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Economic, Labor, and Regulatory Moderators of the Effect of Individual Placement and Support Among People With Severe Mental Illness: A Systematic Review and Meta-analysis

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As Individual Placement and Support (IPS) has become the international standard for vocational rehabilitation of adults with serious mental illness, researchers must consider the relationship between IPS and local environments. This meta-analysis used mixed-effects meta-regressions to assess the impact of site-level moderators on the likelihood that IPS recipients, compared with recipients of alternative vocational services, achieved competitive employment. Potential moderators included change in gross domestic product (GDP), local unemployment and unionization rates, and indices describing employment protection regulations, level of disability benefits compensation, and efforts to integrate people with disabilities into the workforce. Regulatory moderators represent facilitators and barriers to employment that may reinforce or detract from the effectiveness of IPS. Across 30 sites drawn from 21 randomized controlled trials in 12 countries (33% in the United States), IPS recipients were 2.31 (95% CI 1.99–2.69) times more likely to find competitive employment than recipients of alternative vocational rehabilitation services. The significant competitive-employment rate advantage of IPS over control services increased in the presence of weaker employment protection legislation and integration efforts, and less generous disability benefits. Policy makers should recognize and account for the fact that labor and disability regulations can create an arrangement of incentives that reduces the relative efficacy of supported employment.

Key words: supported employment/disability benefit regulations/labor union/vocational rehabilitation/employment protection regulations/community mental health

Introduction

Researchers developed Individual Placement and Support (IPS) in the early 1990s in an environment of disenchantment with sheltered workshops and other segregated day programs.[1] IPS is a development of an alternative approach to vocational services known as supported employment, in which a "place-train" approach replaces the practice of training people with disabilities in protected work settings in preparation for regular community jobs.[2] More than 20 randomized controlled trials (RCTs) have demonstrated increased employment among IPS recipients, and IPS has been adopted across the United States and in more than a dozen other countries.[3] Extensive research has been conducted to understand how individual IPS recipients' characteristics affect their likelihood of success in IPS, and there have been some efforts to quantify the impact of local economic factors on the effect of IPS. However, despite ongoing interest in employment protection laws (legislation that shields existing employees from dismissal after a probationary period) and disability benefit policies (which may discourage recipients from seeking employment—the "benefits trap"), research focusing on the interaction between IPS and the local regulatory environment has been minimal.

Previous efforts to address the influence of local economic conditions on IPS have either been based on multisite studies[4–6] or a traditional meta-analytic framework.[7] During the recession of the late 2000s, the unemployment rate increased more sharply for people with disabilities than in the general labor force.[8] One study found that the beneficial effect of supported employment compared to usual services increased in the presence of higher unemployment rates,[6] but not the most recent study.[7] Two studies have assessed the role of change in GDP. One found that GDP growth increased employment for both IPS and control participants,[5] while another concluded that IPS was slightly more effective when the GDP growth was higher.[7]

The effect of local unionization on IPS outcomes has not been studied. Labor unions, through their collective approach to protecting the rights of workers, may constitute a barrier to employment for nonunion job applicants and therefore restrict the entry of workers with limited work history, such as young adults or people with psychiatric disabilities, into the labor force.[9]

Local regulatory conditions can establish barriers to the dismissal of current employees, which both reduces the rate at which new workers are hired into existing positions and makes employers less likely to hire unproven workers, and can affect the rate of return to the labor market of those receiving disability benefits. Laws regulating job security and restrictions on employer hiring and firing practices[10–13] can deter the hiring of new employees. Economists have speculated that the Americans with Disability Act may have had the unintended consequence of impeding employment of those with disabilities by mandating both equal pay for equal work and reasonable accomodation of workers' disabilities in the workplace.[11] Similarly, the incentives and disincentives associated with disability benefit regulations can impact labor force participation.[14] For example, increased generosity of benefits can provide a disincentive to recipients to find work. The absence of measures that adequately describe constructs as complex as national regulatory environments has hampered research. The 6-site EQOLISE study employed a 3-level ("high, low, or no risk" of a benefits trap) subjective scale and concluded that the risk of a "benefits trap" accounted for a significant amount of between-site outcome heterogeneity in job acquisition for both IPS and alternative vocational services.[5] The Organization for Economic Cooperation and Development (OECD) defined 2 dimensions of disability policy, characterizing both the generosity of benefits and mandated efforts to integrate people with disabilities into the workforce.[15–17] We used these indices in our analysis.

