

Questions 11-21 are based on the following passage and supplementary material.

This passage is adapted from David Rotman, “How Technology Is Destroying Jobs.” ©2013 by MIT Technology Review.

MIT business scholars Erik Brynjolfsson and Andrew McAfee have argued that impressive advances in computer technology—from improved industrial robotics to automated translation services—are largely behind the sluggish employment growth of the last 10 to 15 years. Even more ominous for workers, they foresee dismal prospects for many types of jobs as these powerful new technologies are increasingly adopted not only in manufacturing, clerical, and retail work but in professions such as law, financial services, education, and medicine.

That robots, automation, and software can replace people might seem obvious to anyone who’s worked in automotive manufacturing or as a travel agent. But Brynjolfsson and McAfee’s claim is more troubling and controversial. They believe that rapid technological change has been destroying jobs faster than it is creating them, contributing to the stagnation of median income and the growth of inequality in the United States. And, they suspect, something similar is happening in other technologically advanced countries.

As evidence, Brynjolfsson and McAfee point to a chart that only an economist could love. In economics, productivity—the amount of economic value created for a given unit of input, such as an hour of labor—is a crucial indicator of growth and wealth creation. It is a measure of progress. On the chart Brynjolfsson likes to show, separate lines represent productivity and total employment in the United States. For years after World War II, the two lines closely tracked each other, with increases in jobs corresponding to increases in productivity. The pattern is clear: as businesses generated more value from their workers, the country as a whole became richer, which fueled more economic activity and created even more jobs. Then, beginning in 2000, the

lines diverge; productivity continues to rise robustly, but employment suddenly wilts. By 2011, a significant gap appears between the two lines, showing economic growth with no parallel increase in job creation. Brynjolfsson and McAfee call it the “great decoupling.” And Brynjolfsson says he is confident that technology is behind both the healthy growth in productivity and the weak growth in jobs.

It’s a startling assertion because it threatens the faith that many economists place in technological progress. Brynjolfsson and McAfee still believe that technology boosts productivity and makes societies wealthier, but they think that it can also have a dark side: technological progress is eliminating the need for many types of jobs and leaving the typical worker worse off than before. Brynjolfsson can point to a second chart indicating that median income is failing to rise even as the gross domestic product soars. “It’s the great paradox of our era,” he says. “Productivity is at record levels, innovation has never been faster, and yet at the same time, we have a falling median income and we have fewer jobs. People are falling behind because technology is advancing so fast and our skills and organizations aren’t keeping up.”

While technological changes can be painful for workers whose skills no longer match the needs of employers, Lawrence Katz, a Harvard economist, says that no historical pattern shows these shifts leading to a net decrease in jobs over an extended period. Katz has done extensive research on how technological advances have affected jobs over the last few centuries—describing, for example, how highly skilled artisans in the mid-19th century were displaced by lower-skilled workers in factories. While it can take decades for workers to acquire the expertise needed for new types of employment, he says, “we never have run out of jobs. There is no long-term trend of eliminating work for people. Over the long term, employment rates are fairly stable. People have always been able to create new jobs. People come up with new things to do.”

Still, Katz doesn’t dismiss the notion that there is something different about today’s digital technologies—something that could affect an even broader range of work. The question, he says, is whether economic history will serve as a useful

85 guide. Will the job disruptions caused by technology
be temporary as the workforce adapts, or will we see
a science-fiction scenario in which automated
processes and robots with superhuman skills take
over a broad swath of human tasks? Though Katz
90 expects the historical pattern to hold, it is “genuinely
a question,” he says. “If technology disrupts enough,
who knows what will happen?”

