
How many U.S. jobs might be offshorable?

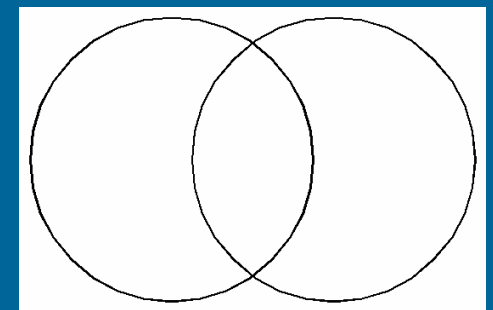
Alan S. Blinder
Princeton University
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Why try to estimate such a slippery concept?

- Because the offshoring of service jobs from the United States to poorer countries may be the most important issue in political economy of the next generation.
- If there is to be any (intelligent) policy preparation, we need a crude estimate of the potential size of the phenomenon.

Potential “offshorability”

- The key characteristic is how easy/hard it is to deliver the service to the end-user *electronically* over long distances.
 - Example of a “100”: keypunching data
 - Example of a “0”: child care
 - Example of a “50”: file clerks
- Relation to Autor, Levy, Murnane: routinizability vs. offshorability



Ground rules

1. Estimate *potential* offshorability
2. Perhaps 10-20 years ahead
3. With normal technological progress (e.g., Moore's law); no "beam me up, Scotty"
4. Based on 2004 occupational mix (not 2024)
5. Scale is ordinal, not cardinal
6. Subjective, not objective (next slide)

Why do something crazy like that?

- I preferred an objective ranking.
- Kletzer's (2006) example (Jensen-Kletzer)
 - Ex: Lawyers & judges: 96% tradable
 - Ex: Telephone operators: 7% tradable
- In O*NET terminology:
 - “communicating with persons outside the organization” can be by phone or email.
 - “face-to-face discussions” can be with fellow workers
- I created an objective index, too. But the rank correlation between my subjective and objective indexes was just +0.16.

Creating an offshorability index

- Reminder: The key characteristic is how easy/hard it is to deliver the service to the end-user electronically over long distances.
- I use detailed O*NET job descriptions to rank jobs *subjectively* by their offshorability. (See Table 2.)
- Some examples:
 - “assisting and caring for others”
 - “establishing and maintaining interpersonal relationships”
 - “coaching and developing others”
 - “communicating with persons outside the organization”
 - “performing for or working directly with the public”

Table 2

Major Occupations Ranked by Offshorability

Occupation	SOC code	Category	Index number	Number of Workers
Computer programmers	15-1021	I	100	389,090
Telemarketers	41-9041	I	95	400,860
Computer systems analysts	15-1051	I	93	492,120
Billing and posting clerks and Machine operators	43-3021	I	90	513,020
Bookkeeping, accounting, and auditing clerks	43-3031	I	84	1,815,340
Computer support specialists	15-1041	I and II	92/68	499,860
Computer software engineers, Applications	15-1031	II	74	455,980
Computer software engineers, systems software	15-1032	II	74	320,720
Accountants ^p	13-2011	II	72	591,311
Welders, cutters, solderers, and brazers	51-4121	II	70	358,050
Helpers—production workers	51-9198	II	70	528,610
First-line supervisors/managers of production and operating workers	51-1011	II	68	679,930
Packaging and filling machine operators and tenders	51-9111	II	68	396,270
Team assemblers	51-2092	II	65	1,242,370
Bill and account collectors	43-3011	II	65	431,280
Machinists	51-4041	II	61	368,380
Inspectors, testers, sorters, samplers, and weighers	51-9061	II	60	506,160
General and operations managers	11-1021	III	55	1,663,810
Stock clerks and order fillers	43-5081	III	34	1,625,430
Shipping, receiving, and traffic clerks	43-5071	III	29	759,910
Sales managers	11-2022	III	26	317,970
Business operations specialists, all other	13-1199	IV	25	916,290

An alternative subjective index

- Created independently by an experienced human resources professional
- Based on my criteria, but not on any details of implementation (and double blind)
- Rank correlation when both rated the occupation potentially offshorable ($\rho=.38$)
- κ -coefficient for 2x2 contingency table = .79

Offshorability, skills, and wages

- $\rho(\text{index, education}) = +0.08$
- $\rho(\text{index, median wage}) = +0.01$
- A simple regression:

$$\ln(w) = \alpha + \beta(ED) + \gamma OD + \varepsilon$$

Coeff. of first offshorability dummy = -0.138 (t=2.1)

Bottom line

- This *can* be done.
- Replication efforts are underway.
- I estimate that 30-40 million U.S. jobs might be *offshorable* (not “will be offshored”).
- I take this number to be *large* in the policy sense, but *not* so large that we should panic.