Inside The Black Box of Temporary Help Agencies

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Abstract

Based on a new panel dataset created in close cooperation with one of the largest temporary help agencies (THAs) in Germany, this paper presents novel evidence on key aspects of temporary agency work, a segment of the labor market that despite its growing importance remains underresearched. In particular, we provide detailed information on the internal operation of a THA and the allocative function it performs both as an intermediate demander and as a final supplier of labor in this submarket. In addition to offering first examination of effective wage and fee schedules, we document, among others, the rise of on-call hiring, recalls and fixed-term contracts in the recruitment of workers, the reasons for job termination, as well as the volume of labor actually contracted per worker and per worker-client match. We show that the THA manages to utilize effectively its workforce in assignments and keeps idle labor at a minimum. In fact, more than a third of workers exhibit multiple client engagements. One-off recruitment and dismissal costs per worker can thus effectively be spread across different clients.

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1 Introduction

Temporary agency work is characterized by a triangular relationship between agencies, workers, and client firms that is at odds with the bipolar structure of supply and demand generally encountered on the labor market. For a temporary help agency (THA) "hires a worker for the purpose of placing him or her at the disposal of a third party, the user enterprise, for a temporary assignment" (Bronstein, 1991). These middlemen or matchmakers therefore act as labor market intermediaries between final labor supply and demand. Geared towards satisfying short-term labor demand, the THA industry affords clients spot-market type, fast access to labor services, the use of which can be terminated both swiftly and at no cost to the client. By making use of agency services, client firms in fact outsource their employer and recruiting function to the THA. As a highly flexible, freely disposable personnel reserve, agency workers or temps constitute a mere variable cost-factor to the final demanders of labor. From the perspective of client firms, therefore, labor contracted through a THA ceases to be a quasi-fixed factor of production (Oi, 1962).

The industry has experienced rapid growth over the last three decades in Germany, a trend that is observable in most industrialized countries (Storrie, 2002). In light of persistent high levels of unemployment, disappointing employment growth, and a labor market that is seen as overly rigid, temporary agency work has increasingly caught the attention of policy makers in Germany. In its large-scale labor market reform package passed in Parliament in late 2002, the German government has even put temporary agency work centerpiece in its catalogue of measures to combat unemployment. However, little is in fact known about the operation of this submarket, as the THA - the central actor involved - pretty much remains a "black box" (Garhammer, 2001). This deficiency can be attributed to the lack of adequate data. For existing data sets, such as the CPS for the US or the IAB Employment Sample for Germany that have been used for empirical analyses of the THA submarket, do not contain any information on the actual temping activity carried out by THAs, being confined by design in their coverage to the immediate employment relationship between agency and worker only.

In close cooperation with one of the largest THAs in Germany, we have created a new data set drawing from information collected at its payroll and accounting office that is suitable for addressing a wide range of questions concerning the THA industry and its operation hitherto unexplored. The primary objective of this paper and its contribution to the still scattered, but growing literature on temporary agency work is to provide novel empirical evidence on (1) the staffing decisions and workforce management of THAs, and (2) their pricing policies with respect to the ultimate suppliers (workers) and demanders of labor (client firms), i.e. their operative wage and fee schedules.

In contrast to assumptions postulated in the existing literature (Neugart and Storrie, 2002), we find THA hirings to occur primarily on-call as a reaction to current client demand to avoid the risk of initial prolonged unproductive employment of workers, a recruitment strategy that necessitates the screening of job-seekers well ahead of actual recruitment to be viable. Recalls, in turn, are shown to be but infrequently employed by the THA as a means to economize on its screening costs, for their use continues to be severely restricted by a statutory three-month recall ban. Fixed-term contracts, on the other hand, have experienced rapid growth since their one-time use became admissible in 1997, providing for additional flexibility in the termination of employment. So do cancellation agreements in almost one out of six severances. Consistent with conjectures, the markup of fees over wages is shown to be lower both for recalls and workers employed on a fixed-term contract. Overall, and contrary to general perception, we find voluntary severances to predominate in the termination of THA jobs. The agency, in fact, proves itself to be very efficient in utilizing its existent workforce. Only a small fraction of total days lost is attributable to a lack of client demand, both in the course of employment and in the immediate forefront of job termination. In addition, more than a third of workers work in multiple client engagements that in sum account for the majority of worker-client matches formed. Recruitment and dismissal costs per worker can thus effectively be spread across different clients. In about two-thirds of all worker-client matches, in fact, the agency serves client demand by taking recourse to its existing workforce rather than resorting to on-call recruitment. Actual weekly hours worked (at a client) are shown to on average even exceed those agreed to contractually. The latter, we argue, may in fact deliberately be set below levels than are likely to materialize, as a shortfall of actual hours from those agreed to is more costly to the THA than an exceedance. The THA's ability to adapt and time its own demand for workers to the demand of client firms for its services may also be improved by establishing close customers ties. Consistent with this conjecture, we find client demand to be very concentrated at the branch level. As wages stipulated in the employment contract are henceforth binding, the THA may but downwardly adjust its client fees to further demand for its services and thereby avoid unproductive employment of workers post their initial client assignment. We find client fees to be indeed on average lower in the second than in the first client assignment of workers.

The paper is structured as follows. Section 2 provides a brief summary of the legal rules on temporary agency work in Germany and Section 3 introduces the dataset. Sections 4 and 5 contain the body of the empirical analysis. The first of the two examines the allocative role of THAs as intermediate demanders and final suppliers of labor, i.e. their workforce management on the extensive (hirings and firings) and intensive (effective utilization of existing workforce) margin. The second documents the remuneration of THA workers and the fees charged to client firms

during periods of assignment of workers. Section 6 summarizes the main findings and concludes.

2 The Legal Framework

Since 1972 temporary agency work in Germany has been regulated comprehensively by law. Agencies have to be licensed by the respective state-level public employment office, to which they are obliged to provide statistical information on a regular basis. The biannual temporary agency work statistics (ANUSTAT) of the federal employment office, the basic source of information on the industry, is derived from these notifications. The employment contract between the agency and the worker is generally open-ended and must contain detailed information on major aspects of the employment relationship formed, such as pay levels, weekly hours of work, annual vacation days and the like. However, since 1997, the one-time use of fixed-term contracts is allowed. Moreover, a ban exists on the repeated synchronization of assignment and employment spells. Just as in the case of fixed-term contracts, therefore, a synchronization is permitted but once for a particular worker. Otherwise a three-month recall ban must be observed. These peculiarities of the German legislation on temporary agency work have long been a major source of discontent for firms operating on this submarket. However, unlike the legal situation in many other European countries, THAs in Germany are not legally obliged to offer equal pay or equal treatment to their workers during assignments based on working conditions enjoyed by the regular workforce of the respective client firm. Since 2002, however, workers assigned continuously with the same client for more than twelve months must by law be paid the going wage rate of the client firm. The maximum permissible duration of a single assignment is 24 months. In addition, except for a handful of firm-level collective agreements, wages in the THA industry in Germany are in general not collectively bargained. Client fees, too, are determined individually by the two parties to the commercial assignment contract, i.e. the agency and the client firm.

