AP Seminar Performance Task 2: Individual Research-Based Essay and Presentation

Directions and Stimulus Materials

January 2017
(revised January 9, 2017)

CollegeBoard

Contents

Introduction

This performance task, highlighted in bold below, is one of three parts of the overall assessment for AP Seminar and one of two performance tasks. The assessment for this course is comprised of:

Performance Task 1: Team Project and Presentation

- Component 1: Individual Research Report
- Component 2: Team Multimedia Presentation and Oral Defense

Performance Task 2: Individual Research-Based Essay and Presentation

- **Component 1: Individual Written Argument**
- **Component 2: Individual Multimedia Presentation**
- **Component 3: Oral Defense**

End-of-Course Exam

- Part A: Three Short-Answer Questions (based on one source)
- Part B: One Essay Question (based on four sources)

The attached pages include the directions for Performance Task 2; information about the weighting of the task within the overall assessment and detailed information as to the expected quantity and quality of work that you should submit.

Also included are the stimulus materials for the task. These materials are theme-based and broadly span the academic curriculum. After analyzing the materials, develop a research question that suits your individual interest based on a thematic connection between at least two of the stimulus materials. Your research question must be rich enough to allow you to engage in meaningful exploration and write and present a substantive, defensible argument.

AP Seminar Performance Task 2: Individual Research-Based Essay and Presentation

Student Version

Weight: 35% of the AP Seminar score

Task Overview

This packet includes a set of stimulus materials for the AP Seminar Performance Task 2: Individual Research-Based Essay and Presentation.

You must identify a research question prompted by analysis of the provided stimulus materials, gather information from a range of additional sources, develop and refine an argument, write and revise your argument, and create a presentation that you will be expected to defend. Your teacher will give you a deadline for when you need to submit your written argument and presentation media. Your teacher will also give you a date on which you will give your presentation.

Task Components	Length	Date Due (fill in)
Individual Written Argument	2000 words	
Individual Multimedia Presentation	6–8 minutes	
Oral Defense	Respond to 2 questions	

In all written work, you must:

- Acknowledge, attribute, and/or cite sources using in-text citations, endnotes or footnotes, and/or through bibliographic entry. You must avoid plagiarizing (see the attached AP Capstone Policy on Plagiarism and Falsification or Fabrication of Information).
- Adhere to established conventions of grammar, usage, style, and mechanics.

Task Directions

1. **Individual Written Argument** (2000 words)
   - Read and analyze the provided stimulus materials to identify thematic connections among the sources and possible areas for inquiry.
   - Compose a research question of your own prompted by analysis of the stimulus materials.
   - Gather information from a range of additional sources representing a variety of perspectives, including scholarly work.
   - Analyze, evaluate, and select evidence. Interpret the evidence to develop a well-reasoned argument that answers the research question and conveys your perspective.

- Throughout your research, continually revisit and refine your original research question to ensure that the evidence you gather addresses your purpose and focus.
- Identify opposing or alternate views and consider their implications and/or limitations as you develop resolutions, conclusions, or solutions to your research question.
- Compose a coherent, convincing and well-written argument in which you:
  - Identify and explain the relationship of your inquiry to a theme or connection among at least two of the stimulus materials prompted by your reading.
  - Incorporate at least one of the stimulus materials.
  - Place your research question in context.
  - Include a variety of perspectives.
  - Include evidence from a range of sources.
  - Establish an argument that links claims and evidence.
  - Provide specific resolutions, conclusions and/or solutions.
  - Evaluate objections, limitations or competing perspectives and arguments.
  - Cite all sources that you have used, including the stimulus materials, and include a list of works cited or a bibliography.
  - Use correct grammar and style.
- Do a word count and keep under the 2000-word limit (excluding footnotes, bibliography, and text in figures or tables).
- Remove references to your name, school or teacher.
- Upload your document to the AP Digital Portfolio.

2. **Individual Multimedia Presentation** (6–8 minutes)
   - Develop and prepare a multimedia presentation that will convey your argument to an audience of your peers.
   - Be selective about the information you choose for your presentation by focusing on key points you want your audience to understand.
   - Design your oral presentation with supporting visual media, and consider audience, context, and purpose.
   - Prepare to engage your audience using appropriate strategies (e.g., eye contact, vocal variety, expressive gestures, movement).
   - Prepare notecards or an outline that you can quickly reference as you are speaking so that you can interact with supporting visuals and the audience.
   - Rehearse your presentation in order to refine your design and practice your delivery.
   - Check that you can do the presentation within the 6- to 8-minute time limit.

