Public Employment Services and Employers: How Important are Networks with Firms?

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ABSTRACT

Public Employment Services and Employers:
How Important Are Networks with Firms?[*]

This paper examines whether contacts between caseworkers in public employment offices and employers impact on the reemployment chances of the unemployed they counsel. This analysis is made possible through a large administrative dataset on unemployed combined with an extensive survey of caseworkers' characteristics and their strategies. This data was created for evaluating public employment services in Switzerland. We use econometric techniques from the treatment evaluation literature to identify causal effects of a more intense employer focus of the caseworkers. The estimation results indicate that caseworkers who maintain direct contacts to firms achieve higher reintegration rates.

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A   Introduction

This paper examines, whether a network between employment offices' caseworkers and employers affects the re-employment chances of the unemployed. Direct contacts to employers might provide caseworkers with additional information on vacancies, skill requirements, and current developments in the local labour market. This information and the direct relationship itself may assist the placement of the unemployed. On the other hand, employer contacts also consume a substantial share of caseworkers' time, which otherwise could have been spent on other activities. To analyse this trade-off, we examine the impact of a direct relationship between caseworkers and employers on the employment chances of their unemployed clients. We find that caseworkers who maintain such networks with firms achieve higher employment rates. In particular, the less skilled of their unemployed clients benefit most.

Public employment services are supposed to assist in the matching of unemployed to employers and thereby reduce the unemployment rate. Given the large public expenditures devoted to employment services, there is a considerable interest in enhancing their effectiveness.[1] One channel that has received public attention recently is the attitude towards *employers*. In recent years, several countries progressively entered the employers as an additional client group besides unemployed and jobseekers. Caseworkers no longer focus mainly only on counselling, job search training and other active labour market programmes, placement, verification of job search efforts and imposing sanctions if needed, but engage in direct contacts with firms. Private firms and companies are courted by caseworkers in an attempt to encourage the registration of vacancies and to brighten the image of unemployed persons. This focus on employers received increasing attention in Germany, UK, Switzerland, and other countries. In Germany, jobcentres should devote at least 20 percent of their placement capacities to employers, introduce so-called employer managers as a new staff position, and segment employers into different types of client groups (Schütz and Ochs, 2005). In the UK, the employer service directorate was set up in 2001/2002 to engage with employers in making public jobcentres the preferred recruitment channel (Bunt, McAndrew, and Kuechel, 2005). Not only are caseworkers asked to establish and maintain direct, even personal relationships with firms and their human resources departments, they are also encouraged to endorse the firms' perspective and particular needs, which may even be considered as a marketing strategy to improve the image of the public employment offices. In

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[1]   For recent studies on the effectiveness of active labour market programmes, see e.g. Wunsch and Lechner (2007) for Germany and Lechner and Wiehler (2006) for Austria.

this paper, we examine whether a more intensive employer focus increases the employment chances of the unemployed. Due to data availability, we focus on Switzerland.

This paper also contributes to the literature on effective *organization of public institutions*, where the lack of market competition does not ensure that only the most effective organizational forms survive. Asymmetric information and conflicting goals may hinder achieving optimal organization forms in this principal-agent relationship. External evaluations may therefore be needed to provide guidance on improving organizational structures. The effectiveness of public employment services has been analyzed from a macroeconometric perspective, e.g. by estimating job-vacancy matching functions as in Berman (1997). Only little empirical research has taken a microeconometric perspective. Sheldon (2003) and Vassiliev et al. (2006), for instance, analyse the efficiency of Swiss employment offices by linking input factors such as the number of counsellors to performance measures. Although both studies find considerable inefficiencies,[2] they are not able to explain fully the differences between efficient and inefficient offices. This paper complements this type of research by analysing whether employer contacts affect efficiency by changing the reemployment chances for the unemployment.

In the next section, we describe the institutional details for Switzerland and explore reasons why the intensity and the form of the caseworker to employer interaction might be an important determinant of job finding rates. In section C, we describe the data set, which consists of administrative data linking unemployed, caseworkers, and employment offices, complemented with an extensive survey of all Swiss caseworkers asking about their characteristics and strategies. Section D provides descriptive statistics, and Section E explains the concept of causality and the identification strategy used. It also presents briefly the *propensity score matching* estimator used to disentangle causal effects from correlations. The empirical results are presented in Section F, which suggest that unemployed persons indeed benefit from a direct link between caseworkers to firms. Three appendices provide further details on the econometrics and the empirical results.

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[2] Sheldon finds that placement offices reached roughly two thirds of their efficiency potential. Vassiliev et al. (2006) find a mean inefficiency on the order of 15% of best observed performance.

B   The Swiss public employment services

B.1   The Swiss unemployment insurance system

Until the recession of the early 1990s, unemployment was very low in Switzerland, a small country with 26 different administrative regions, called *cantons*. With the recession, the unemployment rate rose rapidly to more than 5% (see Figure 1). This triggered a comprehensive revision of the federal unemployment insurance act in 1996/1997. With this revision, the about 3000 municipal unemployment offices were consolidated to a smaller number of regional employment offices (REO). Compared to the previous municipal offices, which were largely concerned with administering unemployment benefits, these regional offices, of which there were about 110 employment offices[3] operating in 2003, aimed at providing professional services with respect to counselling, placement, activation, and training.

Figure 1: Swiss unemployment rate (January 1990 - December 2006)
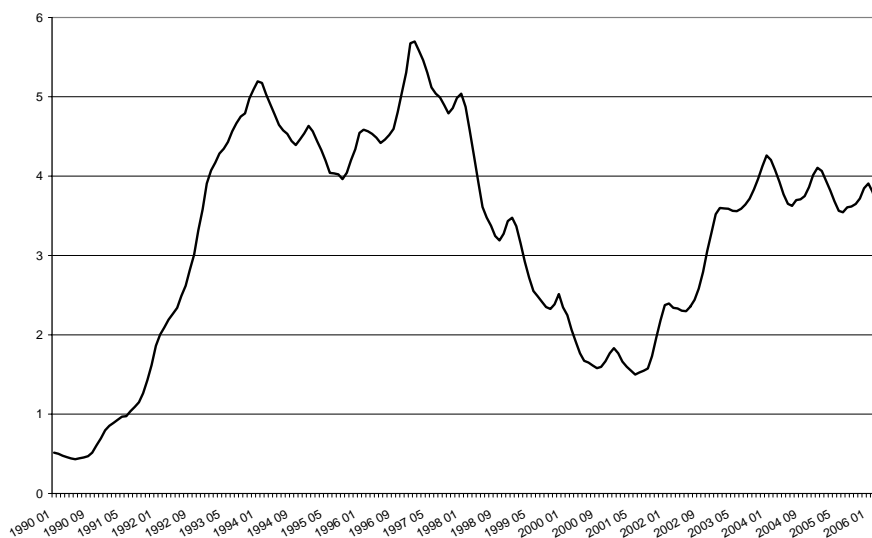
Note: Monthly unemployment rate. Source: Swiss national bank (Monatshefte).

The federal State Secretariat for Economic Affairs (*seco*) established four targets that the employment offices should pursue with respect to 'their' unemployed clients: rapid de-registration, prevention of long-term unemployment, prevention of benefit exhaustion and

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[3] For reasons explained below, we will focus on only 103 employment offices and their caseworkers. We incorporate neither the employment offices in Geneva nor Appenzell-Innerrhoden, nor those employment offices that were newly established in early 2003.

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prevention of re-registration. In order to achieve these targets, well-trained caseworkers provide counselling and placements services and assign active labour market programmes such as subsidized employment or training to the unemployed to qualify them for the requirements of employers. Unemployed persons are requested to accept any suitable job-offer, to participate in assigned labour market programmes, and to exhibit sufficient search effort. Otherwise, sanctions in the form of benefit cuts could be imposed. Another important activity of caseworkers is establishing and strengthening contacts to (local) employers.

B.2   Caseworker interactions with employers

Caseworkers vary with regard to their employer interactions in two aspects: Intensity and channels of contact. Depending on the size and organisational structure of the employment office, some caseworker have *direct*, more intensive contacts to employers, while others have rather *indirect* contacts. The latter comprehends intermediation channels such as vacancies posted in newspapers or on the Internet. It also comprehends a specialization within the employment office, where some caseworkers specialize on maintaining close contacts to employers while the other caseworkers use them as intermediaries. Caseworkers differ also in their perception of the role of employers: some caseworkers consider them as an additional client group, which should be offered good services. Others would not regard the employers as a client group by itself but rather consider employer contacts only as a means to offer better services to their unemployed.

One may ask whether a caseworker should devote a share of his time to direct employer contacts. A more intensive contact to employers could provide caseworkers with additional insights on the job market. Such an informal knowledge might assist caseworkers in matching unemployed to appropriate employers. Caseworkers might also gain some private information on job openings or receive information earlier. On the other hand, contacting employers is time consuming and thus reduces the amount of time available for counselling, consolation in case of personal problems, psychological backing, controlling, and sanctions, etc. Other sources of information, e.g. the Internet or Intranet, might be more efficient for placing unemployed or updating knowledge on the current labour market situation.

