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PRIVATE DECEPTION AND THE RISE OF PUBLIC EMPLOYMENT OFFICES
IN THE UNITED STATES, 1890 - 1930

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ABSTRACT

At the turn of the 20th century, state and local governments in the United States began to establish public employment offices. These non-profit governmental organizations match job seekers and businesses, one of their main objectives being to protect job seekers from fraudulent activities by private employment agencies. In this paper, I propose a theory that describes the malpractices of private employment agencies as a situation of asymmetric information between job seekers and the private employment agencies, which could cause adverse selection in the labor exchange market. The establishment of public employment offices can be viewed as a policy device to eliminate low-quality private employment agencies committing malpractices. I show that public employment offices helped lower the degree of asymmetric information. The majority of job seekers who used public employment offices were unskilled workers, immigrants, or migrants who were vulnerable to exploitation by private employment agencies. I also find that the role of public employment offices was especially important for interstate migrants who were most lacking in information and networks in their new environment.

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1. Introduction

Public employment offices are non-profit governmental organizations that match job seekers and employers, one of their main purposes being to reduce job search costs in order to improve job seekers' success in finding a job in the labor market.¹ As a labor market intermediary, public employment offices have existed in all the Organisation for Economic Co-operation and Development (OECD) countries since the 1950s (Walwei 1996). Recent trends in European countries have been to deregulate and privatize employment services since the 1990s (De Koning, Denys, and Walwei 1999). Interestingly, the opposite trend took place in the late 19th and early 20th centuries. The establishment of public employment offices was a widespread phenomenon in both Europe and North America during this time.² Many countries also passed laws to abolish or strictly regulate private employment agencies (Martinez 1976).³ As a result, the labor exchange market was monopolized by the central government in these countries. This institutional feature did not change until the late 1980s.

In this paper, I provide a rationale for the establishment of public employment offices and explore the relationship between the development of public employment offices and labor market conditions in the United States (US) in order to argue that public employment offices were effective in protecting job seekers, who lacked information and networks with regards to the job search process, from malpractices by private employment agencies.

In the first part of this paper, I propose a theory that exploitation by private employment

¹ There are other terminologies for public employment offices such as public employment agencies, bureaus, or services. I use public employment offices in this paper because it was the most frequently used historically.

² Public employment offices were established in Belgium in 1870, Sweden and France in 1884, Britain in 1885, the United States in 1890, and Italy and Germany in 1897 (US Employment Service 1935a).

³ The Canadian Labor Congress requested the complete abolition of private employment agencies in 1913. The German government began to abolish private employment agencies in 1922. Austria declined to issue any new licenses for new businesses after World War I. Finland, Romania, and Bulgaria completely eliminated private employment agencies by 1926.

In the early 20th century, state governments in the US (e.g., State of Washington) tried to abolish private employment agencies but the US Supreme Court ruled their attempts to be unconstitutional (Finkin and Jacoby 2005).

agencies with respect to job seekers resulted from asymmetric information between job seekers and private employment agencies. Job seekers who are uninformed cannot distinguish between high and low-quality agencies and this may cause them not to pay for high-quality services. This situation could give private employment agencies an incentive to exploit uninformed job seekers (provide low-quality services) due to their profit-maximizing behavior, thus causing adverse selection. Consequently, the market may disappear or only low-quality agencies may survive.⁴

In theory, it is possible that introducing public employment offices may eliminate low-quality agencies that exploit uninformed job seekers, increase competition in the labor exchange market, and thus improve labor market efficiency. The introduction of public employment offices may remove low-quality private employment agencies because such agencies cannot survive if uninformed job seekers can use public employment offices without charge and without the risk of malpractices, while informed job seekers can use public employment offices or high-quality private employment agencies. As a result, no one would use low-quality private employment agencies, which would cause them to disappear eventually. This implies that in the ideal case, the introduction of public employment offices could resolve the problem of adverse selection as they provide an alternative network to uninformed job seekers in the labor exchange market.

In the second part of this paper, I estimate the number of job seekers using public employment offices as a percentage of the labor force to examine the development of public employment offices in the US labor market over time. The data show that public employment offices grew substantially and became a major labor market intermediary with the US involvement in World War I. The use of public employment offices by job seekers as a percentage of the labor force was at least 4 percent between 1916 and 1940. This shows that

⁴ In this paper, private employment agencies that exploit uninformed job seekers are described as low-quality providers.

public employment offices played an important role in the labor market, and thus could affect the behavior of job seekers and private employment agencies.

In the third part of this paper, I show that the majority of public employment office users were unskilled workers, immigrants, or migrants in the early 20th century. These workers were also major clients of private employment agencies in this period. This finding suggests that these workers, who were most likely to be abused by private employment agencies, tended to utilize public employment offices for their job search.

Finally, I test the relationship between the growth of public employment offices and changes in labor market conditions which were related to asymmetric information such as proportions of immigrants, migrants, and unskilled workers. The key finding is that the relationship between the use of public employment offices and interstate migration is positive and significant in most specifications. This positive correlation may support the hypothesis that public employment offices contributed to lowering the degree of asymmetric information for interstate migrants who were most likely to lack information and networks with regards to the job search process, and thus the most vulnerable to exploitation by private employment agencies.

The rest of the paper is organized as follows. Section 2 proposes a theory of public employment offices. Section 3 provides the background of public employment offices in relation to the labor market. Section 4 presents the analysis of public employment office users. Section 5 provides the empirical work. Section 6 concludes the paper.

2. A Theory of Public Employment Offices

Economists have put forth theories about the existence of labor market intermediaries, including private employment agencies (hereafter, referred to as “private agencies”) and public

employment offices (hereafter, referred to as “public offices”), to explain why these intermediaries are necessary and how they help reduce transaction costs in the labor market (e.g., Pissarides 1979, Yavas 1994, and Kübler 1999). The fundamental intuition behind these theories is that labor market intermediaries can increase the efficiency of the job matching process by reducing transaction costs (Pissarides 1979 and Yavas 1994). It has also been suggested that coexistence of public and private agencies may improve an employer’s screening ability if there exists asymmetric information between job seekers and employers (Kübler 1999). However, these theories do not explain why public offices were introduced to restrain private agencies from malpractices with respect to job seekers. To explain this, I first describe how severe the abuses by private agencies were and why these were possible. Next I propose a theory of how public offices served to limit the incidence of malpractices by private agencies.

Around the turn of the 20th century, in response to the cries of job seekers who were exploited by private agencies, social reformers and public officials tried to find a solution, one of which was to create public offices (Bogart 1900, Sargent 1912, Leiserson 1915, and Herdon Jr. 1918).⁵ Two examples, which support the notion that public offices were established to check on the actions of private agencies, are as follows:

“[T]he establishment of free public employment offices rests on the abuses which exist in the private agencies” ... “This point is made much of by the commissioners of labor in the various states, and their reports contain many instances of the deception and fraud practiced by these agencies on the unemployed.” (Bogart 1900, p. 345)

“One of the influences making for the rapid growth in the number and importance of public employment offices has been the flagrant evils connected with these private employment

⁵ Establishment of public offices is an example of the Progressivism movement in the US in the early 20th century because they were introduced to eliminate the abuses by private agencies in response to the cries of job seekers. Thus, this governmental intervention was a kind of social justice to help disadvantaged people.

Stewart and Stewart (1933), Edwards (1935), Commons and Andrews (1936) and Martinez (1976) report that many European countries also established public offices to prevent private agencies from exploiting their clients.

agencies.” (Herdon Jr. 1918, p. 5)

The most common malpractice by private agencies was the misrepresentation of characteristics on occupations to job seekers (Commons and Andrews, 1936). Sargent (1912, p. 36) summarizes common deceitful practices by private agencies, which took advantage of uninformed job seekers in some of the following ways:

- 1) Charging a fee and failing to make any effort to find work for the applicant.*
- 2) Sending applicants where no work exists.*
- 3) Sending applicants to distant points where no work or where unsatisfactory work exists, but whence the applicants will not return on account of expense involved.*
- 4) Collusion between the agent and employer (e.g., foremen), whereby the applicant is given a few days work and then discharged to make way for new workmen, the agent and employer divide the fee.*
- 5) Charging exorbitant fees or giving jobs to such applicants as contribute extra fees, presents, etc.*
- 6) Inducing workers who have been placed, particularly girls, to leave, pay another fee, and get a better job.*

In addition to these malpractices, several private agencies were found to have actually sent women to houses of prostitution (Muhlhauser 1916).