- Deliver a 6–8 minute multimedia presentation in which you:
  - Contextualize and identify the importance of your research question.
  - Explain the connection between your research and your analysis of the stimulus materials.
  - Deliver an argument that connects claims and evidence.
  - Incorporate, synthesize and interpret evidence from various perspectives.
  - Offer resolutions, conclusions, and/or solutions based on evidence and consider the implications of any suggested solutions.
  - Engage the audience with an effective and clearly organized presentation design.
  - Engage the audience with effective techniques of delivery and performance.

3. **Individual Oral Defense** (two questions)

   Defend your research process, use of evidence, and conclusion(s), solution(s), or recommendation(s) through oral responses to two questions asked by your teacher. Be prepared to describe and reflect on your process as well as defend and extend your written work and oral presentation.

Sample Oral Defense Questions

Here are some examples of the types of questions your teacher might ask you during your oral defense. These are *examples only*; your teacher may ask you different questions, but there will still be one question that relates to each of the following two categories.

1. **Reflection on Research Process**
   - What information did you need before you began your research, and how did that information shape your research?
   - What evidence did you gather that you didn't use? Why did you choose not to use it?
   - How valid and reliable are the sources you used? How do you know? Which sources didn't work?
   - How did you select the strategies you used to gather information or conduct research? Were they effective?
   - How did your research question evolve as you moved through the research process? Did your research go in a different direction than you originally planned/hypothesized?
   - What information did you need that you weren't able to find or locate? How did you go about trying to find that information?
   - How did you handle the differing perspectives in order to reach a conclusion?

2. **Extending argumentation through effective questioning and inquiry**
   - What additional questions emerged from your research? Why are these questions important?
   - What advice would you have for other researchers who consider this topic?
   - What might be the real-world implications or consequences (influence on others' behaviors or decision-making processes) of your findings? What are the implications to your community?
   - If you had more time, what additional research would you conduct related to this issue?
   - Explain the level of certainty you have about your conclusion, solution, or recommendation.
   - How does your conclusion respond to any of the other research or sources you examined?
   - How did you use the conclusions and questions of others to advance your own research?

AP Capstone™ Policy on Plagiarism and Falsification or Fabrication of Information

A student who fails to acknowledge the source or author of any and all information or evidence taken from the work of someone else through citation, attribution or reference in the body of the work, or through a bibliographic entry, will receive a score of 0 on that particular component of the AP Seminar and/or AP Research Performance Task. In AP Seminar, a team of students that fails to properly acknowledge sources or authors on the Team Multimedia Presentation will receive a group score of 0 for that component of the Team Project and Presentation.

A student who incorporates falsified or fabricated information (e.g. evidence, data, sources, and/or authors) will receive a score of 0 on that particular component of the AP Seminar and/or AP Research Performance Task. In AP Seminar, a team of students that incorporates falsified or fabricated information in the Team Multimedia Presentation will receive a group score of 0 for that component of the Team Project and Presentation.

A World Without Work

By Derek Thompson

Photographs by Adam Levey

From *The Atlantic*, July/August 2015

50 JULY/AUGUST 2015 THE ATLANTIC

For centuries, experts have predicted that machines would soon make workers obsolete. What if they weren't wrong, but only premature? An exploration of what society without jobs might look like—and how we can prepare.

A World Without Work

By DEREK THOMPSON

Photographs by Adam Levey

1. Youngstown, U.S.A.

The end of work is still just a futuristic concept for most of the United States, but it is something like a moment in history for Youngstown, Ohio, one its residents can cite with precision: September 19, 1977.

For much of the 20th century, Youngstown's steel mills delivered such great prosperity that the city was a model of the American dream, boasting a median income and a home-ownership rate that were among the nation's highest. But as manufacturing shifted abroad after World War II, Youngstown steel suffered, and on that gray September afternoon in 1977, Youngstown Sheet and Tube announced the shuttering of its Campbell Works mill. Within five years, the city lost 50,000 jobs and $1.3 billion in manufacturing wages. The effect was so severe that a term was coined to describe the fallout: *regional depression*.