With the latest reform of the law on temporary agency work (*Arbeitnehmerüberlassungsgesetz*) introduced in late 2002, major legal changes are to take effect in 2004. Henceforth, the maximum assignment duration, the synchronization ban, the 3-month recall ban, and the industry-specific restrictions on the use of fixed-term contracts will be fully repealed. In addition, placements in the construction sector will be permitted. At the same time, however, agencies will be obliged by law to provide equal pay and treatment to their workers during assignments in line with working conditions enjoyed by comparable workers in the user enterprise. Deviations from equal pay and equal treatment are only permitted for a period of six weeks for workers previously unemployed, or if the agency is party to a collective agreement, in which case bargained wage schedules take precedence. Collective bargaining rounds began in early 2003. After agreeing on cornerstones

for several national cross-sector collective agreements setting pay and conditions for temporary agency workers in February 2003, the Federal Association of Temporary Employment Agencies (BZA) and representatives of all trade unions affiliated to the German Federation of Trade unions (DGB), signed at the end of May a framework collective agreement on pay grades and a collective agreement on remuneration that take effect in 2004 and are valid until the end of 2007. In June this process was completed with an industry-wide collective agreement, effectively banning the threat of legislated equal pay and equal treatment clauses to ever take effect.[1]

3 The Data

The dataset (henceforth referred to as temporary help agency dataset, or THAD) has been developed in close cooperation with one of the largest temporary work agencies in Germany. For the main part, it draws on data of the affiliated branches collected at the payroll (Part I of data set) and accounting office (Part II of data set) of the company's headquarters. Part I roughly corresponds to the agency-worker (employment) relationship, whereas Part II contains information on the agency-client (commercial) relationship, although some overlap exists between the two. The dataset contains unmatched detailed information on temporary agency workers, the times and conditions of their work assignments, as well as the terms of their employment contract with the agency. The availability of person, agency, and client identifiers in combination with the longitudinal employment and assignment information give rise to a comprehensive panel data set that, to our knowledge, for the first time covers information on all three actors that are party to the triangular set-up of the THA submarket and their respective dealings with each other. Covering the period from September 1999 to March 2003, the THAD is very current and can thus be used to study actual state of affairs in the German THA industry. At the same time, the data set covers a sufficiently long period of time so that individual employment histories of THA workers at the agency and client firms can be observed. Moreover, with information on more than 200 branches spread throughout Germany, analyses at the regional level can be performed. Large sample sizes, in addition, permit disaggregate statistical analyses for individual subgroups of workers. A detailed description of the dataset and the variables recorded therein can be found in Appendix 1. Summary statistics of the THAD are provided in Table 1 below.

[1] Additional agreements were reached between the DGB and the Association of German Temporary Work Agencies (IGZ), as well as between the recently founded Association of Middle Class Temporary Work Agencies (MVZ) and the Christian Trade Union Organisation (CGG).

Table 1: Key Statistics of the Data Set

Indicator	1999-2002	1999	2000	2001	2002	2003
No. of branches	225	140	184	206	177	166
No. of workers	76119	13750	31868	29508	27720	11177
No. of client firms	30530	5840	13257	12535	10226	3453
Left-censored empl. spells (in %)	10.7	63.0	17.1	5.5	3.1	4.6
Right-censored empl. spells (in %)	10.4	5.0	4.4	7.4	21.9	70.9
No. of observations Part I	1297480	101453	324287	398098	379938	101220
No. of observations Part II	282342	25509	82580	79987	77820	16441

Source: THAD 1999-2003.

4 The Agency and Labor Allocation

Temporary help agencies hire workers for the purpose of lending their labor services to client firms. In the triangular setup of the THA submarket, therefore, agencies act both as an intermediate demander and as a final supplier of labor. Client demand, however, is subject to significant volatility, as assignments can be terminated on demand by the client firm. If the agency faces excess or deficient supply of workers on staff relative to current realizations in the demand for its services, it will incur financial losses. In the former case, these will take the form of continuing wage bill obligations, in the latter foregone revenue due to cancellation of an order. Profit-maximization therefore entails careful staff planning on the agency's part. At any point in time, it must have a pool of workers at its disposal that is large enough to promptly meet fluctuations in client demand, but that avoids under-utilization of its workforce in times of deficient demand for its services.

To this end, agencies can take recourse to both external (workforce adjustment) and internal (efficient utilization of existing workforce) instruments of personnel management. Predominant reliance on either of these adjustment margins, however, implies different roles for THAs on the labor market. If agencies largely adjust their own workforce in line with changes in present client demand, then THAs would in fact assume the role of mere employment agencies. Workers, of course, remain on the payroll of the agency for the duration of the individual assignment, which in this case is equivalent to the length of the employment contract. The main *raison d'être* of THAs in this setting, would be their ability to exploit economies of scale in the recruitment of workers. If, in contrast, THAs primarily maintain a pool of longer-term temps and satisfy the demand of client firms through repeated assignments of personnel out of their existing workforce, then THAs can also perform an important pooling function on the labor market. For the fixed costs of recruitment and employment termination can be spread across different assignments and thus clients. As effective transaction costs per match are reduced, overall efficiency gains in the job matching process are feasible. Making use of THA services may therefore also provide some kind of insurance to client firms against unforeseen idiosyncratic shocks to their product demand

that would otherwise entail costly workforce adjustment on their part.

Which of the two adjustment margins is in fact utilized more heavily is still unexplored. Lack of adequate data on the internal operation of THAs has hitherto prevented such an analysis. The THAD, however, contains information on both adjustment dimensions and so puts us in a position to make some headway in our understanding of the allocative function of THAs on the labor market. We begin our analysis with an examination of the external adjustment margin, i.e. the creation and destruction of THA jobs.

4.1 Extensive Margin - The THA as an Intermediate Demander of Labor

In this section, we investigate to what extent workers are hired on-call in line with current levels of client demand, the extent of recalls among all recruits, and the spread and growth of fixed-term contracts since their one-time use in the industry became permissible in 1997. In addition, we examine which party to the employment relationship in fact initiates a separation and the means employed to this end. We begin our analysis, however, with a documentation of the job-specific employment durations and turnover rates of THA workers, which are but inadequately recorded in the official industry statistics of the federal employment office.[2]

4.1.1 Employment Duration and Labor Turnover

As shown in Table 2, *THA employment is subject to exceedingly high turnover.* Turnover rates in excess of 200% per annum imply that the employment stock is statistically renewed more than twice a year. This order of magnitude in the THAD is in line with official statistics of the federal employment office for the entire THA industry (see Burda/Kvasnicka, 2003). The corresponding value for the economy at large is roughly 30%, or just above one-seventh of this value (Franz, 1999). On this count, the THA submarket undoubtedly represents a most dynamic segment on the German labor market.

[2] A number of shortcomings characterize the ANUSTAT. Employment tenures are recorded for outflows only and disclosed in but three duration categories (less than one week, one week to three months, more than three months). In addition, the employment stock figures provided therein refer exclusively to workers currently in an assignment and therefore systematically underestimate true employment levels in the industry. Measures of total inflows in the ANUSTAT are downward biased, as well. For new entries to the industry are only recorded if the workers are hired at their current branch for the first time. Finally, the ANUSTAT does not provide disaggregate figures for different types of jobs in its inflow and outflow statistics.

Table 2: Employment Dynamics, 2000-2002

Year	Annual ... Average Employment Stock	Inflows	Outflows	Turnover (%)[3]
2000	9458	25143	23755	259
2001	10213	21374	22577	215
2002	9336	20542	20480	220

Source: THAD 1999-2003.

A more detailed picture is provided in Table 3, which documents the inflow share, average employment duration, and turnover for the 12 most frequently encountered occupations[4]. Together these professions account for nearly 92% of the agency total. The two duration measures are obtained from inflow rather than stock data to avoid length biased sampling. The first set of estimates in column 3 is based on employment spells that are actually completed within the observation period of the THAD. However, as the exclusion of right-censored spells might introduce a non-negligible downward bias in our duration estimates, we also report observed average durations for all recorded inflows irrespective of their censoring status (column 4). Although only 2.8% of all employment relationships begun in 2000 are in fact right-censored, their inclusion raises average tenure across all groups by nearly 14% (from 131 to 149 days). Nevertheless, average job duration is well below one year on both measures employed and for all job types considered.

Table 3: Employment Dynamics by Job Type, 2000-2003

Job type	Jobs Started in 2000			Turnover 2002
	Inflow Share (%)	Average Job Duration (days)		(%)
		Completed Spells	All[5]	
locksmiths	1.1	178	213	133
electricians	0.9	209	239	147
metal workers	8.6	118	136	108
help workers	45.6	111	124	298
truck drivers	0.9	140	152	151
warehousemen	4.5	101	113	348
qualified data processors	3.5	170	198	109
qualified office workers	13.0	176	202	158
stenographers	0.5	191	207	71
data typists	1.4	131	140	173
office hands	7.7	145	167	189
telephonists	4.0	142	160	225

Source: THAD 1999-2003.

[3] Annual labor turnover is estimated as: $\frac{\frac{1}{2}(\sum Inflows + \sum Outflows)}{average\ employment\ stock}$.

[4] The job types are based on a three digit level job classification scheme (see variable JOB_DESCR in Table A1 in Appendix 1) that employers are required to use in their statutory notifications to the institutions of the social security system in Germany.

[5] Right-censored employment spells have been assigned the last date observable in the data set as their terminal time so as to calculate observed job durations in these cases.