This goal of this study was to quantify the influences of these economic, labor, and regulatory moderators of the IPS employment outcomes. We tested the hypotheses that IPS mitigates the negative effects of factors believed to inhibit employment, including poor local economic conditions, higher rates of unionization, more active employment protections and a more generous disability benefit structure, and that IPS benefits from a local focus on returning those with disabilities to work.

Methods

We systematically reviewed the IPS literature and conducted a meta-analysis using an unregistered protocol that followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (www.prismastatement.org). We limited the meta-analysis to a single outcome measure, the competitive employment rate, defined as percentage of the total participants who worked in a competitive job at any time during the follow-up period. Competitive employment rate, reported in all published RCTs of IPS, is a moderately valid proxy for commonly reported employment outcome measures.[18]

Study Inclusion and Exclusion Criteria

The study inclusion/exclusion criteria were as follows:

- Published RCT evaluating 2 or more groups, one of which was IPS and one an active control group providing an alternative form of vocational rehabilitation. We excluded other research designs, such as quasi-experimental studies, cluster randomized trials, and studies that compared standard IPS to augmentations or modifications of IPS.
- Study published between 1996 (year of the first IPS RCT) and May 2017.
- Study documented adherence to IPS fidelity standards.
- The study population consisted of adults (aged 18+) with a serious mental illness such as schizophrenia, affective disorder, or post-traumatic stress disorder.
- The research team prospectively collected and reported competitive employment outcomes for a fixed follow-up period. A competitive job is a regular permanent community job that anyone with or without a disability can apply for and that pays wages commensurate to any employee in the same position (and at least minimum wage).
- The study reported competitive employment rates for both IPS and control groups for the fixed follow-up period, with rate defined as number of participants holding a competitive employment job at any time during follow-up divided by the total enrolled.

Search Procedures

We began by examining studies included in previous IPS systematic reviews[7,19] and a recent compilation of IPS RCTs.[3] To ensure comprehensiveness, we also conducted electronic searches of the PubMed and PsycINFO databases. The database search strategy was based on keywords, and combinations of keywords, describing serious mental illness, Individual Placement and Support, and randomized controlled trials. When more than one report on a given study was published, we utilized the findings from the report with the longer period of follow-up.

Data Extraction

Two study authors independently performed primary data extraction, which included primary outcomes and subject and study characteristics, and compiled their findings in separate MS Excel files. They then compared their findings and resolved any disagreements by referring to the primary sources. We requested information on missing or

incomplete data, including site-specific outcome counts or, for multi-site studies, from study authors. The authors extracted secondary data, consisting of potential socio-economic moderators, from primary source material.

Measures and Indices

Outcome Measure. We determined site-level outcomes for each treatment arm based on both the number of participants holding a competitive employment job at any time during follow-up and the total enrolled, as reported in the original reports. For the denominator in this calculation of employment rate, some studies used the total intent-to-treat sample size and others used the final follow-up sample size. We assessed aspects of study design as potential moderators of the effect of IPS, relative to alternative forms of vocational services, and found no significant association between the effect of IPS and either proportion lost to follow-up or duration of follow-up. Further details are available from the authors.

Economic Factors. When available, we used economic indicators measured at the local rather than the state or national level, choosing statistics as proximate to the median year of follow-up as possible. Primary sources included the US Bureau of Labor Statistics, the OECD, Hong Kong Census and Statistics Department, and the Bulgarian National Statistics Institute, each of which base their figures on national surveys.

Unemployment Rate Unemployment rate is defined as the proportion of the workforce that is unemployed. The workforce consists of all persons defined as either employed or unemployed. An unemployed person has no employment despite being able to work and actively seeking employment (www.bls.gov/bls/glossary.htm).

Percent Change in GDP from Previous Year By the expenditure method, the GDP is the sum of gross private consumption expenditures, gross private investment, government purchases, and net exports. (www.econport.org/content/handbook/NatIncAccount/CalculatingGDP/Expenditures.html). Percent change in GDP is based on inflation-adjusted annual GDP.

Labor Environment

Unionization Rate. Unionization rate is the proportion of the workforce that is a union member. Precise definitions and means of determining union membership vary. Some countries rely on population surveys, while others rely on union reports.[20]

Regulatory Indices

We used 3 pragmatic scores, developed originally to measure variability across OECD nations, to describe regulatory activity. All 3 were summative indices of multiple items assessing national statutes, all coded such that higher scores correspond to a more interventionist regulatory environment, meaning either greater restrictions on employers' hiring and firing practices or more aggressive efforts to integrate those with disabilities into the workforce, or a more generous disability insurance system.