Youngstown was transformed not only by an economic disruption but also by a psychological and cultural breakdown. Depression, spousal abuse, and suicide all became much more prevalent; the caseload of the area's mental-health center tripled within a decade. The city built four prisons in the mid-1990s—a rare growth industry. One of the few downtown construction projects of that period was a museum dedicated to the defunct steel industry.

This winter, I traveled to Ohio to consider what would happen if technology permanently replaced a great deal of human work. I wasn't seeking a tour of our automated future. I went because Youngstown has become a national metaphor for the decline of labor, a place where the middle class of the 20th century has become a museum exhibit.

"Youngstown's story is America's story, because it shows that when jobs go away, the cultural cohesion of a place is destroyed," says John Russo, a professor of labor studies at Youngstown State University. "The cultural breakdown matters even more than the economic breakdown."

In the past few years, even as the United States has pulled itself partway out of the jobs hole created by the Great Recession, some economists and technologists have warned that the economy is near a tipping point. When they peer deeply into labor-market data, they see troubling signs, masked for now by a cyclical recovery. And when they look up from their spreadsheets, they see automation high and low—robots in the operating room and behind the fast-food counter. They imagine self-driving cars snaking through the streets and Amazon drones dotting the sky, replacing millions of drivers, warehouse stockers, and retail workers. They observe that the capabilities of machines—already formidable—continue to expand exponentially, while our own remain the same. And they wonder: *Is any job truly safe?*

Futurists and science-fiction writers have at times looked forward to machines' workplace takeover with a kind of giddy excitement, imagining the banishment of drudgery and its replacement by expansive leisure and almost limitless personal freedom. And make no mistake: if the capabilities of computers continue to multiply while the price of computing continues to decline, that will mean a great many of life's necessities and luxuries will become ever cheaper, and it will mean great wealth—at least when aggregated up to the level of the national economy.

But even leaving aside questions of how to distribute that wealth, the widespread disappearance of work would usher in a social transformation unlike any we've seen. If John Russo is right, then saving work is more important than saving any particular job. Industriousness has served as America's unofficial religion since its founding. The sanctity and preeminence of work lie at the heart of the country's politics, economics, and social interactions. What might happen if work goes away?

THE U.S. LABOR FORCE has been shaped by millennia of technological progress. Agricultural technology birthed the farming industry, the industrial revolution moved people into factories, and then globalization and automation moved them back out, giving rise to a nation of services. But throughout these reshufflings, the total number of jobs has always increased. What may be looming is something different: an era of technological unemployment, in which computer scientists and software engineers essentially invent us out of work, and the total number of jobs declines steadily and permanently.

This fear is not new. The hope that machines might free us from toil has always been intertwined with the fear that they will rob us of our agency. In the midst of the Great Depression, the economist John Maynard Keynes forecast that technological progress might allow a 15-hour workweek, and abundant leisure, by 2030. But around the same time, President Herbert Hoover received a letter warning that industrial technology was a "Frankenstein monster" that threatened to upend manufacturing, "devouring our civilization." (The letter came from the mayor of Palo Alto, of all places.) In 1962, President John F. Kennedy said, "If men have the talent to invent new machines that put men out of work, they have the talent to put those men back to work." But two years later, a committee of scientists and social activists sent an open letter to President Lyndon B. Johnson arguing that "the

cybernation revolution" would create "a separate nation of the poor, the unskilled, the jobless," who would be unable either to find work or to afford life's necessities.

The job market defied doomsayers in those earlier times, and according to the most frequently reported jobs numbers, it has so far done the same in our own time. Unemployment is currently just over 5 percent, and 2014 was this century's best year for job growth. One could be forgiven for saying that recent predictions about technological job displacement are merely forming the latest chapter in a long story called *The Boys Who Cried Robot*—one in which the robot, unlike the wolf, never arrives in the end.

The end-of-work argument has often been dismissed as the "Luddite fallacy," an allusion to the 19th-century British brutes who smashed textile-making machines at the dawn of the industrial revolution, fearing the machines would put hand-weavers out of work. But some of the most sober economists are beginning to worry that the Luddites weren't wrong, just premature. When former Treasury Secretary Lawrence Summers was an MIT undergraduate in the early 1970s, many economists disdained "the stupid people [who] thought that automation was going to make all the jobs go away," he said at the National Bureau of Economic Research Summer Institute in July 2013. "Until a few years ago, I didn't think this was a very complicated subject: the Luddites were wrong, and the believers in technology and technological progress were right. I'm not so completely certain now."