As column 2 shows, *the THA's activity is largely confined to a handful of professions.* Help workers constitute almost half of all new jobs created in 2000. With low average job duration, second only to that of warehousemen, this group is largely accountable for the low grand average across all groups considered.[6] Moreover, *professions with a low and general skills content, such as help-workers, telephonists, warehousemen, and office hands are subject to an above-average rate of turnover* (column 5). *Qualified data processors and stenographers, who are quite skill-intensive, exhibit, in contrast, far lower levels of turnover.* Both systematic differences in the average number of placements or in their durations (Section 4.2.2 and 4.2.3), as well as differential quitting behavior (Section 4.1.3) may be accountable for this heterogeneity. Nevertheless, with the notable exception of stenographers, all professions considered are subject to considerable turnover. In the next two subsections, we delve into this matter by looking more closely at the corresponding inflows and outflows of workers.

4.1.2 Job Creation

In the previous section, labor turnover was shown to be exceedingly high. As a consequence, at any point in time new hires constitute a significant proportion of the total stand-by THA workforce available for client placements. It is still unclear, whether agencies hire workers primarily on-call, i.e. conditional on having a specific placement opportunity lined-up, or rather as regular additions to their staff from which they subsequently serve client demand if and when required. On-call recruitment is attractive, because it avoids initial unproductive employment of a worker. Precautionary hirings instead reduce the risk of being in short supply should client demand unexpectedly pick up. An empirical test that suggests itself in this context is to examine the extent to which new recruits, once hired, are immediately placed with a client. As can be seen in Table 4, *for the vast majority of new entries (90.6%), the starting dates of THA employment and first assignment in fact coincide.* In an extension of the two-sided matching model of the labor market by Mortensen and Pissarides (Pissarides, 1991), Neugart and Storrie (2002), in contrast, have opted for an unconditional hiring strategy of agencies in their theoretical model of the THA submarket. This assumption is clearly inconsistent with our findings.

[6] As a result of these comparatively short employment durations, the share of help workers in the employment stock on a given day (stock sampling) is considerably smaller than the corresponding inflow figure. On the 30.6.2000, it amounted to 27.3%, a magnitude that is in line with figures of the ANUSTAT, the official biannual temporary agency work statistics of the federal employment office.

Table 4: Placement Status of New Recruits, 1999-2003

Placement Status	**Share (%)**
immediate placements (entry date = starting date of placement)	90.6
delayed placements: ... all **... ≤ 2 days delay** (entry date < starting date of placement)	7.6 4.5
no placements (during entire employment relationship)	1.8

Source: THAD 1999-2003.

To be viable, however, this recruitment strategy necessitates comprehensive screening of workers well in advance of actual recruitment. For the agency has to be in a position to provide a good and above all speedy match from its files of job-seekers once a profitable placement opportunity has arisen. In short, if hiring is on-call, screening cannot be. Moreover, as these workers are yet in no way contractually bound to the agency, this external pool is likely to be in constant flux. For workers might well continue their job search and find alternative employment or simply refuse in the end to accept a job when offered one by the agency. To compensate for these dropouts, continuing screening activity on the agency's part on a scale beyond current actual requirements is necessary. As a means to reduce its screening expenses, the agency might heavily rely on recalls. However, as shown in Table 5, *recalls occur on but a minor scale within the agency*[7], a finding that is all but surprising given the severe industry-specific restrictions imposed on their usage (see Section 2).

Table 5: Recalls of Workers, 2002

Recalls	**Share (%) in Total Hirings**
... at same branch	9.4
... at different branch	2.9

Source: THAD 1999-2003.

Another means for the THA to economize on turnover costs represents the conclusion of fixed-term instead of open-ended employment contracts. Table 6 provides first-time evidence on the spread of fixed-term contracts in the THA industry, since their one-time use became admissible in 1997 as part of a reform of the AÜG (*Arbeitnehmerüberlassungsgesetz*), the law on temporary

[7] In our calculations, we defined as recalls all observed reentries of workers to the TWA, irrespective of the elapsed time between the two entries.

agency work in Germany. In the entire observation period of the THAD, 24.7% of all new inflows are hired on a fixed-term contract. On an annual basis, their share among all new jobs created increases markedly, from 20.9% in 2000 to 33.1% in 2002. Evidence for the first quarter of 2003 suggests that this trend is likely to continue for the current year. Nevertheless, workers on a fixed-term contract still account for only about 7-9% of the workforce on a given day (stock sampling).[8] As the next subsection will show, this discrepancy in flow and stock measures is attributable to significantly shorter tenures for workers hired on a fixed-term rather than on an open-ended contract. In sum, *while fixed-term contracts seem by now to be well established and growing in importance, their employment share does not markedly differ from that encountered on the general labor market. For younger age cohorts, they are in fact far less common.*[9] It has to be kept in mind, however, that a fixed-term employment contract can be concluded but once between an agency and a worker in the THA industry (see Section 2). On the general labor market, in contrast, three consecutive fixed-term contracts can be concluded within a maximum period of two years.

Table 6: Spread of Fixed-Term Contracts, 1999-2003

Recruits	**Share (%) of Workers Hired on a Fixed-Term Contract in:**				
	1999	2000	2001	2002	2003
All recruits:	–	20.9	22.0	33.1	–
Those recruited in:					
1st quarter	–	19.2	16.2	22.7	35.5
2nd quarter	–	17.5	20.0	26.6	–
3rd quarter	–	26.4	24.1	35.0	–
4th quarter	14.9	19.4	28.0	45.9	–

Source: THAD 1999-2003.

Before we turn to an investigation of how THA workers are actually put to productive use in assignments, we complete our documentation of THA workforce adjustment with a survey of employment termination.

4.1.3 Job Destruction

In consideration of the fact that average tenure in temporary agency work falls significantly short of employment durations generally encountered on the labor market, the THA industry has frequently been criticized to offer but fragile, unstable employment. Short employment durations, however, do

[8] Workers employed on a fixed-term contract constituted 8.0%, 6.8%, and 8.9% of the employment stock in 2000, 2001, and 2002, respectively.

[9] According to the Federal Statistical Office, 9% of workers in dependent employment excluding apprentices held a fixed-term contract in Germany in May 2000. Among those aged thirty or less, 21% were employed on a fixed-term contract on the sampling date (Federal Statistical Office press release, 2001). The respective figure for this age group in the TWAD is significantly smaller, amounting to only 9% in May 2000.

not of themselves necessarily testify for fragility. A claim to the contrary is based on the implicit, but untested assumption that average employment tenure in the THA industry is short, primarily because workers are laid off by their agencies, rather than quitting voluntarily. The THAD allows to adjudicate upon this matter, for it records which party to the employment contract in fact initiates the displacement. Table 7 reports the distribution of exit reasons for all completed employment spells in the entire data set (years 1999-2003). The first three rows comprise exits that constitute voluntary severances from the perspective of the worker.[10] With a combined share of 57.1%, they account for the majority of all observed separations. 40.4% of workers are laid off by the THA (sum of rows 4 and 5), roughly a third of which is dismissed without notice. Dismissals without notice, however, have to be justified on the grounds of gross worker misconduct to be legally binding. In fact, among those workers dismissed without notice in the observation period, a total of 79% are recorded absent from work prior to being laid off by the agency. Finally, changes of branch account for a mere 2.4% of separations. Tables A3 and A4 in Appendix 2 contain additional evaluations for different regions and groups of workers. While differences do exist among these, the overall pattern is pretty similar.[11] In particular, voluntary severances constitute the majority of observed exits in all groups considered. *These findings qualify the notion that short employment spells necessarily testify for the insecure nature of jobs created on this submarket of the labor market. Exit reasons are quite diverse and voluntary severances are frequently encountered.* The large share of voluntary quits also implies that a significant fraction of labor turnover is in fact exogenous to the agency, a drain of workers that needs to be compensated for by new hirings if the THA wants to maintain its staffing levels.

Table 7: Reasons for Job Termination, 1999-2003

Reasons	**Share (%)**	**Average Completed Tenure (Days)**
voluntary quits	24.2	234
cancellation agreements	15.4	151
fixed-term contracts[12]	17.5	44
changes of branch	2.4	253
dismissals	27.9	184
dismissals without notice	12.5	90

Source: THAD 1999-2003.

[10] Termination of employment caused by the expiration of a fixed-term contract may not be voluntary *ex post*, but surely is so *ex ante* from the perspective of the worker when the contract is signed.