Employment Protection Legislation (EPL) Index. The OECD formulated a summary index describing strictness of employee protection legislation on a continuous 6-point scale derived from national statutes. Based on an established methodology,[10] a higher score represents stricter employee protection. For example, employment protections in the United States are relatively weak, employers being permitted to hire and fire at will (EPL Index = 0.257 from 1985 to 2013), but in the Netherlands employment protections are far more robust (EPL Index = 2.885 from 1999 to 2008). Yearly EPL index scores are provided for OECD states. We computed scores for Bulgaria and Hong Kong based on available data.

Disability Benefit Statutes. Two OECD-developed indices describe national disability benefits statutes: the *compensation dimension*, consisting of the generosity, ease of access to, and permanence of benefits; and the *integration dimension*, which describes the accessibility of vocational rehabilitation and incentives provided for joining the workforce. Each dimension consists of 10 items rated on a 0–5 scale. Higher scores indicate either a more generous (compensation dimension) or more interventionist (integration dimension) benefit structure. Previously determined scores are available for OECD member nations.[15–17] Using documentation of the scoring methodologies for these 2 dimensions,[15] the authors assigned compensation scores for Bulgaria[21] and Hong Kong[22] based on available descriptions of national disability benefit statutes (www.ssa.gov/policy/docs/progdesc/ssptw/2008–2009/europe/; email correspondence with Manfred Fung and Andy Cheng, February, 2015).

Statistical Analysis

Our primary effect measure was the risk ratio comparing the probability of competitive employment among study arms receiving IPS to the probability of competitive employment among study arms receiving alternative vocational services. To increase precision in the measurement of regulatory and economic factors, we made the a priori decision to designate site as the primary unit of meta-analysis. Several multi-site studies were conducted in locations separated by either national or state boundaries, and the potential moderators in question can vary greatly between locations. In addition, we treated the outcome as a random effect of treatment because there is no reason to assume that the observed effect of IPS will remain fixed across the range of subject characteristics,

local economic conditions, cultural milieu, and alternative vocational services exhibited at the site level.

We reported the overall risk ratio (inverse-variance-weighted random effects method) as computed by RevMan 5.3[23] for site-level outcomes, and we used the Q-statistic to test for and I^2 to quantify heterogeneity and consistency.[24] A series of mixed effects meta-regressions generated with proc glimmix (SAS 9.4)[25] using random intercepts for each site and a log link function to directly model probability of competitive employment assessed potential sources of heterogeneity associated with economic, unionization, and regulatory factors at individual study sites. These models included parameters specifying treatment condition, an individual moderator, and the interaction between the two. A significant interaction term indicates that the moderator effect on probability of competitive employment differs between IPS and alternative vocational services. We used a Type I error rate of $\alpha = 0.05$.

Results

Study Selection

Beginning with a preliminary list of RCTs, we conducted a systematic literature search to ensure that all possible RCTs would be considered for inclusion. This search yielded 216 potential studies, but 52 were duplicate articles that appeared in both PubMed and PsycINFO. Two authors first screened the articles by title and abstract, then read the complete texts of the 31 remaining studies to assess for eligibility. We excluded 10 of these 31 because the intervention was not IPS, the study was not an RCT, or the article was either an early report on a longer study or a duplicate report; we excluded one study based primarily on its large size (figure 1). In addition, the authors contacted active IPS researchers to locate any in-press or unpublished studies of potential relevance; this effort did not yield any additional studies. The authors identified 21 studies for inclusion in this analysis (table 1).[5,26–46] Study texts provided site-specific outcome data, and the authors sought site-specific environmental moderators from the statistical arms of relevant governmental agencies. Values for all environmental factors were the most local available that most closely corresponded with both publication year and median year of follow-up (table 1)

A range of study populations, periods of follow-up, treatment, and alternative vocational services were represented in the selected studies. Study sample sizes ranged from 37 to 312 (mean = 147), follow-up period from 5 months to 5 years (mean = 20 months), year of publication from 1996 to 2015 (mean = 2009), and 0%–44% of subjects were lost to follow-up (mean = 23%). Mean age of the study samples ranged from 21.4 to 51 (mean = 38), percent male from 33.5 to 88.2 (mean = 61%), and percent with a primary diagnosis of psychotic disorder from 0 to 100 (mean = 60%). We included studies conducted in