Another question concerns the optimal form of the interaction between employers and caseworkers. In Switzerland, employers are not obliged to register open vacancies with the employment offices. If the employment office aims for an active placement strategy, it is

important that the potential employers consider the employment office to offer a useful placement channel. There is anecdotal evidence that at least some employment offices initially pursued a strategy that was in contrast to the employer's interests: By assigning job placements to unemployed persons frequently, they attempted to force individuals to search harder for jobs and imposed sanctions if the unemployed person did reject too many job placements. This strategy, however, increased the administrative burden on the side of the employers, which received a large number of inadequate or unmotivated unemployed. Thus, employers became reluctant to contact employment offices for filling vacancies. Over time, the annoyance of the firms reduced the leeway of the employment offices. This then induced a gradual shift of the employment offices towards a more employer friendly attitude, which, of course, in turn jeopardises the instrument of forced job placements for exerting pressure. This shift in orientation, however, was not centrally enacted. It took place in different locations at different times and different paces.[4]

We exploit these differences in the employer focus and the handling of employer contacts across employment offices in 2003 to estimate their effects on the employment chances of their unemployed until December 2006. Figure 1 showed that the unemployment rate was relatively stable in that period such that any changes in our estimated effects over time are unlikely to be a simple reflection of changes in the business cycle but rather can be interpreted as short-term

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[4] The federal level of the unemployment insurance system pursues a relatively clear vision focussing on active labour market policies and rapid placement. However, in Switzerland the cantons, which enjoy financial and political autonomy in many fields, have substantial leeway in the implementation and the organisation of 'their' employment offices. Due to different philosophies and experiences with unemployment, but also due to different industry structures, the cantons have chosen different organizational structures between and within the employment offices. Since the regional employment offices existed only since about 1998, there has also been a substantial amount of experimentation with different organizational styles, visible in several re-organizations during 2001 and the first half of 2002. (Some re-organisations took place during early 2003 in some employment offices. These employment offices are excluded from the analysis.) In 1998, all cantons relied on a geographical organization where each employment office was responsible for a particular set of municipalities. Some cantons experimented then with a functional organization across employment offices, where unemployed were assigned to employment offices according to their profession/industry or their presumed difficulty in finding a job (employability). In 2003, almost all cantons organized their employment offices geographically. Exceptions are the canton Geneva and the canton Solothurn, which maintains one employment office for the difficult cases. (Solothurn further maintains two employment offices in Olten and Solothurn, respectively, organized by employability. These are located in the same buildings, so they are considered here as two sections of a single geographically organized entity in Olten and in Solothurn, respectively.)

versus mid-term effects of employer contacts. This sheds some light on the effects on job stability. If e.g. more employer contacts simply increased the outflow rate into low pay or unstable jobs, we would expect positive short-term effects but much smaller (or even zero) mid term effects. On the other hand, a stable unemployment rate also means that our policy conclusions are restricted to this labour market environment and may not necessarily be valid in periods of economic booms or declines.

C Data

C.1 Data sources and sample selection

We conducted a detailed survey among all caseworkers to investigate the intensity and channels of employer interactions. We sent a questionnaire to them and all employment office managers who worked in an employment office between 2001 and 2003, and still worked there by the end of 2004. The questionnaire was returned by 1560 individuals, which represents a response rate of 84%. These questionnaires were then linked to data on the caseworkers' clients from the unemployment and pension registers. For each unemployed person the *first* caseworker during her unemployment spell is considered.[5] We thereby can link each unemployed person to his caseworker's activities.

The population of unemployed used for our analysis is the inflow into unemployment in the year 2003. The labour market outcomes of these unemployed persons are followed until the end of 2006. Very detailed individual information from the databases of the unemployment insurance system (AVAM/ASAL) and the social security records (AHV) are available for these individuals. These data sources contain for example socioeconomic characteristics, including nationality and type of work permit, qualification, education, language skills (mother tongue, proficiency of foreign languages), experience, profession, position and industry of last job,

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[5] For being able to link the datasets the information system of the unemployment insurance system (AVAM) was crucial, which maintains a record of all counselling meetings and contains unique personal identifiers for each unemployed person and for each caseworker. At any point in time, each job seeker is assigned to exactly one caseworker. Using this information and having the entire population of jobseekers, we observe how many clients a caseworker counsels at any given point in time. For an unemployed person who remains unemployed for more than 6 to 8 months, the caseworker in charge is changed in some of the employment offices to initiate new dynamics in the caseworker-client relationship. By focusing on the first caseworker, we avoid the endogeneity issues of caseworker changes.

occupation and industry of the desired job as well as an employability rating by the caseworker. The data also contains detailed information on registration and de-registration of unemployment, benefit payments and sanctions, participation in ALMP, and the entire employment histories from January 1990 with monthly information on earnings and employment status (employed, unemployed, non-employed, self-employed).

In total 239004 persons registered as newly unemployed during the year 2003. We consider only the first registration in 2003 for each person and consider any further registrations as part of the outcome variables. In other words, the analysis is person based and not spell based. Of these individuals, 219540 persons registered in one of the 103 employment offices that are included in our study.[6] For 215251 persons the first caseworker is well defined, whereas for the other 4289 no caseworker in charge could be found. Furthermore, we exclude 1441 foreigners with less than a yearly work permit, 16481 unemployed without benefit entitlements, and 5778 individuals who either have a disability insurance claim or apply for one, since these individuals receive different services. 191551 individuals are left in our sample after this selection. We conduct most of our estimations within the subpopulation of individuals older than 24 and younger than 55.

C.2   Definition of outcomes: employment

To be able to use the most recent data, we rely on the information system of the unemployment insurance (AVAM/ASAL), which only provides us with information on transitions into and out of unemployment but not much information on employment spells. We have to rely on recorded destination states of the unemployed persons when leaving the unemployment register. We define an individual as employed in month t if she has deregistered at the employment office because of having found an occupation, and has not re-registered yet. She is considered as not employed if she had de-registered with a destination state other than employment or if still being unemployed. When repeated unemployment spells occur, the most recent information is used, of

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[6] All these 103 employment offices were independently operating agencies responsible for a specific geographic area. We do not include the canton Geneva in our study since in Geneva the employment offices are functionally specialized according to professions and employability of the unemployed. This is in contrast to the other cantons, which largely follow a geographic structuring. We further exclude five other employment offices from the analysis, three of them as they were founded only in early 2003 so that there was no well-defined stock of unemployed in the beginning of 2003, one employment office, which specialized on the difficult cases in Solothurn, and the small employment office in Appenzell-Innerhoden.

course. This definition may be subject to some measurement error because a de-registered individual could have left the active labour force or could have found an occupation after de-registering without claiming one. Nevertheless, we were able to compare the information from the unemployment insurance system with the employment information from the pension funds, though only for a shorter period in which both data sets overlap, and found that our measure of the employment situation is fairly reliable (see Frölich et al. 2007 for more details).

To analyse the dynamic impacts of the caseworker's employer interaction on the employment probabilities, the employment status of the unemployed person is measured month by month until the end of the observation period in December 2006. Hence, for individuals who registered in January 2003, their employment situation is observed for 47 months, whereas only 36 months are observed for those registering in December 2003. This allows us to estimate the effects of the caseworker-employer interactions not only in the short term but also in the medium term.

Figure 2: Average employment rate in month t after registering as unemployed

Month after registration
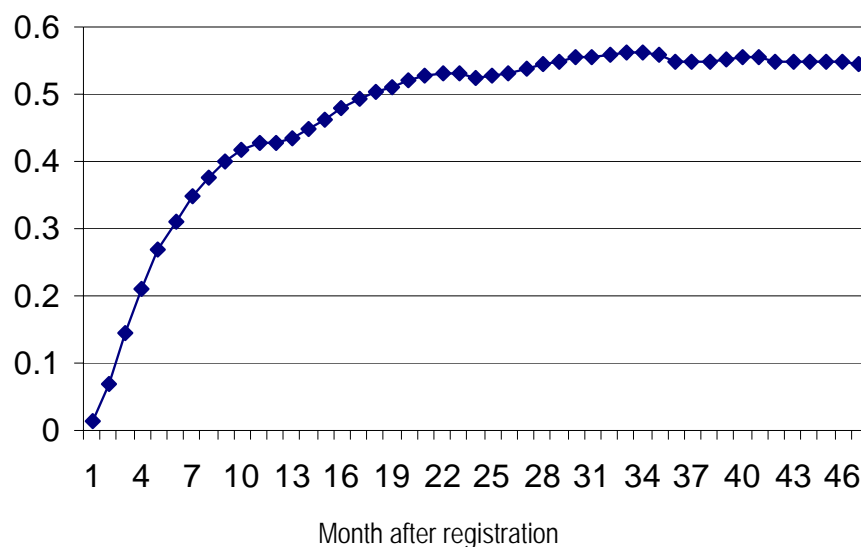
Figure 2 shows the evolvement of the employment rate for the population of this study. It presents the employment rate in month t after registration at the employment office for the population who registered as newly unemployed during 2003. About 2% of the population de-registers one month after registering because of having found an occupation. About 10% have found a new job after two months and about 45% (55%) have found an employment one year (two and more years) after they became unemployed.