2. Reasons to Cry Robot

What does the "end of work" mean, exactly? It does not mean the imminence of total unemployment, nor is the United States remotely likely to face, say, 30 or 50 percent unemployment within the next decade. Rather, technology could exert a slow but continual downward pressure on the value and availability of work—that is, on wages and on the share of prime-age workers with full-time jobs. Eventually, by degrees, that could create a new normal, where the expectation that work will be a central feature of adult life dissipates for a significant portion of society.

After 300 years of people crying wolf, there are now three broad reasons to take seriously the argument that the beast is at the door: the ongoing triumph of capital over labor, the quiet demise of the working man, and the impressive dexterity of information technology.

• *Labor's losses.* One of the first things we might expect to see in a period of technological displacement is the diminishment of human labor as a driver of economic growth. In fact, signs that this is happening have been present for quite some time. The share of U.S. economic output that's paid out in wages fell steadily in the 1980s, reversed some of its losses in the '90s, and then continued falling after 2000, accelerating during the Great Recession. It now stands at its lowest level since the government started keeping track in the mid-20th century.

A number of theories have been advanced to explain this phenomenon, including globalization and its accompanying loss of bargaining power for some workers. But Loukas Karabarbounis and Brent Neiman, economists at the University of Chicago, have estimated that almost half of the decline is the result of businesses' replacing workers with computers and software. In 1964, the nation's most valuable company, AT&T, was worth $267 billion in today's dollars and employed 758,611 people. Today's telecommunications giant, Google, is worth $370 billion but has only about 55,000 employees—less than a tenth the size of AT&T's workforce in its heyday.

Oxford researchers have forecast that machines might be able to take half of all U.S. jobs within two decades.

• *The spread of nonworking men and underemployed youth.* The share of prime-age Americans (25 to 54 years old) who are working has been trending down since 2000. Among men, the decline began even earlier: the share of prime-age men who are neither working nor looking for work has doubled since the late 1970s, and has increased as much throughout the recovery as it did during the Great Recession itself. All in all, about one in six prime-age men today are either unemployed or out of the workforce altogether. This is what the economist Tyler Cowen calls "the key statistic" for understanding the spreading rot in the American workforce. Conventional wisdom has long held that under normal economic conditions, men in this age group—at the peak of their abilities and less likely than women to be primary caregivers for children—should almost all be working. Yet fewer and fewer are.

Economists cannot say for certain why men are turning away from work, but one explanation is that technological change has helped eliminate the jobs for which many are best suited. Since 2000, the number of manufacturing jobs has fallen by almost 5 million, or about 30 percent.

Young people just coming onto the job market are also struggling—and by many measures have been for years. Six years into the recovery, the share of recent college grads who are "underemployed" (in jobs that historically haven't required a degree) is still higher than it was in 2007—or, for that matter, 2000. And the supply of these "non-college jobs" is shifting away from high-paying occupations, such as electrician, toward low-wage service jobs, such as waiter. More people are pursuing higher education, but the real wages of recent college graduates have fallen by 7.7 percent since 2000. In the biggest picture, the job market appears to be requiring more and more

preparation for a lower and lower starting wage. The distorting effect of the Great Recession should make us cautious about overinterpreting these trends, but most began before the recession, and they do not seem to speak encouragingly about the future of work.

• *The shrewdness of software.* One common objection to the idea that technology will permanently displace huge numbers of workers is that new gadgets, like self-checkout kiosks at drugstores, have failed to fully displace their human counterparts, like cashiers. But employers typically take years to embrace new machines at the expense of workers. The robotics revolution began in factories in the 1960s and '70s, but manufacturing employment kept rising until 1980, and then collapsed during the subsequent recessions. Likewise, "the personal computer existed in the '80s," says Henry Siu, an economist at the University of British Columbia, "but you don't see any effect on office and administrative-support jobs until the 1990s, and then suddenly, in the last recession, it's huge. So today you've got checkout screens and the promise of driverless cars, flying drones, and little warehouse robots. We know that these tasks can be done by machines rather than people. But we may not see the effect until the next recession, or the recession after that."