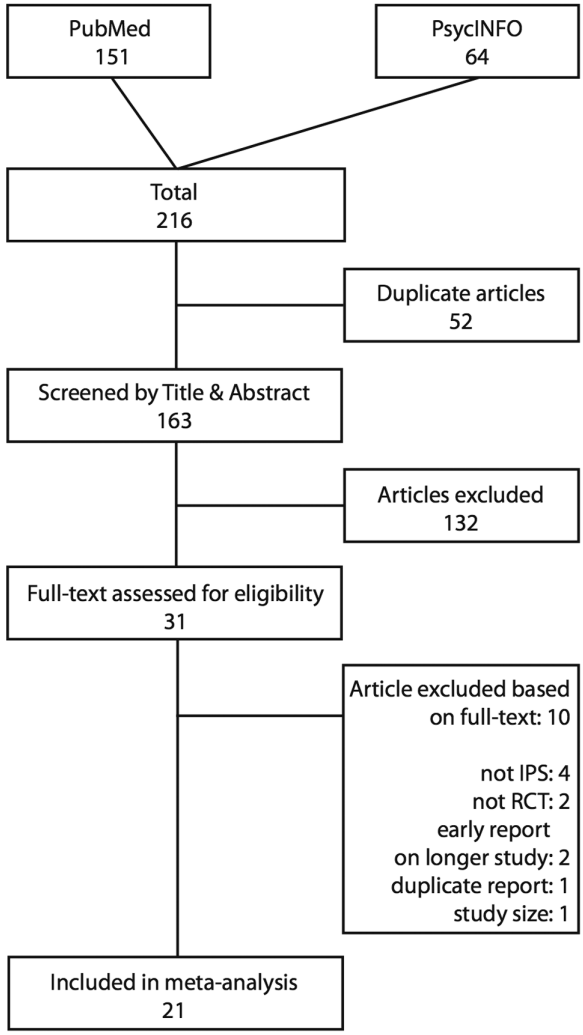

Fig. 1. Systematic literature search based on (["supported employment" or "individual placement and support"] and ["randomized controlled trial" or "controlled clinical trial" or randomized controlled trials]). Search updated at the end of May, 2017.

Australia, Bulgaria, Canada, Germany, Hong Kong, Italy, Japan, Netherlands, Sweden, Switzerland, the United Kingdom, and the United States. One study included IPS, an enhanced IPS treatment group, and an alternative vocational service, and we retained the standard IPS and the alternative for analysis, excluding the enhanced treatment.[42] One study had 2 alternative vocational services, which we combined into a single group.[40] We also chose to exclude the sites of the Mental Health Treatment Study (MHTS).[32] The large sample size and large number of sites (23 out of 53 sites and 41% of the total sample size) would have biased the results of the meta-analysis toward those of a population that had met certain work requirements to receive Social Security Disability Insurance. The absence of variability in US regulatory moderators would have magnified this bias, as US employment and

Table 1. Study Characteristics: Potential Site-Level Economic and Regulatory Moderators

Author	Year of Publication	Country	State (or equivalent)	% Unemployed	%Δ GDP	% Unionized	EPL	Disability Compensation	Disability Integration
Bejerholm	2015	Sweden	Skane	8.3	-5.2	68.4	2.607	33	38
Bond	2007	United States	IL	7.6	0	19.7	0.257	21	23
Bond	2015	United States	IL	9.6	-2.5	14.6	0.257	17	21
Burns	2007	Bulgaria		12	6.6	17.5	1.202	25	
		Germany	Baden-Württemberg	5.4	1.2	22.2	2.869	32	35
		Italy	Emilia-Romagna	5.8	1.6	34.1	2.762	22	18
		Netherlands	Groningen	8.5	1.9	20.8	2.885	28	34
		Switzerland	Zurich	4.3	2.8	19.5	1.595	37	23
		United Kingdom	London	7.1	2.5	28.9	1.198	21	30
Davis	2012	United States	AL	10.2	-3.4	10.9	0.257	17	21
Drake	1996	United States	NH	4.5	1.2	8.3	0.257	21	23
		United States	NH	6.3	1.2	8.3	0.257	21	23
Drake	1999	United States	DC	8.8	-2.7	15.1	0.257	21	23
Gold	2006	United States	SC	4.6	2.9	4.5	0.257	21	23
Heslin	2011	United Kingdom	London	7.8	3	28.1	1.198	21	31
Hoffmann	2014	Switzerland	Espace Mittelland	3.4	2.3	17.5	1.595	32	27
Killackey	2008	Australia	Victoria	5	2.1	20.2	1.417	21	28
Latimer	2006	Canada	QC	9.4	1.3	41	0.921	13	22
Lehman	2002	United States	MD	4.6	3.5	14.1	0.257	21	23
Michon	2014	Netherlands		3.6	4.2	19.3	2.918	24	35
Mueser	2004	United States	CT	3.7	2.7	17.5	0.257	21	23
Oshima	2014	Japan	(South) Kanto	3.6	2.2	18.3	1.369	21	27
Tsang	2009	Hong Kong		6.8	8.6	20.6	1.940	20	
Twamley	2012	United States	CA	4.3	4	16.5	0.257	17	21
Viering	2015	Switzerland	Zurich	4.2	1.9	16.2	1.595	32	27
Waghorn	2014	Australia	Queensland	5.4	1	19.3	1.167	21	28
		Australia	Queensland	5.4	1	19.3	1.167	21	28
		Australia	Queensland	5.4	1	19.3	1.167	21	28
		Australia	Queensland	5.4	1	19.3	1.167	21	28
Wong	2008	Hong Kong		7.9	3.1	20.6	1.940	20	