D   Descriptive analysis of contacts with employers

In order to measure the interactions between caseworker and employers we use the data on the survey questions, which had been administered to the caseworkers. As argued above, direct contacts to employers might give caseworkers crucial information for effective placement of the unemployed. The question most informative about this aspect is the following (translated):

Which source did you *mainly* use in order to obtain information regarding current labour market developments, vacancies, required skills etc? (max. 3 options)

□ 1 database of the REO (AVAM)   □ 5 direct contact with employers
□ 2 Internet   □ 6 other caseworkers
□ 3 newspapers   □ 7 courses and talks
□ 4 professional journals   □ 8 other: ……………………………..

Caseworkers could choose three out of eight options. Around 44% stated that they used direct contacts with employers as one of the three main sources of information. As Figure 3 indicates, employers are one of the major information sources of caseworkers.

Figure 3: Main sources of information
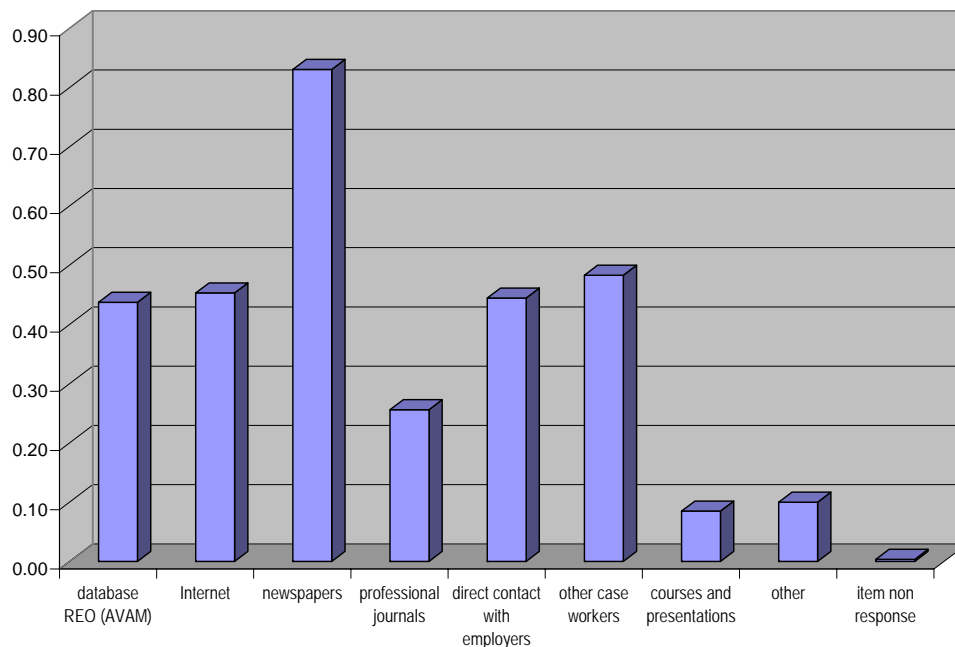
Note: Percentage of workers who mentioned the respective source. 1441 caseworkers.

We define caseworkers who chose the option "direct contact with employers" as caseworkers

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who have a more intensive contact with employers, whereas those who did not choose this option are regarded as having less direct and less intensive contacts. While there could be different ways to measure the intensity of a contact, e.g. number of phone calls or visits at firm, we argue that the more crucial criterion for the employment prospects of the unemployed is whether important information is actually obtained. Thus, we use *direct* and *intense* and *considering employer as important information source* as synonyms in this paper.

Figure 4: Employment rates for unemployed persons by employer-contacts status of their caseworker
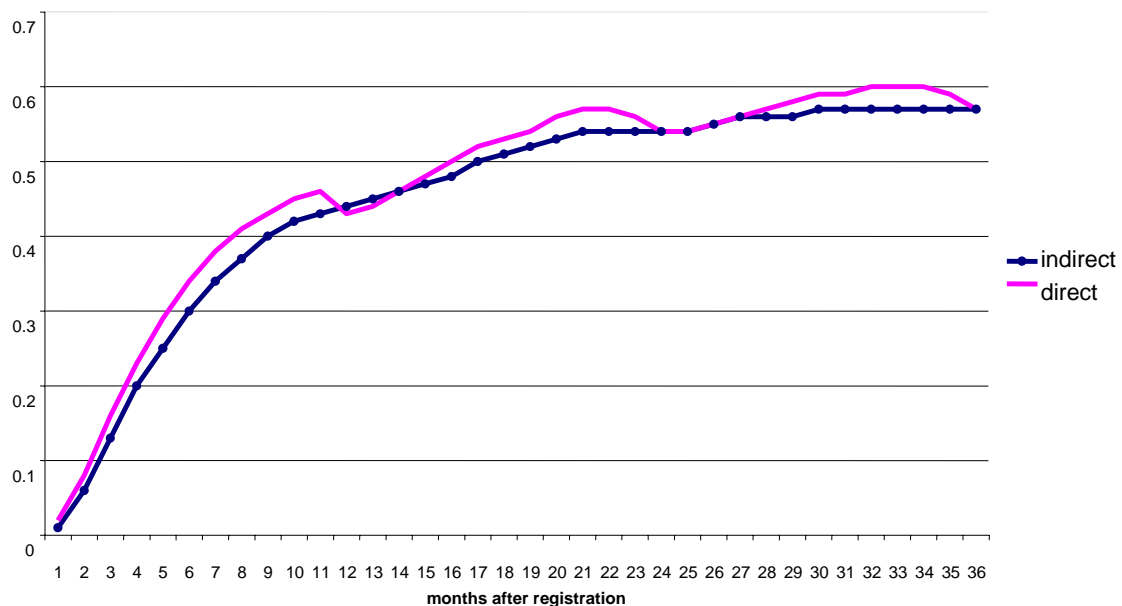
Note: This figure shows average employment rates for the individuals age 24 to 55 years. 44041 unemployed persons with first caseworker who used direct employer contacts as a major information source. 56211 unemployed persons with caseworker who did *not* use employers as a major information source.

We aim at identifying the *causal* effect of having a caseworker with a more intensive employer contact on the employment prospects of her unemployed. A naïve estimator of this causal effect would be to compare labour market outcomes of those unemployed whose caseworkers had direct employer contacts with those whose contacts were less pronounced, as is shown in Figure 4. However, if those two groups of unemployed (and caseworkers) are different in important characteristics that influence employment chances as well, the graphs in Figure 4 partly reflect these unobserved characteristics. Suppose, for example, that caseworkers with more intensive employer contacts have longer tenure with their employment office as well. If caseworkers with

longer tenure are also more able in placing their unemployed, then the comparison as in Figure 4 does not provide the ceteris paribus effect of direct employer contacts but is partly due to the differences in caseworkers' tenure. For policy implications, however, it is crucial to know whether *changing* employer interactions (holding everything else constant) improves employment prospects, or not.

In Figure 4, we note cyclicality in the employment rate among those unemployed whose caseworkers have direct contacts to employers. The employment rates decrease abruptly from month 11 to 12, from 22 to 23 and 24, and from 34 to 35 and 36. In the control group, however, this pattern is not observed and the employment rate increases nearly monotonously. This cyclicality is driven by a few caseworkers with large inflows of unemployed in January, November, and December 2003 from the sectors construction, tourism and services, many of them in the canton Valais. These individuals are particularly affected by the seasonality in the construction and tourism sector with higher unemployment risk in the winter season. This leads to the cycles after 12, 24, and 36 months. If we eliminate these about 25 caseworkers, the cycles vanish but the main estimation results remain (see Appendix C).

The descriptive statistics provided in Table 1 show that the two groups differ in characteristics that are important determinants of the labour market success of the unemployed. Caseworkers who consider employers as an important information source are more likely to counsel men, foreigners and individuals who are less educated, less skilled and/or have a low employability rating. Furthermore, these caseworkers differ also in their own characteristics: gender, tenure, work experience in private placement offices, education, and vocational training (see Table 1). Not accounting for these differences may lead to biased estimates of the impact of employer contacts. Therefore, the next section discusses the selection problem and presents a flexible methodology to identify the causal effects when sufficiently informative data is available.