These abuses were possible because many job seekers who used private agencies were immigrants, unskilled workers, or temporary workers (Sargent 1912, Commons and Andrews 1936, US Bureau of Labor Standards 1962, and Rosenbloom 2002). As such, they were most likely to be unfamiliar with the language and customs of the US, less educated, or had little legal recourse to recover damages from private agencies. Thus, I argue that exploitation by private agencies with respect to job seekers resulted from information asymmetry between job seekers and private agencies.

Private agencies that exploit job seekers can be described as low-quality agencies. If job

seekers cannot distinguish between high and low-quality agencies or if their search cost is very high, then high-quality agencies may have an incentive to reduce their service quality (if they stay in the market) because job seekers who use private agencies cannot pay for high-quality services. Therefore, the market would disappear or only low-quality private agencies with severe abuses would prevail in the labor exchange market, meaning adverse selection. Furthermore, if private agencies exercise a high degree of market power, then the situation would become worse.

In general, there are two ways to reduce or eliminate asymmetric information that causes adverse selection in the above situation: increase in search costs (for information gathering) by job seekers and signals by private agencies. Increase in search costs to distinguish between high and low-quality private agencies is burdensome because job seekers need to make additional effort. Moreover, it is very costly to those who are unfamiliar with new environment, less educated, or needy such as immigrants, unskilled workers, and temporary workers. Theoretically, signaling by high-quality private agencies is feasible, but there may be a possibility of a pooling equilibrium.⁶ Moreover, no evidence of signaling by high-quality private agencies has been found in the early 20th century.

The creation of public offices to provide job seekers with placement services can be seen as a mechanism to eliminate low-quality private agencies, and thus resolve adverse selection caused by asymmetric information between job seekers and private agencies in the labor exchange market. With the provision of public offices, low-quality private agencies may not survive because job seekers who are uninformed can use public offices without charge and without the risk of malpractice, while job seekers who are informed can use public offices or

⁶ For example, low-quality agencies may charge high fees to their clients to imitate high-quality service providers because high fees are usually accompanied by high-quality services. This may result in a pooling equilibrium if both high and low-quality agencies signal to clients.

high-quality private agencies.⁷ Under ideal conditions, no one would use low-quality private agencies, which would cause them to eventually disappear. This implies that the creation of public offices can resolve the problem of adverse selection as an alternative network is provided to job seekers in the labor exchange market. Therefore, the introduction of public offices may inject competition that either causes low-quality private agencies to improve or drives them out of the market. Throughout this process, high-quality private agencies survive, and without monopolization of the labor exchange market by the government, both public and private agencies can exist together to improve the efficiency of the labor market.

Besides the introduction of public offices, state governments began to regulate private agencies even before public offices were established (see, for example, Bogart 1900). Some state or municipal governments required private agencies to pay license fees, deposit bonds, or both. In addition, several local governments imposed fines on private agencies or shut down their businesses when violation of the regulations was investigated.

Baldwin (1951) and the US Bureau of Labor Standards (1962) insisted that before World War I, public offices did not function well and only restrictions on private agencies were effective in the labor exchange market. However, Devine (1909), Sargent (1912), and Leiserson (1915) argued that restrictions on private agencies were ineffective and the creation of public offices lessened the degree of malpractices, thus contributing to the protection of job seekers. It is an open question as to which institution worked better to keep private agencies in check since there is little evidence of specific statistics or detailed reports to compare these two institutions.⁸

⁷ An implicit assumption is that public offices are credibly of high-quality because services are publicly provided. Even if job seekers are not sure about the credibility of public offices, they could provide an effective means to solve the information/quality problem faced by job seekers because services by public offices are free.

⁸ Fee and bond regulations could be effective because they are likely to raise costs by more for low-quality than high-quality agencies. But if there are no effective means of enforcement, then such mandates would be unlikely to work. For example, the US Supreme Court ruled unconstitutional a New Jersey law regulating the fees that private agencies could charge their clients (Finkin and Jacoby 2005). In addition, inspection of private agencies could be very costly if there are many illegal (unlicensed) private

However, evidence supporting the effectiveness of public offices is as follows (State of Illinois Bureau of Labor Statistics 1906, p. 3):

“While the primary purpose in establishing these offices was to aid the common or unskilled laborers in getting work without cost to him or her, their influence has not been limited to that class...From this it is shown that nearly 8,000 people, representing established skilled trades, including commercial and professional pursuits, have secured positions during the year...The better class of private employment agencies will accept only applications for a certain service, mainly of a professional character.”⁹

3. Background of Public Employment Offices

In this section, I provide evidence that public offices were a major labor market intermediary and thus could affect the behavior of job seekers and private agencies in the US in the early 20th century. To do this, I estimate the number of job seekers who used public offices (the use of public offices by job seekers) between 1890 and 1940 (see Figure 1).¹⁰ I also measure the percentage of public office users in the labor force and compare this to the unemployment rate (see Figure 2).

The first five public offices were established in Ohio in 1890. Only fifty-one offices were operated in nineteen states by 1910 (Herdon Jr. 1918). The use of public offices by job seekers as a percentage of the labor force also did not exceed 1 percent by 1910 (see Figure 2). When immigration reached its highest point (1.4 million immigrants) in 1907, the federal government started to intervene in the labor exchange market (US Employment Service 1935a). The Division of Information, the first federal employment agency, was created in the Department

agencies. Several states' labor bureaus reported violations of the license law (see, for example, State of Missouri Bureau of Labor Statistics 1913 and State of California Bureau of Labor 1923).

⁹ In 1905 the total number of job seekers placed by Illinois public offices was 39,598 and the number of applicants was 45,323.

¹⁰ The first (continuous) public offices were established in Ohio in 1890 and the nationwide system of public offices as a permanent labor market intermediary was set in the US in 1940 (the author's inspection). That is why the estimates in Figures 1 and 2 range from 1890 and 1940.

of Commerce and Labor. However, its role was restricted to disseminate immigrants over the states up until World War I (Guzda 1983). Although both federal and local public offices contributed little to the labor market at that time, these organizations aimed to protect immigrants, who were unfamiliar with the urban environment in the US, from the abuses of private agencies (International Labour Office 1955).

Many firms lost their foreign markets with the beginning of World War I, causing a serious unemployment problem, as shown by the relatively high unemployment rates in 1914 and 1915 (see Figure 2). However, the problem of lack of labor demand changed to a shortage of labor supply upon the US' entry into World War I, especially due to higher labor demand in war-related industries as well as demand by the military service (US Bureau of Labor Statistics 1931). Accordingly, the Division of Information, renamed as the US Employment Service (USES), was reorganized to serve as a nationwide labor market intermediary to assist the war-time emergency in 1917. Most public offices, which had exclusive power of matching unskilled labor to industries, were under the control of USES during the nation's involvement in World War I (Kellogg 1933). The use of public offices soared during the 1918 fiscal year (see Figures 1 and 2), mainly due to the massive number of returning soldiers and workers who had previously been transferred to war-related industries (US Employment Service 1919). Soldiers and workers went back to their peace-time occupations after the war ceased and public offices played an important role in reallocating them to their former positions and other places (US Bureau of Labor Statistics 1931).

As the nation returned to normalcy, the use of public offices by job seekers dropped substantially. The USES, the central authority of public offices during World War I, lost its power over the labor market due to huge budget cuts by Congress. Thus, a substantial number of offices

were closed or turned over by the state and municipal governments (US Employment Service 1935a). The USES was a paper organization during the 1920s, meaning that the federal government's power over the labor exchange market was minimal. Most public offices were maintained and operated by states or municipalities independently of the federal government. Despite the decentralization of public labor exchange, the use of public offices was nontrivial. Most research and documents ignore public offices' contribution to the US labor market in the 1920s (e.g., US Employment Service 1935a, Commons and Andrews 1936, Adams 1969, Guzda 1983, and Breen 1997). However, the evidence in Figures 1 and 2 shows that more than 2 million job seekers or roughly 5 percent of the total labor force per year used public offices during the 1920s. Public offices also made placements for 1.5 million job seekers, approximately 3 percent of the labor force, during this period. Therefore, I argue that the role of public offices was also important in the labor market in the 1920s. One might think that public offices played an important role in the labor market only during times of emergency, such as World War I and the Great Depression, as public offices became centralized to resolve these chaotic situations. But public offices continued to serve as a major labor market intermediary in the 1920s, which was a time of peace and economic growth.

