life-long learning will come from. In this paper we consider whether temporary help firms are a significant source of training. According to industry statistics, temporary help firms provide substantial free (except for the opportunity cost of trainee time) training in computer skills and other skills. Research by the Bureau of Labor Statistics also confirms that fully 65 percent of temporary help workers in 1994 were employed by establishments offering free skills training (Bureau of Labor Statistics, 1996).

What makes skills training at temporary help firms all the more noteworthy is that the temporary help services (THS) sector has become an increasingly prominent employer in the U.S. While formerly a minute sector, employment in THS has grown at 11 percent per year since 1972 and accounted for approximately 10 percent of U.S. employment growth between 1992 and 1995. Recent BLS estimates put daily THS employment for 1999 at over 3.3 million workers, approximately 2.6 percent of non-farm employment – far larger than the automotive industry and nearly one fifth the size of the entire manufacturing sector. Furthermore, daily employment statistics are likely to substantially understate the number of workers who come in contact with THS annually due to its extraordinarily high turnover rate.[1]

The training provided by temporary help firms also raises a basic theoretical issue: How do firms profit by giving skills training away to temporary workers? Most of the training

[1] For example, Segal and Sullivan (1997b) find that fully 5 percent of Washington State workers were employed in THS at some time in 1993 – 1994.

provided appears to be in general, portable skills – widely used software packages and everyday business skills such as customer service and interview and resume development skills – the kind of training that is valued by a large number of firms. Moreover, this training is normally given "up front," prior to or between assignments and without any contract of ongoing employment. According to human capital theory (Becker, 1964), firms that provide general skills training to employees without requiring payment or explicit contract face a risk that trained workers will be 'poached' by other firms that can offer slightly higher wages because they did not incur the training expense. To be sure, the industry's own estimates suggest the training expense per person is not very high – averaging $120 per employee (NATTS, 1996) – but if a newly trained employee leaves the firm after one short assignment, this may still represent a loss for the temporary firm.[2]

Hence, the skills training provided by THS firms is a puzzle for theory that is relevant to policy. To better understand this puzzle and its implications for workers in the THS sector, we would need to explore the following questions: Exactly what kinds of skills are provided? What are the benefits to firms from providing "up front" general skills training? How (if at all) do firms protect themselves against being poached? How do firms determine who receives training? What are the distributional implications of firms' training policies – is training primarily used to polish already skilled employees or does it reach to workers who arrive at the firm with relatively weak skills?

[2] Since much of the computers skills training provided to temporary workers is in the form of computer-based tutorials, it is arguable that the marginal cost of training is close to zero and hence firms lose little when trainees are 'poached.' While this argument has merit, it does not explain how THS firms recover the fixed costs of training (e.g., hardware and software). More deeply, it leaves a puzzle as to why the majority of THS firms appear enthusiastic to provide free general skills training.

Because answers to these questions are not available from existing data sources, the authors developed and conducted a multi-city random sample telephone survey of temporary help establishments designed to explore training, hiring and placement practices at THS establishments. This survey, conducted in October 1998 through April 1999, garnered completed responses from 439 temporary help establishments in six major metropolitan areas in the U.S.: Atlanta, Chicago, Cleveland, Detroit, Los Angeles and Milwaukee. The results of this survey are documented and interpreted below. Section 2 discusses the survey design and methodology, with further detail provided in Appendix A. Section 3 provides a sketch of a theoretical model for understanding skills training in the THS sector as a 'signaling' mechanism. This framework provides testable implications that we are able to explore using the survey instrument. Section 4 presents tabulations and analysis of the survey data. Section 5 concludes.

2 Survey design

We surveyed a stratified random sample of all temporary help supply establishments (SIC 7363-04) in six Metropolitan Areas (MSAs): Atlanta, Chicago, Cleveland, Detroit, Los Angeles and Milwaukee.[3] These MSAs were chosen for comparability to the 1999 Multi-City Survey of Urban Inequality (MCSUI, ongoing).[4] All interviews were conducted by telephone from Harvard University. Appendix A to this report contains a copy of the survey instrument and the cover letter faxed to survey respondents. The survey questionnaire primarily covered the following topics:

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[3] The sampling counties were as follows: Atlanta: Butts, Barrow, Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Newton, Paulding, Rockdale, Spalding, and Walton counties. Chicago: Cook, DuPage and McHenry counties. Cleveland: Cuyahoga, Geauga, Lake, and Medina counties. Los Angeles: Los Angeles county. Detroit: Wayne, Oakland, Macomb, Genesee, Kent, and Ottawa counties. Milwaukee: Milwaukee, Ozaukee, Washington, and Waukesha counties.

[4] In future work, we plan to use our survey data in conjunction with the 1999 MCSUI data to make direct comparisons among skill requirements, job screens, and wages in temoprary help and non-temporary help positions

- Establishment characteristics: number of clients, number of establishments belonging to parent firm.
- Number of workers in six major occupational categories on assignment at survey date: service workers; industrial and blue-collar workers; clerical workers; sales and marketing workers; technical workers; professional and managerial workers, and other.
- Training overview: training offerings, methods, policies, frequency, and length.
- Training motivation: reasons for providing training; relationship of training to worker recruiting, screening, and retention.
- Customers' use and hiring of temporary workers: frequency of temp-to-perm hire; reasons that customers use the establishment's temporary workers to fill positions.
- Typical temporary worker job tasks, hiring requirements, and testing and screening practices.
- Worker pay and customer billing rates.

To keep the survey length palatable and the context of survey questions precise, all questions referred to the major occupation in which the establishment had the greatest number of workers on assignment at the survey date (as reported by the respondent). Major occupations were grouped into the following categories: service workers, industrial and blue-collar workers, clerical workers, sales and marketing workers, technical workers, professional and managerial workers, and other. Hence, for example, if the respondent reported that the establishment had 50 clerical workers on assignment on the survey date and only 10 workers on assignment in each other category, all subsequent questions would refer only to the establishment's clerical workers.

Our sample was drawn from a comprehensive list of establishments in the continental U.S. maintained by American Business Information (ABI). Since the ABI database contains information on permanent staff but not temporary employees of each establishment, we stratified our sample on permanent staff size in four categories: 1 – 4 employees, 5 – 9 employees, 10 – 19

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in the same MSAs.

employees, and 20 plus employees.[5] Our assumption was that since temporary employees of an establishment are likely to be roughly proportional to permanent employees, we would effectively stratify on temporary employment by sampling establishments in proportion to their permanent employment. Hence, the sample is designed to be self-weighting and to represent the average worker in each MSA (as opposed to the average establishment). The initial sample contained 803 establishments of which 24.7 percent (199) turned out to be invalid because they were not a temporary help firm, out of business, a headquarters with no assignment workers, a repeated establishment within our sample (e.g., operating under two different names at the same address), etc. Among the 604 valid establishments, 73 percent completed the survey and 27 percent refused.[6]

We anticipated resistance to our survey because the THS industry has been widely criticized in the popular and academic press (e.g., Parker 1994) and is therefore understandably wary of scrutiny. Accordingly, we obtained the cooperation of the industry's primary trade organization, the National Association of Temporary and Staffing Services (NATSS), and a leading industry publication, *Staffing Industry Report*, which critiqued and vetted our survey instrument and informational letter to potential respondents. We believe that the endorsement of these organizations, highlighted in our informational letter (see Appendix A), substantially contributed to the excellent response rate. The average telephone interview lasted 10 to 25 minutes[7] and respondents declined to answer very few questions except for the final question on

[5] Because most temporary help establishments maintain only a small permanent staff, 90 percent of the establishments in our sample cities have fewer than 20 permanent staff.

[6] Additionally, one establishment was dropped because it reported having 7,200 workers on assignment, suggesting that the respondent was answering for the entire company or division rather than the specific establishment as requested.

[7] At establishments that did not offer training, the typical survey was close to 10 minutes while at establishments offering training, it was typically 20 minutes.

the establishment's typical wage markup (which garnered approximately a 30 percent refusal rate).

We did not contact sampled establishments prior to conducting the survey. However, we did fax our informational letter to contacted establishments that did not complete the survey on the first phone call. Because THS offices are typically lean operations with several workers sharing all duties, our criterion for selecting an establishment's respondent was that the respondent answer affirmatively to the question, "Are you knowledgeable about placement and training?" During the survey, interviewers noted comments and responses that were not included in the specified set of survey answers. These additional comments and responses were relatively rare.

In developing the survey instrument, we worked closely with NATSS, *Staffing Industry Report*, and approximately a half dozen temporary help executives nationwide to ensure that the survey's language and use of terminology was clear and that respondents would likely be able to answer the questions using available information. After many revisions, we pilot tested the survey on a random national sample of 30 establishments in our chosen MSAs. After the pilot, we revised further. The final survey reflects a balance between our desire for detailed information and the need to respect the time demands of respondents. Experience demonstrated that respondents would typically give no more than 20 minutes of their time to the interview and hence we pared down our survey until this target was met. Our interviewers also received extensive practice and coaching during the pilot phase of the survey and hence were able to conduct interviews confidently and uniformly when the final survey commenced. We also developed custom software to prompt our surveyors during the interview, enforce the survey skip pattern, ensure that survey responses were in range, manage the call schedule, and fax our

informational letter to respondents as needed. This software also helped to minimize response and coding errors.

Table 1 presents the response rate by establishment size category, which is uniformly high, varying between 67 percent for the 20+ category and 81 percent for the 5 – 9 category. Table 2 presents the occupational distribution of THS employment in our sample and comparison figures from the Current Population Survey February 1997 Contingent Worker Supplement (Cohany, 1996 and 1998). These figures suggest a strikingly close match between the occupational distribution in our data and national data. In no instance does our occupational employment share differ by more than a few percentage points from the Current Population Survey data.[8] As with the national data, our largest three occupational categories are service and blue-collar occupations (41%), followed by clerical and administrative support (38%), followed by technical/professional specialty occupations (15%). Table 3 presents the geographic distribution of respondents. The response rate by region is also uniformly high, ranging from 67 to 76 percent. The close fit between national data and our sample and the excellent overall response rate provide some confidence that our self-weighting sampling design was successful. Hence, we do not attempt to apply supplemental non-response weights.

3 Theoretical background

As discussed in the introduction, the provision of free "up front" general skills training at temporary help establishments presents a puzzle for conventional human capital theory because providing training *ex ante* during unpaid hours provides no apparent mechanism for firms to recover their costs *ex post*. Recently, economists have turned theoretical attention towards

[8] Note that since our data only cover six metropolitan areas, it is likely that there would also be some non-sampling differences between the occupational distribution in our data and national data.

exploring scenarios under which firms may profitably provide general skills training even where the possibility of poaching might be expected to make it unprofitable (Acemoglu and Pischke, 1998 and 1999; Chang and Wang, 1996; Katz and Ziderman, 1990).[9] Drawing on this literature, Autor (1999b) proposes a model of skills training in the THS sector that is specifically geared to specific institutional features of the temporary help labor market including: a heterogeneous worker population, high levels of worker turnover, and a desire by client firms (i.e., those that contract for temporary workers) to screen workers for permanent positions. In this model, training at THS firms is hypothesized to serve an *informational* role – in addition skills formation – by enabling the firm to selectively recruit and screen THS workers of higher motivation and capability, and to communicate ('signal') this quality differential to clients. We outline the model here and discuss empirical implications for our subsequent survey analysis.

The model in Autor (1999b) is premised on the idea that skills training is more productive – and hence valuable – to high ability workers, where ability is defined as an individual's facility and motivation at learning new job skills. Workers are assumed to have imperfect prior information about their ability while THS employers cannot initially perceive worker ability but are able to gauge it through the process of training.[10] Because of the learning advantage of high ability workers, THS firms are able to offer a package of training and lower wages that induces self-selection. Workers of high perceived ability choose firms offering training in anticipation of wage gains when hired into permanent employment while low ability workers are deterred by initially lower wages and limited expected gains. Because the firm

[9] Acemoglu and Pischke (1999) provide a general theory and specific examples of the potential interaction between divergences in the wage structure from the perfectly competitive case considered by Becker (1964) and firms' ability to provide general skills training.