Note: Possible Employment Protection Legislation (EPL) scores range from 0 to 6, with higher scores indicating stricter employee protections. Possible Disability benefit Compensation and Integration scores range from 0 to 50, and higher scores indicate either a more generous (compensation dimension) or more interventionist (integration dimension) benefit structure.

disability regulations are less interventionist than those of most of the other countries included in the analysis.

Employment Outcomes

Across the 30 sites of the primary analysis, the pooled mean risk ratio comparing the probability of competitive employment in IPS arms to alternative vocational services was 2.31 (95% CI 1.99–2.69) (figure 2), and the heterogeneity of site-based outcomes across 30 sites was in the moderate range (Q = 53.70, I^2 = 46%, P = .004), not due to sampling error and justifying further analysis of potential moderators.

Moderator Outcomes

Interactions between moderators and form of vocational rehabilitation were significant in all models of potential regulatory moderators but not in models of unemployment, unionization rate, or GDP change (table 2). Relative to control arms, the IPS arms experienced a 14% decrease in the probability of competitive employment

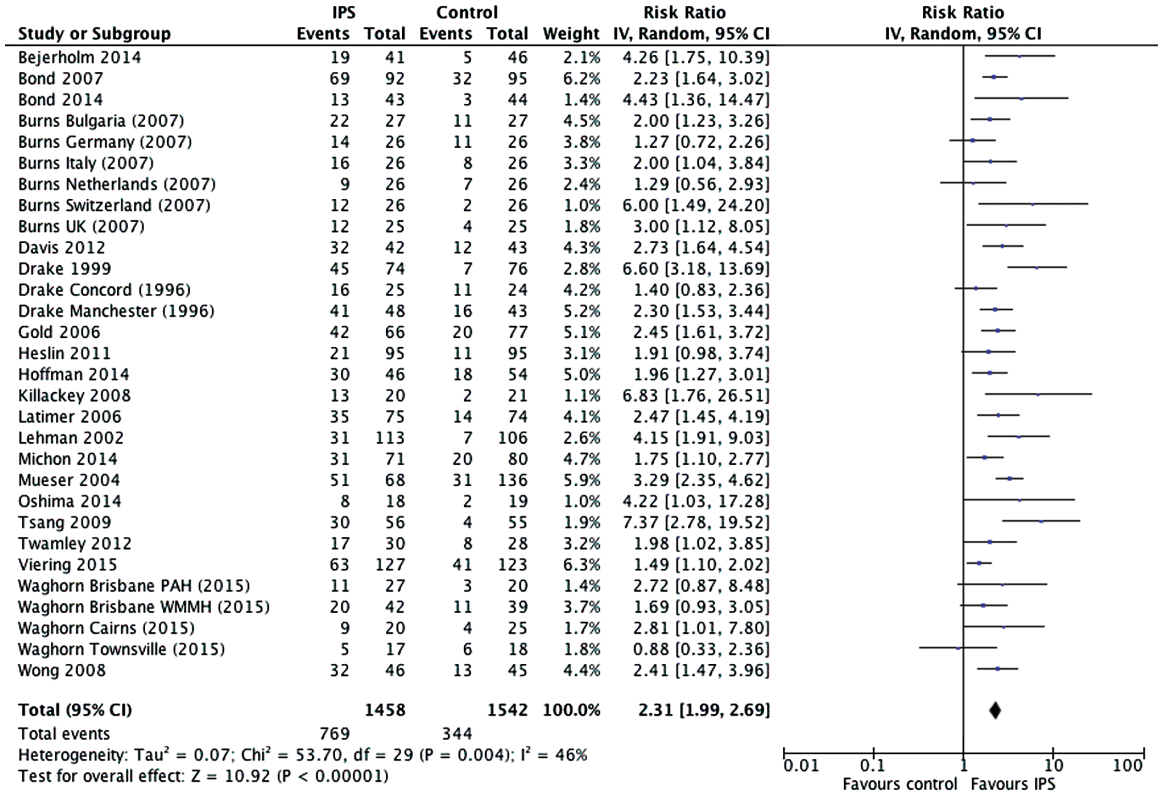

Fig. 2. Relative risk of competitive employment comparing IPS to the control condition using study site as unit of analysis.[1,2]

indicating that nearly half of the observed variance was

Table 2. Treatment × Moderator Interaction Effects

Model: Treatment + Moderator + (Treatment × Moderator), link=log	Treatment × Moderator Interaction			
Moderator	RR	Lcl	Ucl	*P* Value
% GDP Change	0.984	0.946	1.024	.432
% Unemployment[b]	1.036	0.989	1.085	.140
% Unionization[b,c]	1.040	0.936	1.155	.471
Employment Protection Legislation Index[a]	0.862	0.769	0.966	.012
Compensation Index[a]	0.974	0.955	0.993	.008
Integration Index[a]	0.971	0.948	0.995	.020

Note: Fixed effects estimates of local economic and regulatory moderator interactions with treatment (reference=control) using study site as unit of analysis in mixed effects generalized linear models (link function=log). Risk Ratio (RR) represents the ratio of the probability of competitive employment among IPS arms to the probability of competitive employment among control arms.
[a]Value zeroed to weighted sample median.
[b]Value zeroed to weighted sample mean.
[c]Value divided by 10.

