Technical efficiency of Swedish employment offices

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ARTICLE INFO

ABSTRACT

This paper studies technical efficiency for Swedish employment offices between 2004 and 2010. Efficiency is computed using a semi-dynamic DEA-framework. On the input side we include a measure of input quality and we also control for services that are carried out by private contractors. On the output side we are using both intermediate and final outputs. The motivation for using an intermediate output is to take into account the fact that employment offices might have strengthen the possibility for unemployed individuals that remain unemployed to get a job in the forthcoming year. The study identifies an average yearly inefficiency between 7 and 10 percent. It is also observed that the inefficiency is unevenly distributed. To make employment offices more efficient this uneven distribution needs to be considered, otherwise efforts to improve efficiency might instead result in increased inefficiency.

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1. Introduction

A well-functioning labour market is one of the most important features of an economy. The public employment offices (PEO) play a crucial role in facilitating the match between job-seekers and employers. The question of efficiency within the PEO's is therefore of importance for how the matching between job-seekers and vacancies functions and in the end also how well the labour market is functioning. The efficiency aspect of PEO's has been on the political and research agenda in Sweden since the early 1990's. However the result from previous studies varies quite a lot. This motivates a retake on efficiency aspects of Swedish PEO's. The model and the definition of inputs and outputs have in this study been developed in close collaboration with the Swedish employment service (PES) that is in charge of the PEO's. The second motivation for studying Swedish PEO is availability of rich high quality data, something that is required for studying efficiency with a nonparametric method. This paper develops a model to measure technical efficiency for Swedish employment offices over the period 2004–2010 using a Data Envelopment Analysis (DEA) framework. In times when budget cuts are common it is important that authorities and firms put effort in improving efficiency where it is possible and that an eager to impose cuts induces new inefficiency due to management decisions. The DEA model is a model that makes it possible to, on an individual employment office level, determine the presence and the amount of inefficiency within each employment office. This information can help management to improve the precision for policies to improve efficiency.

There are a number of studies that have dealt with the problem of measuring efficiency among public employment offices, which are all surveyed in Section 3, however there have, to our knowledge, been little policy impacts from these studies. One problem can have been that the PEO's have not considered the models as relevant. To avoid this type of problem the development of the model used in this paper has been closely monitored by a reference group from the Swedish employment service with the objective to develop a model that even from the point of view of the Swedish employment service is a realistic and acceptable representation of the production of employment office services.

The result of our study reveals a quite homogeneous organisation in terms of efficiency. The average inefficiency is around 8 percent. However, as we also demonstrate there are employment offices that are fully efficient as well as employment offices that have inefficiency that well exceeded the average. The recommendation we put forward based on our research is that there are efficiency gains to be made. The usual method to increase efficiency in the public sector of uniform cuts is not a way to make Swedish employment offices more efficient. Moreover, using this uniform cut methodology will likely induce inefficiency among previously efficient units. Instead, as our results show cuts should only be made for employment offices that show inefficiency. To be able to do so the employment office needs to incorporate a model, like the DEA model proposed here, among its auditing tools of the local employment offices.

The outline of this paper is as follows: in Section 2 we give a presentation of the Swedish Public Employment Service and its objectives. In Section 3 previous research is surveyed. In Section 4

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we present our model. We will use a framework consisting of both final and intermediate outputs. The use of intermediate output is motivated by the fact that it could take a substantial time to prepare an unemployed individual for the labour market and that all steps taken by the employment office puts the unemployed one step closer to the core labour market. We also use a quality adjustment for inputs since there is heterogeneity among the job-seekers with respect to local employment office. We assume here that the employment office has to use more efforts to find a job for an unemployed with less favourable characteristics than for an unemployed with favourable such. In Section 5 the data is presented. Information on both employment offices and individuals is used in the model and data has been delivered both from the Swedish public employment service and Statistics Sweden. In Section 6 the results are presented. The analysis shows quite small average inefficiency. However, investigating efficiency on an individual employment office level revels that some employment offices are efficient, i.e. has no possibility to increase production without additional inputs, and some employment offices that has inefficiency well above average. In Section 7 conclusion and concluding remarks are stated.