[11] Voluntary quits and dismissals without notice are more common in the old than in the new German Lander. The reverse applies to dismissals. While differences across sexes and nationality are in general less marked, they are quite substantial for different collars. Voluntary quits and expiration of a fixed-term contract are most common among white collar workers; dismissals without notice among unskilled blue collar workers, and dismissals among skilled blue collar workers. Expirations of a fixed-term contract, and dismissals without notice decline with age, while dismissals increase.

[12] Only 70.4% of workers employed on a fixed-term contract exit the agency because their contract expires. The remainder is comprised of voluntary quits (7.3%), dismissals (6.6%), cancellation agreements (10.2%), dismissals

Average completed tenure varies considerably across termination reasons (3rd column). As may be expected, it is low for those dismissed without notice (90 days) and high for those that exit to another branch of the same agency (253 days). For low-productivity workers are more likely to be dismissed early, while high-productivity workers may be transferred to another branch, if insufficient client demand on site precludes further profitable employment at the current outlet of the agency. The low value for workers whose fixed-term employment contract has expired may be caused by the fact that in these cases the duration of the employment contract has been set according to the duration of the first client placement of the worker (synchronization of employment and placement). If a follow-up placement opportunity does not arise in time of the conclusion of this primary placement, the fixed-term employment contract is allowed to expire rather than being converted into an open-ended employment contract for the worker.

In the previous subsection, we have seen that the THA recruits new personnel on-call, thereby minimizing the risk of initially unproductive employment of workers. In the present context, we may analogously investigate the extent to which workers are engaged in client assignments immediately preceding the termination of their job. The termination of employment, however, is subject to constraints not encountered at the level of job creation. For temporary work agencies, just as any other employer, are in general obliged to meet legal notice periods before laying off a worker. The possibilities to reach cancellation agreements and conduct once-only synchronizations of the first client assignment and employment spell of a worker give agencies an additional degree of freedom in this context and therefore a means to avoid continued unproductive employment if a follow-up client order is not forthcoming. As shown in Table 8, only a minority of workers (39.6%) in fact exits the THA straight from a client assignment. Among those dismissed and those dismissed without notice, their respective share is especially low. The opposite applies to workers that leave because their fixed-term contract has expired.

Table 8: Share of Workers Assigned on Exit in 2002

Reasons	**Share assigned on exit**
voluntary quits	49.1
cancellation agreements	52.7
fixed-term contracts	72.0
changes of branch	59.5
dismissals	15.6
dismissals without notice	6.9
All exits	**39.6**

Source: THAD 1999-2003.

without notice (4.8%), and changes of branch (0.7%). As a consequence, if inflows instead of outflows are considered, the share of workers employed on such a contract is much larger (see previous subsection).

However, a closer look is warranted, for not all exits from nonassignment necessarily testify for an underutilization of workers at the end of their employment relationship. For this purpose, Table 9 documents the average number of regular workdays spent in nonassignment by exit reason along with the major causes recorded for those unproductive days.[13] Workers that exit the THA from a state of nonassignment on average remain employed for another 8.7 regular work days after their last client engagement. Continuation of employment is longest for workers that are dismissed (11.9 days) and shortest for workers that exit because their fixed-term employment contract has expired (4.7 days). These durations alone, however, confer yet little information on the agency´s ability to effectively use its workers right up to and in the immediate forefront of the termination of employment.

Table 9: Average Days since Last Placement by Exit Reason for all Exits in 2002

Reasons	Average regular work days since last placement for those nonassigned on exit					
	Total	of which due to ...				
		Lack of Client Demand	Paid Vacation	Balancing Hrs. Account	Unpaid Absenteeism	Paid Sick Leave
voluntary quits	6.2	0.3	3.0	0.6	0.4	1.0
cancellation agreements	5.7	0.7	1.6	0.4	0.6	1.2
fixed-term contracts	4.7	0.4	0.9	0.2	1.0	0.9
changes of branch	7.7	1.4	1.5	0.2	0.2	0.9
dismissals	11.9	1.8	2.3	0.7	1.3	3.5
dismissals without notice	6.9	0.3	0.4	0.1	4.3	1.2
All exits	8.7	1.0	1.9	0.5	1.5	2.2

Source: THAD 1999-2003.

For one thing, workers might not in fact be available for placements, so in the case of absenteeism and sick leave, over which the THA has no control. In addition, remaining holiday entitlements, as well as days off to balance workers' hours account may be granted. In contrast to absenteeism and sick leave, however, the latter two can be deliberately timed to bridge periods when client demand is not forthcoming and therefore may be actively employed as a means of personnel management by the THA. In short, it is but lack of client demand that truly evinces an underutilization of labor. Evidence on the quantitative importance of these causes is provided in columns 2 to 6 in Table 9. Lack of client demand never tops the list. In fact, it is second-lowest in quantitative terms among the five reasons listed in Table 9. Only for workers that are dismissed or change branch does lack of client demand account for well over 10% of total time spend unassigned. Paid vacation and balancing of workers' hours account, in contrast, together account for nearly 30% of average regular workdays elapsed since the last client engagement. Noteworthy is the share of

[13] The five reasons listed in Table 9 together account for over 80% of the average total number of days workers spent in nonassignment prior to leaving the TWA. The remainder is comprised of a multitude of minor causes, such as child care responsibilities, or paid for special company leave.

unproductive regular work days attributable to unpaid absenteeism for workers dismissed without notice (62%), an issue that we have already alluded to. Recapitulating the above, *the agency proves quite efficient in utilizing its workers before they drop out. Almost 40% exit straight from an assignment and among the remainder, lack of client demand accounts for but a minor share of regular work days lost.*

4.2 Intensive Margin - The THA as a Final Supplier of Labor

We now turn to the intensive adjustment margin, i.e. the effective utilization by the THA of its existing workforce. In Germany, THAs have to pay their workers irrespective of whether they are on an assignment and thus generate revenue for the agency or not. For both weekly hours and the gross hourly wage rate are set out in the employment contract and binding thereupon for the entire duration of the employment relationship. As a consequence, an agency has to efficiently use its workforce through successive assignments, keeping to a minimum periods their labor lies idle if it wants to cover its wage bill. The ability of THA firms to perform this task is as yet unexplored. In the near vicinity of the creation and termination of THA jobs, however, we have already established that the agency under investigation is indeed quite efficient in minimizing times of unproductive employment. We begin this issue of labor utilization by examining the distribution of agreed weekly working hours between the agency and the worker, as these constitute the reference quantity of work that the agency has to pay and consequently has to aim to utilize to the fullest through successive assignments of the worker.

4.2.1 Agreed Weekly Hours

Table 10 tabulates the distribution of agreed working hours per week.[14] As is evident, five major contractual working schedules are operative. The spread among them, however, is very unequal. In fact, agreed working time hardly varies at all across workers. About 90% of workers have a stipulated 35 hours week, causing mean contractual hours per week to fall but just below this figure (34.7 for men, 34.0 for women). Men tend to have slightly longer weekly schedules than women, but the differences are not very marked. White-collar workers, in turn, on average have longer working schedules than blue-collar workers, but again 35 hours are by and large the norm for this group (see Table A5 in Appendix 3). In addition, over the 5 years sampled, the distribution of contractual working schedules is remarkably stable (not shown). From the perspective of the employment contract between agency and worker, therefore, *temporary agency work is predominantly full-time,*

[14] The ANUSTAT does not contain information on hours work. The IAB Employment Subsample 1997-1995, the sole microeconomic dataset in Germany suitable for analyses of the TWA industry, only distinguishes between three broad and insufficiently delimited categories of contracted weekly working hours, two of which represent part-time employment ($<$ 18 hrs., $>$ 18 hrs. but less than full-time, and full-time).

albeit at a lower level of contracted weekly working hours than is usually the norm on the labour market.

Table 10: Agreed Weekly Hours 1999-2003

Agreed weekly hours:	Share (%): All	Men	Women
20	1.9	1.2	3.2
25	0.9	0.6	1.6
30	1.5	1.0	2.4
35	91.0	92.3	88.6
40	3.5	3.9	2.6
others total	1,3	1.1	1.7

Source: THAD 1999-2003.