for every one point increment in the EPL Index score (RR = 0.862, 95% CI 0.769–0.966, P = .012) and a 3% decrease for every one point increment in both the OECD Disability Benefit Compensation (RR = 0.974, 95% CI 0.955–0.993, P = .008) and Integration (RR = 0.971, 95% CI 0.948–0.995, P = .02) Indices. Complete models can be seen in the online Appendix. Figure 3 depicts treatment-stratified predicted probability plots showing the relationships between significant moderators and competitive employment over the observed moderator ranges and shows the trends that produced the significant interactions. IPS programs experienced reduced likelihood of employment, but other vocational services experienced stable or increased employment, in the presence of increasingly interventionist regulations.

Discussion

Individual Placement and Support was, over the full range of the assessed moderators, consistently more effective at placing recipients in competitive employment than alternative vocational services. IPS was more effective, relative to controls, in the presence of less interventionist employment protections, a less generous disability benefit structure, and less aggressive state efforts to integrate people with disabilities into the workforce. This meta-analysis is unique in assessing potential moderators of employment outcomes, including comprehensive measures of regulatory environments, across multiple studies at the site-level.

The susceptibility of the IPS advantage to more interventionist regulatory environments validates a larger framework of research in which regulations affect the motives of employers and jobseekers, the consequences of which can undermine both the goal of policy makers to encourage participation in the labor force and the efforts of the targeted populations to find employment. Employment protections make it more difficult for employers to fire employees, the result being both that positions are open less frequently and that employers will be more cautious in their hiring. Disability benefits provide income security for those unable to work, but the prospect of loss or reduction of benefits can also discourage those able to work from seeking employment. Efforts to integrate people with disabilities into the workforce can encourage vocational rehabilitation efforts, but if less effective services are funded many jobseekers will be unsuccessful. This study adds decreased IPS efficacy, relative to less effective forms of vocational rehabilitation, to the often unforeseen consequences of increasingly interventionist employment and disability regulations. Moreover, a decrease in the likelihood of employment among IPS arms appears to drive these interactions; alternative services appear less affected. This analysis also did not find any significant association between the effect of IPS and unionization or, in contrast to previous research, unemployment[6] or GDP change.[5,7]