[10] In other words, applicants know more about their own capabilities than do THS employers at the time of hire.

observes which new hires are more capable during the training process, it is able to weed out lower quality workers and subsequently charge a premium price to clients for its workers.

Critically, because the firm's acquired knowledge about worker quality is private (i.e., observed by the firm during training but not by its competitors), it has the opportunity to recover its training costs during subsequent assignments without fearing that its workers will be poached by competitors immediately after training. Hence, training plays a *recruiting, screening* and *signaling* role in this model, by helping to recruit better quality workers, screen their suitability for placement with customers, and advertise (or 'signal') the quality of the firm's workers to its customers.[11] It is these informational functions (recruiting, screening and signaling) that make providing "up front" training profitable for the THS firm, a result that would otherwise be inexplicable in the fully competitive (i.e., complete information) case studied by Becker (1964).

If this conceptual model is correct in capturing the salient features of the THS training market, it contains strong implications for the anticipated pattern of survey responses regarding training, screening, wages, markups, and rates of permanent placement.[12] On a qualitative level, the model implies that firms offering training will rank worker and customer recruitment as equally important motivations for training alongside skills development. In a similar vein, firms would be expected to endorse the notion that offering training plays an important role in selectively recruiting workers of greater motivation and ability and further screening their capabilities during the training process. Firms providing training may also be significantly more likely than others to state that their customers use them to screen workers for permanent

[11] It is important to note that non-training firms in this model earn equivalent profits to training firms. Although non-training firms attract lower quality workers, they are able to charge a lower price to customers accordingly and thereby still attract business. Additionally, they do not incur the costs of training. Hence, in equilibrium, both training and non-training firms co-exist and are equally profitable although they operate in separate market 'niches.'

[12] Many survey questions were designed specifically to test the model's predictions.

positions. Perhaps the strongest test of the screening notion, however, is that, firms providing training should place a greater fraction of workers in permanent positions with their customers.[13]

The model also makes a strong prediction on the rationing of training by worker ability. Because training is theorized to enable the firm to differentiate its workforce quality to customers (by attracting more capable workers), the model suggests that training firms may be significantly more selective than those that do not train in the skills they require of applicants to qualify for hiring/placement.[14] In addition, training firms may particularly target training at those among their workers who possess the greatest skills and capabilities since these workers may be perceived to offer the highest return per dollar skill investment (on the assumption that training and worker ability are complementary). If these suppositions are correct, the distribution of skills training within the THS sector may be skewed towards those who are already more advantaged, both within and across establishments.

Finally, the model suggests that we should be able to distinguish wage and markup policies among training and non-training firms. On average, training firms should charge a higher markup on their workers' services and yet potentially pay the same or lower wages. This combination of higher markups and lower wages is potentially made feasible by the private information that the training firm holds about ability. The training firm's customers will in theory be willing to pay a premium price for access to its screened and trained workforce, but its competitors will not be able to 'poach' its better workers because information about which workers are desirable is retained privately. It is of course the presence of private information

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[13] Recall that in the model, the worker's "payoff" to training is not earned until he or she finds a permanent position. Segal and Sullivan (1998) have shown that workers transitioning from temporary to permanent employment generally receive wage gains on the order of 10 percent. Hence, if workers at training firms are more frequently hired from 'temp-to-perm,' this implies a substantial wage payoff to taking assignments through a training firm.

[14] In general, if a worker does not meet a firm's initial screens for placement, the worker will not be given an

that primarily distinguishes this theoretical framework from a conventional competitive model (in which all parties have access to full information). If full information on worker ability were available to all actors in the market, this would immediately eviscerate any competitive advantage a firm might gain by observing worker ability during training.

In addition to testing these implications of the conceptual framework, we also draw on the survey to provide descriptive tabulations on the prevalence of skills training, the cost of training relative to other expenses, the methods and policies used, the subjects offered, and the extent of training typically given. To supplement these tabulations, we further provide information on the job skills and tasks generally required of temporary help workers. These figures provide a picture of the qualifications that THS workers must bring to this labor market to gain access to the training and employment opportunities offered.

4 Results

4.1 Training: Prevalence, methods and policies

Consistent with the results of the 1994 occupational compensation survey performed by the Bureau of Labor Statistics (BLS, 1996), skills training appears widespread at THS establishments in the MSAs covered by the present survey. Table 4, which documents these frequencies, indicates that 59 percent of THS workers are employed at establishments that provide some free skills training to employees in their occupational category.[15] The availability of training varies widely by occupation. Fully 88 percent of clerical workers are potentially eligible for skills training, as compared to 50 percent of sales and marketing workers, 40 percent

assignment and may not have the opportunity to avail herself of training.

[15] Note that these frequencies are estimates of the training opportunities faced by the average worker in each occupation. Overall figures are weighted by relative employment in occupations. These results are not directly comparable to overall results in BLS 1996 which tabulated training by establishment weighted by employment irrespective of whether training was available to all workers or only to certain occupations.

of technical workers, 37 percent of industrial and blue collar workers, 41 percent of professional and managerial workers, and zero percent of service workers.[16] These training categories were further subdivided into computer skills (which are the primary focus of the current report), industrial skills such as safety training, and other business skills such as call-center or telemarketing skills, resume writing, and workplace rules and general conduct.[17] As is apparent from the table, the provision of computer skills is concentrated in clerical, technical and sales occupations. Apart from service occupations, which appear to receive no training whatsoever, industrial and blue collar workers are the least likely to have access to computer training followed by professional and managerial workers (27 and 29 percent respectively).

To provide a picture of the prevalence and intensity of computer skills training specifically, respondents were asked what percentage of workers hired for (major occupation) assignments received some computer skills training and how many hours they typically received if trained. Additionally, we asked respondents to do distinguish between training given to "help workers get the basic skills needed to qualify for assignments" and training given to "help qualified workers advance their skills." These responses are displayed in Table 5.

Overall, approximately 18 percent of temporary workers receive some computer skills training (and 33 percent at establishments offering training), but this figure differs substantially by occupation. As reported by respondents, 30 percent of clerical workers receive computer skills training averaging 7.2 hours among trainees. Although we did not ask specifically about

[16] Because there were only two establishments that specialized in sales and marketing workers, figures for this occupational category should be treated with caution.

[17] More specifically: Computer skills include word processing, data entry, spreadsheet use, computer programming languages, graphics, and computer aided design. Business skills include call-center or telemarketing skills, customer service or sales skills, communication skills, interviewing and resume development, and workplace rules and general conduct. Industrial skills include safety and other industrial skills training. Detailed frequencies by individual training category and major occupation are found in Appendix Table A.

the hours given to different skills subject areas, computer skills training of clerical workers is likely to be concentrated in word processing, spreadsheet use, and data entry (see Appendix Table A). Technical workers were only about half as likely to receive computer skills training (17 percent), but their training appeared to be much more in depth, averaging 23 hours. Moreover, at those establishments offering training to technical workers, a surprisingly large fraction, 44 percent, were reported to receive training. Logically, training offered to technical workers appears to be concentrated in technical subjects such as computer programming languages, graphics, and computer-aided design (CAD) as well as standard office applications. Given the complexity of these subjects, it is not therefore surprising that training stints were on average longer for this group.

Outside of clerical and technical occupations, computer skills training appears relatively rare, given to between 0 and 6 percent of workers. Industrial and blue collar workers, who make up the largest single occupational category (38 percent of workers), appear to receive limited computer training with only 6 percent trained (20 percent at establishments offering training to blue collar workers). This low level of training may however reflect a limited need for computer skills in these assignments. Respondents reported that only 15 percent of blue collar and industrial assignments typically required using a personal computer on the job daily (see Appendix Table B).

A potentially important finding also visible in Table 5 is that a slight majority of training (56 percent) is given to help qualified workers advance their skills rather than to help workers gain skills needed to qualify for assignments. In professional and technical positions, approximately three-quarters of skills training is given to assist already qualified workers. In clerical and industrial assignments, the division of training between these goals is closer to even,

with 56 percent of training given to advance qualified workers. Only in blue collar occupations is training more commonly given to help workers qualify for assignments (55 percent). These figures indicate that while skills training is not primarily directed towards bring workers up to the threshold of acceptability for their assignments, a sizable fraction of the training appears devoted to this goal.

It is also important to note that the allocation of training by goal may reflect both the preferences of management in offering training and the motivations of workers engaging in it. To better understand how training is allocated within establishments, we asked respondents about their establishments' policies for supplying training. These policies, tabulated in Table 6, reveal that computer training is allocated via a mixture of self-selection and managerial encouragement.[18] Between 90 and 98 percent of workers at establishments offering computer skills training may volunteer to train. At the same time, respondents were also quite likely to state that their establishments identify certain workers for skills training.[19] From discussions with THS managers, it appears that training is generally given to all workers at an establishment who volunteer for it, but that managers often make special efforts to encourage certain workers to train, generally those seen as more capable and more likely to take subsequent assignments where these skills will be used. In addition, *clients* of THS firms also request and pay for training at approximately 45 percent of establishments, although one cannot ascertain from these data how frequent customer-paid training is relative to THS firm-sponsored training.

Consistent with expectations, computer-based training tutorials are by far the most frequently training method employed, with 79 percent of establishments (that provide training)

[18] Note that policies tabulated are not mutually exclusive.

[19] These policies apply to approximately 85 percent of employment in training establishments.

reporting that they always use these tutorials, perhaps in conjunction with other modalities. At the same time, 42 percent of establishments provide classroom-based training at least some of the time, and similar fractions make use of written self-study materials and audio-visual presentations. When these results are subdivided by major occupation (not tabulated), the data indicate that classroom training is most prevalent in technical occupations (62 percent of establishments use it sometimes or always) while computer-based training is most commonplace in clerical occupations (98 percent use it sometimes or always).

Although one of the initial goal of our survey was to assess the costs to establishments of providing skills training, we learned during the pilot study that respondents were frequently unable to provide meaningful estimates of the direct costs of training including hardware, software, staff time, instructor costs, and classroom space. Hence, we developed a much simpler but far less precise approach, asking respondents how their establishment's cost of providing free skills training compares to the cost of advertising and recruiting for workers and customers. These responses, found in Table 8, indicate that the majority of establishments consider training to be either a minor cost or not costly (34 percent each). Given the frequent use of computer tutorials, which are likely to have low average cost per trainee, we were somewhat surprised to find that 32 percent of establishments consider training to be moderately costly (27 percent) or very costly (5 percent). A regression of the responses to this question on training subject dummies indicates that the provision of training in programming languages, desktop publishing, CAD and, to a lesser degree, word processing is associated with higher training expenses whereas data entry and spreadsheet training are associated with relatively lower training expenses. These findings are logical inasmuch as advanced technical skills (other than word

processing, that is) are most likely to be provided in a classroom or contracted out to another training venue.

To summarize, we find that the majority of THS workers are employed at establishments offering computer skills training but that only a modest fraction receives training. Training is most prevalent in clerical occupations where the average length of training is approximately one workday. While training is only half as commonplace in technical occupations, it is here where the depth of training appears most substantial, averaging 23 hours. Training is directed both towards helping workers to qualify for assignments and towards advancing the skills of already qualified workers, although a slight majority is directed towards the latter goal. Since the allocation of training is a function of both worker motivation and management decisions, it is unclear whether management goals amplify or ameliorate the tendency of already qualified workers to receive the majority of the training.

4.2 Motivations for providing skills training

The results above underscore the puzzle raised in the introduction: the majority of THS establishments surveyed provide modest amounts of marketable computer skills training upon request and without charge, facts seemingly at odds with the competitive model of skills training. To probe firms' motivations for providing training in this unusual manner, we asked a series of questions meant to distinguish between standard explanations for skills training such as increasing individual productivity and reasons outlined in the conceptual model above. These include recruiting and workers of greater motivation and ability; screening their capabilities through the process of training; and differentiating worker quality to customers. The results are discussed in this section.