As the economy entered the Great Depression, the Wagner-Peyser Act of 1933 revitalized USES to be a nationwide employment service to control public offices across the nation. It was a joint system of federal and state governments.¹¹ As a main tool to perform New Deal relief programs for unemployment, public offices were influential over the entire labor market during the Great Depression. The substantial increase in the use of public offices by job seekers in 1933 (as seen in Figures 1 and 2) was mainly due to the public works provided by the

¹¹ The federal government would provide up to 50 percent of the fund support, the remaining 50 percent being provided by the states to maintain and operate public offices (Ruttenberg and Gutches 1970).

Civil Works Administration (CWA). CWA hired more than 4 million people and almost all placements for this administration were made by public offices. People who wanted to find jobs in CWA had to use public offices (US Employment Service, 1935b).

Public offices also placed millions of unemployed in jobs created by the Works Progress Administration (WPA). High use of public offices since 1935 indicates this (see Figures 1 and 2). The use of public offices was also directly related to the unemployment compensation between 1937 and 1939. The large increase in the use of public offices between 1938 and 1939 demonstrates this fact. Unemployment benefits were paid to jobless people starting from January 1938 by the Social Security Act of 1935 (Atkinson, Odencrantz, and Deming 1938). People who wanted to receive these benefits had to register with public offices.

One point should be mentioned about the two spikes (around World War I and the Great Depression) in the use of public offices in Figures 1 and 2, related to the argument in the previous section. The high use of public offices by job seekers during the periods of World War I and the Great Depression is irrelevant to the hypothesis that public offices contributed to lowering the degree of asymmetric information between job seekers and private agencies. Public offices performed employment services for war-time emergency during World War I and matched job seekers and public work positions as a major tool to implement the New Deal policies in the Great Depression.

Given all the information provided in this section, it is clear that the impact of public offices on the labor market was not influential in the first two decades of its operation. However, the importance of public offices grew substantially, allowing them to be a major labor market intermediary with their involvement arising from World War I.¹²

¹² The use of public offices by job seekers was at least 4 percent of the labor force between 1916 and 1940 (see Figures 1 and 2).

4. Users of Public Employment Offices

In this section, I analyze users of public offices to test an implication of the theory proposed in Section 2: The majority of job seekers using private agencies in the 19th and early 20th centuries were unskilled workers and immigrants who were vulnerable to the abuses of private agencies. If these job seekers used public offices intensively, then this supports the hypothesis that public offices contributed to lowering the degree of exploitation by private agencies with respect to job seekers (the degree of asymmetric information between job seekers and private agencies) by providing an alternative network during their job search process. Therefore, I evaluate whether or not those who were vulnerable to exploitation by private agencies, such as unskilled workers and immigrants, actually used public offices more intensively.

To do this, I present the gender and occupations of public office users. I also construct the corresponding shares of workers in the population (the nation and state) from the Integrated Public Use Microdata Series or IPUMS (Ruggles, et. al. 2004) to see how public office users differed from other workers in the labor market in the early 20th century.¹³ In addition, I show other characteristics of public office users to analyze how they were related to the argument regarding asymmetric information.

First, I construct the shares of public office users by gender for a few selected states (Connecticut, Missouri, and Illinois) and compare them to those in the nation and the corresponding states in the early 20th century (see Table 1). In Connecticut and Illinois, the shares of female public office users were much larger than those of female workers in the nation and in the states between 1900 and 1930, indicating that female workers used public offices more

¹³ The estimates for the nation and state workers in Tables 1, 2, 3, and 4 are constructed from working age population (aged between 16 and 65 inclusive) in the labor force.

intensively than male workers in those states. In Missouri, the share of female public office users was larger than both the nation and the state female workers in 1900 (23.5 percent in Missouri public offices, 14.1 percent in the state of Missouri, and 18.0 percent in the nation), while this inequality was reversed between 1910 and 1920 (around 10 percent in Missouri public offices, 17 percent in the state of Missouri, and 20 percent in the nation). The shares of female workers in all cases (Missouri public offices, the state of Missouri, and the nation) were almost the same in 1930. Overall, female workers were more likely to use employment services through public offices intensively than male workers in Connecticut and Illinois, although this was not the case in Missouri.

Table 2 gives the proportions of public office users by occupation in the selected states over time. One clear pattern is that placements by public offices were biased toward service workers and laborers.¹⁴ In Connecticut and Illinois, the largest proportion of public office users was service workers, while laborers formed the majority of public office users in Missouri (see fourth, sixth, and eighth columns in Table 2), respectively. As time went by, the importance of agriculture tended to dwindle in Connecticut (11.5 percent in 1900, 14.9 percent in 1910, 3.7 percent in 1920, and 2.7 percent in 1930), but in Missouri, the proportion of agricultural workers rose in 1920 (14.1 percent), declining in 1930 (8.3 percent). All three states' distributions of public offices show a concentration of service workers and laborers, but the degree of concentration was different. In Connecticut, approximately 60 to 70 percent of applicants placed were service workers, whereas more laborers were placed than service workers in Missouri (see fourth and sixth columns in Table 2). The differential between service workers and laborers was not large in Illinois relative to that in Connecticut (see eighth column in Table 2).

¹⁴ Most of the public office applicants' occupations were also laborers and service workers in Connecticut, Illinois, and Missouri. I provide only the placements of public office applicants because more information on occupations is available.

To investigate the types of public office users in more detail, I examine the occupations of male and female public office users over time, respectively. The data show that male public office users were largely laborers and the dominant occupation for females was service work although there were some variations among states.¹⁵ One clear fact is that the difference between public office users and other workers was not simply due to gender. Service work for women and common labor for men were the main types of occupations dealt with by public offices until 1930. Both service workers and laborers also made up the majority of private agencies' clients, who were vulnerable to the abuses of private agencies in the early 20th century (Sargent 1912). Therefore, the intensive use of public offices by service workers and laborers supports the argument that public offices contributed to protecting job seekers from exploitation by private agencies, meaning the degree of asymmetric information between job seekers and private agencies was lowered as an alternative job matching service was provided by public offices at that time.

Besides the gender and occupations of job seekers using public offices, interesting facts are revealed in Wisconsin and New York public offices in 1901. Table 3 shows some characteristics of public office applicants in Wisconsin for 6 months (July to December 1901). Approximately 40 percent of Wisconsin public office users were non-US citizens, 80 percent were single, and only 4 percent were labor union members. Compared to workers in the nation, the share of immigrants who used public offices in Wisconsin was higher by 13 percent. However, the difference in place of origin disappeared between public office users and the state workers. This may indicate that the share of immigrants using public offices was large because the immigrant share of state workers was also high. The share of single public office users was

¹⁵ Tables for men's and women's occupational shares are available from the author upon request.

much larger than that of the nation or of state workers (approximately 80 percent for public offices, 46 percent for the state population, and 43 percent for the nation). One prominent feature was that only 26 percent of public office users were Wisconsin-born (about 49 percent for the state and 54 percent for the nation). In terms of residence, almost half of the job seekers who used public offices had resided in Wisconsin less than 5 years (see the last part of Table 3).

Table 4 describes several characteristics of public office applicants in New York State in 1901. One distinction is that Table 4 also provides information on public office applicants separately by gender. Overall, 62 percent of the applicants in New York public offices were non-US citizens (36 percent for the state). By gender, 52 percent of men and 68 percent of women public office users were non-US citizens (versus 37 percent of men and 34 percent of women in the state population). Over 60 percent of the public office applicants were single and 4 percent were illiterate. In general, the share of single users was larger than that of state workers, although this inequality is reversed for women (the proportion of female public office users was 62.1 percent while the proportion of female workers in the state was 78 percent). About 60 percent of public office users were between 20 and 40 years of age (see the last part of the second column in Table 4). The common similarity between Wisconsin and New York is that many of the public office users were single around the turn of the 20th century. In New York's case, it is clear that immigrants used public offices more intensively than US-born workers for their job search.

It is striking that 38 percent of public office applicants in Wisconsin were interstate migrants (US citizens who migrated from other regions in the US to Wisconsin). Moreover, 50 percent of them had resided in Wisconsin for less than 5 years. The large proportion of recent migrants among public office users also supports the argument that public offices helped lower the degree of asymmetric information between job seekers and private agencies because recent

migrants from other states were more likely to be exploited by private agencies due to lack of information on the new environment. Even if the existence of public offices did not cause people to migrate to Wisconsin, I can argue that once people moved to Wisconsin, they were likely to look for jobs with the help of public offices if they could not rely on other networks, including private agencies.

In summary, most public office users were unskilled workers (service workers or laborers), immigrants, or migrants in several states' cases. These types of people were also major clients of private agencies in the early 20th century. This fact, in part, supports the argument that public offices provided an alternative job matching service for people who had low skills or were unfamiliar to their new environment, and thus more likely to be exploited by private agencies.