Some observers say our humanity is a moat that machines cannot cross. They believe people's capacity for compassion, deep understanding, and creativity are inimitable. But as Erik Brynjolfsson and Andrew McAfee have argued in their book *The Second Machine Age*, computers are so dexterous that predicting their application 10 years from now is almost impossible. Who could have guessed in 2005, two years before the iPhone was released, that smartphones would threaten *hotel jobs* within the decade, by helping homeowners rent out their apartments and houses to strangers on Airbnb? Or that the company behind the most popular search engine would design a self-driving car that could soon threaten driving, the most common job occupation among American men?

The jobless don't spend their time socializing or taking up new hobbies. Instead, they watch TV or sleep.

In 2013, Oxford University researchers forecast that machines might be able to perform half of all U.S. jobs in the next two decades. The projection was audacious, but in at least a few cases, it probably didn't go far enough. For example, the authors named psychologist as one of the occupations least likely to be "computerisable." But some research suggests that people are more honest in therapy sessions when they believe they are confessing their troubles to a computer, because a machine can't pass moral judgment. Google and WebMD already may be answering questions once reserved for one's therapist. This doesn't prove that psychologists are going the way of the textile worker. Rather, it shows how easily computers can encroach on areas previously considered "for humans only."

AFTER 300 YEARS of breathtaking innovation, people aren't massively unemployed or indentured by machines. But to suggest how this could change, some economists have pointed to the defunct career of the second-most-important species in U.S. economic history: the horse.

For many centuries, people created technologies that made the horse more productive and more valuable—like plows for agriculture and swords for battle. One might have assumed that the continuing advance of complementary technologies would make the animal ever more essential to farming and fighting, historically perhaps the two most consequential human activities. Instead came inventions that made the horse obsolete—the tractor, the car, and the tank. After tractors rolled onto American farms in the early 20th century, the population of horses and mules began to decline steeply, falling nearly 50 percent by the 1930s and 90 percent by the 1950s.

Humans can do much more than trot, carry, and pull. But the skills required in most offices hardly elicit our full range of intelligence. Most jobs are still boring, repetitive, and easily learned. The most-common occupations in the United States are retail salesperson, cashier, food and beverage server, and office clerk. Together, these four jobs employ 15.4 million people—nearly 10 percent of the labor force, or more workers than there are in Texas and Massachusetts combined. Each is highly susceptible to automation, according to the Oxford study.

Technology creates some jobs too, but the creative half of creative destruction is easily overstated. Nine out of 10 workers today are in occupations that existed 100 years ago, and just 5 percent of the jobs generated between 1993 and 2013 came from "high tech" sectors like computing, software, and telecommunications. Our newest industries tend to be the most labor-efficient: they just don't require many people. It is for precisely this reason that the economic historian Robert Skidelsky, comparing the exponential growth in computing power with the less-than-exponential growth in job complexity, has said, "Sooner or later, we will run out of jobs."

Is that certain—or certainly imminent? No. The signs so far are murky and suggestive. The most fundamental and wrenching job restructurings and contractions tend to happen during recessions: we'll know more after the next couple of downturns. But the possibility seems significant enough—and the consequences disruptive enough—that we owe it to ourselves to start thinking about what society could look like without universal work, in an effort to begin nudging it toward the better outcomes and away from the worse ones.

To paraphrase the science-fiction novelist William Gibson, there are, perhaps, fragments of the post-work future distributed throughout the present. I see three overlapping

possibilities as formal employment opportunities decline. Some people displaced from the formal workforce will devote their freedom to simple leisure; some will seek to build productive communities outside the workplace; and others will fight, passionately and in many cases fruitlessly, to reclaim their productivity by piecing together jobs in an informal economy. These are futures of *consumption*, *communal creativity*, and *contingency*. In any combination, it is almost certain that the country would have to embrace a radical new role for government.

3. Consumption: The Paradox of Leisure

Work is really three things, says Peter Frase, the author of *Four Futures*, a forthcoming book about how automation will change America: the means by which the economy produces goods, the means by which people earn income, and an activity that lends meaning or purpose to many people's lives. "We tend to conflate these things," he told me, "because today we need to pay people to keep the lights on, so to speak. But in a future of abundance, you wouldn't, and we ought to think about ways to make it easier and better to not be employed."