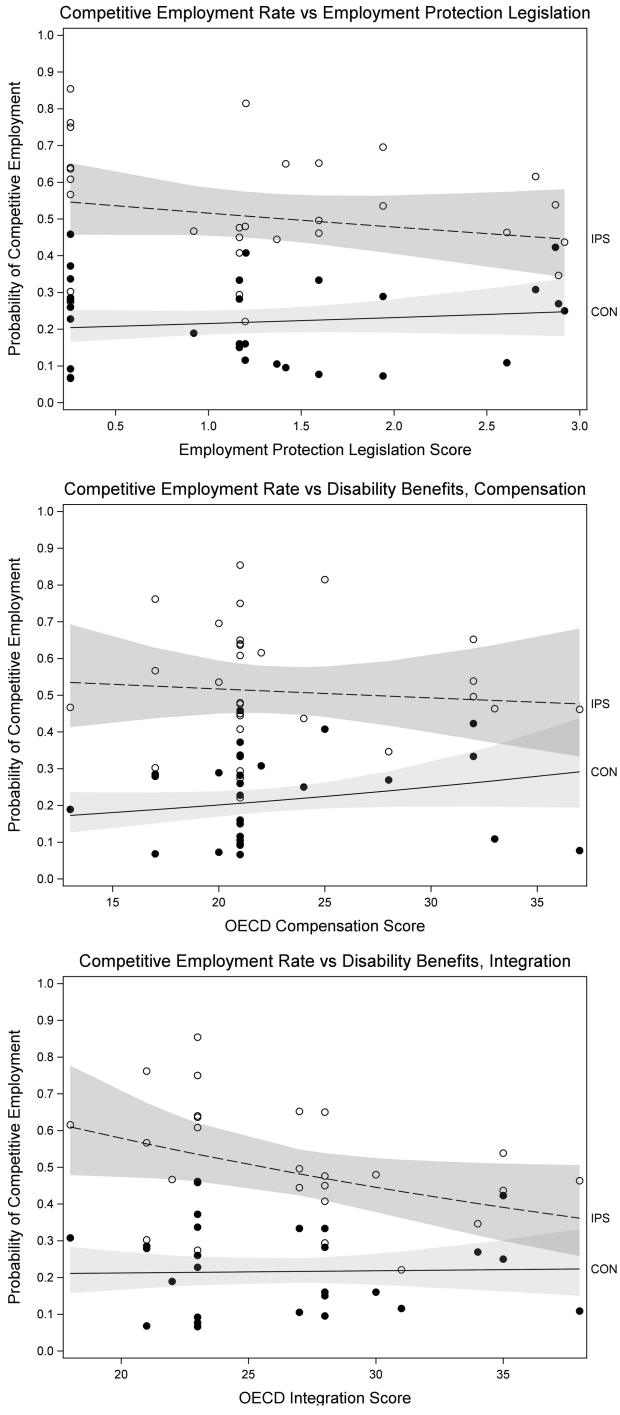

Fig. 3. Analysis of regulatory moderators. Predicted probability plots, with 95% confidence intervals, of marginal predictions based on individual moderators combined with scatter plots of site-specific data. Stratified by type of vocational service (IPS vs control).

This study has several limitations associated with the meta-analytic framework, study selection, and outcome measure. The sample, including most available RCTs, was opportunistic, creating an inevitable potential for sampling bias in moderator assessment. Every study sampled a unique population according to unique

methodological constraints and featured a range of alternative vocational services. The moderators had various limitations pertaining to their accuracy and validity. The chosen outcome does not distinguish between income levels, job duration, or other employment measures; therefore, this analysis cannot assess the full range of potential employment benefits associated with various regulatory environments. The associations described cannot be described as causal.

The consistent significance of the interactions between regulatory moderators and form of vocational service in these analyses, across a broad range of very different regulatory regimes, indicates a direction of research that will help policy makers understand and anticipate the effects of regulations on evidence-based services such as IPS. This analysis relies on regulatory measures that are both general and correlated (r = 0.5–0.69), and measures designed to more precisely parse regulatory environments may reveal stronger effects. In IPS, employment specialists develop relationships with local employers to facilitate job acquisition, and local regulatory factors may act on this mechanism to vary the effect of IPS relative to other forms of vocational rehabilitation. For example, employment protection legislation consists of several primary components, including mandated delays and notification procedures, severance pay, and difficulty of dismissal,[10] all of which reduce employers' freedom to create employment opportunities. Stronger employment protections may reduce the incentive for employers to engage in efforts, such as maintaining relationships with IPS personnel, that facilitate the hiring of new workers. It may be possible to isolate the aspects of these and other regulations that have the greatest influence.

