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## Article

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## WHAT SORTS OF RICH-COUNTRY JOBS (AND HOW MANY) ARE AT RISK TO GLOBALIZATION?

### FOR NOW, MIDDLE-SKILLED JOBS ARE THE MOST VULNERABLE

FRANK LEVY AND  
RICHARD J. MURNANE\*

For a job to be offshored, it must have two characteristics:

- The job can be done anywhere.
- Relevant information can be exchanged between the client and offshore producer without big misunderstandings.

The first characteristic insures that industrialized countries will retain a variety of “low-skilled” service jobs that must be done on-site: janitors, security guards, restaurant helpers, nursing home attendants. These jobs, which are growing in number, are described as low-skilled and pay low wages because many people can do them.

The second characteristic – no misunderstandings – will help to send many middle-skilled jobs offshore. To see why, begin with the fact that information is inherently ambiguous. We resolve the ambiguity by applying the context of experience. When people have different experiences, an exchange of new information can create misunderstandings and work can go awry. I send an email requesting you to draw a stylish four-door sedan. We will have the same understanding of “four door sedan” but your understanding of “stylish” can be very different than mine. We may need face-to-face conversation to reach a common understanding.

In certain repetitive jobs – most of them middle-skilled – misunderstandings are overcome by describ-

ing the job in step-by-step rules that everyone learns. Rules provide an adequate description of the work because the employee performs exactly the same operations on every shoe or credit card statement.

If a job can be expressed in rules, it is a good candidate for offshoring because the rules can be explained to someone 9,000 miles away with minimal misunderstanding. The rules also make the job a good candidate to be programmed on a computer and there are many examples of this computer-offshoring overlap. Call center work that moves offshore is heavily scripted – “rule-like” – while other call center work is lost to speech recognition software. Assembly line jobs are lost to offshore manufacturers and to robots. Preparing basic tax returns is lost to offshore accountants and to software like *TurboTax* and *TaxCut*. These rules-based jobs – most of them middle-skilled – are in greatest danger of moving offshore, if they aren’t computerized first.

In higher skilled jobs, rules are no longer possible because work is no longer uniform. Each piece of work may require new procedures, and monitoring the quality of the offshore producer becomes difficult. Manufactured shirts are expected to be uniform and a manufacturer’s quality can be established by sampling a few shirts. But how do we establish a radiologist’s quality when each medical image is potentially different? What about the quality of an architect or an attorney?

Because of these communication problems, most of the higher skilled jobs that have moved offshore are technical jobs in programming, engineering, financial analysis, etc. – jobs that combine a need for some expert judgment with a heavy component of rules and standardized procedures that allow people at both ends of the transaction to understand each other.

Over time, firms may find a way around this communication problem – enhanced telecommunications, rotating offshore producers through domestic sites to create shared experience. But in the near term, it is rules-based middle-skilled jobs that occupy the most tenuous positions.

<sup>1</sup> Levy and Murnane are professors at Massachusetts Institute of Technology and Harvard University, respectively. They are the authors of *The New Division of Labor: How Computers are Creating the Next Job Market* (Princeton University Press, paperback edition 2005). A summary of the book’s arguments is contained in the working paper, “How Computerized Work and Globalization Shape Human Skill Demands” which can be downloaded from [web.mit.edu/flevy/www](http://web.mit.edu/flevy/www).

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