Frase belongs to a small group of writers, academics, and economists—they have been called "post-workists"—who welcome, even root for, the end of labor. American society has "an irrational belief in work for work's sake," says Benjamin Hunnicutt, another post-workist and a historian at the University of Iowa, even though most jobs aren't so uplifting. A 2014 Gallup report of worker satisfaction found that as many as 70 percent of Americans don't feel engaged by their current job. Hunnicutt told me that if a cashier's work were a video game—grab an item, find the bar code, scan it, slide the item onward, and repeat—critics of video games might call it mindless. But when it's a job, politicians praise its intrinsic dignity. "Purpose, meaning, identity, fulfillment, creativity, autonomy—all these things that positive psychology has shown us to be necessary for well-being are absent in the average job," he said.

The post-workists are certainly right about some important things. Paid labor does not always map to social good. Raising children and caring for the sick is essential work, and these jobs are compensated poorly or not at all. In a post-work society, Hunnicutt said, people might spend more time caring for their families and neighbors; pride could come from our relationships rather than from our careers.

The post-work proponents acknowledge that, even in the best post-work scenarios, pride and jealousy will persevere, because reputation will always be scarce, even in an economy of abundance. But with the right government provisions, they believe, the end of wage labor will allow for a golden age of well-being. Hunnicutt said he thinks colleges could reemerge as cultural centers rather than job-prep institutions. The word *school*, he pointed out, comes from *skholē,* the Greek word for "leisure." "We used to teach people to be free," he said. "Now we teach them to work."

Hunnicutt's vision rests on certain assumptions about taxation and redistribution that might not be congenial to many Americans today. But even leaving that aside for the moment, this vision is problematic: it doesn't resemble the world as it is currently experienced by most jobless people. By and large, the jobless don't spend their downtime socializing with friends or taking up new hobbies. Instead, they watch TV or sleep. Time-use surveys show that jobless prime-age people dedicate some of the time once spent working to cleaning and childcare. But men in particular devote most of their free time to leisure, the lion's share of which is spent watching television, browsing the Internet, and sleeping. Retired seniors watch about 50 hours of television a week, according to Nielsen. That means they spend a majority of their lives either sleeping or sitting on the sofa looking at a flatscreen. The unemployed theoretically have the most time to socialize, and yet studies have shown that they feel the most social isolation; it is surprisingly hard

to replace the camaraderie of the water cooler.

Most people want to work, and are miserable when they cannot. The ills of unemployment go well beyond the loss of income; people who lose their job are more likely to suffer from mental and physical ailments. "There is a loss of status, a general malaise and demoralization, which appears somatically or psychologically or both," says Ralph Catalano, a public-health professor at UC Berkeley. Research has shown that it is harder to recover from a long bout of joblessness than from losing a loved one or suffering a life-altering injury. The very things that help many people recover from other emotional traumas—a routine, an absorbing distraction, a daily purpose—are not readily available to the unemployed.

The transition from labor force to leisure force would likely be particularly hard on Americans, the worker bees of the rich world: Between 1950 and 2012, annual hours worked per worker fell significantly throughout Europe—by about 40 percent in Germany and the Netherlands—but by only 10 percent in the United States. Richer, college-educated Americans are working *more* than they did 30 years ago, particularly when you count time working and answering e-mail at home.

In 1989, the psychologists Mihaly Csikszentmihalyi and Judith LeFevre conducted a famous study of Chicago workers that found people at work often wished they were somewhere else. But in questionnaires, these same workers reported feeling better and less anxious in the office or at the plant than they did elsewhere. The two psychologists called this "the paradox of work": many people are happier complaining about jobs than they are luxuriating in too much leisure. Other researchers have used the term *guilty couch potato* to describe people who use media to relax but often feel worthless when they reflect on their unproductive downtime. Contentment speaks in the present tense, but something more—pride—comes only in reflection on past accomplishments.

The post-workists argue that Americans work so hard because their culture has conditioned them to feel guilty when they are not being productive, and that this guilt will fade as work ceases to be the norm. This might prove true, but it's an untestable hypothesis. When I asked Hunnicutt what sort of modern community most resembles his ideal of a post-work society, he admitted, "I'm not sure that such a place exists."

Less passive and more nourishing forms of mass leisure could develop. Arguably, they already are developing. The Internet, social media, and gaming offer entertainments that are as easy to slip into as is watching TV, but all are more purposeful and often less isolating. Video games, despite the derision aimed at them, are vehicles for achievement of a sort. Jeremy Bailenson, a communications professor at Stanford, says that as virtual-reality technology improves, people's "cyber-existence" will become as rich and social as their "real" life. Games in which users climb "into another person's skin to embody his or her experiences firsthand" don't just let people live out vicarious fantasies, he has argued, but also "help you live as somebody else to teach you empathy and pro-social skills."