Figure 1

United States Productivity and Employment

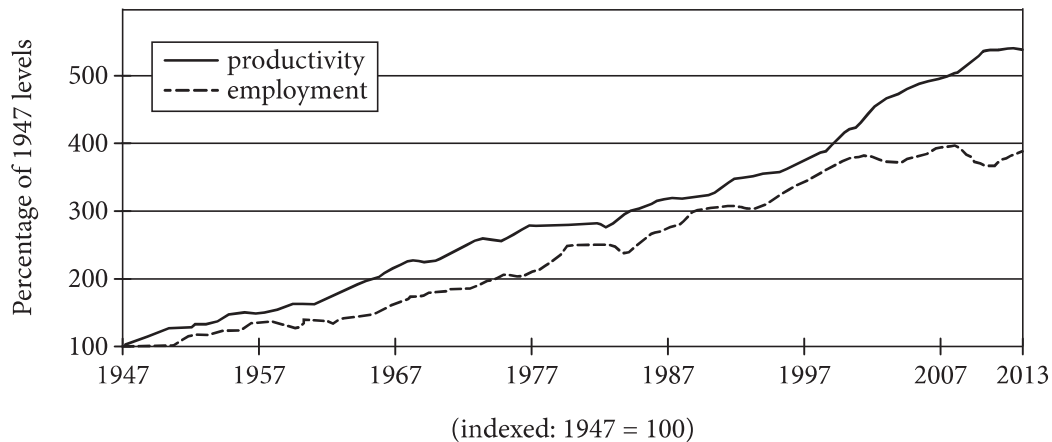
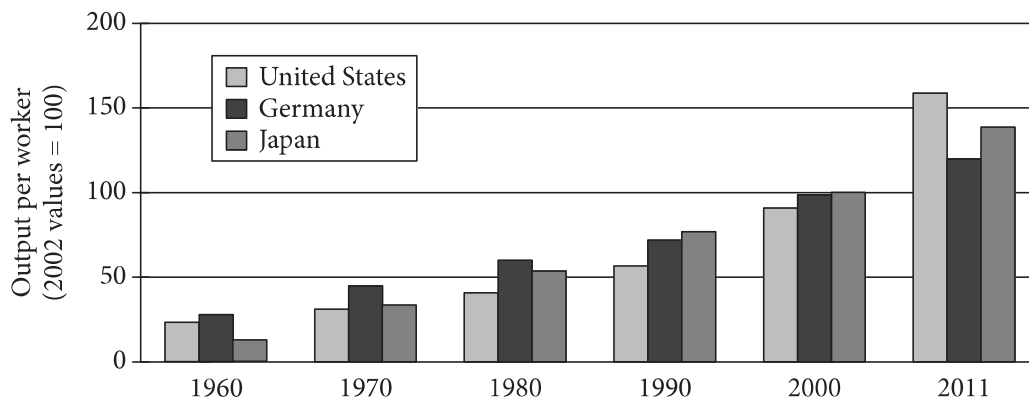


Figure 2

Output per Employed Person in Manufacturing
as Factories Have Become More Automated



11

The main purpose of the passage is to

- A) examine the role of technology in workers' lives during the last century.
- B) advocate for better technology to enhance workplace conditions.
- C) argue for changes in how technology is deployed in the workplace.
- D) assess the impact of advancements in technology on overall job growth.

12

According to Brynjolfsson and McAfee, advancements in technology since approximately the year 2000 have resulted in

- A) low job growth in the United States.
- B) global workplace changes.
- C) more skilled laborers in the United States.
- D) no global creation of new jobs.

13

Which choice provides the best evidence for the answer to the previous question?

- A) Lines 1-6 ("MIT . . . years")
- B) Lines 13-15 ("That . . . agent")
- C) Lines 21-23 ("And . . . countries")
- D) Lines 35-38 ("as businesses . . . jobs")

14

The primary purpose of lines 26-28 ("the amount . . . labor") is to

- A) describe a process.
- B) highlight a dilemma.
- C) clarify a claim.
- D) explain a term.

15

As used in line 35, "clear" most nearly means

- A) pure.
- B) keen.
- C) untroubled.
- D) unmistakable.

16

Which of the following best characterizes Katz's attitude toward "today's digital technologies" (lines 81-82)?

- A) He is alarmed about countries' increasing reliance on them.
- B) He is unconcerned about their effect on the economy.
- C) He is uncertain how they might affect job growth.
- D) He is optimistic that they will spur job creation to a degree not seen since the mid-nineteenth century.

17

Which choice provides the best evidence for the answer to the previous question?

- A) Lines 68-72 (“Katz . . . factories”)
- B) Lines 73-75 (“While . . . jobs”)
- C) Line 79 (“People come . . . do”)
- D) Lines 91-92 (“If . . . happen”)

18

As used in line 83, “range” most nearly means

- A) region.
- B) scope.
- C) distance.
- D) position.

19

According to figure 1, which of the following years showed the widest gap between percentages of productivity and employment?

- A) 1987
- B) 1997
- C) 2007
- D) 2013

20

Which statement is supported by figure 2?

- A) The country with the greatest growth in output per manufacturing worker from 1960 to 1990 was Germany.
- B) Japan experienced its smallest increase in output per manufacturing worker from 2000 to 2011.
- C) Each of the three countries experienced an increase in its output per manufacturing worker from 1960 to 2011.
- D) Of the three countries, the United States had the greatest output per manufacturing worker for each of the years shown.

21

Which additional information, if presented in figure 2, would be most useful in evaluating the statement in lines 57-60 (“Productivity . . . jobs”)?

- A) The median income of employees as it compares across all three countries in a single year
- B) The number of people employed in factories from 1960 to 2011
- C) The types of organizations at which output of employed persons was measured
- D) The kinds of manufacturing tasks most frequently taken over by machines