We first asked respondents to rate the importance of number of reasons they might offer skills training. These results, found in Table 9, indicate that a number of motivations appear very important including: demonstrating a commitment to quality (81%), improving workers' performance at assignments (79%), recruiting or retaining workers (75%), and placing workers in a greater variety of assignments (69%). What is striking from the perspective of the conceptual model, however, is that the two motivations related to recruiting/screening and signaling worker quality – demonstrating a commitment to quality and recruiting and retaining workers – appear at least as important as the two motivations related to increasing worker productivity – improving workers' performance at assignments and placing workers in a greater variety of assignments. Interestingly, placing workers at assignments with a higher markup is found to be substantially less important than the other motivations (41% very important), suggesting that firms do not typically recapture training costs by charging higher billing rates for individual trainees. Hence, if providing training allows an establishment to earn a higher markup as suggested by the model, it would be by 'branding' its workforce quality to permit an overall higher markup rather than a higher markup exclusively on trainees. We provide evidence on this point in section 4.5.

To further probe the hypothesized importance of skills training to recruiting and screening workers, we asked respondents specifically about the role that training may play in these tasks.[20] These results are found in Tables 10 and 11. The pattern of response to these questions was surprisingly uniform. Turning first to training's role in recruiting workers, only 12 percent of respondents said that training was *not* important to recruiting. By contrast, 85 percent

[20] So as not to lead respondents towards agreeing with our prior notions, we ensured that the first suggested response to these questions was disagreement, i.e., that training is *not* important to recruiting or screening workers. Hence, to fulfill our prior notions, respondents had to disagree with our line of questioning.

said that training increases the overall applicant pool and 77 percent said that training particularly attracts applicants with good skills. The notion that received the strongest positive response (91 percent), however, is that training particularly attracts applicants with strong motivation.

We next asked about the role that training may play in skills assessment (Table 11). Only 8 percent of respondents felt that training is not important for assessing workers' skills or motivations. By contrast, 88 percent believe that training helps to assess workers' skills at specific tasks and to assess how quickly workers learn new skills (87 percent). In a comparable vein to the previous question on recruiting, we found that the idea that received the strongest endorsement (95 percent) is that training helps to identify which workers are motivated to gain skills and advance their careers. This pattern of responses clearly indicates that establishments offering training believe that training plays an important role in attracting motivated applicants and further identifying those among the recruits who are particularly motivated to advance.

It should be noted that THS managers' reported desire to attract workers of greater motivation stands in some contrast to the commonplace view of temporary help positions as offering little opportunity for individuals seeking advancement (cf., Parker, 1994). Presumably, managers would find it unproductive to attract motivated workers if these ambitions were to be immediately thwarted by the low quality of assignments provided. Managers interviewed for this research, however, stressed that recruits with the facility and motivation for acquiring skills make successful THS workers because they adapt readily to the varied work environments in which they are placed.[21] Recruiting workers with these desirable traits is accordingly quite important to client satisfaction and therefore ultimately to the success of the THS establishment.

Whether workers' motivations are rewarded by advancement with the THS employer or through finding permanent positions with clients is an empirical question that we present evidence on in section 4.4.

4.3 Hiring selectivity at training and non-training THS firms

Since it is widely believed that up to date computer skills are a prerequisite for a large and growing fraction of jobs, it is important for policy to understand whether computer skills training at THS establishments is broadly available or whether it is primarily limited to workers who already hold strong employment credentials. Some evidence was presented on this point in section 4.1 where we found that the distribution of training *at training establishments* between basic skill sufficiency training versus skill advancement was roughly even. However, a more subtle but potentially equally important mechanism for allocating training is the criteria that establishments use for screening applicants for entry into their employment pools. If establishments providing training are differentially more selective in who is hired as a temporary worker, this will also have important consequences for who ultimately receives training. As was argued in section 3, if training plays a role in 'branding' a THS establishment's workforce high quality, then we might suspect that the hurdles for admission to that firm's worker pool would be correspondingly higher. We provide evidence on this question in this section.

To gauge firms' selectivity in hiring, we asked how important it is that applicants possess six common qualifications to be considered for assignments within the firms' major occupational specialty. These qualifications were: a high school diploma, a college diploma, previous experience in the relevant line of work, previous training or skill certification, good

[21] Autor (1999b) discusses this point in greater depth.

English/Verbal skills and good attitude and/or motivation.[22] These results are contained in Table 12 which tabulates reported hiring requirements for three occupational categories, professional/technical, clerical/sales and blue collar.[23] Not surprisingly, educational and experience requirements differ dramatically among these occupational groupings. For example, a high school diploma is absolutely necessary or strongly preferred for 48 percent of blue collar positions, 86 percent of clerical/sales positions, and 95 percent of professional/technical positions. Further, 77 percent of professional/technical positions have a strong preference for a college diploma relative to only one-third of clerical/sales positions and essentially none of the blue collar positions. Interestingly, the only skill requirement that is lower in professional/technical positions than in clerical/sales is the need for good English/verbal skills. This is likely because many clerical/sales positions require frequent communications with co-workers and customers, something less likely to be the case in technical positions (although not professional/managerial jobs). Finally, respondents uniformly stated that good attitude and/or motivation was a requirement for hire in all occupations (98 percent in all categories), although of course the definition of adequacy in this area may differ substantially by occupation.

To assess whether firms providing skills training were differentially selective in their hiring requirements, we estimated an ordinary least squares regression model of the probability that an establishment requires or strongly prefers a given qualification as a function of its major occupational specialty, geographic location (i.e, which MSA), and whether or not the

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[22] These questions and several others on screening and hiring in the survey were designed to parallel as closely as possible (while still being logical for THS) questions on screening and hiring in the 1999 Multi-City Survey of Urban Inequality (MCSUI, 1999, Ongoing). In subsequent work, we will compare screening and hiring practices at THS employers and non-THS employers in the same cities to evaluate whether THS employers provide opportunities to workers who otherwise would have difficulty finding employment.

[23] Technical/professional occupations are professional/managerial and technical workers. Clerical/sales occupations are clerical workers and sales and marketing workers. Blue collar includes industrial, other blue collar, and service

establishment offers free computer skills training.[24] In the fourth column of Table 12, we report this regression-adjusted difference, equal to the average percentage point difference in the probability that a given job qualification is required at a training relative to non-training establishment specializing in the same occupation and within the same city.

These regression-adjusted differentials provide surprisingly strong evidence that firms offering computer skills training are substantially more selective in hiring than non-training firms, even after adjusting for occupational and geographic differentials. Specifically, training firms are 13 percentage points more likely to require a high school diploma than are non-training firms, 10 percentage points more likely to require previous experience relevant to the job, 11 percentage more points more likely to require previous training or skill certification, and 10 percentage points more likely to require good English or verbal skills. Each of these differentials is of meaningful magnitude and is statistically significant at the 5 percentage point level or better. In fact, the only areas in which training firms were not significantly more selective was in requiring a college diploma (which appears relevant primarily to professional/technical occupations) and in requiring good attitude or motivation (which essentially all sampled firms purported to require). Of course, to assess to what degree these restrictions actually exclude a sizable proportion of the THS workforce from training establishments, we would need additional information on the qualifications held by applicants to THS firms in these cities. In future work, we will incorporate data from the 1999 MCSUI study to examine this question in further detail.

To gain further information on hiring criteria at THS establishments, we asked respondents to evaluate the likelihood that they would reject an applicant based upon his or her

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occupations.

[24] Hence, we regress an indicator variable for whether a qualification is required or strongly preferred on 5 major occupational dummies (one omitted), 5 MSA dummies (one omitted), and a dummy for free computer skills training

possessing the following characteristics: high school non-completion, criminal background, limited job experience, long term unemployment, and welfare recipiency. Unfortunately, this series of questions generated less usable variation than was hoped.[25] Respondents, perhaps wary of appearing to discriminate, respondents rarely stated that they would reject *any* applicant based upon a listed criterion and, accordingly, the modal response to each question was that applicants would be definitely or probably accepted. Since all of the usable variation in the data was in the distinction between *definitely* and *probably* accept, we coded responses to these questions into 'definitely accept' and 'all other' when tabulating the results in Table 13.

Despite the limited success of this line of questioning, some interesting patterns emerge. According to respondents, welfare recipiency is not a substantial barrier to consideration for THS employment, with between 65 and 75 percent of establishments reporting that they would definitely accept an applicant who is or has been on welfare.[26] This finding is also consistent with work by Rangarajan and Novak, 1999 indicating that THS is a major avenue of employment for those making the welfare to work transition. Other characteristics appeared to raise more concern, however. Depending upon the occupation, only 8 to 27 percent of establishments would definitely accept someone with a criminal record, 14 to 52 percent would definitely accept a high school dropout, and 24 to 40 percent would definitely someone who has been unemployed for a year or more. The importance of these criteria also varied substantially by occupation. For example, high school dropout status is apparently not a relevant consideration for more than half of the establishments specializing in blue collar employment but was a factor for 82 percent of establishments specializing in clerical/sales workers and 86 percent of establishments

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provided.

[25] This question was also closely patterned on the MCSUI survey to aid comparisons in future work.

[26] Accept, that is, conditional on other qualifications being adequate.

specializing in professional/technical workers.[27] While the contrast between selectivity in blue collar versus other occupations was not as pronounced for other criteria, it is clear from Table 13 that establishments hiring for blue collar positions are substantially less concerned about poor work history, limited education, and criminal background, and somewhat less concerned about welfare dependency.

Paralleling our analysis of the previous question on hiring selectivity, we also estimated regression models to test whether firms providing free computer skills training were less likely to accept applicants possessing these potentially deleterious characteristics. These estimates, found in column four of Table 13, provide only limited evidence suggesting that training establishments are more selective on these criteria. The one substantial difference is that training establishments are approximately 7 percentage points less likely to consider a high school dropout with no GED for employment, a difference that is statistically significant at only the 15 percent level. Given the strong evidence of greater selectivity at training establishments presented in Table 12, we suspect that the weaker evidence in Table 13 primarily reflects the limited amount of usable variation generated by the responses to this series of question as discussed above.

To summarize this section, we find substantial differences in hiring selectivity across major occupations at THS establishments as expected. Moreover, consistent with the theoretical model, we find that THS establishments providing free computer skills training are significantly more selective than their competitors in the same occupations and cities as measured by the education, experience, training, and communications skills they require of their applicants.

[27] In other words, only 18 and 14 percent of clerical/sales and professional/technical establishments respectively stated that they would definitely accept an applicant who is a high school dropout.

Hence, it appears that workers with better employment credentials are more likely to gain access to the skills training provided by THS firms.

4.4 Sources of customer demand and frequency of temp-to-perm transitions

One of the central implications of the theoretical framework proposed for understanding training at THS firms is that customers of training establishments would disproportionately use their services for temp-to-perm screening, resulting in a higher rate of permanent placements at these establishments. The greater odds of finding a permanent placement would potentially reward those workers able to meet the more stringent hiring criteria of training establishments, while the higher quality of workers at these establishments would encourage client firms to draw on them for temp-to-perm screening. To test these propositions, we first asked THS what were the important reasons that customers use them to fill positions in the establishment's major occupation. We next asked about temporary-to-permanent transition rates within that occupation.