But it's hard to imagine that leisure could ever entirely fill the vacuum of accomplishment left by the demise of labor. Most people do need to achieve things through, yes, *work* to feel a lasting sense of purpose. To envision a future that offers more than minute-to-minute satisfaction, we have to imagine how millions of people might find meaningful work without formal wages. So, inspired by the predictions of one of America's most famous labor economists, I took a detour on my way to Youngstown and stopped in Columbus, Ohio.

4. Communal Creativity: The Artisans' Revenge

Artisans made up the original American middle class. Before industrialization swept through the U.S. economy, many people who didn't work on farms were silversmiths, blacksmiths, or woodworkers. These artisans were ground up by the machinery of mass production in the 20th century. But Lawrence Katz, a labor economist at Harvard, sees the next wave of automation returning us to an age of craftsmanship and artistry. In particular, he looks forward to the ramifications of 3-D printing, whereby machines construct complex objects from digital designs.

The factories that arose more than a century ago "could make Model Ts and forks and knives and mugs and glasses in a standardized, cheap way, and that drove the artisans out of business," Katz told me. "But what if the new tech, like 3-D-printing machines, can do customized things that are almost as cheap? It's possible that information technology and robots eliminate traditional jobs and make possible a new artisanal economy ... an economy geared around self-expression, where people would do artistic things with their time."

In other words, it would be a future not of consumption but of creativity, as technology returns the tools of the assembly line to individuals, democratizing the means of mass production.

Something like this future is already present in the small but growing number of industrial shops called "makerspaces" that have popped up in the United States and around the world. The Columbus Idea Foundry is the country's largest such space, a cavernous converted shoe factory stocked with industrial-age machinery. Several hundred members pay a monthly fee to use its arsenal of machines to make gifts and jewelry; weld, finish, and paint; play with plasma cutters and work an angle grinder; or operate a lathe with a machinist.

COLUMBUS IDEA FOUNDRY

Around the country, industrial shops known as "makerspaces" are serving both professional and vocational interests, and becoming communities in their own right.

When I arrived there on a bitterly cold afternoon in February, a chalkboard standing on an easel by the door displayed three arrows, pointing toward BATHROOMS, PEWTER CASTING, and ZOMBIES. Near the entrance, three men with black fingertips and grease-stained shirts took turns fixing a 60-year-old metal-turning lathe. Behind them, a resident artist was tutoring an older woman on how to transfer her photographs onto a large canvas, while a couple of guys fed pizza pies into a propane-fired stone oven. Elsewhere, men in protective goggles welded a sign for a local chicken restaurant, while others punched codes into a computer-controlled laser-cutting machine. Beneath the din of drilling and woodcutting, a Pandora rock station hummed tinnily from a Wi-Fi-connected Edison phonograph horn. The foundry is not just a gymnasium of tools. It is a social center.

Alex Bandar, who started the foundry after receiving a doctorate in materials science and engineering, has a theory about the rhythms of invention in American history. Over the past century, he told me, the economy has moved from hardware to software, from atoms to bits, and people have spent more time at work in front of screens. But as computers take over more tasks previously considered the province of humans, the pendulum will swing back from bits to atoms, at least when it comes to how people spend their days. Bandar thinks that a digitally preoccupied society will come to appreciate the pure and distinct pleasure of making things you can touch. "I've always wanted to usher in a new era of technology where robots do our bidding," Bandar said. "If you have better batteries, better robotics, more dexterous manipulation, then it's not a far stretch to say robots do most of the work. So what do we do? Play? Draw? Actually talk to each other again?"