It remains to be seen, however, to what extent these contractually agreed and thus to be paid for weekly working hours are put to productive use in assignments. For a given THA workforce, three aspects ultimately determine the degree of its effective utilization. First, the number of different client engagements per worker. Second, the volume of labor per worker contracted by individual clients. And finally, the time workers spend in nonassignment and thus do not generate any revenue for the agency. We will deal with these in turn, before in a final benchmark test contrasting average actual weekly hours of work with those agreed to contractually.

4.2.2 Client-Worker Matches

Table 11 shows for all employment relationships that are not left-censored in the observation period of the THAD the distribution of clients per worker and the contribution of workers with multiple client engagements to the overall volume of client-worker matches formed by the agency. Evidently, *the majority of workers (62.4%) has but one client contact* during his employment relationship with the agency (column 2). Roughly only every fifth worker is placed with two clients, and only every twelfth with three. From the perspective of workers, therefore, THA employment is dominated by relatively few, if not singular client engagements.[15]

For the THA, however, it is the volume of matches that constitutes the relevant benchmark. For its ability to pool the hiring and firing costs of a worker depends on the extent it can spread these fixed transaction costs per head of its own workforce adjustment across different client assignments. As column 3 shows, the majority of worker-client matches are indeed comprised of workers with multiple client assignments (69.0%). Workers with a single client engagement account for only one third of the total volume of worker-client matches. In the majority of matches, therefore, *the agency*

[15] On average, workers have assignments with 2.0 different clients. As the inclusion of right-censored employment relationships may have biased the results obtained, we have conducted an additional exploration, where we excluded these cases. The results, however, hardly change. The share of workers with a single client engagement increases somewhat to 63.8%, causing the average number of client contacts per worker to drop to 1.9 and the share of workers with but a single client engagement in all client-worker matches to rise to 33.6%.

is in a position to pool and spread its fixed costs of recruitment and employment termination across different clients. This finding is important, for it evinces that THAs can improve labor market efficiency by effectively reducing costly frictions that would otherwise accrue in the job matching process.

Table 11: Number of Different Clients per Worker, 1999-2003

Number of Clients	Share of workers (%)	Share in total Worker-Client Matches (%)
1	62.4	31.0
2	16.6	16.7
3	8.0	11.8
4	4.3	8.6
5	2.8	6.8
6	1.7	5.2
7	1.1	3.7
8	0.8	3.0
9	0.5	2.4
10	0.4	2.0
> 10	1.2	9.0

Source: THAD 1999-2003.

A related question that we may now address is whether the agency primarily serves client demand from an external (pre-screened but not yet employed job-seekers) or an internal pool of workers (existing workforce of the agency). To answer this question, Table 12 considers all worker-client matches in the observation period of the THAD, irrespective of the censoring status of the underlying employment relationship. The decisive quantity in this context is the share of worker-client matches in which the start of the placement and the employment spell of the worker coincide (on-call recruitment). The remainder is comprised of worker-client matches, where the worker party to the particular match is either only placed with delay upon entry or has been already assigned to a client beforehand.

Table 12: External and Internal Pools of Workers

Pool of workers	Share (%) in total worker-client matches
external (on-call recruited workers)	37.7
internal (workers with delayed / prior placements)	62.3

Source: THAD 1999-2003.

It turns out that only just above one third of the total volume of worker-client matches involve workers that are in fact hired on-call. In other words, despite large turnover and the predominance

of on-call recruitment, *in about two-thirds of all worker-client matches the agency serves client demand by taking recourse to its existing workforce.* The internal pool of workers therefore clearly dominates the external one as the primary source of manpower employed in the supply of THA services to client firms.

4.2.3 Volume of Labor Supplied to Client Firms

We now turn to the actual volume of labor supplied by the agency. Unlike in the previous subsection, the focus is therefore on hours THA workers spent at client firms, or to be more accurate, on productive hours, i.e. hours actually invoiced to clients. Table 13 provides summary statistics on the distributions of total productive hours (1) per worker, (2) per worker-client match, and (3) per client. *On average, THA workers perform about 630 hours in assignments during their employment at the agency, while a particular client engagement averages nearly 300 hours.* The spread, however, is considerable, as evinced by the very large standard deviations encountered. The same applies to particular worker-client matches. Among the final demanders of labor, the distribution is even more skewed to the left, an issue that we will shortly explore in greater depth.

Table 13: Summary Statistics on Total Volume of Labor Contracted

Unit	**Total Hours Contracted:**				
	Mean	**Percentiles:**			
		25%	50%	75%	99%
per worker	633.7 (896.1)	96.0	297.0	796.0	4636.3
per worker-client	289.9 (479.5)	30.3	98.9	330.6	2068.7
per client	1653.2 (12617.2)	47.0	197.0	827.1	25189.7

Source: THAD 1999-2003.

A more detailed representation of the volume of labor supplied to client firms in different occupations is provided in Table 14. In line with the distribution of employment durations explored in Table 7, help workers and warehousemen display the lowest average total hours contracted per worker and per worker-client match among the job types considered (column 2). Qualified data processors, office workers, and stenographers are in the lead on both measures employed, being only surpassed on the former dimension by electricians. As shown in the third column, *average assignment durations in service-sector jobs generally exceed those in industrial jobs by an order of magnitude.* Ratios of the two measures vary significantly across professions. *On average, workers have 2.1 different client engagements, but once again significant differences exist across occupations.* Electricians, for instance, are on average placed with 4.6 clients, whereas telephonists and qualified data processors attain but 1.4, respectively 1.6 different client engagements.

Table 14: Total Hours Contracted per Worker Entering THA in 2000

Job type	Average total hours contracted per:	
	worker	worker-client
locksmiths	883	242
electricians	1081	235
metal workers	594	253
help workers	525	235
truck drivers	682	268
warehousemen	463	215
qualified data processors	856	532
qualified office workers	876	433
stenographers	853	393
data typists	619	347
office hands	731	378
telephonists	644	448

Source: THAD 1999-2003.

Using intensity among client firms has been shown to be exceedingly dispersed in Table 13. To investigate this issue further, Table 15 documents the average share of the largest client firms in the total volume of hours contracted at branch level. As is evident, *the demand for THA services at the branch level is heavily concentrated among few client firms.* The agency's customer base, therefore, appears to be segmented into a large fringe of minor users and a small core of large customers.

Table 15: Volume of Hours Contracted by Largest Clients

Client firms by volume of hours	Share (%) in total volume of hours in branches with:		
	< 100 ...	**100 - 250 ...**	**> 250 clients**
1% largest users	–	25.1	27.4
5% largest users	42.0	59.3	58.9
10% largest users	58.4	73.4	72.3

Source: THAD 1999-2003.

4.2.4 Time Spent in Nonassignment

The third aspect impacting on the degree of effective workforce utilization is the amount of regular work days THA workers spend on average in nonassignment during their employment at the THA. As pointed out before, workers may be unassigned for various reasons, not all of which constitute a direct monetary loss to the agency, nor are they evidence of effective labor underutilization. Unpaid absenteeism, for instance, neither involves direct wage costs for the THA, nor is it under

its immediate control. In the case of paid sick leave, wage bill obligations continue to accrue, but again the THA has no leverage over these absences from work. Just as holidays, these times should ultimately be disregarded in any benchmark test of efficient labor utilization, as manpower in these cases is not available for disposal by the THA.

Absenteeism, paid-for sick leave and vacation days together account for more than half the average total of regular work days workers spent unassignment (see Table 16). However, *only a small fraction of total days lost is attributable to a lack of client demand.* Consistent with our findings for the external adjustment margin, therefore, *the agency also proves itself to be very efficient on the internal margin in minimizing times of unproductive employment of its workforce.*

Table 16: Reasons for Nonassignment by Volume of Days Unassigned

Reasons	**Share (%)**
unpaid absenteeism	16.1
unpaid vacation	7.6
sick without continued pay	8.7
special leave	1.6
sick with 100% continued pay	19.6
paid vacation	29.0
no assignment	8.4
balancing hours account	7.4
others total	1.6

Source: THAD 1999-2003.

4.2.5 Agreed versus Actual Hours

We have seen that the agency succeeds in minimizing times of unproductive employment of workers. However, this does not necessarily imply that the THA in fact uses its workforce to capacity. Hours of work have so far been neglected in the analysis. A test of effective workforce utilization entails a comparison of average actual weekly hours of work performed to those agreed contractually. For the five major work schedules identified, Table 17 provides two measures of the former that differ but in the respective reference period chosen in their calculations. The first confines itself to periods of assignments only and therefore constitutes a measure of actual weekly hours of work performed during client assignments. The second measure instead is based on periods workers are in fact available to the THA for placements. As argued before, this restriction excludes periods of absenteeism, holidays, sick leave and the like and leaves us essentially with time spent in nonassignment due to either a lack in client demand or balancing of one´s hour account in addition to periods of worker assignment.