5. Empirical Work

Theoretically, in the ideal case, the problem of adverse selection could be resolved as a result of the introduction of public offices if low-quality private agencies are driven out: asymmetric information between job seekers and private agencies would thus disappear from the labor exchange market. Therefore, the most relevant empirical question from this theory is to explore whether the introduction or development of public offices resolved the problem of adverse selection.¹⁶ However, testing this hypothesis presents difficulties because information on private agencies in the early 20th century is scarce.¹⁷

Instead, I test the hypothesis that public offices helped lower the degree of asymmetric

¹⁶ Throughout this paper, I frequently mention “lower the degree of asymmetric information” and “resolve the problem of adverse selection”. Lowering the degree of asymmetric information is a process to resolve adverse selection because eliminating asymmetric information problem is necessary to resolve adverse selection. Therefore, when information symmetry is achieved, low-quality private agencies are driven out of the market, and consequently adverse selection disappears.

¹⁷ To test the problem of adverse selection directly, detailed data on private agencies are required such as fees charged by private agencies.

information for uninformed job seekers. Even if this hypothesis is valid, it does not guarantee that adverse selection disappeared. However, it does tell us that public offices were directed to resolve the problem of adverse selection because lowering the degree of asymmetric information between job seekers and private agencies is a part of that process. This hypothesis was proposed in the last section and in part supported by the findings on the types of workers who used public offices. I extend this analysis to an empirical test by examining the relationship between the growth of public offices (in terms of the use of public offices by job seekers) and labor market conditions related to asymmetric information such as changes in the numbers of low-skilled workers, illiterates, immigrants, and migrants.

To test the hypothesis, a statistical model is constructed. The model describes the relationship between the use of public offices by job seekers and labor market conditions, including proxy variables for asymmetric information. If the growth of public offices and the asymmetric information factors are positively related, then the relationship may support the hypothesis. A positive correlation would indicate that the use of public offices increased as the number of people who were vulnerable to the abuses by private agencies due to lack of information increased. Hence, public offices contributed to lessening the degree of asymmetric information for uninformed job seekers who were more likely to be exploited by private agencies.

I collected data for the use of public offices by job seekers from annual reports and monthly bulletins published by the USES. I narrowed my empirical analysis to 1920 and 1930 because most of the labor market data at state or at lower regional levels are available decennially. Moreover, public offices were not influential as a labor market intermediary before World War I (see Figure 2). I also limited the samples of explanatory variables to the labor force

of working age (i.e., aged between 16 and 65 inclusive) in urban areas.¹⁸ The regression model is as follows:

$$\begin{aligned} \ln(USE)_{it} = & \alpha + \beta_1 \ln(WAGE)_{it} + \beta_2 \ln(EMPLOYMENT)_{it} + \beta_3 \ln(INCOME)_{it} \\ & + \beta_4 \ln(WOMEN)_{it} + \beta_5 \ln(SINGLE)_{it} + \beta_6 \ln(DSE)_{it} + \beta_7 \ln(ILLITERATE)_{it} \\ & + \beta_8 \ln(IMMIGRANT)_{it} + \beta_9 \ln(MIGRANT)_{it} + \beta_{10} \ln(SERVICE)_{it} \\ & + \beta_{11} \ln(LABOR)_{it} + D_t + X_{it}B + \varepsilon_{it} \end{aligned}$$

The dependent variable USE_{it} measures the use of public offices by job seekers in terms of the number of applicants who used public offices. The subscripts i and t indicate state and year (1920 and 1930), respectively. $WAGE$, $EMPLOYMENT$, and $INCOME$ are chosen to control for general labor market conditions.¹⁹ For the data regarding the wage and employment levels, “Estimates of Average Manufacturing Wages by State” and “Total Employment by State” are used, respectively (Fishback and Kantor 2000).²⁰ To control for level of income, I employ “Realized national income” which is an estimate consisting of “the total of payments to individuals by business and government in the form of wages, salaries, dividends, interest, net rents and royalties, and net profits withdrawn by unincorporated enterprises” (National Industrial Conference Boards, Inc. 1939, p. 114).

Other explanatory variables are selected based on the analysis of the types of public office users in the last section and constructed from IPUMS extracts (Ruggles, et. at. 2004) of 1920 and 1930 samples. $WOMEN$ and $SINGLE$ are estimates of the numbers of women and

¹⁸ By definition, job seekers using public offices are in the labor force and most of them are in the working age population. Most public offices before the Great Depression were located in major cities (Kellogg 1933 and Breen 1997).

¹⁹ These three variables are not limited to working age population in the labor force in urban areas unlike all the other explanatory variables because of unavailability of data.

²⁰ “Total Employment by State” is the estimate of the number of employed workers of all kinds in each state.

single workers. The last six variables (*DSE*, *ILLITERATE*, *IMMIGRANT*, *MIGRANT*, *SERVICE*, and *LABOR*) are proxy variables for asymmetric information. In the early 20th century, immigrants, migrants, and unskilled workers were vulnerable to the abuses of private agencies due to lack of information about the area or less education. *DSE* is the number of people who did not speak English and *ILLITERATE* is the number of people who were illiterate (i.e., cannot read or write) in any language. I add *DSE* and *ILLITERATE* for asymmetric information proxies because these workers were less likely to be educated and thus seemed to be vulnerable to exploitation by private agencies. The variable *IMMIGRANT* is the number of non-US citizens; *MIGRANT* is the total number of migrants who were US citizens; *SERVICE* is the number of service workers; and *LABOR* is the number of laborers. *MIGRANT* is a measure of interstate migration which is estimated based on whether a person lived in the state in which he or she was born at the time of the Census (Rosenbloom and Sundstrom 2004). D_t is a time dummy and X_{it} indicates the interaction terms between time and region dummies to control for unobserved factors, in part, correlated with the explanatory variables over time or region.²¹

The summary statistics for the variables are shown in Table 5 and the results of the regression analysis are provided in Tables 6 and 7. First, I run cross-section regressions for 1920 and 1930 separately. The results are shown in Table 6. Overall, signs of the key estimates are not significant in most specifications. However, in all cases, the estimates for *MIGRANT*, which indicate the relationship between the use of public offices and interstate migration, are positive and significant. This pattern may imply that public offices helped migrants who were unfamiliar to their new environment and thus most likely to be abused by private agencies in their job search.

²¹ The Census division is used for the regional classification in this paper: New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific.

Table 7 presents the results for the unbalanced panel regressions with fixed and random effects.²² In general, like in the case of cross-section regressions, most of the signs for the estimates are not significant. However, the estimates are significant for *ILLITERATE* and *MIGRANT* but negative for *ILLITERATE* and positive for *MIGRANT*. The negative sign for *ILLITERATE* is unfavorable to illiterates but understandable since applicants of public offices had to fill out application forms when they registered and had to have interviews with the agents in public offices. Positive and significant estimates for *MIGRANT* are consistent with the results in the cross-section analyses. Again, this positive relationship between the use of public offices by job seekers and interstate migration supports the hypothesis that public offices contributed to lowering the degree of asymmetric information, especially in favor of migrants who were most lacking in information and networks in their new environment.

6. Conclusion

Progressive Era (1890s through 1920s) social reformers viewed uninformed job seekers as vulnerable to exploitation by private employment agencies. In response to the cries of these people, public employment offices were introduced to restrain private employment agencies from exploitation of job seekers. I describe this situation as a case of asymmetric information between job seekers and private agencies that could cause adverse selection in the labor exchange market. Creation of public employment offices can be viewed as a policy device to eliminate low-quality private employment agencies that were committing malpractices with respect to job seekers.

My analysis shows that the majority of job seekers who utilized public employment

²² The balanced and unbalanced panel regressions produce nearly identical coefficient estimates.

offices were unskilled workers, immigrants, or migrants who were also major clients of private employment agencies at that time. One of the most interesting findings is a positive relationship between the growth of public employment offices and interstate migration in the early 20th century. This supports the hypothesis that public employment offices lessened the degree of asymmetric information in favor of migrants in the labor exchange market. In other words, public employment offices were especially helpful for migrants who were most lacking in information and networks in their new environment.