Responses to the question on customers' motivations for using THS workers are found in Table 14. Consistent with survey work by Houseman (1997) on firms' use of flexible work arrangements, several motivations for using THS workers appear important.[28] Almost all THS establishments cited traditional motivations – such as staffing for employee absences, peak workloads, and seasonal needs – as important. Additionally, saving on wage and benefit costs is cited by 70 percent of professional/technical establishments, and 85 percent of clerical/sales and blue collar establishments. Ninety-three percent of professional/technical establishments cited

[28] A limitation with the design of our survey question is that if even a few of an establishments' many customers use it for one of the roles listed, the respondent might be likely to cite that role as important. Hence, the survey question is not necessarily sensitive to gradations of importance and, accordingly, most establishments name multiple roles as important. Nevertheless, there are clear differences in roles by establishments' occupational category visible in

THS workers' special expertise as an important source of customer demand, a factor that was substantially less important to clerical/sales and blue collar establishments (67 and 50 percent of establishments respectively). Long term temporary assignments of more than one year appear more important among establishments supplying workers of higher skill, ranging from 71 percent among professional/technical establishments to just under 60 percent among blue collar establishments. Approximately two-thirds of establishments, regardless of occupational category, cite saving on training costs as an important source of customer demand.[29]

To test whether these responses differed between training and non-training establishments, we estimated regression models as above controlling for occupational specialty and geographic location. Consistent with the conceptual model, we detect one significant difference between training and non-training establishments: training establishments are 6 percentage points more likely to report that their customers use them for screening candidates for permanent positions ($p = .07$). No other response differentials were statistically significant although, perhaps unsurprisingly, training establishments are somewhat more likely (7 percentage points) to state that customers use them to save on training costs.[30]

Of course, a stronger test of the hypothesized relationship between establishment skills training and temp-to-perm placement rates is to examine empirically whether placement rates differ systematically between training and non-training establishments in the same occupations and cities. Accordingly, we asked respondents to estimate the percentage of workers hired by a customer in the previous month among those on assignment in the establishments' major

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Table 14, suggesting that the question is detecting meaningful differences in roles among different THS suppliers.

[29] One should bear in mind that the cost savings referred to by respondents may not be only the skills training provided by THS establishments as the training and experience that workers already possess.

[30] When skills training in the regression model is defined as *any skills training* rather than *any computer skills training*, the differential in customers use of THS workers for screening increases to 7 percentage points ($p = .03$).

occupation. These responses are found in Table 15. The average overall placement rate among all THS establishments is 12.5 percent, indicating that about one in eight workers assigned in a given month is hired by clients.[31] However, among training establishments, this rate averages 15.9 percent versus 10.5 percent at non-training establishments. Furthermore, as is shown in the table, the training/non-training establishment difference in placement rates is higher in each major occupation, ranging between 4 and 8 percentage points.

To formally test whether these differences are statistically distinguishable, we estimate several regression models of establishments' reported placement rates on their occupational specialty, geographic location, and an indicator variable for whether they provide computer skills training. These models indicates that placement rates are on average 6 percentage points at training establishments within the same occupations and MSAs ($p<.01$). To gauge the magnitude of this differential, note that the intercept of the regression equation implies that placement rates at non-training blue collar establishments average only 8 percent per month and that the rates at non-training clerical/sales and technical/professional establishments are slightly lower (one-half and one percentage point, respectively). Hence, placement rates are 70 to 80 percent *higher* at training establishments, a sizable difference indeed.[32]

Note, however, that this is not to suggest that the markedly higher placement rates at training establishments are solely or even primarily the result of the marketable skills imparted to

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Additionally, the differential in saving on training costs rises to 10 percentage points ($p = .08$).

[31] To determine total job placements out of THS per year, we would need to combine this estimate of the placement rate with an estimate of monthly worker flows through THS. The present survey does not provide information on these flows but future work will use flow estimates developed by Segal and Sullivan (1997b) to produce rough estimates of total placements.

[32] The differential is 6.07/8.34 = 72% for blue collar, 6.07/(8.34 – 0.49) = 77% for clerical/sales and 6.07/(8.34 – 0.94) = 82% for professional/technical. It is of course possible that training firms systematically exaggerated both their temp-to-perm rates and the importance of temp-to-perm screening as a factor in customer demand. We have no reason to suspect this, however, and as far as we are able to judge, there was nothing in the survey to suggest that we

workers through training. In fact, given the modest fraction of workers trained (estimated at 33 percent) and the limited depth of training typically provided (averaging 9 hours), it would strain credibility to argue that skills training would have such a large impact on placement. Clearly, a plausible explanation for the greater rate of placement at training establishments includes both the skills training provided and the greater selectivity that training establishments exercise in recruiting and hiring workers for placement. Notably, training is important to both goals (as demonstrated by the analysis section 4.2), helping firms to develop workers' skills *and* assisting them in recruiting and screening more motivated and capable workers. Hence, while higher placement rates at training establishments are due both to selection and skill enhancement, skills training appears important to both causal avenues.[33]

4.5 Markups and wages as training and non-training establishments

4.5.1 Markups

The evidence presented so far appears consistent with the theoretical framework that suggests that skills training is an integral component of a package of recruiting and screening policies. Firms offering training select higher quality workers, receive greater temp-to-perm demand from customers, and place substantially higher fractions of THS workers at permanent positions. What is missing from this analysis, however, is evidence indicating whether providing up-front skills training (and associated policies) generates a tangible payback to the THS establishment. Without evidence of this payback, we are still left with a puzzle as to how (or

anticipated links between skills training and temp-to-perm conversions (or screening requirements, markups, or wages).

[33] Unfortunately, we can only bound our uncertainty about the relative importance of skill enhancement versus worker selectivity at training establishments by stating that between zero and one hundred percent of the higher placement rate at training establishments is due to worker selection.

even *if*) free training benefits the firm.[34] The theoretical model sketched above implies that training firms earn a return on their training investment via their privileged knowledge (gained partly through training) of worker skill and motivation which allows them to command a higher markup without paying a commensurately higher wage. It is the relationship between training, worker wages, and establishment markups that we explore in this final empirical section.

We asked respondents at each establishment to state their typical wage markup for the major occupation in which they specialize.[35] After discarding a small number of outliers, we were left with 293 usable response rates, corresponding to an overall completion rate for this question of 66 percent – significantly lower than responses to other questions, but still quite high given the sensitivity of the information. These responses are summarized in Table 16. The mean markup is 51 percent overall, 50 percent in professional/technical occupations, 57 percent in clerical/sales occupations, and 47 percent in blue collar occupations.[36] It is important to note that while a 50 percent gap between the client's hourly bill rate and the worker's hourly wage rate is substantial, this margin should not be interpreted as pure profit. Out of the markup, the THS firm pays the employer's share of social security taxes, unemployment insurance, workmen's compensation insurance, any bonding fees, and all worker benefits as well as, of course, the THS establishment's permanent employees' salaries and overhead. Hence, net profits are likely to be substantially below the markup.

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[34] In fact, one could argue that THS firms are even hurt by providing training since their best workers are presumably hired away by customers more frequently. Additionally, in untabulated results, we find that while 85 percent of THS establishments sometimes or always charge a temp-to-perm 'conversion fee,' training establishments are not significantly more likely to do so than non-training establishments conditional on major occupation and geographic controls.

[35] Where respondents provided a range, we used the mid-point. In regression models, we also adjust for whether the reported markup was a wage markup ((bill rate – wage)/wage) gross margin (bill rate – wage/(bill rate)) or profit margin (bill rate – wage – 'employer burden')/bill rate).

[36] These figures correspond well with casual estimates of the wage markup at THS establishments (Segal and

To explore how markups differ between training and non-training establishments, we tabulate the average markup by major occupation at training and non-training establishments, found in the second and third column of Table 15. Markups appear uniformly higher at establishments offering training, ranging between 4 percentage points higher at blue collar establishments to 9 percentage points higher at clerical/sales establishments. Of course, these differences may also be accounted for by geographic variation in markup levels that are correlated with training propensities.

To account for these factors, we estimate a regression model of the establishment markup on occupation and geographic indicators and an indicator variable for whether the establishment provides free computer skills training, found in Panel B of the table. This model indicates that training establishments charge approximately a 6 percentage point higher markup than their competitors in the same occupations and MSAs ($p<.01$). Using the regression intercept and coefficients on occupation indicators to estimate conditional means, we find that the average markup at training establishments is 12 percent (as opposed to percentage points) higher in blue collar occupations, 11 percent higher in professional/technical occupations, and 10 percent higher in clerical/sales occupations relative to otherwise comparable non-training establishments. Hence, there appears quite strong evidence that establishments providing training are able to command a higher markup for their workers. As in the case of the temp-to-perm transitions, we suspect that this result is due both to the added value imparted by skills training and the selection effect of recruiting and screening higher quality workers at these establishments (also in part through offering skills training).

Sullivan, 1997a). We are not aware of other representative survey data on this topic.

4.5.2 Wages

To examine evidence for wage differentials between training and non-training establishments, we asked respondents to estimate the typical wage in their establishment's major occupation.[37] The response rate to this question was surprisingly high at 93 percent. The large variance in reported wages within occupations, however, limits the statistical inferences that we are able to draw. These wage results, found in Table 17, yield the expected pattern of wage differences by occupation: wages are highest in technical occupations, followed by professional/managerial, clerical, industrial/blue-collar, and service.

In comparing mean wages by occupation at training and non-training establishments, we find no significant training establishment wage differences, a result confirmed by the regression model found in Panel B. Wages at training establishments do not appear to be systematically higher or lower at training establishments, either in raw means or after conditioning on geographic and occupational main effects as is done in the regression equation. This finding is somewhat at odds with the theoretical model, which predicted that wages would in fact be somewhat lower at training establishments.[38] Note, however, that work by Autor (1999b) using a large sample (~300,000 observations) survey data set collected by the Bureau of Labor Statistics found that wages were on average 2 to 5 percentage points lower at THS establishments offering skills training in 1994. As can be seen from the standard error on the 'training provided' regression coefficient in Panel B of Table 17, the present survey would not have the statistical power to detect a difference of this size at conventional significance levels.

[37] As above, if respondents provided the interviewer with a range, we used the mid-point.

[38] Recall that lower wages at training establishment help to establish the self-selection mechanism by which high ability workers choose training while low ability workers are deterred.

Despite the divergence between the theory and the wage data on this point, it is important to observe that the *absence* of a wage differential between training and non-training establishments is in fact a puzzle from a conventional competitive perspective. Since we have established that training establishments screen for workers of greater education and experience within given occupations, a competitive model of the labor market would predict that workers at these establishments should also earn higher wages.[39] The fact that wages are comparable at training establishments despite the higher quality of workers suggests, consistent with the theoretical framework, that it is primarily the training firm – rather than its workers – that captures the differential labor market value of its workers *during* the time they are temporaries. This differential of course accrues to the training firm via its higher markup as demonstrated above. Workers, in turn, appear to receive the payoff to enlisting with a training firm after their temporary employment is complete, when they are, with greater probability, hired into permanent employment.[40]

5 Conclusions

Our multi-city survey of temporary help establishments set out to explore in detail the widespread temporary help industry practice of providing workers with nominally free, "up front," general skills training – particularly computer skills training – and to understand how this

[39] The only competitive case in which this would not be true is if the higher screening thresholds at training establishments were not in fact binding such that workforce quality at training and non-training establishments was comparable. Given the substantial differences in reported hiring criteria, this possibility seems farfetched.