Table 17: Agreed vs. Actual Weekly Hours, 1999-2003

Weekly hours of work		
Agreed	**Actual during ...**	
	Client Assignments	**Times Workers are Available for Placement**
20	25.47	24.45
25	28.05	27.15
30	33.35	32.57
35	37.70	36.04
40	38.88	36.50

Source: THAD 1999-2003.

Both during assignments (column 2) and in times of actual worker availability for assignments (column 3), actual weekly hours of work on average exceed those agreed contractually in all but the largest category (40 hrs.). Weekly work schedules may be deliberately set at lower levels by the THA than on average materialize for two reasons. First, an overutilization of labor (overtime) is less costly to the THA than an underutilization, as overtime rates are generally but a fraction of an hour's pay and basic wage payments, unlike in the latter case, continue to be covered by fees collected. Second, overtime, rather than in pecuniary form, may instead be compensated through additional time off when client demand is slack (see Table 16) and therefore be employed as a precautionary buffer to cope with volatile client demand.

5 Worker Compensation and Client Fees

Having addressed various aspects of the quantity of THA labor traded, we now turn to its price. As an intermediate demander and final supplier of labor, the agency pays the wages of workers and in turn receives fees for their labor services from client firms during assignments. While studies on the former price are sparse but growing, they are totally lacking for the latter.[16] The THAD, however, records both the hourly wages of workers and the hourly fees charged for their services. The primary objective of the ensuing analysis, therefore, is to provide a first survey of the operative wage and fee structures. In-depth analyses of their respective determinants, however, are beyond the scope of this paper and left for future research.[17]

Except for a handful of firm-level collective agreements, wages in the industry have not been in general collectively bargained.[18] Client fees, too, are determined individually by the two parties to the commercial placement contract, i.e. the agency and the client firm. The THA industry in

[16] Evidence on worker remuneration in the TWA industry is provided in a number of publications, both for Germany (e.g. Rudolph/Schröder, 1997; Jahn/Rudolph, 2002; Kvasnicka/Werwatz, 2002; Burda/Kvasnicka, 2003), and internationally (e.g. Segal/Sullivan, 1997/1998; Cohen/Haberfeld, 1993). Storrie (2002) contains a summary of the available evidence for European countries.

[17] In an ongoing project, the author is estimating the impact of local labor market conditions and competition within the industry on the distributions of wages and fees.

[18] As discussed in Section 2, however, industry-wide collective agreements will take effect in 2004 setting both pay and general working conditions of temporary agency workers in Germany.

Germany is still very fragmented by international standards (see CIETT, 2002), not least because barriers to entry are low. Price-competition, as a consequence, is quite intense.

Clients are charged on an hourly basis and only for labor services effectively used. As such, neither do fixed outlays for the screening and recruitment of workers accrue directly, nor are clients liable to charges when the worker is absent form work, on holiday, or falls ill during an assignment. From the perspective of client firms, therefore, labor supplied by THA workers ceases to be a quasi-fixed factor of production. Client firms gain numerical flexibility, otherwise subject to institutional and legal constraints circumscribing managerial prerogative in staffing matters. It is for this reason that THAs are more than just labor market intermediaries matching supply to demand. On the demand side, they effectively create a spot-market for labor. Client fees, therefore, do not only compensate THAs for actual labor services supplied. They also in part contain a shadow price for the enhanced flexibility afforded to client firms, as the THA assumes sole employer responsibilities.

5.1 Average Wages, Fees, and Markups for Different Job Types

Table 18 tabulates average job-specific hourly wage and fee rates in 2002 for our 12 occupations considered previously. Average wages per hour range from six euros for help workers to just over eleven euros for qualified data processors. Client fees for these two occupations amount to about fifteen and thirty euros, respectively. As is evident, except for electricians, wages in service-sector occupations generally exceed those paid in industrial jobs. While such a clear pattern does not emerge for client fees, the lowest values are found once again in industrial jobs (help workers, truck drivers, and warehousemen). *The average gross difference between the two price margins across jobs types amounts to 144%.* It is lowest for truck drivers and largest for metal workers. Interestingly, wages, i.e. the opportunity cost of labor to the agency, are less dispersed across jobs than client fees.

However, this difference should not be mistaken as pure profits. In addition to non-wage labor costs, screening expenses, paid for sick leave and continuing wage bill obligations in times of deficient client demand, the agency also has to pay taxes, cover its overheads such as the salaries of its back-office staff, and all costs arising from operating a wide network of branches spread throughout the country. Client fees also compensate the agency for its high labor turnover. Information on these individual items are not recorded in the THAD, and would in any case be difficult if not impossible to quantify on a per head basis.

Table 18: Contractually Agreed Hourly Wages and Fees by Job Type, 2002

Job type	Average hourly: (1) Wage (Eur)	(2) Client Fee (Eur)	Gross Mark-Up (%)
locksmiths	7.60	18.42	145.44
electricians	8.66	22.86	160.31
metal workers	6.76	18.63	167.76
help workers	6.16	14.63	139.25
truck drivers	6.63	15.31	131.52
warehousemen	6.28	14.69	135.04
qualified data processors	11.09	29.04	159.86
qualified office workers	8.16	20.79	157.29
stenographers	8.94	21.38	140.52
data typists	7.32	19.04	166.82
office hands	7.46	18.29	148.33
telephonists	6.81	17.65	157.89

Source: THAD 1999-2003.

5.2 Determinants of the Markup in the First Client Assignment

A more promising exercise, and one that adds to our previous discussion, is to investigate the extent and the manner in which these price margins, in addition to adjustments on the quantitative margin (workers, hours), are employed by the agency to coordinate and harmonize its demand for and its supply of labor. Wages unlike fees, however, can not be varied across different client assignments, for pay rates, once stipulated, are binding for the duration of the employment contract. In the majority of cases, workers are hired on-call and have but a singular client engagement. Both wages and fee rates in the first assignment are therefore likely to be simultaneously determined, the former irreversibly so. As the THA has to recoup its fixed costs per worker from hourly client charges only, we would expect the markup of fees over wages to depend both on the size of these fixed-costs and the volume of hours contracted during this first assignment. The THAD contains no info on the fixed costs of recruitment and employment termination incurred by the THA. However, we may conjecture the former to be lower for workers that have previously been employed at the THA (recalls). Likewise, costs associated with employment termination should, if anything, be smaller for workers employed on a fixed-term contract. In both cases, therefore, we would expect the markup to be of smaller magnitude, anything else equal. One may also hypothesize that the hourly markup should decrease in the volume of hours contracted during the first assignment, i.e. the period over which the THA can amortize its sunk costs with relative certainty, for fixed employment costs may be spread across a larger number of hours. Although intuitively appealing, other forces may work in the opposite direction. The THA may only conduct primary placements of short duration, if it has already a follow-up placement opportunity lined up for the respective worker. If indeed the case, fixed-costs per worker need not be recouped entirely during the first

assignment, which would weaken the case for a postulated negative correlation between the markup and hours contracted in the first instance. In addition, match quality might be more important for longer assignments. As increased screening expenses accrue in this case, fixed-costs per worker incurred by the THA may rise in the duration of the primary client placement. The required markup, therefore, may hardly change or even increase in the volume of hours contracted. Finally, costs associated with the termination of employment are likely to increase in employment tenure, as, for instance, longer notice periods have to be observed by the THA before laying off a worker. Again, this would lead one to expect a positive correlation between the markup and the volume of hours contracted during the first assignment. In sum, it is difficult to predict the likely net effect of these countervailing forces.