Despite the importance of public employment offices in the early 20th century, current trends are the reduction in public funding and privatization of public employment services in response to a decrease in their usage by job seekers.²³ This could be in part due to inefficient operation of public employment offices in recent periods (De Koning, Denys, and Walwei 1999). However, the role of public employment offices is still relevant with respect to the asymmetric information problem in the labor exchange market. Autor and Houseman (2005) found that temporary help agencies provide low-skilled workers with jobs that have lower wages and shorter employment durations than do direct-hire jobs. There is a possibility that this ineffective outcome of temporary help agencies may result from asymmetric information between low-skilled workers and temporary help agencies. Temporary help agencies may have an incentive to make use of this information asymmetry to exploit their employees, which is an inefficient market outcome. Furthermore, services by public employment offices are always pertinent for certain groups such as illegal immigrants, very low-skilled workers, or low-educated workers who have little information about the labor market and little recourse to recover damages if exploited.

²³ Approximately 19 percent of the unemployed used public employment offices in the US in 2001, while 30 percent did in the 1970s (Eberts and Holzer 2004).

References

- Adams, Leonard P. 1969. *The Public Employment Service in Transition, 1933 – 1968: Evolution of a Placement Service into a Manpower Agency*. Ithaca: New York School of Industrial and Labor Relations, Cornell University.
- Atkinson, Raymond C., Odencrantz, Louis C., and Deming, Ben. 1938. *Public Employment Service in the United States*. Chicago: Public Administration Service.
- Autor, David H. and Houseman, Susan N. 2005. Do Temporary Help Jobs Improve Labor Market Outcomes for Low-Skilled Workers? Evidence from Random Assignments. NBER Working Paper No. 11743. Cambridge MA: National Bureau of Economic Research.
- Baldwin, George B. 1951 Tulamusa: A Study of the Place of the Public Employment Service. *Industrial and Labor Relation Review* 4, No. 4: 509-526.
- Bogart, Ernest L. 1900. Public Employment Offices in the United States and Germany. *The Quarterly Journal of Economics* 14, No. 3: 341 – 377
- Breen, William J. 1997. *Labor Market Politics and the Great War: The Department of Labor, the States, and the First US Employment Service, 1907-1933*. Kent and London: Kent State University Press.
- Commons, John R. and Andrews, John B. 1936. *Principles of Labor Legislation*. 4th Edition. New York and London: Harper & Brothers.
- Conner, J. E. 1907. Free Public Employment Offices in the United States. *US Bureau of Labor Bulletin* No. 68. pp. 1-116. Washington, DC: Government Printing Office.
- De Koning, Jaap, Denys, Jan and Walwei, Ulrich. 1999. *Deregulation in Placement Services: A Comparative Study for Eight EU Countries*. European Commission, DG for Employment, Industrial relations and Social Affairs, Brussels.
- Devine, Edward T. 1909. Employment Bureau for the People of New York City. *Annals of the American Academy of Political and Social Science* 33, No. 2: 1–14.
- Eberts, Randall W. and Holzer, Harry J. 2004. Overview of Labor Exchange Policies and Services. In *Labor Exchange Policy in the United States*, ed. Balducchi, David E., Eberts, Randall W. and O’Leary Christopher J. 1-31. Kalamazoo, Michigan: W.E. Upjohn Institute for Employment Research.
- Edwards, George W. 1935. Employment Service of Canada. *Monthly Labor Review* 9, No. 2 (February): 157-68.
- Finkin, Matthew W. and Jacoby, Sanford M. 2005. An Introduction to the Regulation of Leasing and Employment Agencies. *Comparative Labor Law and Policy Journal* 23, No.1: 1 – 6.
- Fishback, Price V. and Kantor, Shawn E. 2000. *A Prelude to the Welfare State: The Origins of Workers’ Compensation*. Chicago: University of Chicago Press.
- Guzda, Henry P. 1983. The US Employment Service at 50: It too had to wait its turn. *Monthly Labor Review* 106, No. 6 (June): 12-19.
- Herdon Jr., John G. 1918. Public Employment Offices in the United States. *US Bureau of Labor Statistics Bulletin* No. 241. pp. 1-100. Washington, DC: Government Printing Office.
- International Labour Office. 1955. *National Employment Services, United States*. Geneva.
- Kellogg, Ruth M. 1933. *The United States Employment Service*. Chicago: University of Chicago Press.
- Kübler, Dorothea. 1999. Coexistence of Public and Private Job Agencies: Screening with Heterogeneous Institutions. *Public Choice* 101: 85-107.

- Leiserson, William M. 1915. The Movement for Public Labor Exchanges. *The Journal of Political Economy* 23, No. 7: 707–716.
- Martinez, Tomás. 1976. *The Human Market Place: An Examination of Private Employment Agencies*. New Brunswick: Transaction, Inc.
- Muhlhauser, Hilda. 1916. Public Employment Bureaus and Their Relation to Managers of Employment in Industry. *Annals of the American Academy of Political Science* 65, Personnel and Employment Problems in Industrial Management (May): 170–175.
- National Industrial Conference Board Inc. 1939. *National Income and Its Geographic Distribution 1919-1938*. Conference Board Studies in Enterprise and Social Progress, New York.
- Pissarides, Christopher A. 1979. Job Matching with State Employment Agencies and Random Search. *The Economic Journal* 89, No. 356 (December): 818-833.
- Rosenbloom, Joshua L. 2002. *Looking for Work, Searching for Workers: American Labor Markets During Industrialization*. Cambridge, England: Cambridge University Press.
- Rosenbloom, Joshua L. and Sundstrom, William A. 2004. The Decline and Rise of Interstate Migration in the United States: Evidence from the IPUMS, 1850-1990. *Research in Economic History* 22: 289-325.
- Ruggles, Steven, et. al. 2004. *Integrated Public Use Microdata Series: Version 3.0* [Machine-readable database]. Minneapolis, MN: Minnesota Population Center [producer and distributor].
- Ruttenberg, Stanley H. and Gutchess, Jocelyn. 1970. *The Federal-State Employment Service: A Critique*. Baltimore and London: Johns Hopkins University Press.
- Sargent, Frank B. 1912. Statistics of Unemployment and the Work of Employment Offices. US Bureau of Labor Bulletin No. 109. pp. 5-140. Washington, DC: Government Printing Office.
- Smith, Darrell H. 1923. *The United States Employment Service: Its History, Activities and Organization*. Baltimore: Johns Hopkins University Press.
- State of California Bureau of Labor Statistics. *20th Biennial Report of the Bureau of Labor Statistics 1921-1922*. (Sacramento 1923).
- State of Colorado Bureau of Labor Statistics. *Biennial Reports*. 1903 to 1915. (Denver, CO 1903-1915).
- State of Connecticut Bureau of Labor Statistics. *Report of the Bureau of Labor Statistics*. 1902-1915, 1922, 1930. (Hartford, CT 1902-1915, 1922, 1931).
- State of Illinois Bureau of Labor Statistics. *Annual Report of the Bureau of Labor Statistics of the Illinois Free Employment Offices*. 1900-1915. (Springfield, IL 1900-1915).
- State of Indiana Department of Statistics. *Biennial Report*. 1910-1914. (Indianapolis, IN 1911-1915).
- State of Kansas Bureau of Labor and Industry. *Annual Report*. 1901-1912. (Topeka, KS 1901-1914).
- State of Kansas Department of Labor and Industry. *Annual Report*. 1913-1916. (Topeka, KS 1914-1915).
- State of Kentucky Bureau of Agriculture, Labor, and Statistics. *Biennial Report*. 1912-1915. (Louisville, KY 1912-1915).
- State of Maryland Bureau of Statistics and Information. *Annual Report*. 1903-1915. (Baltimore, MD 1904-1915).
- State of Massachusetts Bureau of Statistics of Labor. *34th, 38th-45th Annual Reports*. 1904, 1907-1915. (Boston, MA 1904, 1907-1915).

State of Michigan Bureau of Labor and Industrial Statistics. *Annual Report*. 1906-1909. (Lansing, MI 1906-1909).

State of Michigan Department of Labor. *Annual Report*. 1910-1915. (Lansing, MI 1910-1915).

State of Minnesota Bureau of Labor. *Biennial Report*. 1905-1906. (Minneapolis, MN 1907).

State of Minnesota Bureau of Labor. *Biennial Report*. 1907-1914. (Minneapolis, MN 1907).

State of Missouri Bureau of Labor Statistics. *Annual Report*. 1899-1915, 1920-1922. (Jefferson City, MO 1900-1916, 1923).

State of Missouri Department of Labor and Industrial Inspection. *Annual Report*. 1930. (Jefferson City, MO 1930).

State of Montana Bureau of Agriculture, Labor, and Industry. *Annual Report*. 1902-1912. (Helena, MT 1902-1912).