Table 1: Selected average characteristics by employer-contacts status of their caseworker

		Caseworkers having	
		indirect employer contacts	direct employer contacts
Characteristics of their unemployed clients			
Number of unemployed		56211	44041
Age in years		36.6	36.6
Female		46	42
Swiss		63	60
Civil status:	single	41	39
	married	47	50
	divorced	11	10
	widowed	1	1
Mother tongue:	German	46	40
	French	15	18
	Italian	9	9
	Not German, French or Italian	30	34
Mother tongue is equal to cantonal language		63	60
Number of foreign languages		1.8	1.6
Education:	less than eight years	3	4
	8-11 years	20	24
	secondary track	38	38
	tertiary track	13	11
Qualification level: skilled		59	55
	semiskilled	14	18
	unskilled	22	23
Chances to find a job: easy		12	12
	medium	73	76
	difficult	15	12
Characteristics of caseworkers			
Number of caseworkers		778	623
Age in years		44.1	44.8
Female		46	35
Tenure in years		5.6	6.1
Previous work experience in municipality office		10	8
Previous work experience in private placement office		21	27
Own experience of unemployment		63	63
Highest education level:	vocational qualification	34	28
	above vocational qualification	40	48
	tertiary track (university or polytechnic)	26	22
Special vocational training of caseworker (Eidgenössischer Fachausweis)		21	25

Note: The entries in the table are shares in %, means, or number of observations, by subgroup.

E   Econometric methodology

E.1   Identification problem and empirical strategy

Consider an individual i who registers as unemployed at time t_0 at his regional employment office. This person is then assigned to a caseworker of that office, who will be in charge of this individual for at least several months.[7] As discussed above, his chances of finding a job may depend on how well his caseworker is connected to local firms. Let $S_i = 1$ if his caseworker has direct employer contacts, and $S_i = 0$ otherwise.

We are interested in the impact of having a caseworker with direct employer contacts on the subsequent employment chances of this unemployed person, which is measured by the employment status Y_τ in month τ after registration. In particular, we would like to compare the employment status if the caseworker had direct employer contacts compared to the employment status if the caseworker not had direct employer contacts. We base our analysis on the prototypical model of the microeconometric evaluation literature with binary treatment (see Rubin, 1974). Let $\left\{ Y_\tau^0, Y_\tau^1 \right\}$ denote the potential employment outcomes for a particular unemployed person τ months after registration. Y_τ^1 would be the employment status if this unemployed person was counselled by a caseworker with direct employer contacts, whereas Y_τ^0 would be the employment status if counselled by one without. Only one of these two outcomes can be observed since each unemployed person is counselled either by a caseworker with (S=1) or without (S=0) direct employer contacts. With this notation, we define θ_τ as the average effect of having a caseworker with direct contacts for those unemployed persons who are actually in the situation of having such a caseworker:

$$\theta_\tau := E[Y_\tau^1 - Y_\tau^0 \mid S = 1].$$

This causal parameter is usually called the average treatment effect on the treated (ATET), a term borrowed from the biometrics literature, which pioneered this field of causal analysis.

Note that under suitable regularity conditions the observable outcome Y_τ can be expressed as:

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[7] A change in the caseworker usually happens only after 6 or 8 months of unsuccesful job search, if at all.

$$Y_\tau = SY_\tau^1 - (1-S)Y_\tau^0.$$

Therefore, we can rewrite the ATET in terms of the observable outcomes and the potential outcomes Y_τ^0 for the group of unemployed with *S=1:*

$$\theta_\tau := E[Y_\tau^1 \mid S=1] - E[Y_\tau^0 \mid S=1] = E[Y_\tau \mid S=1] - E[Y_\tau^0 \mid S=1].$$

$E[Y_\tau \mid S=1]$ can be estimated consistently by the sample mean of the observable outcomes in the subsample of those unemployed with caseworkers with direct employer contacts. However, such a simple estimator is not available for the so-called mean counterfactual outcome, $E[Y_\tau^0 \mid S=1]$. An obvious idea would be to learn this potential outcome from those unemployed who actually experienced caseworkers with *S=0.* Although this idea is in general valid, it requires some specific adjustment (based on some untestable assumption) if the groups of unemployed (and caseworkers) with direct and less direct employer contacts differ in other dimensions that influence employment outcomes as well. Taking an unadjusted mean from this group would lead to an estimate that is subject to the so-called selection bias. However, if these other factors that influence labour market outcomes as well, are observable, they can 'be controlled' for by suitable econometric techniques, like regression-type modelling in its various forms. However, whether all relevant background factors are indeed observable (which we argue below is relatively plausible in this study), is an assumption that cannot be empirically verified without 'complete' data, which is of course never available.

This assumption is known as the *conditional independence assumption* (CIA) and is exploited in this study.[8] It implies identification of the average counterfactual outcome $E[Y_\tau^0 \mid S=1]$:

$$E[Y_\tau^0 \mid S=1] = \underset{X\mid S=1}{E} E[Y_\tau^0 \mid X, S=1] = \underset{X\mid S=1}{E} E[Y_\tau^0 \mid X, S=0] = \underset{X\mid S=1}{E} E[Y_\tau \mid X, S=0].$$

The estimation technique relies on the mean of the outcome variable for a specific value of characteristics *X* in the subsample of unemployed with caseworkers of type *S=0.* These averages of the outcome variables for specific values of *X* are then weighted according to the distribution of *X* in the pool of participants. The identification strategy thus relies on being able to observe all

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8   See Imbens (2004) for an excellent survey on this topic.

these confounding variables *X*. For being able to do so the extremely detailed linked caseworker-client dataset is crucial, as will be argued below.

E.2   Selection into treatment

Plausibility of the conditional independence assumption requires that all relevant factors that jointly determine outcomes and treatment be observed in the data. This requires an understanding how the treatment is determined.

The caseworker-employer interactions as captured by the random variable *S* depends on four processes: First, which type of caseworkers are hired, second, how caseworkers are allocated to the unemployed, third, what kind of labour market environment they face, and fourth, what types of clients they counsel. The interaction between caseworkers and firms could be related to their general skills in finding jobs for their clients. Caseworkers with longer tenure, for instance, might be better in placing their clients due to their own experience, but may have developed a better network with firms as well. Therefore, we include caseworker characteristics such as their age, gender, education, work experience, and experience of own unemployment as covariates. In addition, we would like to observe the intrinsic working ethos of caseworkers because it could be that more motivated caseworkers are also more likely to have time-consuming contacts with firms. If more motivated workers had contacts with employers because they considered them as effective, we would overestimate the magnitude of any potential positive effects, but the sign of the effects would still be correctly estimated.

The allocation of jobseekers to caseworkers is also most likely to be a joint determinant. Caseworkers who mainly counsel unemployed from one particular industry might be more likely to develop employer contacts within this industry, but might be also more likely to place their clients effectively since they know the industry requirements better than their colleagues who are responsible for all industries. Therefore, we control for the allocation process of unemployed to caseworkers within the employment office. We know from the questionnaire how unemployed are allocated to caseworkers, e.g. by occupation, alphabet, age, and employability.

Furthermore, we need to control for the characteristics of the unemployed persons as well. On the one hand, caseworkers differ in their personalities, but they also react to the types of unemployed and the labour market environment. If vacancies are scarce, they might put more effort into contacting firms to raise the number of vacancies. Similarly, a caseworker who

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counsels mainly individuals with good employment prospects might consider employer contacts as more, or less, important than her colleague with clients who are more difficult to place: either she does not expect any pay-off from employer contacts since her clients find jobs anyway, or she has more time resources to satisfy the needs of her employers. Therefore, we will include in the analysis a large number of characteristics of the unemployed individuals such as their age, gender, skills, education, nationality, employment history and so on.[9]

Appendix B shows all the covariates that are included in the subsequent estimations to control for the selection into treatment. Probit estimates indicate that caseworkers have a higher probability to have direct employer contacts if they are male, have longer tenure and have worked in a private placement office before. The probability of having direct employer contacts decreases the more unemployed with low employability rating or looking for part-time jobs are counselled. If the employment office is located in a medium sized municipality, the likelihood of having direct employer contacts increases.

One might still be concerned that caseworkers who invest into employer contacts might be different in unobserved characteristics from those who do not. The fact that we later find positive effects may then partly be reflecting the higher motivation or work effort of those caseworkers. Presumably, those caseworkers however would only devote their time to employer contacts if that strategy were indeed effective. In that case, we would be overestimating the true effects but the sign of the effects would be still correct.

E.3   A note on estimation

The estimator used is a matching estimator as implemented in Lechner, Miquel, and Wunsch (2004). It matches unemployed individuals whose caseworker is of type S=1 to other unemployed whose caseworker is of type S=0 but have comparable characteristics X. It then compares the employment outcomes between these two groups of matched unemployed. The advantage of matching estimators is that they are essentially nonparametric and allow for arbitrary individual effect heterogeneity.[10] It is an extension of a first-nearest neighbour propensity score matching estimator in two directions: First,

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[9]   Note that the information available in our linked data is much richer than in other studies that rely on the conditional independence assumption (e.g. Heckman and Smith, 1999; Brodaty, Crépon, and Fougère, 2001; Larsson, 2003; Dorsett, 2005).