To assess the validity of our three conjectures, we run a simple OLS regression of the log of the recorded markup in the first client assignment of workers entering the THA in 2001 on the volume of hours contracted in that spell, a dummy variable for recall status, and a dummy variable indicating whether the worker is employed on a fixed-term contract. In addition to our variables of interest, we control for seasonal, regional and job-specific effects besides standard socioeconomic characteristics of workers (age, nationality, sex, educational attainment) by including a series of indicators that capture differences in levels across different quarters of the year, branches, and job types. We confine the analysis to full-time workers, i.e. those with contractual weekly hours of 35 hours or more. Table 19 contains the main body of the regression output. *Whereas the markup modestly increases at a diminishing rate in the volume of hours contracted during the first assignment, it is significantly reduced in the case of workers recalled or hired on a fixed-term employment contract.*

Table 19: Markup in First Assignment for Entries in 2001

	Estimated Coefficient
Hours contracted*100	.00536***
(Hours contracted*100)^2	-.00015***
Recall	-.10098*
Fixed-term contract	-.06320***

Source: THAD 1999-2003. *(**,***) indicates statistical significance at the 10%, (5%, 1%) level. Coefficients are rounded to the fifth decimal point.

Although highly statistically significant, the positive impact of hours contracted on the size of the markup is modest. Evaluated at the mean level of time spent at the first client, an additional one hundred hours increases the markup by less than half a percentage point. Recall and employment

contract status, on the other hand, have a strong negative effect on the level of the markup. In the former case, the markup is lowered by 9.6%, in the latter by 6.1%.[19] Our latter two conjectures, therefore, are firmly corroborated by the data. Disentangling the fixed regional effects into its constituent parts might provide additional insights into the determination of wages and fees. Competitive pressures in the industry, as well as labor market conditions may vary across regions. An assessment of their influence, however, is beyond the scope of this paper and left for future research.

5.3 Fee Adjustment in Follow-Up Assignments

Another important aspect to be investigated is the extent to which the THA adjusts its client fees across consecutive placements of workers, given that wages are bounded from below by the terms set out in the employment contract. Clients may, for instance, terminate an assignment ahead of time. As workers cannot be laid off immediately, i.e. as quantitative adjustment is not feasible, and wage bill obligations continue to accrue for the duration of the employment relationship, the THA may decide to lower its fees so as to stimulate demand for its services. Fixed costs may already have been recouped in part and follow-up placements, even at a lower stream of revenue generated, may be a means to avoid or minimize losses otherwise incurred. If indeed the case, we would expect fees invoiced for workers on their second assignment to be on average lower than those charged in their first client placement.

To explore the validity of this conjecture, we confine the sample to the first two client placements of full-time workers with multiple client engagements and run a regression of log hourly fees on a dummy for second client assignment of workers. Just as before, we control for annual, seasonal, regional and job-specific effects besides standard socioeconomic characteristics of workers. As hypothesized, we *find fees to be on average lower in the second client engagement.*

Table 20: Hourly Fees in 1st and 2nd Assignment for Entries in 2001

	Estimated Coefficient
Second client placement	-.02866***

Source: THAD 1999-2003. *** indicates statistical significance at 1% level.

Coefficients are rounded to the fifth decimal point.

[19] Calculated as: $100 * [exp(est.\ coefficient) - 1]$

6 Conclusion

Temporary work agencies sell labor services at short notice. The ability of agencies to satisfy demand for its services both swiftly and tailor-made to the needs of client firms requires access to a sufficiently large standby pool of labor. As we have seen, the agency under investigation successfully pursues a number of complementary cost-saving strategies in this respect. Hirings occur primarily on-call in accordance with current client demand to avoid the risk of initial prolonged unproductive employment of workers, a recruitment strategy that necessitates the screening of job-seekers well ahead of actual recruitment to be viable. Despite this predominance of on-call recruitment, in about two-thirds of all worker-client matches the agency serves client demand by resorting to its existing workforce. One-off recruitment and dismissal costs per worker can thus effectively be spread across different clients. Recalls, in turn, are but infrequently employed by the THA as a means to economize on its screening costs, for their use is severely restricted by a statutory three-month recall ban. Fixed-term contracts, on the other hand, have experienced rapid growth since their singular use became admissible in 1997, providing for additional flexibility in the termination of employment. So do cancellation agreements in almost one out of six severances. Consistent with our conjectures, the markup of fees over wages has been shown to be lower both for recalls and workers employed on a fixed-term contract.

The agency also proves itself to be very efficient in utilizing its existent workforce. Only a small fraction of total days lost is attributable to a lack of client demand, both in the course of employment and in the immediate forefront of job termination. Actual weekly hours worked (at a client) on average even exceed those agreed to contractually. The latter, we have argued, may in fact deliberately be set below levels than are likely to materialize, as a shortfall of actual hours from those agreed to is more costly to the THA than an exceedance. Volatile client demand may induce actual hours performed to fluctuate widely around their mean level. Were contractual hours tailored to this mean, the agency would run the risk of frequent spells of unproductive but paid for employment. For wage bill obligations stipulated in the employment contract continue to accrue even if workers are on short hours or not assigned at all. In scaling down contractual hours, the agency effectively reduces this risk at the price of increased overtime. Overtime premiums constitute the only additional cost incurred by the THA in this trade-off, as basic pay rates are covered by fees collected. As these premiums are generally but a fraction of an hour's pay, positive deviations from agreed weekly working schedules are less costly on the margin than negative ones. In addition, overtime may be compensated through time off in periods placement opportunities are not forthcoming. The THA´s ability to adapt and time its own demand for workers to the demand of client firms for its services may also be improved by establishing close customers ties.

Consistent with this conjecture, we find client demand to be very concentrated at the branch level.

The preceding analysis has shown that THAs potentially perform a number of complementary functions on the labor market. Just like recruitment agencies, they are involved in the process of matching supply and demand. But THAs are more than that. From the perspective of client firms, they effectively create a spot market for labor by transforming it from a quasi-fixed factor of production into a variable one. Moreover, as fixed costs incurred in the recruitment of workers and termination of their employment may be spread across different client firms, overall efficiency gains are attainable.

Major legal changes in the regulatory framework governing the operation of temporary agency work in Germany are to take effect in less than a year's time. In addition, wages on this submarket will henceforth be determined by collective bargaining. Any assessment of the likely effects of this regime change are speculative. Nevertheless, based on the results obtained, a number of tentative predictions may be made. The analysis has revealed that fixed-term contracts have experienced rapid growth since their singular use became admissible in 1997. Allowance of their repeated usage from 2004 is thus likely to accelerate their spread in the industry. Labor turnover, in all likelihood, will increase in turn. For average job tenures, as shown, are exceedingly short for workers employed on a fixed-term contract. The legislated concomitant suspension of the synchronization and recall bans corroborate this conjecture.

Having addressed a wide range of questions, we left many unanswered. The two price margins have been investigated only cursorily, as fully-fledged econometric analyses would have gone beyond the scope of this paper. A follow-up study will pursue this topic in greater depth, focusing in particular on the impact of regional labor market conditions and competitive pressures within the industry on the determination of prices. Among the three actors involved in the triangular setup of this submarket, we have been most salient on client firms, for background information on them, such as industrial affiliation, or establishment size, are not recorded in the THAD. Nevertheless, for the first time, we have produced statistics on the pattern of utilization of THA services at the branch level, on the average volume of hours contracted in different occupations, and on the respective client fees accruing. The stepping-stone function of temporary agency work has been neglected entirely in this exploration. For the THAD, until now, does not contain any information on whether workers find subsequent employment at a former client firm. We hope to include that information in later editions of the THAD, so as to be in a position to investigate this important, yet still little researched area.

References

[1] Burda, Michael C., Michael Kvasnicka (2003), "Trends und Perspektiven der Zeitarbeit", *SFB 373 Discussion Paper*, Humboldt-Universität zu Berlin (forthcoming).

[2] Bronstein, A.S. (1991), "Temporary Work in Western Europe - Threat or Complement to Permanent Employment?", *International Labour Review*, December, pp.29-35.

[3] CIETT (2002) (International Confederation of Private Employment Agencies), "*Report of Activities 2001*", Brüssel.

[4] Cohen, Y., Y. Haberfeld (1993), "Temporary Help Service Workers: Employment Characteristics and Wage Determination"., *Industrial Relations*, 32, S. 272-287.

[5] Federal Statistical Office (2001), "Jobs auf Zeit - abhängig Beschäftigte arbeiten immer häufiger mit befristetem Arbeitsvertrag", *press release of the Federal Statistical Office*, 30.3.2001.

[6] Franz, Wolfgang (1999), *Arbeitsmarktökonomik*, Springer Verlag, Berlin.

[7] Garhammer, M. (2002), "*Temporary agency work: national reports. Germany*", European Foundation for the Improvement of Living and Working Conditions, Dublin.