State of Montana Department of Labor and Industry. *Biennial Report*. 1913-1914, 1915-1916. (Helena, MT 1913-1916).

State of New Jersey Department of Labor. *Report*. 1910-1915. (Trenton, NJ 1910-1915).

State of New York Department of Labor. *Annual Report of Commissioner of Labor*. 1900-1906, 1915. (Albany, NY 1901-1916).

State of Ohio Bureau of Labor Statistics. *Annual Report*. 1890-1913. (Columbus, OH 1891-1914).

State of Ohio Department of Investigation and Statistics. *Report*. 1914-1915. (Columbus, OH 1915-1916).

State of Oklahoma Department of Labor. *Annual Report*. 1908-1915. (Oklahoma City, OK 1908-1915).

State of Rhode Island Bureau of Industrial Statistics. *Annual Report*. 1908-1914. (Providence, RI 1908-1914).

State of Texas Bureau of Labor Statistics. *Biennial Report*. 1914-1915. (Austin, TX 1914-1915).

State of Washington Bureau of Labor. *Biennial Report*. 1901-1916. (Olympia, WA 1903-1916).

State of West Virginia Bureau of Labor Statistics. *Biennial Report*. 1901-1915. (Charleston, WV 1901-1915).

State of Wisconsin Bureau of Labor and Industrial Statistics. *Biennial Report*. 1900-1915. (Madison, WI 1902-1916).

Stewart, Annabel M., and Stewart, Bryce M. 1933. *Statistical Procedure of Public Employment Offices*. New York: Russell Sage Foundation.

US Bureau of Labor Standards. 1962. *Laws Regulating Private Employment Agencies*. Growth of Labor Law in the United States. Washington, DC: Government Printing Office.

US Bureau of Labor Statistics. 1931. Public Employment Services. *Monthly Labor Review* 32, No. 1 (January): 10-32.

US Bureau of Labor Statistics. January 1915 – February 1918. *Monthly Review* 1 No. 1 – 6, No. 2.

US Employment Service. 1919, 1920, 1921. *Annual Report of the Director General US Employment Service to the Secretary of Labor, Fiscal Year Ending June 30 1918, 1919, 1920*. Washington, DC: Government Printing Office.

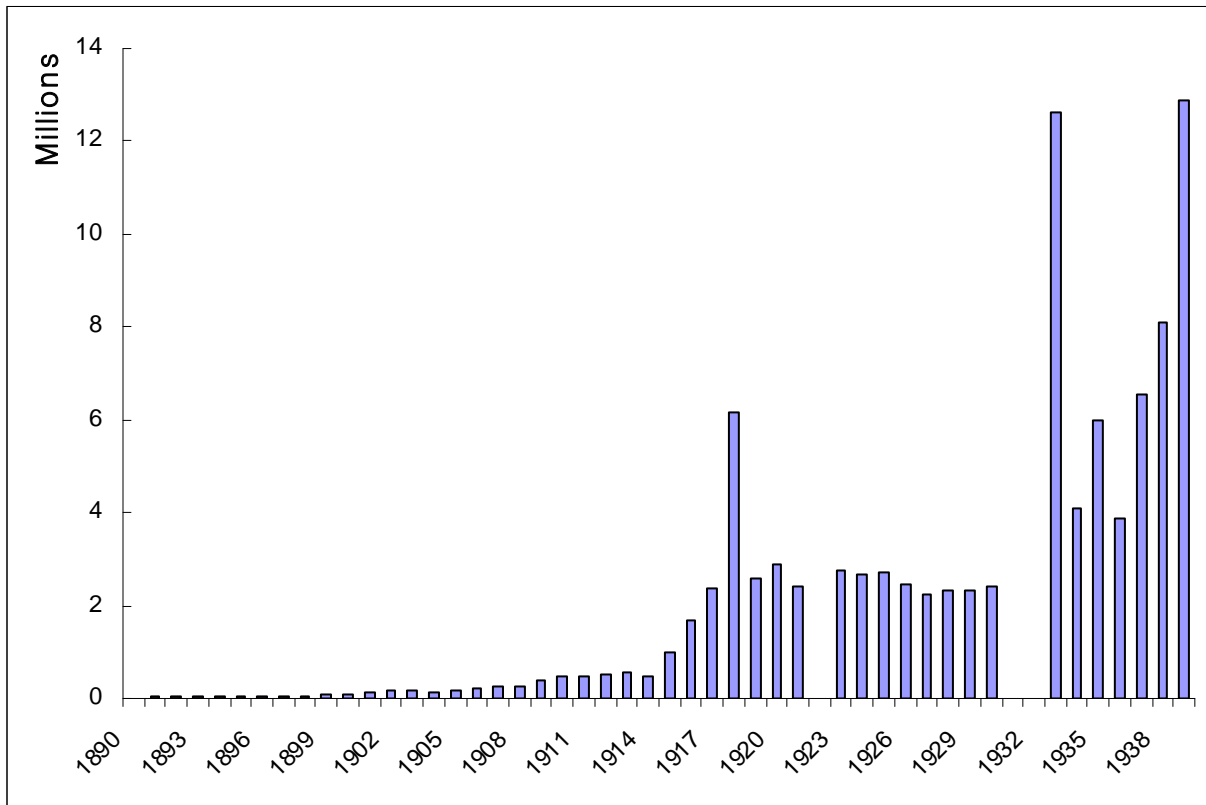
US Employment Service. September 1934 – December 1940. *Employment Service News* 1, No. 1 – 7, No. 12 Washington, DC: Government Printing Office.

US Employment Service. 1935a. Historical Sketch of Public Employment. *Employment Service News* 2, No. 2 (February): 2-8.

US Employment Service. 1935b. *Twelve and One-Half Millions Registered for Work 1934*.

- Washington DC: Government Printing Office.
- US Employment Service. January 1924 – January 1932 *Monthly Report of Activities of State and Municipal Employment Services Cooperating with US Employment Service*. Washington, DC: Government Printing Office.
- Walwei, Ulrich. 1996. Improving Job-matching through Placement Services. In *International Handbook of Labour Market Policy and Evaluation*, ed. Günther Schmid, Jacqueline O'Reilly and Klaus Schömann. 402-430. Cheltenham and Brookfield: Edward Elgar.
- Wier, David R. 1992. A Century of US Unemployment, 1890-1990: Revised Estimates and Evidence for Stabilization. *Research in Economic History* 14: 301-346.
- Yavas, Abdullah. 1994. Middlemen in Bilateral Markets. *Journal of Labor Economics* 12, No. 3 (July): 406-429.

Figure 1. Use of Public Employment Offices by Job Seekers



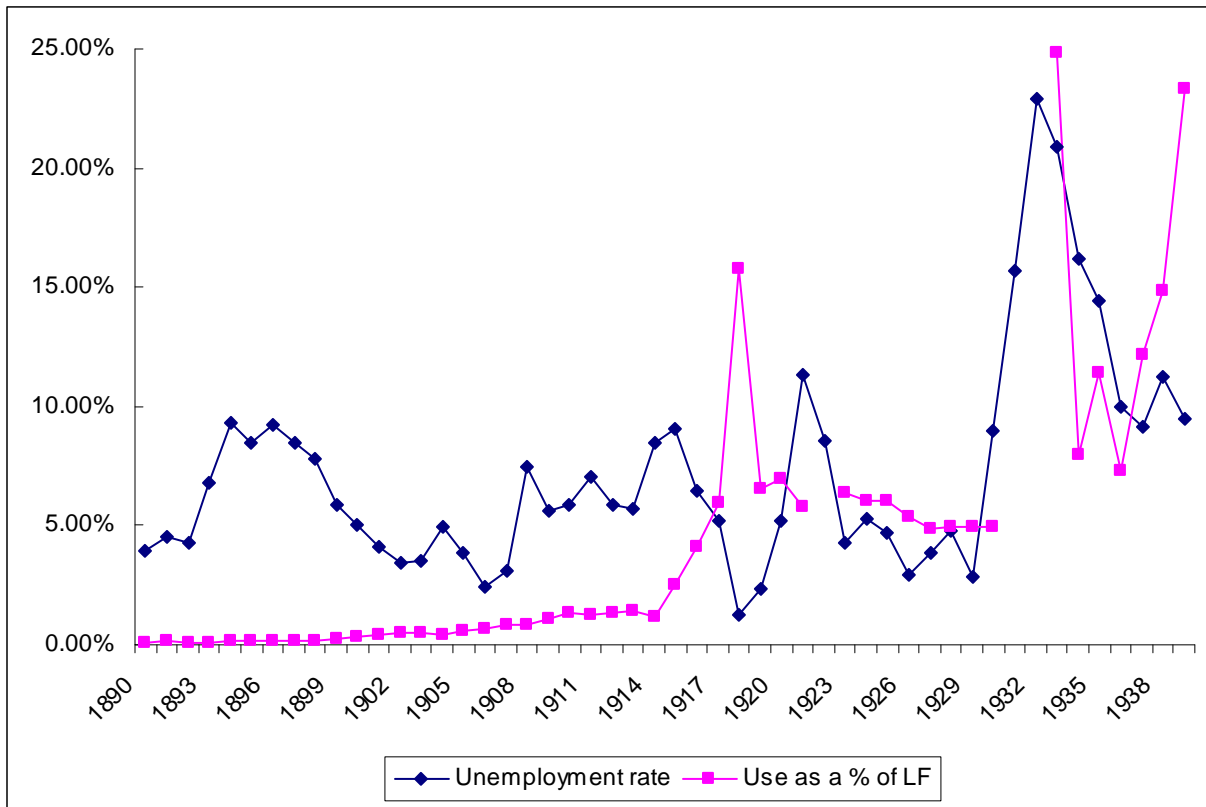
Sources:

- 1890 – 1914: Bogart (1900), Conner (1907), Sargent (1912), and various state reports (see references).
- 1915 – 1916: US Bureau of Labor Statistics, January 1915 (Vol. 1, No. 1) to February 1918 (Vol. 6, No. 2)
- 1917 – 1919: US Employment Service (1918, 1919, 1920)
- 1920 – 1921: Smith (1923), and Commons and Andrews (1936)
- 1923 – 1930: US Employment Service (January 1924 to January 1932).
- 1933: US Employment Service (1935b).
- 1934 – 1939: US Employment Service, September 1934 (Vol. 1, No. 1) to December 1940 (Vol. 7, No. 12).

Notes:

- 1923, 1931, and 1932 are missing.
- The following states in each year indicate missing data by state and year: 1903 to 1906 (Kansas); 1907 (Colorado); 1909 to 1910 (New Jersey); 1912 (Kansas, Montana, New Jersey, Oklahoma); 1913 (New Jersey, Oklahoma, West Virginia); 1914 (California, Kentucky, Montana, New Jersey, Oklahoma, Texas, West Virginia).
- Data From 1915 to 1939 are reported for fiscal years (July to June).

Figure 2. Unemployment Rate and Use of Public Employment Offices by Job Seekers as a Percentage of the Labor Force



Sources: Labor force (LF) and unemployment rates (Wier 1992) and use of public employment offices by job seekers (same as Figure 1).

Table 1. Gender of Public Employment Office Applicants

Year	<u>Nation</u>			<u>State</u>		<u>Public Employment Offices</u>	
	Men	Women		Men	Women	Men	Women
1900	82.0	18.0	CT	78.6	21.4	49.1	50.9
1910	79.1	21.0	CT	75.1	24.9	52.1	47.9
1920	79.4	20.6	CT	74.1	25.9	57.7	42.3
1930	77.7	22.3	CT	73.5	26.5	56.1	43.9
1900			MO	85.9	14.1	76.5	23.5
1910			MO	83.2	16.8	89.8	10.2
1920			MO	81.5	18.5	89.5	10.5
1930			MO	79.2	20.9	80.0	20.0
1900			IL	83.5	16.5	57.2	42.8
1910			IL	81.3	18.7	71.6	28.4
1920			IL	79.5	20.5	76.9	23.1
1930			IL	77.2	22.8	62.0	38.0

Sources: See Table 2.

Notes: The second and third columns present the percents of male and female workers in the nation, respectively. The fifth and sixth columns present the percents of male and female workers in the corresponding states, respectively. The seventh and eighth columns indicate the percents of male and female job seekers registered in public employment offices in the corresponding states, respectively. All the percents of the nation and states are calculated from the labor force of working age (i.e., aged between 16 and 65 inclusive).

Table 2. Occupations of Male and Female Applicants Placed by Public Employment Offices

Occupation	Nation	CT		MO		IL	
		State	Public offices	State	Public offices	State	Public offices
<u>1900</u>							
Professionals and technical workers	4.5	5.0	0.2	4.7	0.2	5.6	0.0
Agricultural workers	33.4	10.3	11.5	39.5	3.2	24.2	2.5
Managers, officials and proprietors	5.7	5.5	0.1	6.3	0.0	7.1	0.0
Clerical and kindred	3.4	4.0	2.2	3.8	8.3	5.3	0.4
Sales workers	4.5	5.2	8.0	5.2	4.0	6.1	0.7
Craftsmen & operatives	26.9	46.1	4.2	22.3	8.2	29.7	6.1
Service workers	9.3	9.0	66.7	8.6	24.4	9.9	40.3
Laborers	12.3	14.9	5.1	9.5	47.8	12.1	36.1
<u>1910</u>							
Professionals and technical workers	4.9	5.6	0.1	5.0	0.0	5.6	0.0
Agricultural workers	28.6	7.4	14.9	32.8	5.8	18.7	1.6
Managers, officials and proprietors	6.0	5.7	0.1	6.5	0.0	6.8	0.0
Clerical and kindred	5.6	7.1	0.4	6.4	0.3	8.7	0.6
Sales workers	4.7	4.9	4.0	5.6	1.4	5.8	0.9
Craftsmen & operatives	27.6	43.0	4.1	23.8	6.8	31.8	10.7
Service workers	9.5	10.8	61.1	9.1	35.5	9.5	43.7
Laborers	13.1	15.6	13.4	10.9	43.8	13.1	35.6
<u>1920</u>							
Professionals and technical workers	5.6	6.3	0.0	5.7	0.1		
Agricultural workers	24.1	6.3	3.7	28.8	14.1		
Managers, officials and proprietors	6.7	6.5	0.1	7.5	0.1		
Clerical and kindred	8.3	10.2	0.5	9.0	4.2		
Sales workers	5.0	4.3	2.8	6.0	0.2		
Craftsmen & operatives	30.8	46.0	7.1	25.0	14.5		
Service workers	8.1	7.9	71.8	8.0	19.4		
Laborers	11.5	12.6	13.6	10.0	46.9		
<u>1930</u>							
Professionals and technical workers	6.9	8.0	0.0	6.6	0.0		
Agricultural workers	20.1	4.6	2.7	24.3	8.3		
Managers, officials and proprietors	7.3	7.4	0.0	7.7	0.1		
Clerical and kindred	9.2	12.2	1.3	10.0	1.3		
Sales workers	6.7	6.1	3.3	7.2	0.7		
Craftsmen & operatives	29.3	41.5	6.3	25.4	10.1		
Service workers	9.7	9.2	67.4	9.1	20.0		
Laborers	10.7	11.1	18.8	9.8	59.6		

Sources (Tables 1 and 2): For 1900 occupation and gender distributions: State of Massachusetts Bureau of Statistics of Labor 1904. For 1910 occupation and gender distributions: Illinois and Missouri, Sargent 1912; Connecticut,

State of Connecticut Bureau of Labor Statistics 1912. For 1920 occupation and gender distributions: Missouri, State of Missouri Bureau of Labor Statistics 1923; Connecticut, State of Connecticut Bureau of Labor Statistics 1922. For 1930 occupation and gender distributions: Missouri, State of Missouri Department of Labor and Industrial Inspection 1930; Connecticut, State of Connecticut Bureau of Labor Statistics 1931. For the nation and states' overall occupation and gender percents, IPUMS (Ruggles, et. al 2004).

Notes: The first column is the classification of the occupations. The second column displays the percents of occupations of workers in the nation. The third, fifth, and seventh columns are the percents of occupations of workers in each state. The fourth, sixth, and eighth columns are the percents of occupations of job seekers placed through public employment offices in each state. The categorization of the occupations in Table 2 is based on IPUM's 1950 occupation basis, which is the 1950 Census Bureau occupation classification system with some modifications. Agricultural workers include farmers (owners, tenants, farm managers) and farm laborers. Craftsmen and operatives are skilled and semi-skilled workers in manufacturing. All the percents of the corresponding states and the nation are calculated from the labor force of working age (i.e., aged between 16 and 65 inclusive).