[10] See Heckman, LaLonde and Smith (1999), for and overview over matching with a binary treatment, and Imbens (2000) and Lechner (2001) for multiple treatments. Imbens (2004) nicely summarizes that literature.

matching does not only proceed with respect to the propensity score but also incorporates additionally some other covariates deemed to be particularly important for outcomes and selection. Second, instead of using first-nearest neighbour matching, all neighbours within a pre-specified radius are used. Furthermore, they increase the matching quality by exploiting the fact that appropriately weighted regressions that use the sampling weights from matching have the so-called double robustness property. This property implies that the estimator remains consistent if the matching step is based on a correctly specified selection model *or* if the regression model is correctly specified (e.g. Rubin, 1979; Joffe, Ten Have, Feldman, and Kimmel, 2004). Moreover, this procedure should increase precision and may reduce small sample bias as well as asymptotic bias of matching estimators, see Abadie and Imbens (2006)[11] and thus increase robustness of the estimator in this dimension as well. Calculation of standard errors takes into account of the dependence coming from the fact that several individuals are counselled by the same caseworker. The actual matching protocol is presented in Appendix B.

F   Empirical results

As discussed above, the caseworker to employer interaction could influence employment probabilities by providing caseworkers with important insights on the current developments in the local labour market or job-openings. The estimated treatment effects are depicted in Figure 5. Point estimates above zero indicate that direct employer contacts increase employment outcomes in month τ after registration. Dots indicate a significance level below 5%, triangles below 10% (and above 5%). The graph shows that from the second month after registration, the effects are positive. Six months after registration, the employment probability of unemployed individuals whose caseworkers had direct employer contacts are on average 3%-points higher as unemployed without such caseworkers. These effects are remarkably stable over time, which suggests that maintaining a direct network with local employers can be important. They are not significant around the twelfth and twenty-fourth months after registration. This cyclical pattern, which has already been observed in Figures 2 and 4 stems from a few caseworkers with large inflows in the seasonal sectors construction and tourism. A further discussion in Appendix C shows that if we eliminate these caseworkers the cycles vanish but the main effects remain.

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[11] The results of Abadie and Imbens (2006) do not apply directly to propensity score matching, but since we also match on additional variables there are some similarities with the estimators they consider.

Figure 5: Treatment effect of having a caseworker with direct employer contacts
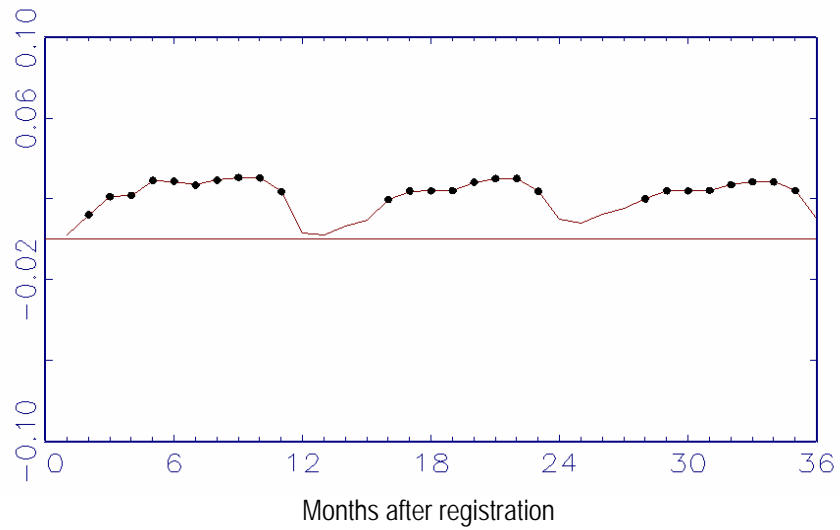
Months after registration

Note: Average treatment effect on the treated (ATET) for the subsample of unemployed age 24 to 55 years. Abscissa:
        Months after registration of unemployment. Ordinate: Treatment effect on employment probability in percentage points.
        Dots indicate significance at 5% level, triangles significance at 10% level.

We also examined the effects for different subgroups to analyze possible effect heterogeneity. Figure 6 shows the employment rates for four subgroups: young unemployed (< 24 years), older unemployed (> 55 years) and unemployed with high and low qualification. The employment rates are given separately for treated and controls, analogously to Figure 4. Figure 7 below gives the estimated treatment effects.

Figure 6: Employment rates for four different subpopulations

Figure 6.1: Younger than 24 years

Figure 6.2: Older than 55 years

Figure 6.3: Qualified unemployed

Figure 6.4: Unqualified unemployed
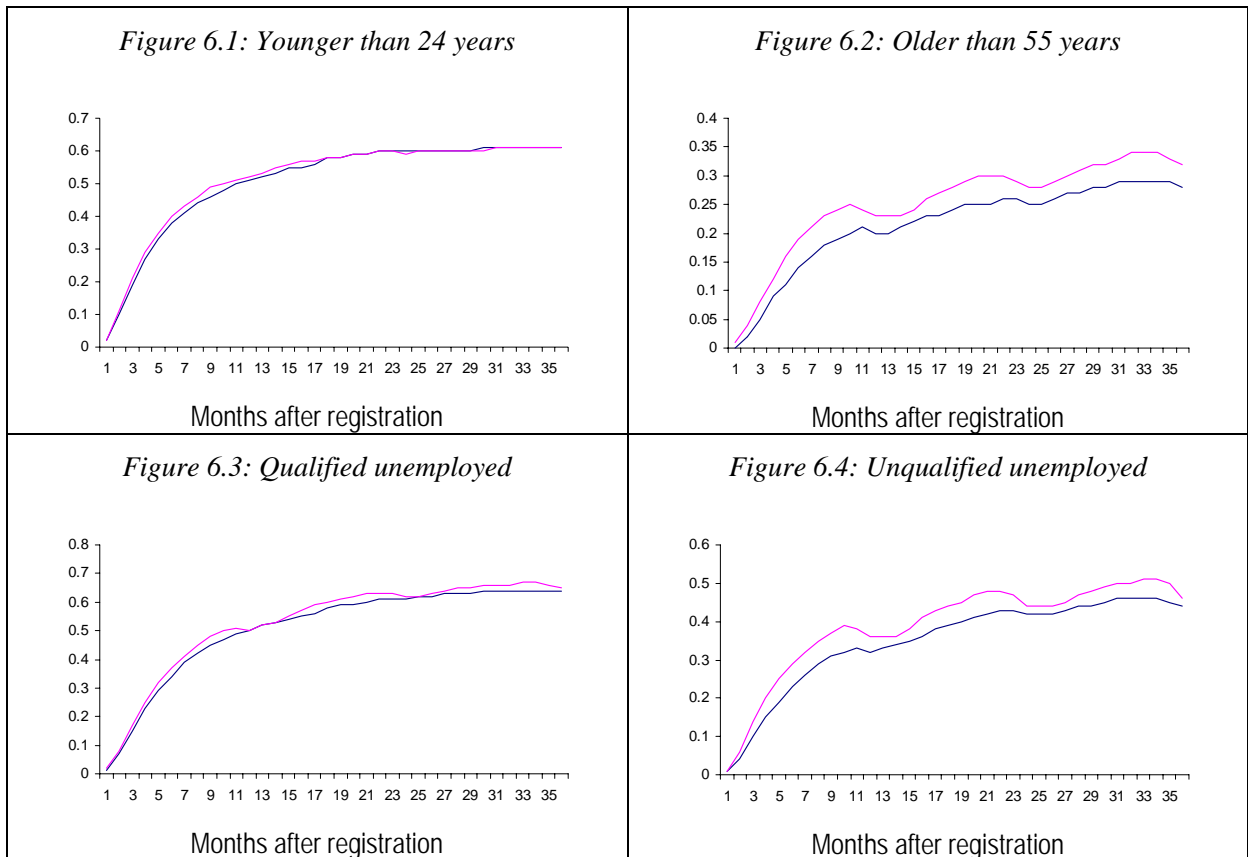
Note: Abscissa: Months after registration of unemployment. Ordinate: Employment probabilities in percentage points.

Figure 7 indicates that unqualified unemployed persons benefited the most from having caseworkers with direct employer contacts. There is also evidence that qualified and older unemployed benefited as well. No significant effects can be found for the younger unemployed.