[40] In fact, the pattern of findings can easily be understood through a slight modification of the Autor (1999b) model. In Autor's schematic model, training firms are initially unable to distinguish *any* skill differences among THS applicants and hence must use lower wages to induce self-selection. By contrast, we find from our survey that training firms *do* in fact apply greater screening thresholds and hence these screens can easily stand in for lower wages as a mechanism for inducing initial positive selection (augmented by training). The key theoretical result of the Autor model – that the training firm *not* its worker captures the initial returns to training – is in fact upheld by the data: training firms charge their customers more per hour but pay their workers no more than their competitors. Hence, we view are results as essentially consistent with the theory, although they also indicate that the model could more realistically capture the non-wage screening mechanisms in place at THS firms.

unusual practice benefits employers and potentially workers as well. To guide our inquiry, we sketched a theoretical model developed by Autor (1999b) in which THS firms offer training to attract and screen more motivated and capable workers – the type of workers hypothesized to differentially benefit from training. By using skills training to develop information on worker quality that is not available to competitors, we hypothesized that training firms might be able to capture some of the returns to workers' skills by charging a premium billing rate to their customers without paying their workers commensurately higher wages. Customers, anticipating a more productive pool of screened and trained temporary workers, would be willing to pay training firms' higher billing rates. When screening workers for potential temp-to-perm hire, customers would draw disproportionately on training firms given the superior candidates found there. Workers of greater capability and motivation would in turn be willing to accept sub-competitive wages at training establishments in exchange for greater chance of obtaining a temporary-to-permanent assignment with attendant superior wages, benefits and employment security.[41]

Analysis of our survey data provided surprisingly strong support for the detailed implications of the conceptual model. Our results indicate that establishments providing training are significantly more selective in the education and skills they require of applicants, including high school completion, previous relevant experience, and specific prior skills training. Training firms are also significantly more likely than their competitors to report that their customers use them to screen workers for permanent positions and, consistent with this notion, provide temp-to-perm placement rates that are on average 80 percent higher than at non-training

[41] As above, wages are sub-competitive in the sense workers at training establishments should in a purely competitive market earn *more* than those at non-training establishments due to their superior education and experience.

establishments. Finally, we found that wage markups at establishments offering training average 11 percent higher than at competitors in the same occupations and MSA that do not offer training. However, wages paid to workers at establishments offering training are statistically indistinguishable from their non-training competitors.

Hence, our results appear to provide a coherent answer to our initial question of how THS firms profit by 'giving away' marketable skills training. Our analysis indicates that by providing skills training in conjunction with careful screening and potentially other forms of quality assurance, THS firms are able to command higher billing rates from customers without offering commensurately higher wages to workers. This rationale for skills training is not a conventional competitive explanation in the sense that workers of greater skill do not appear to earn wages consistent with their capabilities while employed in THS. However, when we consider the substantial uncertainty that firms face when hiring new workers – and the attendant need of applicants to demonstrate their capabilities to potential employers – our proposed explanation appears promising. By joining the worker pool of a quality-differentiated THS (i.e., training) establishment, more capable workers may potentially signal their suitability for permanent employment. Though these workers pay a short term price in sub-competitive pay, they stand to earn a long term benefit in permanent employment.

We suspect that these informational asymmetries in hiring, and the adverse selection problems that may result, are at the root of firms' apparent desire to use THS to screen workers for permanent positions. Because, unlike conventional employers in most U.S. states, THS employers can essentially hire and fire at will, conventional employers may often find it worthwhile to use THS arrangements to audition workers for permanent employment before making costly employment commitments (Autor, 1999a). Consistent with this notion, several

sources now suggest that THS is a substantial conduit for permanent hiring (Ballentine and Ferguson, 1999; Houseman, 1997). Moreover, Autor (1999a) provides direct evidence that where state law increases employer liability for wrongful termination, employers make increasing use of THS.

Our results also shed some light on the distributional consequences of training at THS establishments. Among establishments offering skills training, training efforts appear roughly equally divided between enabling workers to obtain basic skills needed to qualify for assignments and assisting already qualified workers to advance their skills. Although informal evidence suggests that managers at training firms particularly encourage workers of greater skill and motivation to train, it remains the case that training is normally available to all workers at training firms who volunteer for it. Offsetting these liberal policies, however, is the strong evidence indicating that training establishments are significantly more selective in hiring than their non-training competitors. Hence, it seems quite likely that this differential selectivity at training establishments leads to a distribution of training skewed towards THS workers who are already relatively more skilled, experienced, and, ultimately, employable.

In evaluating this result, however, one should bear in mind that the disproportionate share of private sector, firm sponsored skills training appears directed at more capable workers, both between and within education and experience categories (Altonji and Spletzer, 1991). Hence, THS firms appear no more – and probably less – inclined than other private sector firms to direct training towards more advantaged workers.[42] Moreover, because the THS population as a whole is substantially less educated and experienced than the non-THS workforce (Cohany, 1996 and

[42] Firms' tendency to disproportionately train workers of greater skill is of course natural if training is complementary with ability and motivation as suggested above (and embodied in the theoretical model).

1998), the distributional consequences of training are likely *equalizing* for the labor force as a whole, even if they are disequalizing *within* the THS sector.

Yet, whether THS training is equalizing or disequalizing, it must finally be noted that training at THS establishments appears to be primarily brief in nature, averaging between 7 hours for industrial/blue-collar workers and 23 hours for technical workers. Hence, there is no sense in which training at THS firms provides a meaningful substitute for formal education and other forms of labor force preparation, nor would it be realistic to expect that for-profit employers would play this role. However, for workers already reasonably well equipped for the labor market, the ready access to skills training provided by THS establishments may indeed provide a useful venue for keeping broadly marketable computer skills up to date in a period of rapid technological flux. Moreover, since THS firms appear often to be the employer of first resort for those reentering the labor market after spells of unemployment and non-participation (Segal and Sullivan, 1997a), the convenient and (nominally) costless means these firms provide for updating or polishing rapidly obsolescing computer skills may be particularly valuable.

As this last point suggests, however, skills training at THS firms should not be understood in isolation from the role that THS firms play in the broader labor market and how this role may serve (or fail to serve) the workers in this sector. As the analysis above indicates, training is best understood as one component of a widely practiced THS firm strategy of attracting and branding higher quality workers and commanding higher fees from customers accordingly – particularly from those customers seeking temp-to-perm arrangements. Since THS employers draw heavily from the pool of recent labor market entrants and re-entrants, many of whom seek a permanent job arrangement, there is a clear complementarity between the employment goals of THS workers and the role that THS firms may play as a screening venue

for permanent employment. The importance of temporary-to-permanent hiring in this story, however, and its intimate connection to skills training, suggests that policymakers should attempt to evaluate THS firms' role in the labor market not simply by the quality of jobs, wages, and benefits (such as training) provided, but also by how well or poorly THS firms facilitate workers' advancement into longer term and better remunerated positions.

Adopting this 'institutional' view of THS, however, also suggests that analysts should exercise some caution in drawing pejorative judgments of THS based simply on static comparisons of the quality of jobs in the THS and non-THS sector. For example, there is little question that temporary jobs offer lower wages and benefits and less job security than do non-temporary positions[43] and hence it is not surprising that most THS workers profess to preferring a traditional arrangement (Cohany, 1996 and 1998; Segal and Sullivan, 1997a and 1998). Critics of THS have taken these facts to indicate that the recent growth of temporary help portends unmitigated bad news for workers in THS and for the U.S. labor market as a whole (Castro, 1993; Golden and Appelbaum, 1992; Kalleberg et al., 1997; Kalleberg, Reskin and Hudson, 1999; Parker, 1994).

Yet, the evidence presented above also provides reason to believe that THS firms – particularly those providing skills training – facilitate workers seeking traditional arrangements by placing them with customers screening workers for permanent positions. Moreover, it seems likely that THS employers provide job opportunities to workers who might (without additional skills and experience) be marginally employable in conventional arrangements, for example workers making the transition from long term welfare recipiency to permanent employment.[44]

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[43] Except for those workers at the highest echelon of technical skills.

[44] For example, a recent evaluation of a large welfare-to-work demonstration project by Mathematica, Inc. found

Additionally, to the degree that THS employment provides workers a means to supplement income during job search, it may afford them the short-term financial security to search for better quality job matches, even if those jobs are not ultimately obtained with a THS client company. Finally, recent work by Katz and Krueger (1999) indicates that the growth of THS as a labor market intermediary may have contributed to reducing labor market frictions in states where THS penetration was historically high, thereby lowering the 'natural rate' of unemployment and permitting lower (i.e., preferable) equilibrium levels of unemployment for a given level of inflation.

All of these considerations suggest that the lower compensation and security offered by THS employment may not be the most salient criteria for evaluation if, in fact, stints in THS are generally brief and/or frequently lead to better employment outcomes than workers could have obtained independently. Whether these positive outcomes are commonplace or rare is not yet well known and is also inherently more difficult to evaluate than the static comparisons advanced by many analysts.[45] The survey evidence above suggests that temporary-to-permanent screening is an important feature of THS as an institution and that these temp-to-perm transitions are relatively commonplace, facts that underscore the need for more comprehensive knowledge.

Hence, an important program for future research is to evaluate whether THS employers provide employment opportunities to workers who would otherwise have difficulty finding permanent employment, to document whether THS assignments offer workers an opportunity to develop marketable skills and experience, and to assess how frequently THS positions lead to career advancement and ultimately permanent placements. By pairing our THS survey data with

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that fully 17 percent of the sample that obtained employment did so through THS (Rangarajan and Novak,1999), a fact that appears all the more startling when one considers that as of 1999, only 2.6 percent of workers are employed in THS on a daily basis.

the 1999 Multi-City Survey of Urban Inequality, currently undergoing the final stages of collection, we hope to be able to make some contribution to these topics in the near future.

[45] See Houseman and Polivka (1998) and Segal and Sullivan (1997b) for valuable initial evidence on these points.

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APPENDIX A

Harvard University Study on the Placement and Training of Temporary Workers

Hello. My name is _____ and I'm calling from Harvard University. [If applicable: We were asked to contact you by _____ (filled in by computer) of your company.] We are conducting a study on the placement and training of temporary workers and your office was selected at random to participate. The interview lasts 10 to 15 minutes and is completely confidential. If you need to put me on hold during our conversation, that is fine. May we speak now?

Name of participant		
Title		**Phone #:**

I. Firm Characteristics and occupational distribution

1) [LOCATIONS] About how many office locations does your company have in the U.S.?

Number	Range	Don't Know	Other

Say: All questions will apply to <u>this office location only</u>, not your entire company.

2) [OCCSUPPLIED] First, I'm going to ask about the types of workers you supply. About how many workers do you have on assignment today in these job categories?

	Number	Range	Other
a. Service workers such as janitors, maids, security guards, and food service workers.			
b. Industrial and blue-collar workers such as factory and construction workers, laborers, equipment cleaners, and drivers.			
c. Sales and marketing workers.			
d. Clerical workers such as word processors, secretaries, receptionists, clerks, bookkeepers, paralegals & data entry workers.			
e. Technical workers such as engineers, technicians, computer programmers, and computer specialists in desktop publishing, graphics, web design, database, spreadsheet use, etc. This category does not include word processors.			
f. Professional and managerial workers such as executives, managers, lawyers, accountants, auditors, or medical personnel.			
g. Other?			

Read: [OCCANNOUNCE] To keep things simple, all questions will refer to your workers in this category [the one with the largest number of workers]. We will call them (fill in below). Is that clear?

Title for [Major Occupation] for rest of survey
a. Service workers.
b. Industrial and blue-collar workers.
c. Sales and marketing workers.

d. Clerical workers (note that this category *includes* word processors).
e. Technical and computer temps (note this category does *not* include word processors).
f. Professional/managerial workers.
g. (Other – fill in from above)

3) [VOLUME] With about how many different clients do you have [major occupation] workers assigned today? (You can give a number or a range.)

Number	Range	All	None	Don't know/Other

II. Training offerings, methods, policies, frequency, and length

Say: The next few questions are about free skills training that you may provide to [major occupation] workers, such as computer, business, or industrial skills. We are not asking, however, about the training that your customers provide to your workers or the skills that your workers learn on the job.

4) [TRAINPROV] Do you provide free skills training to your temporary workers hired for [major occupation] assignments?

Yes	No	Don't Know	Other

If no free training, skip to (19).

5) For each of the training categories that I list next, please tell me whether you provide this type of free training to workers in [major occupation].