Table 3. Characteristics of Wisconsin Public Employment Office Applicants in 1901

	Public offices	State	Nation
<hr/>			
Place of origin			
US born	63.8	63.1	77.1
Foreign born	36.2	36.9	22.9
<hr/>			
Marital status			
Married	20.1	53.8	57.0
Single	79.9	46.2	43.0
<hr/>			
Place of birth			
Wisconsin	26.3	49.4	54.3
Other U.S.	38.0	13.7	22.8
Other nations	36.2	36.9	22.9
<hr/>			
Member of labor union			
No	95.9		
Yes	4.1		
<hr/>			
Years in the US for Immigrants			
Less than 1 year	6.3		
1 - 5 years	15.0		
6 - 10 years	17.7		
11 - 15 years	17.6		
16 - 20 years	18.4		
21 - 25 years	10.2		
26 - 30 years	5.6		
Over 30 years	9.2		
<hr/>			
Residence in Wisconsin			
Less than 1 year	30.1		
1 - 5 years	18.2		
6 - 10 years	8.2		
Over 11 years	18.1		
Since birth	25.7		

Sources: State of Wisconsin Bureau of Labor and Industrial Statistics 1902 and IPUMS (Ruggles, et. al. 2004).

Notes: Among 4,744 applicants in Wisconsin public employment offices from July to December 1901, 3,890 applicants filled at least one part of the application form. The first column describes personal characteristics of workers. The second column shows the percents of the corresponding characteristics of public office users. The third and fourth columns are the corresponding percents of the labor force of working age (aged between 16 and 65 inclusive) in Wisconsin and the nation in 1900, respectively.

Table 4. Characteristics of New York State Public Employment Office Applicants in 1901

	<u>Public Employment Offices</u>			<u>New York State</u>		
	Overall	Men	Women	Overall	Men	Women
<u>Place of origin</u>						
US born	38.0	47.9	32.1	63.9	63.3	66.1
Foreign born	62.0	52.1	67.9	36.1	36.7	33.9
<u>Marital status</u>						
Married	34.6	29.2	37.9	52.8	61.8	22.0
Single	65.4	70.8	62.1	47.2	38.2	78.0
<u>Literacy</u>						
literate	96.3	99.4	94.0	94.8	94.6	95.7
illiterate	3.7	0.5	6.0	5.2	5.4	4.3
<u>Age of applicants</u>						
Under 20 years	8.3	11.7	6.0			
20 - 30	37.9	45.1	33.6			
30 - 40	26.7	24.4	28.1			
40 - 50	18.8	12.8	22.5			
50 - 60	6.9	4.6	8.4			
Over 60	1.3	1.3	1.3			

Source: State of New York Department of Labor 1902 for public offices; IPUMS (Ruggles, et. at 2004) for New York State.

Note: The first column describes personal characteristics of workers. The second, third, and fourth columns show the percents of the corresponding characteristics of overall, men, and public office users, respectively. The fifth, sixth, and seventh columns are the corresponding percents of overall, male, and female workers in the labor force of working age in 1900, respectively.

Table 5. Descriptive Statistics

Variable	1920			1930		
	Obs	Mean	Std.Dev	Obs	Mean	Std.Dev
USE	49	52861.9	85955.8	44	54707.8	72237.6
WAGE	48	33.3	6.3	43	31.7	6.2
EMPLOYMENT	48	812186.8	827466.0	43	980432.3	990891.5
INCOME	49	1398.1	1780.3	44	1606.5	2276.0
WOMEN	49	115384.6	174173.1	44	165598.7	226613.4
SINGLE	49	189663.1	297903.9	44	225468.7	350049.2
ILLTERATE	49	19242.1	29545.0	44	16841.8	24218.5
DSE	49	12205.5	25143.8	44	7618.6	15561.4
IMMIGRANT	49	68477.5	149007.6	44	59149.3	129509.9
MIGRANT	49	114209.6	116875.0	44	170187.3	203006.5
SERVICE	49	49039.0	68972.4	44	76454.7	102278.1
LABOR	49	59797.2	78326.9	44	69591.3	87410.9

Sources: USE (for 1920, US Employment Service 1921; for 1930, US Employment Service January 1930 to December 1930). WAGE and EMPLOYMENT (Fishback, Price and Kantor 2000). INCOME (National Industrial Conference Board Inc. 1939). Others (Ruggles, et. at. 2004).

Table 6. Relationship between the Growth of Public Employment Offices and Asymmetric Information-1: Cross-Section for 1920 and 1930 Separately

Dependent Variable: ln(USE)	1920		1930	
Explanatory Variable	Coefficient (Robust Std. Err)	Coefficient (Robust Std. Err)	Coefficient (Robust Std. Err)	Coefficient (Robust Std. Err)
Region fixed effects	No	Yes	No	Yes
ln(WAGE)	1.68*** (0.53)	1.17* (0.61)	1.69 (1.80)	2.38 (1.84)
ln(EMPLOYMENT)	-0.28** (0.13)	-0.32* (0.18)	0.25 (1.07)	-0.58 (1.04)
ln(INCOME)	-2.32 (1.54)	-3.40* (1.68)	-3.10 (2.80)	-4.24 (2.65)
ln(WOMEN)	-1.05 (0.72)	-1.14 (0.85)	-1.83 (2.06)	-4.84*** (1.80)
ln(SINGLE)	1.07 (0.87)	2.31* (1.13)	0.43 (1.90)	2.51 (1.78)
ln(DSE)	-0.27*** (0.10)	-0.22** (0.10)	-0.16 (0.13)	-0.06 (0.14)
ln(ILLITERATE)	-0.60*** (0.25)	-0.43 (0.36)	-0.11 (0.20)	-0.19 (0.19)
ln(IMMIGRANT)	0.46*** (0.16)	0.35 (0.24)	0.37 (0.26)	-0.29 (0.36)
ln(MIGRANT)	0.83** (0.37)	0.93* (0.50)	1.28*** (0.41)	1.74*** (0.60)
ln(SERVICE)	-0.03 (0.66)	-0.34 (0.78)	-1.10 (0.69)	0.68 (0.97)
ln(LABOR)	-0.50 (0.51)	-1.36* (0.70)	0.64 (0.59)	-0.11 (0.91)
Constant	-14.40*** (5.78)	-2.27 (8.07)	-12.79 (12.87)	-11.90 (12.46)
R-squared	0.86	0.91	0.75	0.86
Total observations	48	48	43	43

Note: Asterisks denote statistical significance as follows: *statistically significant at the .10 level; **at the .05 level; ***at the .01 level.

Table 7. Relationship between the Growth of Public Employment Offices and Asymmetric Information-2: Panel Regressions (Unbalanced)

Dependent Variable: ln(USE)	FE	FE	RE	RE
Explanatory Variable	Coefficient (Std.Err)	Coefficient (Std.Err)	Coefficient (Std.Err)	Coefficient (Std.Err)
Time Dummy (1920)	Yes	Yes	Yes	Yes
Time*Region	No	Yes	No	Yes
ln(WAGE)	-1.44 (1.30)	-1.50 (1.69)	0.93* (0.52)	0.94* (0.57)
ln(EMPLOYMENT)	0.39 (0.48)	0.46 (0.53)	-0.19 (0.22)	-0.27 (0.24)
ln(INCOME)	3.15 (2.68)	2.64 (3.22)	-1.10 (1.28)	-1.03 (1.32)
ln(WOMEN)	-1.53 (1.62)	-1.82 (2.00)	-0.89 (0.64)	0.11 (0.83)
ln(SINGLE)	2.49* (1.43)	1.91 (2.06)	1.09 (0.74)	0.24 (0.88)
ln(DSE)	0.15 (0.12)	0.18 (0.14)	-0.03 (0.08)	-0.03 (0.09)
ln(ILLITERATE)	-1.70** (0.71)	-1.82** (0.72)	-0.68*** (0.20)	-0.69*** (0.21)
ln(IMMIGRANT)	-0.16 (0.47)	-0.25 (0.49)	0.12 (0.17)	0.16 (0.18)
ln(MIGRANT)	1.39 (1.07)	2.48** (1.23)	0.68** (0.29)	0.57* (0.31)
ln(SERVICE)	0.29 (1.11)	0.36 (1.24)	0.31 (0.56)	0.04 (0.58)
ln(LABOR)	-0.07 (1.05)	0.76 (1.23)	-0.19 (0.43)	0.05 (0.46)
Constant	9.28 (23.70)	1.16 (29.03)	-9.38* (5.39)	-9.11 (5.74)
<u>R-squared:</u>				
Within	0.36	0.56	0.14	0.25
Between	0.09	0.34	0.85	0.87
Overall	0.12	0.37	0.77	0.82
Total observations	90	90	90	90
Total group	47	47	47	47

Note: Asterisks denote statistical significance as follows: *statistically significant at the .10 level; **at the .05 level; ***at the .01 level.