2. The Swedish public employment service

The Public Employment Service (PES) in Sweden is responsible for public employment services and the publically financed national labour market programs. By construction of the cash benefits rules, in which its stated that unemployed has to be registered at the PES to be eligible for the benefit, the coverage rate for unemployment is generally high. That is, the likelihood that an unemployed individual is registered at the PES is high. The overall aim of the PES is to work for an efficient matching of job-seekers and vacancies, give priority to persons a long way from the labour market and through job preparation and employment-generating measures support those job-seekers who have difficulties getting into the labour market. Finally, the PES should work for increasing the labour force participation. Much of the practical implementation is done by the Public Employment Offices (PEO), located all around Sweden.

The head office of the PES is located in Stockholm and has the function of the previous national labour market board. Further, for the period of interest Sweden was divided into 68 different labour market areas[1] in which some resource allocation take place. Even if there no longer exist a regional level some areas are organised so that management is located at one of the local employment offices within an area consisting of several local offices. The main outcome for the employment services is that unemployed individuals leave unemployment for unsubsidised full-time job in the open labour market. However, transition out of employment into regular education is also viewed as a successful outcome. In Sweden, for the period of interest, there were between 198 and 220 employment offices and the total number of staff amounted to almost 11 000 full-time equivalents. In 2010 about 550 000 vacancies were reported to the Swedish Public Employment Service and 430 000 registered job-seekers got a new job. The allocation of recourses to the employment offices is determined by the central allocation system constructed by the Swedish Public Employment Service. The Public Employment Service has a central position in the Swedish labour market, especially since it is not possible to receive unemployment benefits without being registered at an employment office. This implies that it is possible to retrieve good quality data for efficiency studies. More important, since the Swedish

employment office plays such a large role on the Swedish labour market, to improve knowledge about efficiency and inefficiency can have large implications for the total cost of labour market policies.

3. Previous studies

Even if it is reasonable to assume that public employment services are quite similar between countries the model specifications in the previous literature differ quite a lot. Some of these differences can be explained by reference to the method used. Early studies use regression based techniques that only handle one input *or* one output as the dependent variable. However, also in more recent studies there are differences, mostly with respect to the level of aggregation. Table 1 gives a summary of previous studies regarding methodological, pacification and result aspects.

3.1. Studies outside of Sweden

One of the first efficiency studies of employment offices is Cavin and Stafford [5]. 51 American employment offices were studied between 1977 and 1982. The results, using a corrected OLS model, showed large differences in efficiency between the studied employment offices. By comparing with a reference employment office [5] could show that the most inefficient had a cost saving potential of 27 percent and the most efficient PEO was 38 percent more efficient than the reference office. Sheldon [20], Vassiliev et al. [23] and Ramirez and Vassiliev (2007) [19] all study the efficiency of employment offices in Switzerland using different methods. The results show average inefficiencies between 15 and 24 percent. One interesting aspect of Sheldon [20] is that quality adjustment is made on the output side. This is done by taking quality of the job into consideration. However, there is however no discussion on the consequences for the efficiency measures of this adjustment. Torgersen et al. [21] and Torp et al. [22] are two studies that use the DEA method on data for Norway. Data for 1990 and 1998 are used. The results show average inefficiencies between 10 and 13 percent. Another study by Kthiri et al. [13] investigate efficiency for employment offices in Tunisia using the DEA method. They find average inefficiencies between 16 and 21 percent during the time period 2006–2008. In the study by Kthiri et al. [13] the productivity for employment offices in Tunisia during the same period is investigated and the authors find a negative productivity development.

3.2. Research on Swedish employment office efficiency

The first internationally published study of technical efficiency for Swedish employment offices is [1] who in similarity with most studies from outside Sweden use a DEA model. The authors use data from 1993 and study the efficiency for 297 employment offices. The inputs used were; staff (divided into assistants, placement officers and counsellors), office space and computer grid connections. The outputs used were; jobs in the open market, jobs with wage subsidies or sheltered employment and placements in labour market policy measures. The study used two attribute measures to take differences in labour market conditions between different employment offices into account. These attribute measures were average unemployment duration and average vacancy duration. The results showed an average inefficiency of about 30 percent and the efficiency scores varied between 0.28 and 1. The results also revealed that the attributes only could explain a small part of the inefficiencies. The same data was used by Månsson [15] who focuses on scale efficiency. In that study the author shows that technical as well as scale efficiency changes depending on whether these quality attribute were included or not. If the quality attributes

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[1] Today there are 54 labour market areas.