Training	Yes	No	Don't know	No response
Say: First, I'll ask about computer skills: [TRAINCOMP]				
a) Data entry				
b) Word processing				
c) Computer programming languages				
d) Spreadsheet, database, or internet use				
e) Graphics or desk top publishing				
f) Computer aided design				
g) Any other computer skills? (List responses)				
Say: Second, I'll ask about other business skills: [TRAINBIZ]				
a) Call-center or telemarketing skills				
b) Customer service or sales skills				
c) Communication skills (such as speech and writing)				
d) Interviewing and resume development				
e) Workplace rules and general job conduct				
f) Other business skills:				
Say: Finally, I'll ask about industrial and other skills [TRAININDUS]				
a) Safety training				
b) Industrial skills training				

c) Any other skills:				

6) [COMPMETHOD] For your free training in computer skills for [major occupation] workers, do you use the following methods? (READ FIRST ITEM). Would you say Always, sometimes, or never.

Method	1. Always	2. Sometimes	3. Never
a. Computer-based training tutorials			
b. Classroom work or lectures			
c. Written self-study materials			
d. Audio-visual presentations			
e. Other responses?			

7) [COMPPOLICY] How are [major occupation] workers chosen for free computer skills training? Please say Yes to all that apply.

Computer skills training policies	Yes	No
a. Temporary workers may volunteer for (computer skills) training.		
b. Your firm identifies certain temporary workers for computer skills training.		
c. All temporary workers must receive certain computer skills training.		
d. Client company requests and pays for (computer skills) training of temporary workers.		
e. Other responses?		

8) [ATTAINIMPROVE] About what percentage of your free training for [major occupation] workers is to help workers get the basic skills needed to qualify for assignments? And what percentage is to help qualified workers advance their skills?

	Percentages should sum to 100	Other/No response
a. Attain skills to qualify		
b. Improve existing skills		

9) [COMPFRACTION] About what percentage of the workers hired for [major occupation] assignments receive some free computer training during their employment?

% or fraction	None	Range	Other/Don't know

10) [COMPQUANTITY] Among those who receive free computer training, about how many hours of computer training do they receive on average?

Number	Range	Other	Don't know

III. Training's relationship to recruiting, screening, and retention

11) [WHYTRAIN] We are interested in the main reasons why you offer free skills training. Please rate the following reasons on a scale of 1 to 4 where 1 means not important and 4 means very important.

Reasons for offering training	1. Not	2. Minor	3. Moderate	4. Very

	Imp.	Imp.	Imp.	Imp.
a. To demonstrate a commitment to quality to customers.				
b. To assist in recruiting or retaining workers.				
c. To place workers in a greater variety of assignments.				
d. To improve workers' performance at assignments.				
e. To place workers at assignments with a higher markup.				
f. Other responses?				

12) [TRAINRECRUIT] We are interested in whether training plays a role in your recruiting efforts. Please rate the following statements on a scale of 1 to 4 where 1 means Strongly disagree and 4 means Strongly agree. Offering training…

	1 Strongly Disagree	2 Disagree	3 Agree	4 Strongly Agree
a. Is not important for recruiting workers?				
b. Increases the overall applicant pool.				
c. Particularly attracts applicants with strong motivation.				
d. Particularly attracts applicants with good skills.				
e. Other responses?				

13) [TRAINSCREEN] We are interested in whether training plays a role in skills assessment. Again, please rate the following statements on a scale of 1 to 4 where 1 means Strongly Disagree and 4 means Strongly Agree.

	1 Strongly Disagree	2 Disagree	3 Agree	4 Strongly Agree
a. Training is not important for assessing workers' skills or motivation.				
b. Training helps to assess workers' skills at specific tasks, such as using Microsoft Word.				
c. Training helps to assess how quickly workers learn new skills.				
d. Training helps identify which workers are motivated to gain skills and advance their careers.				
e. Other responses?				

14) [POACHCOMP] Relative to the workers you do not train, how concerned are you about losing your trainees to other employers? More, less, or about the same?

More concerned	Less Concerned	About the Same	Other

15) *If more concerned on (14):* [POACHYES] Which of the following are important reasons why you are <u>more</u> concerned about losing your trainees (than your non-trainees): Please say Yes or No.

Reasons for more concern about losing trainees	1. Yes	2. No	Other
a. We hope to recover our training investment in each worker.			
b. Trainees are frequently hired away by other employers.			

c. Trainees tend to be above-average workers.			
d. Trainees often exploit our training programs to get better pay elsewhere.			
e. Other responses?			

If less concerned on (14): [POACHNO] Which of the following are important reasons why you are less concerned about losing your trainees (than your non-trainees): Yes or No.

Reasons for less concern about losing trainees	1. Yes	2. No	3. Other
a. Our training investment in individual workers is very small.			
b. Trainees are rarely hired away by other employers.			
c. Trainees tend to be below-average workers.			
d. Trainees are especially loyal to our company.			
e. Trainees usually get better pay and assignments.			
f. Other responses?			

16) [TRAINWAGE] Hypothetically, let's say that you discontinued your free training programs for [major occupation] workers. Do you think you would need to raise your wages, lower your wages, or neither to continue to recruit workers of the same quality?

Raise	Lower	No Change	Don't know	No response/other

17) [TRAINBILL] Again, assume that you discontinued your free training for [major occupation] workers. Do you think you would need to raise your bill rate, lower your bill rate, or neither to retain your current customers?

Raise	Lower	No Change	Don't know	No response/other

18) [TRAINVSRECRUIT] Relative to your cost of advertising and recruiting for workers and customers, how costly is free skills training on a scale of 1 to 4 where 1 means Not Costly and 4 means Very Costly?

	1. Not Costly	2. Minor Cost	3. Moderate Cost	4. Very Costly
Training cost relative to advertising and recruiting.				
Other responses				

IV. Customers' use and hiring of temporary workers

19) [WORKERSTATUS] I am going to ask a few questions about your temporary placements. Of the [major occupation] workers who worked at an assignment last month, about what percentage were hired by a customer last month?

% or Range	Other	Don't Know

20) [WHYCUSUSE] Which of the following are important reasons why your customers use temporary workers to fill [major occupation] positions? You can answer Yes or No.

	1. Yes	2. No	3. Other
a. Staff for employee absences, peak workloads, seasonal needs, or special projects.			
b. Fill positions with temporary workers for more than one year.			
c. Screen candidates for permanent jobs.			
d. Save on wage and/or benefits costs.			
e. Special expertise possessed by temporary worker.			
f. Save on training costs.			
g. Other responses?			

V. Job tasks, hiring requirements, and testing and hiring practices

21) [TASKS] Next, I would like to ask you some questions about the tasks that [major occupation] workers typically perform on a daily basis at their assignments.

Tasks	Yes	No	Don't know/other
a. Do these assignments typically involve speaking directly with customers in person or over the phone on a daily basis?			
b. (Do these assignments typically involve) reading or writing reports, memos, or lengthy instructions on a daily basis?			
c. (Do these assignments typically involve) doing arithmetic – including making change – on a daily basis.			
d. (Do these assignments typically involve) using a personal computer on a daily basis.			
e. Other responses?			

22) [NOEXP] *If [major occupation] is Service, Industrial or Sales:* How many of your [major occupation] workers are at assignments that do not required any particular skills, education, previous training, or experience for placement?

Number	Range	All	None	Don't know/Other

23) [NORRR] *If [major occupation] is Service, Industrial or Sales and answer to (22) greater than 0:* Of these [number from question (22)] employees, how many perform no significant reading, writing, or arithmetic at their assignments? (If necessary add: Your best estimate is fine.)

Number	Range	All	None	Don't know/Other

24) [HIRECRITERIA] For an applicant to be hired for [major occupation] assignments, how necessary is… (use list below)? Would you say it is absolutely necessary, strongly preferred, mildly preferred, or not at all?

Skills/Characteristics	1. Absolutely Necessary	2. Strongly Preferred	3. Mildly Preferred	4. Not at All
a. A high school diploma				
b. A college diploma				
c. Previous experience in this line of work				

d. Some previous training or skill certification				
e. Good English/verbal skills				
f. Good attitude and/or motivation				
g. Other responses?				

25) [TESTS] For applicants for [major occupation] assignments, how do you usually test or screen for the following skills, if at all?

	Yes	No	Computerized test	Written Test	Job Inter-View	Job Refs	Resume/Application	Other Test (describe)
a. Reading or spelling skills								
b. Writing skills								
c. Math skills								
d. Skills at communicating on the phone or in person								
e. Computer skills								
f. Attitude or motivation								
g. Other responses?								

26) [APPTYPES] I'm going to list a few different types of applicants. Please tell me if you would accept each type of applicant for a [major occupation] assignment. (Read first item from below). Would you definitely, probably, probably not, or definitely not accept this applicant?

Types of applicants	1. Definitely accept	2. Probably accept	3. Probably not accept	4. Definitely not accept
a. A person who is or has been on welfare.				
b. A person who is or has been in a government employment program or had a GED instead of a high school diploma.				
c. A high school dropout with no GED.				
d. A person who has a criminal record.				
e. A person who only lists short term or part time jobs for work experience.				
f. A person who has been unemployed for a year or more.				
g. Other responses?				

27) [WELFHIRE]] To your knowledge, has your office in the past two years (that is, since [fill in month 1996]), hired any women who had been on welfare?

Yes	No	Do Not Know	Refused

28) [WELFHIRE2YR] *If yes to (27):* How many (women who have been on welfare) has your office hired in the past <u>two</u> years?

Number	Range	Do Not Know	Refused

29) [WELFHIRE1YR] *If yes to (27):* How many (women who have been on welfare) has your office hired in the past year?

Number	Range	Do Not Know	Refused

30) [PREFPROF] A moment ago, you listed some qualifications that you strongly prefer in [major occupation] workers such as experience and good motivation. Would you say that workers with these qualifications are more profitable, less profitable, or about the same as average workers that you hire?

	More	Less	Same	Don't know
'Preferred' workers more profitable?				
Other responses.				

31) *If more to (30):* [PROFITYES] Why are these workers (those with preferred qualifications such as experience and good motivation) *more* profitable than average workers? Please say YES to all that apply.

	1. Yes	2. No	3. Other
a) Improved customer satisfaction.			
b) Can be given more assignments.			
c) Higher markups.			
d) Paid about the same as other workers, but more productive.			
e) Other responses?			

If less to (30): [PROFITNO] Why are these workers (those with preferred qualifications such as experience and good motivation) *less* profitable than average workers? Please say YES to all that apply.

	1. Yes	2. No	3. Other
a. They tend to be hired away quickly			
b. Lower markups.			
c. They must be paid more.			
d. Other responses?			

32) [COMPETITION] Hypothetically, let's say that conditions in your local temporary market got tougher because several competing offices opened nearby. How likely are you on a scale of 1 to 4 to take the following steps where 1 means Very Unlikely and 4 means Very Likely?

	1. Very Unlikely	2. Unlikely	3. Likely	4. Very Likely
a. Increase advertising.				
b. Pay higher wages.				
c. Offer more attractive training opportunities.				
d. Increase vacation, holiday or sick benefits.				
e. Reduce qualifications required for hiring.				
f. Other responses?				

VI. Pay and billing rates

33) [TEMPTOPERM] Before I ask the last few questions, let me emphasize that your responses are completely confidential. If a customer hires a temporary worker while on assignment, do you charge a temp-to-perm or 'buyout' fee? [If respondent describes fee structure, record that information]

	Yes	No	Sometimes	Other/Don't know
Fee charged?				
Describe fee structure:				

If [major occupation] is clerical, ask questions (34) – (37). Otherwise, skip to question (38).

34) [WAGESEC] What is your typical hourly pay for a clerical worker who is a good typist but has no computer skills? (You can give a dollar figure or range.)

Exact Rate Per Hour	Range	Don't Know/Other

35) [WAGEWP] What is your typical hourly pay for a clerical worker who is a good typist and is proficient in Microsoft Word? (You can give a dollar figure or a range.)