There is also other evidence that confirms our finding that having networks with employers increases employment chances. We asked the caseworkers how much of their time they devoted to counselling, administrative tasks, and employer contacts. Caseworkers who devoted a larger share of their resources to employers were more likely to consider employers as an important source of information.[12] Unemployed persons had higher reintegration rates if their caseworkers devoted more time to employer contacts. The estimated treatment effects are depicted in Appendix C.
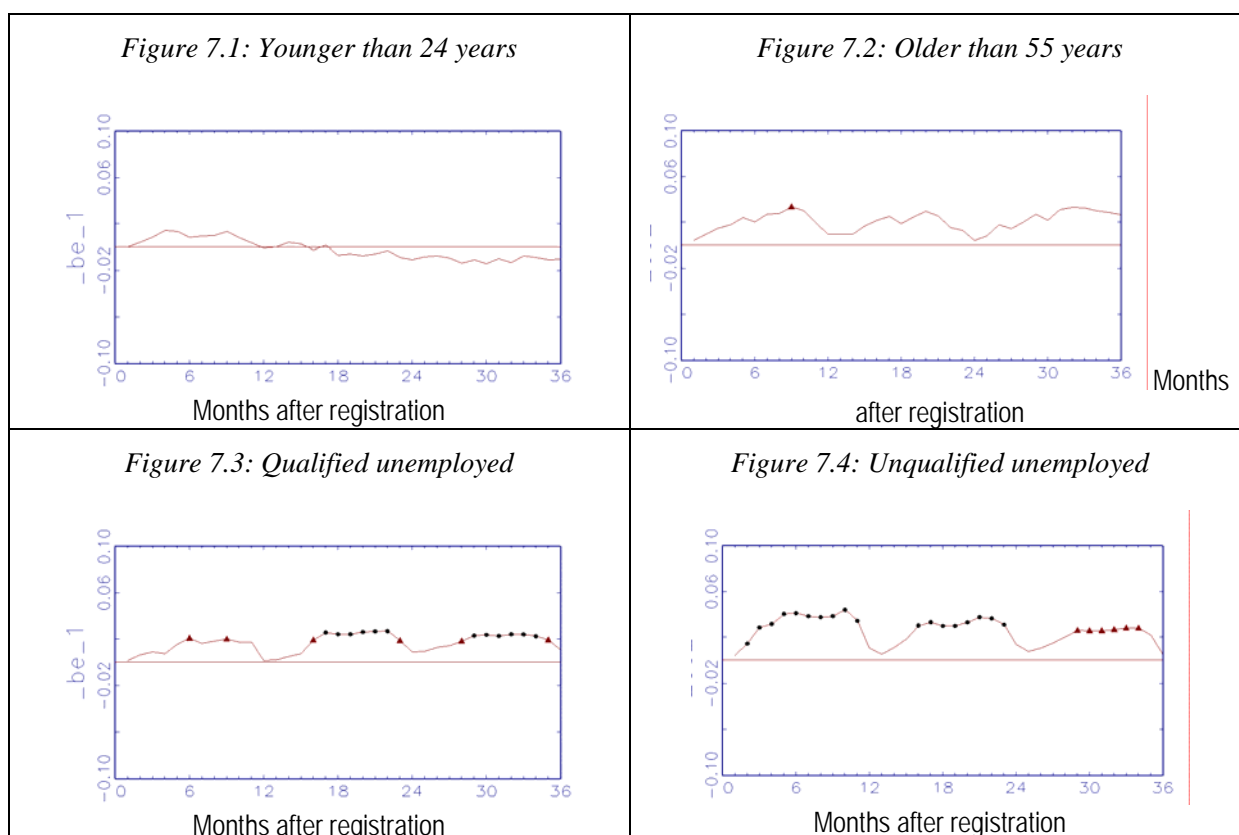
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[12] The correlation between the two answers is 41%.

Figure 7: Treatment effect of having a caseworker with direct employer contacts, by subgroups

Figure 7.1: Younger than 24 years

Figure 7.2: Older than 55 years

Figure 7.3: Qualified unemployed

Figure 7.4: Unqualified unemployed

Note: Average treatment effect on the treated (ATET) for the subsample of unemployed age 24 to 55 years. Abscissa: Months after registration of unemployment. Ordinate: Treatment effect on employment probability in percentage points. Dots indicate significance at 5% level, triangles significance at 10% level.

We also analysed whether certain aspects of the form of the employer contacts matter, but the estimates turned out to be too imprecise to draw firm conclusions. One of these aspects was whether caseworkers tended to place unemployed via directive or whether they preferred personal contacts to the employer. Furthermore, we asked caseworkers whether they tended to aim for rather very many job placements or a few, well selected job placements. The questionnaire also asked how caseworkers maintained their networks with employers, i.e. whether they tended to expand the network by contacting additional firms to persuade them to post vacancies or whether they preferred to maintain and strengthen the network with firms that regularly had posted vacancies. Again, no firm conclusions emerged from these estimates.

G   Conclusions

Caseworkers in regional employment offices provide several services that help to match unemployed persons to employers and thereby ease the problem of high unemployment. The

effectiveness of services such as counselling and placements may depend on the existence of direct networks to local firms. Employer contacts could be relevant since they transmit informal knowledge on potential vacancies and current labour market developments. On the other hand, they consume resources that could have been used otherwise. Whether there is a pay-off to direct employer contacts in terms of re-integration rates of unemployed thus remains an empirical question. A pure descriptive or correlation analysis between groups of unemployed and caseworkers with and without more intense employer contacts does not provide sufficient insights due to the selection bias problem, i.e. the fact that these two groups differ by other characteristics that are correlated with labour market success and the intensity of employer contacts as well. Instead, we seek to estimate *causal* effects of the employer contacts on the employment outcomes of their clients. We apply microeconometric techniques from the treatment evaluation literature. In particular, we argue that we are able to observe all important variables that *jointly* influenced labour market outcomes of the unemployed and affected whether an unemployed person faced a caseworker with more or less direct contacts to employers. Using this strategy, we estimate the treatment effect of a direct employer network on employment chances of their unemployed. This identification strategy is made possible through a unique and very detailed data set collected for this study. It consists of administrative data on unemployed persons from several sources combined with caseworker characteristics retrieved from an extensive survey. These data allow us to control for characteristics of the unemployed, of the caseworker, of the employment office, as well as for local labour market conditions. We apply matching on the propensity score for estimating the causal effects of employer contacts and find positive effects: Having direct contacts to employers increases the employment probability of their unemployed individuals by about 3%-points. In particular, the subgroup of less skilled unemployed benefits most if their caseworkers have a direct network to employers. These positive effects on employment rates persist for at least three years after registering at the regional employment office and therefore do not seem to be the result of pushing unemployed into unstable jobs.

Overall, these results indicate that contacts to employers can be helpful to increase the employment chances. Due to saturation effects and crowding out of jobseekers who are not registered at an employment office (such as those who are not entitled to unemployment benefits and often not register themselves anymore), the overall effect may be smaller than 3%-points if all caseworkers were to invest into direct networks with firms. However, the effects seem to be

sufficiently large and stable to encourage employment offices to let all their caseworkers engage in building direct relationships to firms.

Appendix A: Further details on the matching estimator

The following table describes some of the details for the implementation of the matching estimator. It is presented in a more general way to show the flexibility of the method for evaluating multiple treatment states. In our application the treatment variable S however takes only two different values $S \in \{0,1\}$, i.e. the caseworker has answered to have direct employer contacts or has not. The matching estimator is thus performed only for $m=1$ and $l=0$ in the subsequent notation.

Matching is done on the propensity score and additional covariates $\tilde{x}$, which are included to ensure a high match quality with respect to these critical variables suspected to have a large effect an selection and outcomes. In this application we include gender in $\tilde{x}$. The variance estimation is based on Lechner (2001) who suggests estimating the asymptotic standard errors for $\hat{\theta}_N^{m,l}$ given the estimated weights. The adjustment for clustered standard errors, i.e. for the fact that the jobseekers of the same caseworker cannot be considered independent observations, is discussed below.

Table 2: A matching protocol for the estimation of ATET

Step 1	Estimate a probit model to obtain the choice probabilities: $\hat{P}(X_i)$
Step 2	Restrict sample to common support: Delete all observations with probabilities larger than the smallest maximum and smaller than the largest minimum of all subsamples defined by S.
Step 3	*Estimate the respective (counterfactual) expectations of the outcome variables.* For a given value of m and l the following steps are performed: **Standard propensity score matching step (binary treatments)** a-1) Choose one observation in the subsample defined by participation in m and delete it from that pool. b-1) Find an observation in the subsample of participants in l that is as close as possible to the one chosen in step a-1) in terms of $\left[\hat{P}(x), \tilde{x} \right]$. 'Closeness' is based on the Mahalanobis distance. Do not remove that observation, so that it can be used again. c-1) Repeat a-1) and b-1) until no participant in *m* is left. **Exploit thick support of X to increase efficiency (radius matching step)** d-1) Compute the maximum distance (d) obtained for any comparison between treated and matched comparison observations. a-2) Repeat a-1). b-2) Repeat b-1). If possible, find other observations in the subsample of participants in *l* that are at least as close as $R \cdot d$ to the one chosen in step a-2) (to gain efficiency); we choose R to be 90%. Do not remove these observations, so that they can be used again. Compute weights for all chosen comparisons observations that are proportional to their distance (calculated in b-1). Normalise the weights such that they add to one. c-2) Repeat a-2) and b-2) until no participant in *m* is left. d-2) For any potential comparison observation, add the weights obtained in a-2) and b-2). **Exploit double robustness properties to adjust small mismatches by regression** e) Using the weights $w(x_i)$ obtained in d-2), run a weighted linear regression of the outcome variable on the variables used to define the distance (and an intercept). f-1) Predict the potential outcome $y^l(x_i)$ of every observation in *l* and *m* using the coefficients of this regression: $\hat{y}^l(x_i)$ f-2) Estimate the bias of the matching estimator for $E(Y^l \mid S = m)$ as: $\sum_{i=1}^{N} \frac{1(S=m)\hat{y}^l(x_i)}{N^m} - \frac{1(S=l)w_i\hat{y}^l(x_i)}{N^m}$. g) Using the weights obtained by weighted matching in d-2), compute a weighted mean of the outcome variables in *l*. Subtract the bias from this estimate. **Final estimate** h) Compute the treatment effect by subtracting the weighted mean of the outcomes in the comparison group (*l*) from the weighted mean in the treatment group (*m*).