Conclusions

The effect of IPS is robust across a wide range of economic, labor, and regulatory conditions. However, IPS programs function in contexts defined by local conditions, and it is more effective, compared to alternative forms of vocational rehabilitation, when local regulatory environments neither inhibit the hiring practices of employers nor create an incentive structure that reduces motivation to find work.

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Conflict of Interest

The authors have declared that there are no conflicts of interest in relation to the subject of this study.

Appendix: Complete Table 2 Models

This appendix contains the full model associated with table 2 in the main text. It is presented with both IPS and control as reference level.

Reference level=control. Fixed effects parameter estimates of environmental factors using study site as unit of analysis in random effects generalized linear models (link function=log).

Model: Treatment + Moderator + (Treatment × Moderator), link=log	Intercept[d]	Treatment Effect[e] (reference=control)				Moderator				Treatment × Moderator Interaction				
Moderator	Est	Est	SE	*t* Value	*P* Value	Est	SE	*t* Value	*P* Value	Trt Level	Est	SE	*t* Value	*P* Value
-	-1.538	0.866	0.052	16.542	<.001									
% GDP Change	-1.567	0.894	0.063	14.088	<.001	0.017	0.028	0.609	.544	IPS	-0.016	0.020	-0.789	.432
% Unemployment[b]	-1.542	0.870	0.053	16.453	<.001	-0.023	0.033	-0.696	.488	IPS	0.035	0.024	1.489	.140
% Unionization[b,c]	-1.545	0.875	0.054	16.244	<.001	-0.111	0.067	-1.651	.102	IPS	0.039	0.054	0.723	.471
Employment Protection Legislation Index[a]	-1.524	0.849	0.053	16.109	<.001	0.072	0.081	0.892	.375	IPS	-0.148	0.058	-2.557	.012
Compensation Index[a]	-1.582	0.918	0.057	16.132	<.001	0.022	0.014	1.596	.114	IPS	-0.027	0.010	-2.713	.008
Integration Index[a]	-1.542	0.917	0.064	14.430	<.001	0.003	0.015	0.180	.858	IPS	-0.029	0.012	-2.369	.020

[a]Value zeroed to weighted sample median.
[b]Value zeroed to weighted sample mean.
[c]Value divided by 10.
[d]Intercept parameter corresponds to the natural log of the risk of competitive employment for control group at moderator reference level.
[e]Treatment effect parameter corresponds to natural log of the risk of competitive employment.

Reference level=IPS. Fixed effects parameter estimates of environmental factors using study site as unit of analysis in random effects generalized linear models (link function=log).

Model: Treatment + Moderator + (Treatment × Moderator), link=log	Intercept[d]	Treatment Effect[e] (reference=control)				Moderator				Treatment × Moderator Interaction				
Moderator	Est	Est	SE	*t* Value	*P* Value	Est	SE	*t* Value	*P* Value	Trt Level	Est	SE	*t* Value	*P* Value
-	-0.672	-0.866	0.052	-16.542	<.001									
% GDP Change	-0.673	-0.894	0.063	-14.088	<.001	0.001	0.023	0.041	.968	Cont	0.016	0.020	0.789	.432
% Unemployment[b]	-0.672	-0.870	0.053	-16.453	<.001	0.012	0.027	0.445	.657	Cont	-0.035	0.024	-1.489	.140
% Unionization[b,c]	-0.671	-0.875	0.054	-16.244	<.001	-0.072	0.053	-1.354	.179	Cont	-0.039	0.054	-0.723	.471
Employment Protection Legislation Index[a]	-0.675	-0.849	0.053	-16.109	<.001	-0.076	0.069	-1.108	.271	Cont	0.148	0.058	2.557	.012
Integration Index[a]	-0.665	-0.918	0.057	-16.132	<.001	-0.005	0.012	-0.408	.684	Cont	0.027	0.010	2.713	.008
Compensation Index[a]	-0.626	-0.917	0.064	-14.430	<.001	-0.026	0.013	-2.012	.048	Cont	0.029	0.012	2.370	.020

[a]Value zeroed to weighted sample median.
[b]Value zeroed to weighted sample mean.
[c]Value divided by 10.
[d]Intercept parameter corresponds to the natural log of the risk of competitive employment for control group at moderator reference level.
[e]Treatment effect parameter corresponds to natural log of the risk of competitive employment.

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