Exact Rate Per Hour	Range	Don't Know/Other

36) [TRAINCHARGEWAGE] *If offers word-processing training:* Assume you have two workers for a word processing assignment that requires average proficiency in MS Word. One of the workers knew MS Word when you hired her and the other just learned it through your free skills training. Because of the training, their skills are identical. For this assignment, would you typically pay the trainee more, less or the same as the non-trainee?

More	Less	Same	Don't know/other

37) [TRAINCHARGEBILL] *If offers word-processing training:* How would your customer bill rate compare for the trainee vs. the non-trainee — more, less, or the same?

More for trainee	Less for trainee	Same	Don't know/other

38) *If [major occupation] is not clerical*: [WAGEOCCTYPICAL] What is your typical hourly pay for a [major occupation] assignments? (You can give a dollar figure or a range.)

Exact Rate Per Hour	Range	Don't Know/Other

39) [MARKUP] What is your typical markup — in percent or dollars — on [major occupation] assignments?

Markup %	Markup $	Don't know/other

40) [MARKUPCHECK] Just to confirm. Is that your MARKUP, your GROSS MARGIN, or your PROFIT MARGIN?

Markup	Gross Margin	Profit Margin	Other/Don't Know

If necessary add:

MARKUP is the percentage by which the bill rate exceeds the wage rate.
GROSS MARGIN is the percentage of the bill rate left over after paying WAGES.
PROFIT MARGIN is the percentage of the bill rate left over after covering ALL expenses.

41) [NETORGROSS] *If (40) is Margin or Gross Margin:* Just to be absolutely clear. Is that your [Markup/ Margin] BEFORE paying payroll taxes and insurance or AFTERWARDS?

Before	After	Other/Don't Know	

42) [PARTCOMM] That completes the formal survey. Is there anything else you would like to add? (record response). Okay, thank you very much. We greatly appreciate your time and effort.

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August 13, 1999

«contfirst» «contlast»

«company»
«ADDRESS»
«CITY», «state» «ZIPCO»

Dear «contfirst»:

We request your *very brief* participation in a Kennedy School of Government study on the placement and training of temporary workers. The study seeks to document how temporary staffing firms provide job opportunities, workplace skills, and experience to temporary workers. Your office was chosen at random from a national databank to participate.

The interview takes only 10 to 15 minutes by telephone and your responses will remain *strictly confidential*. The research will not identify individuals or companies. In addition, participating offices will be sent a summary of the results.

Both the *National Association of Temporary and Staffing Services* (NATSS) and a leading staffing industry publication, *Staffing Industry Report*, are encouraging this research effort and are asking staffing firms to participate. Why? They believe the study will highlight the role that staffing firms play in the labor market: offering employment opportunities, providing training (often *for free*), and helping individuals to find permanent jobs. NATSS has worked closely with Harvard in developing the study. Furthermore, the findings may be featured and interpreted in *Staffing Industry Report* and NATSS' publications, and NATSS will evaluate the results for its ongoing legislative and public relations efforts.

Anyone at your office who is knowledgeable about placement and skills training (if provided) of temporary workers is suitable to participate. Furthermore, we are happy to work around your busy schedule. We will contact you shortly to set up a call. Or, if it is easier, please fax back the attached scheduling form.

If you have any questions about the study, you may contact our research team directly at 617.496.1524. You can also direct questions to Steve Berchem, Vice President of Communications, NATSS (sberchem@natss.org, 703.549.6287) and Bruce Steinberg, Associate Editor and Research Associate, *Staffing Industry Report* (bsteinberg@sireport.com).

We thank you in advance for your participation.

Sincerely,

David H. Autor
Lead Researcher

Table 1. Survey response rate by establishment size category

# of Permanent Staff	Estabs Sampled	Estabs Completed	Response Rate	Mean #THS Workers
1 - 4	112	81	72.3%	82.2
5 - 9	176	142	80.7%	142.3
10 - 19	160	112	70.0%	137.2
20+	155	103	66.5%	125.8
	603	438	72.6%	125.5

Table 2. THS Occupational Distribution in Survey Data and in National (Current Population Survey) Data

Occupation	Survey Count	Survey Share	National Share
Executive, Administrative and Managerial workers	2,037	4.2%	6.9%
Professional specialty	8,075	14.8%	12.4%
Administrative support, including clerical	25,003	37.5%	34.1%
Sales occupations	1,413	2.0%	1.7%
Service occupations, Precision production, craft and repair occupations, Operators, fabricators, and laborers	36,846	40.7%	43.3%
All other	270	0.7%	1.6%
	73,643	100%	100%

Notes. N=434. Statistics on the distribution of U.S. THS employment are from the October 1997 Current Population Survey Contingent Work Supplement. To make occupational categories comparable between surveys, service and blue collar occupations were combined for the purpose of this table.

Table 3. Survey response rate by geographic area

Geographic region	Estabs Sampled	Estabs Completed	Response Rate	# THS Workers
Atlanta	122	90	73.8%	13,161
Chicago	162	123	75.9%	20,952
Cleveland	39	26	66.7%	4,474
Detroit	124	87	70.2%	15,087
Milwaukee	52	35	67.3%	6,972
Los Angeles	104	77	74.0%	12,999
	603	438	72.6%	73,644

Table 4. Percentage of establishments offering free skills training by major occupation

Occupation	*Training Provided* Any	Computer	Business	Industrial	*Sample Size*
All workers	59.4%	54.0%	46.9%	19.4%	434
Professional & managerial	41.2%	29.4%	23.5%	n/a	17
Technical	40.3%	38.7%	27.4%	n/a	62
Clerical (including word processors)	89.0%	88.4%	72.0%	n/a	164
Sales & marketing	50.0%	50.0%	50.0%	n/a	2
Industrial & blue-collar	36.4%	26.7%	26.7%	34.2%	187
Service	0.0%	0.0%	0.0%	0.0%	2

Notes. n=438. Computer skills include word processing, data entry, spreadsheet use, computer programming languages, graphics, and computer aided design. Business skills include call-center or telemarketing skills, customer service or sales skills, communication skills, interviewing and resume development, and workplace rules and general conduct. Industrial skills include safety training and other industrial skills training. Professional and managerial workers include executives, managers, lawyers, accountants, auditors and medical personnel. Technical workers are engineers, technicians, computer programmers & specialists (excluding word processors). Clerical workers are word processors paralegels, clerks, bookkeepers, paralegals, & data entry workers. Industrial & blue collar workers are factory and construction workers, laborers, equipment cleaners, & drivers. Service workes are janitors, maids, security guards, & food service workers.

Table 5. Distribution of computer skills training by occupation: Percentage receiving training, average hours received, and allocation of training hours by goal

	Percent Trained			*Allocation by Goal*		
Occupation	**Overall**	**At train-ing firms**	**Hours received**	**Qualify for assignments**	**Advance existing skills**	***Sample Size***
All workers	17.6% (25.2%)	32.8% (26.2%)	9.2 (10.7)	43.8%	56.2%	217
Professional & managerial	6.3% (11.7%)	19.0% (13.4%)	7.4 (5.9)	39.0%	61.0%	5
Technical	16.5% (28.7%)	44.3% (31.5%)	22.6 (17.2)	24.7%	75.3%	18
Clerical (including word processors)	29.8% (25.6%)	33.6% (24.7%)	7.2 (8.2)	44.2%	55.6%	137
Sales & marketing	5.0% (7.1%)	10.0% .	3.0 .	.	.	1
Industrial & blue-collar	5.9% (13.5%)	20.7% (18.5%)	6.6 (5.9)	55.4%	44.6%	54
Service	0.0% .	0.0% .	0.0 .	.	.	2

Notes. n=438. Standard deviations are in parentheses. Computer skills include word processing, data entry, spreadsheet use, computer programming languages, graphics, and computer aided design. Percent receiving training is for occupation overall including non-training establishments. Average training hours received are conditional on receipt of computer skills training. Survey question on training goal: "About what percentage of your free training for [major occupation] workers is to help workers get the basic skills needed to qualify for assignments? And what percentage is to help qualified workers advance their skills?"

Table 6. Establishment policies governing computer skills training

Policy	*Occupational Grouping* All	White Collar	Clerical/Sales	Blue Collar
Workers may volunteer for computer training	97.0%	90.0%	98.6%	98.0%
Firm identifies certain workers for computer training	86.9%	93.3%	86.8%	76.0%
All workers must receive certain computer training	15.7%	23.3%	15.3%	8.2%
Client company requests and pays for computer training	44.0%	55.2%	33.1%	46.9%
Sample size	224	30	145	49

Notes. Frequencies are enumerated for establishments offering training. White collar includes professional, managerial and technical workers. Clerical/sales includes clerical, sales and marketing workers. Blue collar includes industrial and service workers. Policies are not mutually exclusive.

Table 7. Computer skills training methods employed

Method	Always	Sometimes	Never
Computer-based training tutorials	79%	19%	2%
Classroom work or lectures	5%	37%	58%
Written self-study materials	9%	34%	57%
Audio-visual presentations	8%	42%	50%

Notes . N=215. Frequencies are for establishments offering training and are weighted by employment in establishments' major occupation.

Table 8. Reported cost of free skills training relative to advertising and recruiting for workers and customers

Not costly	34%
Minor cost	34%
Moderate cost	27%
Very costly	5%

Notes . N=238. Survey question: "Relative to your cost of advertising and recruiting for workers and customers, how costly is free skills training on a scale of 1 to 4 where 1 means Not Costly and 4 means Very Costly?"

Table 9. Survey responses on reasons why THS firms provide free training

Q: What are the main reasons why you offer free skills training?

	Very Import.	Somewhat Import.	Minor Import.	Not Import.	*Sample Size*
To demonstrate a commitment to quality to customers	81%	13%	4%	1%	246
To assist in recruiting or retaining workers	75%	20%	4%	2%	246
To improve workers' performance at assignments	79%	17%	4%	0%	246
To place workers in a greater variety of assignments	69%	24%	5%	2%	246
To place workers at assignments with a higher markup	41%	23%	25%	11%	238

Table 10. Survey Responses on Relationship Between Training and Worker Recruiting

Q: We are interested in whether training plays a role in your recruiting efforts…

	Strongly Agree	Agree	Disagree	Strongly Disagree	*Sample Size*
Training is not important for recruiting workers	2%	10%	17%	72%	251
Training increases the overall applicant pool	47%	38%	13%	2%	250
Training particularly attracts applicants with strong motivation	51%	40%	7%	2%	248
Training particularly attracts applicants with good skills	37%	40%	21%	4%	249

Table 11. Survey Responses on Relationship Between Training and Worker Screening

Q: We are interested in whether training plays a role in skills assessment…

	Strongly Agree	Agree	Disagree	Strongly Disagree	*Sample Size*
Training is not important for assessing workers' skills or motivations	2%	6%	31%	61%	246
Training helps to assess workers' skills at specific tasks, such as using Microsoft Word	55%	33%	10%	2%	250
Training helps to assess how quickly workers learn new skills.	46%	41%	11%	2%	248
Training helps identify which workers are motivated to gain skills and advance their careers.	60%	35%	3%	1%	248

Table 12. Hiring selectivity at THS firms by major occupation

Q: For an applicant to be hired for an assignment, how necessary is… ? Absolutely necessary, strongly preferred, mildly preferred or not at all.