Since the treatment variable is measured on the level of the caseworker but the outcome variable is measured on the level of the jobseeker, for the *computation of the standard errors*, we have to take into account that the outcomes across the jobseekers counselled by the same caseworker may be correlated. The calculation of the clustered standard errors is described in the following:

The matching estimator of the potential outcome has the general form:

$$\hat{Y}^l = \sum_{i=1}^{N} \underline{1}(s_i = l)w_i^l y_i \, ,$$

where $i = 1,...,N$ indexes the jobseekers and where the sum of the weights is one:

$$\sum_{i=1}^{N} \underline{1}(s_i = l)w_i^l = 1 \, .$$

To introduce the cluster structure we can re-write the matching estimator using a double sum

$$\hat{Y}^l = \sum_{j=1}^{J} \sum_{i=1}^{N} \underline{1}(s_i = l)\underline{1}(C_i = j)w_i^l y_i \, ,$$

where i indexes jobseekers and $j = 1,...,J$ indexes the J caseworkers. The variable $C_i \in \{1,..,J\}$ gives the number of the caseworker who is in charge of jobseeker i. The number of clients of caseworker j is thus given as

$$N^j := \sum_{i=1}^{N} \underline{1}(s_i = l)\underline{1}(C_i = j)w_i^l \, .$$

We can compute the variance allowing that the outcomes across jobseekers counselled by the same caseworker are dependent, but assume that observations across caseworkers are independent:

$$Var(\hat{Y}^l) = \sum_{j=1}^{J} Var\left[\sum_{i=1}^{N} \underline{1}(s_i = l)\underline{1}(C_i = j)w_i^l y_i \right]$$

$$= \sum_{j=1}^{J} N^{j2} Var\left[\frac{1}{N^j} \sum_{i=1}^{N} \underline{1}(s_i = l)\underline{1}(C_i = j)w_i^l y_i \right] .$$

Hence, the variance is obtained by summing over the caseworkers the variance of the expression

A_j, which is defined as

$$A_j = \frac{1}{N^j} \sum_{i=1}^{N} \underline{1}(s_i = l)\underline{1}(C_i = j)w_i^l y_i.$$

Since the A_j are independent across the caseworkers, we can estimate $Var\left(A_j\right)$ as

$$\widehat{Var}\left(A\right) = \frac{1}{J}\sum_{j=1}^{J}\left[A_j - \frac{1}{J}\sum_{j=1}^{J}A_j\right]^2,$$

which we now plug into the formula for $Var(\hat{Y}^l)$.

Appendix B: Results of the probit estimation

Table 3: Probit estimates for the main population

Binary dependent variable: having direct contact to employers N=101304		coefficient	std error	t-stat
Constant		0.26	0.41	0.64
Characteristics of the caseworker:				
Age		0.00	0.00	0.66
Female	*	-0.16	0.08	1.89
Tenure in employment office (in years)	**	0.03	0.01	2.35
Previous experience in municipality office (dummy)		-0.17	0.15	1.14
Previous experience in private placement office (dummy)	***	0.32	0.11	3.01
Own experience of unemployment (dummy)		0.04	0.08	0.44
Indicator for missing caseworker characteristics		-0.02	0.26	0.07
Education: above vocational training		0.14	0.10	1.41
Education: tertiary track (university or polytechnic)		-0.09	0.11	0.77
Special vocational training of caseworker (Eidg. Fachaus.)	*	0.18	0.10	1.72
Allocation of unemployed to caseworkers (reference: at random):				
By industry	**	0.16	0.08	1.96
By occupation		0.00	0.08	0.02
By age		-0.08	0.26	0.31
By employability		0.22	0.17	1.28
By region	*	0.23	0.13	1.79
Other		-0.05	0.15	0.32
Characteristics of the unemployed person:				
Female		-0.03	0.02	1.38
Age/100		-0.01	0.07	0.10
Age/100 squared		0.09	0.81	0.11
Foreigner with permanent work permit		-0.02	0.03	0.61
Foreigner with yearly work permit		0.00	0.03	0.08
Male and foreigner with permanent work permit		0.00	0.03	0.13
Male and foreigner with yearly work permit		-0.04	0.03	1.36
Mother tongue French		0.02	0.06	0.27
Mother tongue Italian		0.03	0.05	0.58
Mother tongue other than German, French or Italian		0.07	0.07	0.94
Sum of foreign languages	**	-0.03	0.01	2.41
Foreign language: other Swiss language	***	-0.09	0.03	3.18
Foreign language: English, Spanish or Portuguese		-0.03	0.03	1.06
Excellent language skills in other Swiss language		0.00	0.03	0.15
Good language skills in other Swiss language		0.01	0.04	0.12
Excellent language skills in English, Spanish or Portuguese		-0.03	0.02	1.36
Good language skills in English, Spanish or Portuguese	**	-0.05	0.02	2.47
Widowed		-0.05	0.05	1.06
Divorced		-0.02	0.02	1.24
Single		0.00	0.02	0.25

Number of dependents		0.01	0.06	0.21
Earnings in last job /100		0.07	0.05	1.60
Education missing		-0.01	0.06	0.17
Education less than eight year		0.00	0.07	0.04
Education 8-11 year		0.00	0.04	0.07
Education secondary track		0.02	0.03	0.52
Qualification: unskilled		0.00	0.03	0.02
Qualification: semiskilled	***	0.09	0.04	2.69
Qualification: skilled without degree		-0.02	0.04	0.35
Employability low	***	-0.22	0.08	2.72
Employability medium		-0.05	0.06	0.83
Job position: self-employed or management		0.00	0.03	0.05
Job position: assistant		0.05	0.03	1.49
Job position: apprentice		0.07	0.06	1.15
Job position: pupil		-0.05	0.15	0.35
Job position:student		0.03	0.07	0.47
Part-time	**	-0.05	0.02	2.11
Number of unemployment spells in the last 2 years	***	0.07	0.01	5.15
Number of unemployment spells in the last 2 years missing		0.03	0.04	0.80
Number of months unemployed in last 2 years		-0.01	0.01	1.49
First month in AHV (= pension data) being nonzero		-0.07	0.04	1.49
First month in AHV interacted with being young & foreigner		0.02	0.04	0.50
First month in AHV interacted with being young		0.02	0.04	0.45
First month in AHV interacted with being old & foreigner		0.03	0.04	0.69
First month in AHV interacted with being old		0.02	0.04	0.54
Average wage in last 10 years	**	-0.08	0.03	2.43
Total number of months employed in last 10 years	**	0.10	0.05	1.99
Number of employment spells in last 5 years	**	0.13	0.06	2.11
Indicator for having been out of labour force in last 5 years		-0.01	0.02	0.34
Fraction of time employed in last years		-0.06	0.06	1.04
Fraction of time unemployed share in last years	*	0.10	0.06	1.73
Occupation (reference: other)				
Food industry	*	0.11	0.06	1.91
Wood and paper		0.03	0.06	0.53
Chemicals and metal	*	0.06	0.04	1.77
Textiles and leather		0.03	0.08	0.37
News		-0.01	0.04	0.33
Books		0.05	0.03	1.49
Health		-0.11	0.07	1.57
Construction	**	0.11	0.05	2.34
Restaurants		0.06	0.05	1.16
Office	**	-0.10	0.04	2.25
Retail trade		0.00	0.05	0.07
Entrepreneurs		-0.03	0.05	0.71
Public services		0.03	0.04	0.65
Engineering		0.07	0.06	1.35
Academics		0.01	0.05	0.21
Arts	**	0.13	0.06	2.18
Industrial sector (reference processing industry)				
Agriculture and forestry		0.06	0.07	0.79
Construction	*	0.07	0.04	1.81

Tourism		0.00	0.05	0.01
Services	*	-0.04	0.02	1.81
Public		-0.03	0.05	0.73
Other		-0.06	0.05	1.34
Dummy: Looking for the same job again		0.02	0.02	1.05
Dummy: No contribution to unemployment insurance		-0.04	0.03	1.43
Number of months contribution to unemployment insurance		-0.01	0.01	0.87
Percent of full-time equivalent in last occupation being zero	*	-0.04	0.02	1.72
Local labour market characteristics				
French speaking employment office		0.22	0.14	1.54
Italian speaking employment office		-0.06	0.21	0.27
Unemployment rate in industry		0.03	0.06	0.56
Unemployment rate of canton		-0.07	0.07	1.06
Size of municipality ≥200000 inhabitants		0.11	0.17	0.67
≥150000	***	-0.45	0.16	2.88
≥75000	***	-0.51	0.18	2.89
≥30000		-0.02	0.10	0.17
≥15000		-0.04	0.08	0.46
≥8000		-0.06	0.07	0.89
≥3000		0.02	0.06	0.27
≥2000		0.00	0.05	0.10
GDP of canton per capita		-1.08	0.68	1.58

Appendix C: Further estimation results

C.1   Time resources for employer contacts

To assess the reliability of our results we compare them with the results emanating from a related question of the survey, where caseworkers were asked:

How much of your working time did you devote to the following activities? (sum=100%):

counselling:	_____ %
administrative tasks:	_____ %
contacts with employers:	_____ %

1395 caseworkers answered this question. On average, they devoted 60% of their time to counselling, 32% to administrative tasks, and 8% to contacts with employers.