[8] Jahn, Elke, Helmut Rudolph.(2002), "Zeitarbeit – Teil I. Auch für Arbeitslose ein Weg mit Perspektive", *IAB Kurzbericht*, 20/28.8.2002.

[9] Kvasnicka, Michael, Axel Werwatz (2002), "On the Wages of Temporary Help Service Workers in Germany", *SFB 373 Discussion Paper*, 70/2002, Humboldt-Universität zu Berlin.

[10] Neugart, Michael, D. Storrie (2002), "Temporary Work Agencies and Equilibrium Unemployment", *WZB Discussion Paper,* FS I 02 – 203, Wissenschaftszentrum Berlin für Sozialforschung.

[11] Oi, W. (1962), "Labor as a Quasi-Fixed Factor", *Journal of Political Economy*, vol. 7, S. 538-555.

[12] Pissarides, Christopher (1991), *Equilibrium Unemployment Theory*, Oxford, Basil Blackwell.

[13] Rudolph, Helmut, Esther Schröder (1997), "Arbeitnehmerüberlassung: Trends und Einsatzlogik", *Mitteilungen aus der Arbeitsmarkt - und Berufsforschung*, No. 1/97, S. 102-126.

[14] Segal, L.M./Sullivan, D.G. (1997), "The Growth of Temporary Services Work", *Journal of Economic Perspectives*, No. 11 (2), S. 117-136.

[15] Segal, L.M./Sullivan, D.G. (1998), "Wage Differentials for Temporary Services Work: Evidence from Administrative Data", *Federal Reserve Bank of Chicago Working Paper* WP-98-23.

[16] Storrie, Donald (2002), "*Temporary agency work in the European Union*", European Foundation for the Improvement of Living and Working Conditions, Ireland.

[17] Wooldridge, Jeffrey M. (2002), *Econometric Analysis Of Cross Section And Panel Data*, Cambridge Massachusetts, MIT Press.

Appendix 1: The Dataset

The data has been generated from information collected at the payroll and the accounting office of the company's headquarters, subsequently stored in two separate corresponding data files files (Part I and Part II) for each branch.

Part I: The Employment Relationship (Agency-Worker)

Part I contains information on the THA worker, the terms of her employment contract with the agency, and the characteristics of periods of assignments and nonassignments. Table A1 provides a list and a brief description of key variables contained in Part I.

Table A1: Description of Variables in Part I of the Dataset

Variable	Description
Observational Identifiers (5):	
PERSNR	= person identifier
PLACEMENT	= assignment indicator
BEGIN	= begin date observation begins
END	= end date
BRANCH	= branch identifier
Assignment Characteristics (4):	
TOTAL_HOURS	= total productive hours at client
TOTAL_DAYS	= total regular work days per observation
TOTAL_EX_HRS	= total hours involving additional compensation
TOTAL_SHIFTHRS	= total shift hours performed at client
Nonassignment Characteristics (1):	
CAUSE_NONP	= cause for nonplacement
Employment Relationship (9):	
ENTRY	= entry date of worker at branch
EXIT	= exit date of worker from branch
EXIT_REASON	= reason for job termination
FIXED_TERM	= indicator for fixed-term contract
HRS_AGREED_WEEKLY	= contractual working hours per week
WAGE	= contractual gross hourly wage
INC_EXTRA_TOTAL	= total extra income of worker during obs.
JOB_DESCR	= job type at agency (3-digit job code)
OCC_STATUS	= occupational status at agency (blue, white, etc.)
Worker Characteristics (5):	
SECOND_JOB	= indicator for second job outside agency
BIRTH_YEAR	= birth year of worker
FEMALE	= indicator for sex of worker
NATION	= nationality of worker
EDUC	= educational/vocational attainment of worker

In Part I of the data set, *an observation marks a period of regular work days during which a particular worker is either continuously in assignments (though not necessarily with the same*

client), or continuously not assigned to any client. In particular, the five variables defining an observation (PERSNR, PLACEMENT, BEGIN, END, and BRANCH), do not identify a particular assignment with a single client only. Although such a setup is preferable form an analytical perspective, it was unable to be realized due to constraints imposed by the data generating process. A change in the value of any variable recorded leads to a new observation. As an exception to the aforementioned general setup of Part I of the data set, this convention therefore allows to keep detailed track of any alternations in the conditions surrounding the employment or assignment of a particular worker.

Part II: The Commercial Relationship (Agency-Client)

Part II exclusively contains information on the commercial dealings between the agency and individual client firms, such as the total amount (in hours) of labor services contracted, or the total revenue generated for the agency by assigning a particular worker to a specific client. Key variables contained in Part II of the data set are listed along with a brief description in Table A2 below.

Table A2: Description of Variables in Part II of the Dataset

Variable	Description
Observational Identifiers (5):	
PERSNR	= person identifier
BEGIN	= date current observation begins
END	= date current observation ends
CLIENTNR	= client firm identifier
BRANCH	= branch identifier
Assignment Characteristics (6):	
HOURS_TOTAL	= total productive (invoiced) hours
HOURS_EXTRA	= total extra (invoiced) hours
REVENUE_TOTAL	= total revenue received by THA
REVENUE_EXTRA	= total extra revenue received by THA
FEE_HOURLY	= hourly fee for client for regular hours
WORKTYPE	= type of work performed at client

In Part II of the data set, *an observation marks one or more consecutive calendar weeks in which a particular worker has at least one assignment with the same client in every week of that observation.* In other words, the calendar year is split into weeks, and for each consecutive sequence of weeks in which a worker has been on an assignment with a particular client, there will be a new corresponding observation entering the data. An observation is therefore assignment-specific (worker, client firm) and defined by the variables (PERSNR, BEGIN, END, CLIENTNR, and BRANCH) in Part II of the data set. Weeks in which no assignments occur are not explicitly

recorded, but can be implicitly derived as the time intervals between the individual observations for a particular worker. If a worker has multiple assignments with different clients in the same week, then these will enter Part II as separate observations. This weekly structure of Part II, just as the daily structure of Part I described before, has been determined by the data generating process. Clients are billed on a weekly basis, where the invoice and thus the available information for our data only records the amount of labor transacted (in hours) and the associated revenue generated during the particular week, but not when, i.e. on what days of the week, these THA services were in fact delivered.

Appendix 2: Job Termination

Table A3: Reasons for Leaving THA by Region, Sex, and Nationality, 1999-2003

Reasons	Share (%)					
	Region:		Sex:		Nationality:	
	West	East	Male	Female	German	Foreign
voluntary quits	25.6	17.5	21.8	28.6	24.4	23.4
cancellation agreements	16.0	12.8	15.7	15.0	15.0	17.2
fixed-term contracts	16.2	23.6	15.1	21.8	16.6	21.3
changes of branch	2.6	1.1	2.6	2.0	2.5	1.8
dismissals	25.6	38.9	28.8	26.4	28.9	23.8
dismissals without notice	13.9	6.0	16.0	6.1	12.5	12.4

Source: THAD 1999-2003.

Table A4: Reasons for leaving THA by Collar and Age, 1999-2003

Reasons	Share (%)					
	Occupational Classification:			Age on Entry:		
	Unskilled Blue ...	Skilled Blue ...	White Collar	< 31	31-40	> 40
voluntary quits	19.0	27.6	35.0	23.2	28.0	22.8
cancellation agreements	16.2	16.3	13.9	15.7	14.9	15.2
fixed-term contracts	17.3	7.9	18.3	20.3	12.3	13.7
changes of branch	1.5	2.1	4.4	1.8	3.4	3.0
dismissals	29.0	37.2	24.5	24.1	31.3	37.8
dismissals without notice	16.9	8.7	4.0	14.7	10.1	7.3

Source: THAD 1999-2003.

Appendix 3: Contractual Weekly Hours

Table A5: Agreed Weekly Hours, 1999-2003

Agreed Weekly Hours:	**Share (%)**			
	Men		**Women**	
	Blue Collar	White Collar	Blue Collar	White Collar
20	0.8	2.3	1.9	4.1
25	0.4	0.9	1.3	1.6
30	0.8	1.9	2.3	2.6
35	95.9	79.7	91.2	87.9
40	1.7	14.4	2.3	2.6
others total	0.5	0.9	1.0	1.2

Source: THAD 1999-2003.