	Percentage absolutely necessary or strongly preferred			
	Prof/ Tech	**Clerical/ Sales**	**Blue Collar**	**Training/Non-Training Firm Difference**
A high school diploma	95.2%	86.0%	47.9%	12.5% ***
	(2.4%)	(2.7%)	(3.7%)	(4.7%)
	83	164	188	435
A college diploma	77.1%	32.3%	0.5%	-3.4%
	(4.6%)	(3.7%)	(0.5%)	(4.1%)
	83	164	188	435
Previous experience in this line of work	94.0%	86.1%	51.9%	9.7% **
	(2.6%)	(2.7%)	(3.7%)	(4.7%)
	83	165	187	435
Some previous training or skill certification	74.7%	57.7%	36.2%	11.4% **
	(4.8%)	(3.9%)	(3.5%)	(5.6%)
	83	163	188	434
Good English/verbal skills	85.5%	97.0%	52.7%	10.2% **
	(3.9%)	(1.3%)	(3.7%)	(4.4%)
	83	165	188	436
Good attitude and/or motivation	97.7%	97.6%	97.9%	1.9%
	(1.7%)	(1.2%)	(1.1%)	(1.8%)
	83	166	188	437

Notes. Standard errors are in parentheses. Sample size for each cell appears below standard error. Technical/professional occupations are professional/managerial and technical workers. Clerical/sales occupations are clerical workers and sales and marketing workers. Blue collar includes industrial, other blue collar, and service occupations. Training/non-training differentials are regression adjusted for establishments' major occupation and MSA. *** p=.01, **p<.05

Table 13. Criteria which may disqualify applicants at THS firms

Q: I'm going to list a few different types of applicants. Please tell me if you would accept each type of applicant for a [major occupation] assignment. [Read item]. Would you definitely, probably, probably not or definitely not accept this applicant?

	Percentage that would definitely accept			
	Prof/ Tech	**Clerical/ Sales**	**Blue Collar**	**Training/Non-Training Firm Difference**
A person who is or has been on welfare	65.3% (5.5%) 75	63.1% (3.9%) 157	74.2% (3.2%) 186	-6.4% (5.6%) 418
A person who is or has been in a government employment program or had a GED instead of a high school diploma	55.0% (5.6%) 80	67.3% (3.7%) 165	83.4% (2.7%) 187	1.9% (5.1%) 432
A high school dropout with no GED	13.8% (3.9%) 80	17.6% (3.0%) 159	51.6% (3.7%) 186	-7.4% * (5.2%) 425
A person who has a criminal record	7.6% (3.3%) 66	8.1% (2.2%) 149	26.7% (3.3%) 176	4.1% (4.6%) 391
A person who only lists short term or part time jobs for work experience	36.7% (5.5%) 79	35.4% (3.7%) 164	49.5% (3.7%) 186	-3.2% (5.8%) 429
A person who has been unemployed for a year or more	23.4% (4.9%) 77	29.0% (3.6%) 162	40.5% (3.6%) 185	1.8% (5.6%) 424

Notes. Standard errors are in parentheses. Sample size for each cell appears below standard error. Technical/professional occupations are professional/managerial and technical workers. Clerical/sales occupations are clerical workers and sales and marketing workers. Blue collar includes industrial, other blue collar, and service occupations. Training/non-training differentials are regression adjusted for establishments' major occupation and MSA. *p=.15

Table 14. Sources of customer demand for THS workers

Q: Which of the following are important reasons why your customers use temporary workers to fill positions?

	Prof/ Tech	Clerical/ Sales	Blue Collar	Training/Non-Training Firm Difference
Staff for employee absences, peak workloads, seasonal needs, or special projects	96.3% (2.1%) 82	98.2% (1.0%) 166	96.3% (1.4%) 187	1.1% (2.0%) 435
Fill positions with temporary workers for more than one year	70.7% (5.1%) 82	63.9% (3.7%) 166	59.9% (3.6%) 187	5.8% (5.7%) 435
Screen candidates for permanent jobs	86.4% (3.8%) 81	94.0% (1.9%) 166	90.4% (2.2%) 188	6.1% * (3.4%) 435
Save on wage and/or benefit costs	70.0% (5.2%) 80	84.6% (2.8%) 162	85.2% (2.6%) 182	4.5% (4.6%) 424
Special expertise possessed by temporary worker	92.7% (2.9%) 82	66.9% (3.7%) 163	49.7% (3.7%) 183	1.7% (5.4%) 428
Save on training costs	64.6% (5.3%) 82	63.6% (3.8%) 162	58.6% (3.6%) 186	6.9% (5.7%) 430

Notes. Standard errors are in parentheses. Sample size for each cell appears below standard error. Technical/professional occupations are professional/managerial and technical workers. Clerical/sales occupations are clerical workers and sales and marketing workers. Blue collar includes industrial, other blue collar, and service occupations. Training/non-training differentials are regression adjusted for establishments' major occupation and MSA. *p=.07

Table 15. Permanent Placement Rates at THS Establishments

Q: Of the workers who worked at an assignment last month, about what percentage were hired by a customer last month?

	All Firms	Free training provided	No training provided	Difference (standard error)
Overall	12.5%	15.9%	10.5%	**5.3%** ***
	(1.2%)	(1.1%)	(1.0%)	**(1.5%)**
	375	197	178	**375**
Professional/technical	12.2%	15.0%	10.4%	**4.7%**
	(1.8%)	(3.2%)	(2.1%)	**(3.8%)**
	68	26	42	**68**
Clerical/Sales	14.9%	15.3%	11.4%	**3.9%**
	(1.2%)	(1.2%)	(4.3%)	**(4.4%)**
	144	127	17	**144**
Blue collar occupations	12.5%	18.0%	10.5%	**7.5%** ***
	(1.2%)	(2.7%)	(1.2%)	**(3.0%)**
	163	44	119	**163**

Panel B. Regression models: Percentage of workers placed last month

	(1)	(2)	(3)
Training provided		**6.07% *** **	**7.51%** ***
		(2.00%)	**(2.17%)**
Clerical/Sales	3.24% *	-0.49%	-1.01%
	(1.85%)	(2.21%)	(2.38%)
Professional/technical	-0.32%	-0.94%	-1.51%
	(2.33%)	(2.31%)	(2.49%)
Intercept	9.62% ***	8.34% ***	6.95% **
	(2.23%)	(2.24%)	(2.42%)
R-squared	0.025	0.481	.
n	381	381	381

Notes. Standard errors are in parentheses. Sample size for each cell appears below standard error. Outlying observations (percentage placed >70) are omitted. Columns (1) and (2) are estimated by Ordinary Least Squares. Column (3) is estimated by a maximum likelihood Tobit model with truncation points at 0 and 70 percent. Regression models also include MSA dummies. ***p<.01, **p<.05, *p<.10., ~p<.20

Table 16. Mean wage markups at THS establishments

Q: What is your typical markup on [major occupation] assignments?

	All Firms	Free training provided	No training provided	Difference (Standard error)
Overall	51.2%	55.1%	46.1%	**9.0%** ***
	(0.9%)	(1.1%)	(1.3%)	**(1.7%)**
	293	167	126	**293**
Professional/technical	49.5%	52.4%	47.8%	**4.6%**
	(2.2%)	(3.5%)	(2.8%)	**(4.5%)**
	52	19	33	**52**
Clerical/Sales	56.6%	57.6%	48.4%	**9.2%** **
	(1.3%)	(1.4%)	(3.0%)	**(3.3%)**
	124	111	13	**124**
Blue collar occupations	46.3%	49.0%	45.0%	**4.0%** ~
	(1.3%)	(2.1%)	(1.6%)	**(2.6%)**
	117	37	80	**117**

Panel B. Regression models: Typical wage markup on assignments

	(1)	(2)
Training provided		**5.54% *** **
		(1.88%)
Professional/technical	3.06% ~	2.82%
	(2.20%)	(2.17%)
Clerical/Sales	10.91% **	7.74% ***
	(1.70%)	(2.00%)
Intercept	48.02% **	46.57% ***
	(2.21%)	(2.00%)
R-squared	0.262	0.278
n	293	293

Notes. Standard errors are in parentheses. Sample size for each cell appears below standard error. Outlying observations (markup<10 percent (2) or >100 percent (1)) omitted. Regressions are estimated by Ordinary Least Squares. Regression models also include MSA dummies and indicators for whether reported markup is a gross margin or profit margin. ***p<.01, **p<.05, ~p<.20

Table 17. Mean wages at THS establishments by major occupation

Q: What is your typical wage for a [major occupation] assignment?

	All firms (stnd deviation)	Free training (stnd deviation)	No training (stnd deviation)	Difference (stnd error)
Professional & managerial workers	19.79	27.25	16.80	10.45
	(8.16)	(12.55)	(3.00)	(6.34)
	14	4	10	14
Technical	30.78	27.39	33.08	-5.69
	(15.69)	(11.67)	(17.70)	(3.89)
	57	23	34	57
Clerical	10.93	10.89	11.24	-0.34
	(1.55)	(1.43)	(2.28)	(0.54)
	157	138	19	157
Sales & marketing	.	.	.	.
	.	.	.	.
	0	0	0	.
Industrial & blue-collar	7.48	7.72	7.38	0.35
	(2.01)	(1.59)	(2.15)	(0.29)
	178	50	128	178
Service	6.38	.	6.38	.
	(0.88)	.	(0.88)	.
	0	0	2	.

Panel B. Regression models: Log worker wages

	(1)	(2)
Training provided		**0.2%**
		(2.61%)
Professional/Managerial	87.5% ***	87.5% ***
	(7.24%)	(7.27%)
Technical	138.7% ***	138.7% ***
	(3.46%)	(3.53%)
Clerical	40.5% ***	40.4% ***
	(2.35%)	(2.81%)
Intercept	194.6% ***	194.6% ***
	(2.63%)	(2.69%)
R-squared	0.823	0.823
n	389	389

Notes. Standard errors are in parentheses. Sample size for each cell appears below standard error. Outlying observations (percentage placed >70) are omitted. Regressions are estimated by Ordinary Least Squares. Regression models also include MSA dummies. ***p<.01

Appendix Table A. Percentage of establishments offering training by detailed category and major occupation

	Occupation					
	Professional & managerial	**Technical**	**Clerical**	**Sales & marketing**	**Industrial & blue-collar**	**Service**
Computer skills						
Word processing	18%	23%	87%	.	24%	0%
Data entry	24%	11%	73%	.	25%	0%
Programming languages	6%	25%	11%	.	6%	0%
Spreadsheet use	24%	33%	84%	.	21%	0%
Graphics	13%	27%	59%	.	11%	0%
Computer aided design (CAD)	0%	10%	9%	.	3%	0%
Other business skills						
Call center or telemarketing	0%	3%	23%	.	9%	0%
Customer service and sales	0%	3%	29%	.	10%	0%
Communications skills	6%	15%	23%	.	10%	0%
Interviewing & resumes	24%	24%	68%	.	22%	0%
General workplace conduct	18%	23%	75%	.	32%	0%
Industrial skills						
Safety training	n/a	n/a	n/a	n/a	34%	0%
Other industrial skills	n/a	n/a	n/a	n/a	21%	0%

Notes. n=438. Professional and managerial workers include executives, managers, lawyers, accountants, auditors and medical personnel. Technical workers are engineers, technicians, computer programmers & specialists (excluding word processors). Clerical workers are word processors paralegels, clerks, bookkeepers, paralegals, & data entry workers. Industrial & blue collar workers are factory and construction workers, laborers, equipment cleaners, & drivers. Service workes are janitors, maids, security guards, & food service workers. A "." indicates insufficient data.

Appendix Table B. Tasks typically performed daily at assignments by major occupation

	Occupation					
	Professional & managerial	**Technical**	**Clerical**	**Sales & marketing**	**Industrial & blue-collar**	**Service**
Using a personal computer	94%	98%	98%	100%	15%	0%
Speaking with customers in person or over the phone	88%	74%	90%	100%	20%	50%
Reading or writing reports, memos, or lengthy instructions	76%	82%	81%	100%	17%	50%
Doing arithmetic, including making change	76%	66%	52%	50%	49%	0%
Sample size	17	62	163	2	186	2

Notes. Professional and managerial workers include executives, managers, lawyers, accountants, auditors and medical personnel. Technical workers are engineers, technicians, computer programmers & specialists (excluding word processors). Clerical workers are word processors paralegels, clerks, bookkeepers, paralegals, & data entry workers. Industrial & blue collar workers are factory and construction workers, laborers, equipment cleaners, & drivers. Service workes are janitors, maids, security guards, & food service workers.