21.4% of the caseworkers devoted no time to employer contacts, 30.8% used between 0 and at most 5% of their time for employer contacts and 32.2% between 5 and 10% of their time. Another 10.8% of the caseworkers invested up to 20% of their time and the remaining 4.8% of caseworkers invested up to 80% of their time. Note that a staff member of the employment office who uses 100% of his time for employer contacts would not have been included in our survey since we surveyed only caseworkers who also counselled unemployed persons. Hence, the above question may not correctly capture the total resources an employment office invested into employer contacts (since staff specializing only on employer contacts would be omitted), but on a caseworker level it distinguishes between caseworkers with few or zero employer contacts and caseworkers who invest a larger share of their time to this.

The correlation between time devoted to employer contacts obtained from the above question with the binary indicator of whether direct contacts to employers have been a main source of information is 0.41. Hence, both questions are clearly related and measure aspects of the existence of a direct network to firms. Whereas the question on information sources refers more to the information actually obtained, i.e. to the benefits the caseworker derived from this investment, the question above refers more to the total time invested into employers, which

would also include services provided to the employers.[13]

The following figure shows the treatment effect of having a caseworker who devotes at least 10% of his time to employer contacts compared to having a caseworker who devotes no time at all to it.[14] The estimates are based on propensity score matching with the same covariates as in Appendix B. The results suggest that job seekers enjoy higher reintegration chances if their caseworkers devote a larger share of their working time to networks with firms.

Figure 8: Treatment effect of having a caseworker who devotes at least 10% of time to employer contacts
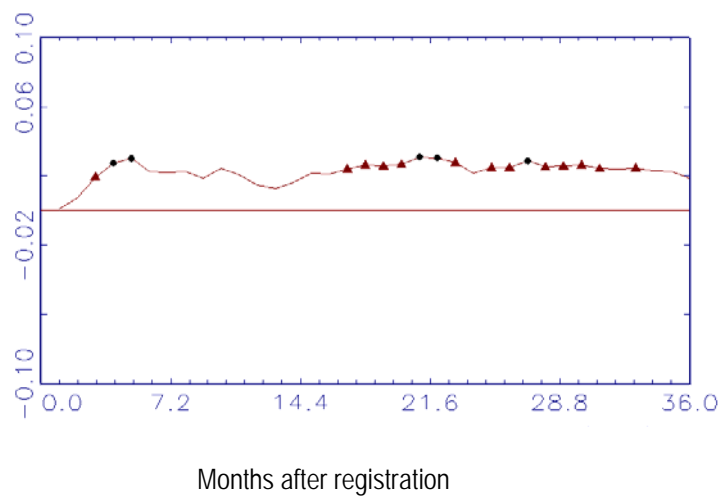
Months after registration

Note: Average treatment effect on the treated (ATET) for the subsample of unemployed age 24 to 55 years. Treatment is defined as devoting 10% or more of time to employer contacts. The non-treatment is defined as investing no time at all in employer contacts. Abscissa: Months after registration of unemployment. Ordinate: Treatment effect on employment probability in percentage points. Dots indicate significance at 5% level, triangles significance at 10% level.

C.2   Cyclical pattern of treatment effects

The Figures 2, 4, and 5 exhibited some cyclical patterns that were most pronounced in the treatment group. As can be seen from Figure 4, the employment rates decreased in months 12, 24, and 36 for the treatment group, whereas the employment rates increase monotonically in the control group. Some further descriptive analysis indicated that this pattern is driven by a few caseworkers who experienced large inflows of new unemployed in January, November, and

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[13] Some employment offices have enacted the philosophy that they should serve not only the unemployed but also the firms in matters of unemployment law, lay offs etc. Here caseworkers may provide services to firms that do not lead to information gains or an increase in the number of vacancies.

[14] This corresponds to a transition from the lowest to the highest quintile.

December 2003 from the sectors construction, tourism, and services. Many of them were situated in the canton Valais, which has a large tourism sector. In principle, by controlling for month of registration, industry, and region, the matching estimator should take care of these differences, but in finite samples the balancing may not always be achieved in all dimensions, e.g. not for the interaction of month of registration by industry and by region. Therefore, we consider also results within subgroups defined by observed characteristics.

If we exclude the inflows of the months January and December 2003 from our sample, we obtain the estimates presented in Figure 9 that still display a cyclical pattern, which however is much less pronounced.

Figure 9: Treatment effect of employer contacts (without inflows from January and December 2003)
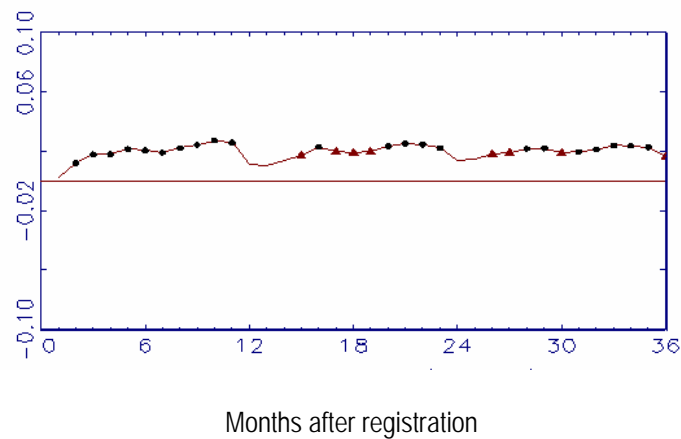
Months after registration

Note: Average treatment effect on the treated (ATET) for the subsample of unemployed age 24 to 55 years without inflows from January and December 2003. Abscissa: Months after registration of unemployment. Ordinate: Treatment effect on employment probability in percentage points. Dots indicate significance at 5% level, triangles significance at 10% level.

Since the cyclical patterns in the raw data are generated by a rather small number of caseworkers, the Figures 10 show the results after dropping the outlying caseworkers. An outlier is defined as having an unusual high share of clients who are employed in the eleventh month after their registration and unemployed in the twelfth month, which is an indication of a large fraction of clients susceptible to seasonality. In the left graph we exclude the 25 caseworkers with the highest share and in the right graph we exclude 32 caseworkers who have a share of seasonal clients above 18%, which corresponds to the 97.5 quantile. The latter implies that 4268 unemployed are excluded, of whom 86% belonged to the treatment group, and 78% are from the canton Valais. The cyclical pattern vanishes, but the positive effects remain, although less precise due to a reduced sample size.
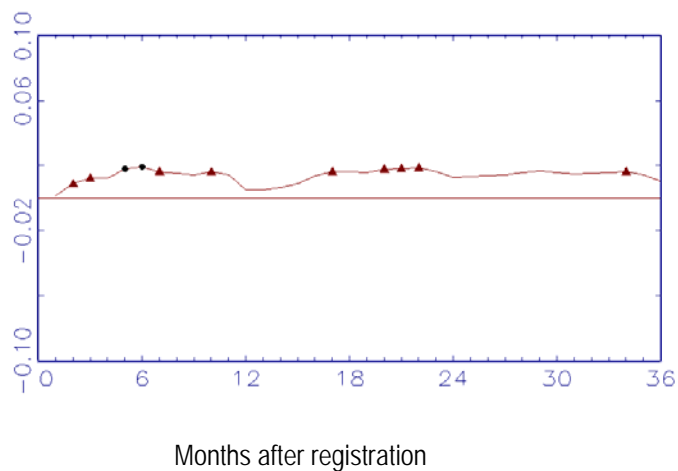
Figure 10: Treatment effect of employer contacts (without outliers)

Months after registration

Figure 11 shows the estimates excluding the canton Valais, which leads to a loss of 5760 unemployed. The cyclical pattern is less pronounced but effects are still positive, albeit less precisely estimated.

Figure 11: Treatment effect of direct employer contacts (without the canton Valais)

Months after registration

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