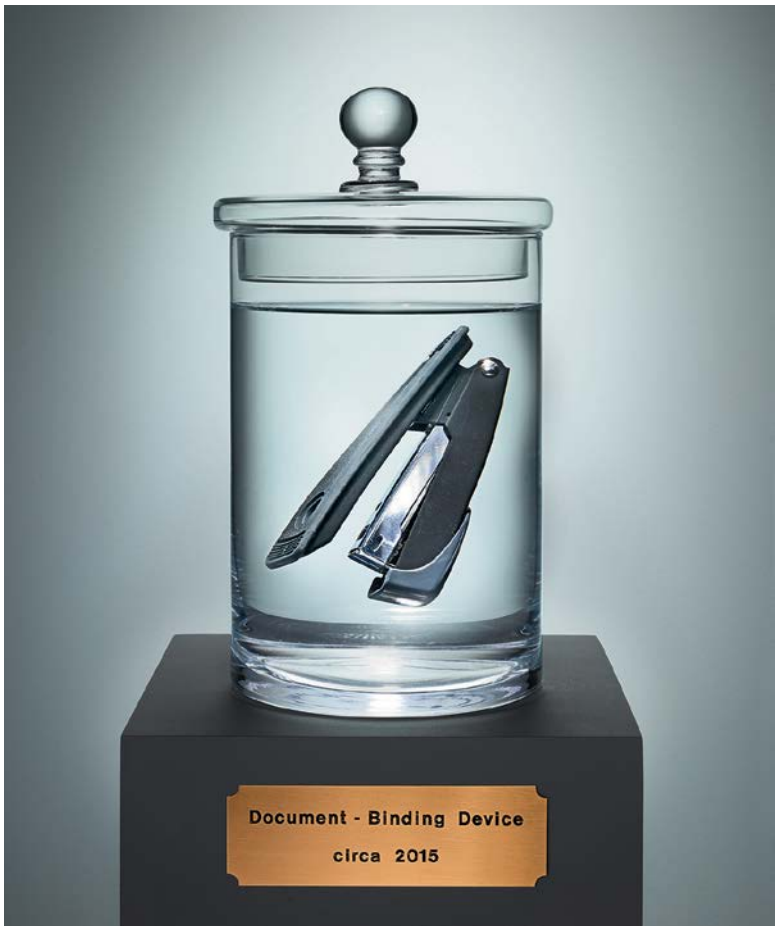
You don't need any particular fondness for plasma cutters to see the beauty of an economy where tens of millions of people make things they enjoy making—whether physical or digital, in buildings or in online communities—and receive feedback and appreciation for their work. The Internet and the cheap availability of artistic tools have already empowered millions of people to produce culture from their living rooms. People upload more than 400,000 hours of YouTube videos and 350 million new Facebook photos every day. The demise of the formal economy could free many would-be artists, writers, and craftspeople to dedicate their time to creative interests—to live as cultural producers. Such activities offer virtues that many organizational psychologists consider central to satisfaction at work: independence, the chance to develop mastery, and a sense of purpose.

After touring the foundry, I sat at a long table with several members, sharing the pizza that had come out of the communal oven. I asked them what they thought of their organization as a model for a future where automation reached further into the formal economy. A mixed-media artist named Kate Morgan said that most people she knew at the foundry would quit their jobs and use the foundry to start their own business if they could. Others spoke about the fundamental need to witness the outcome of one's work, which was satisfied more deeply by craftsmanship than by other jobs they'd held.

Late in the conversation, we were joined by Terry Griner, an engineer who had built miniature steam engines in his garage before Bandar invited him to join the foundry. His fingers were covered in soot, and he told me about the pride he had in his ability to fix things. "I've been working since I was 16. I've done food service, restaurant work, hospital work, and computer programming. I've done a lot of different jobs," said Griner, who is now a divorced father. "But if we had a society that said, 'We'll cover your essentials, you can work in the shop,' I think that would be utopia. That, to me, would be the best of all possible worlds."

5. Contingency: "You're on Your Own"

One mile to the east of downtown Youngstown, in a brick building surrounded by several empty lots, is Royal Oaks, an iconic blue-collar dive. At about 5:30 p.m. on a Wednesday, the place was nearly full. The bar glowed yellow and green from the lights mounted along a wall. Old beer signs, trophies, masks, and mannequins cluttered the back corner of the main room, like party leftovers stuffed in an attic. The scene was mostly middle-aged men, some in groups, talking loudly about baseball and



smelling vaguely of pot; some drank alone at the bar, sitting quietly or listening to music on headphones. I spoke with several patrons there who work as musicians, artists, or handymen; many did not hold a steady job.

"It is the end of a particular kind of wage work," said Hannah Woodroofe, a bartender there who, it turns out, is also a graduate student at the University of Chicago. (She's writing a dissertation on Youngstown as a harbinger of the future of work.) A lot of people in the city make ends meet via "post-wage arrangements," she said, working for tenancy or under the table, or trading services. Places like Royal Oaks are the new union halls: People go there not only to relax but also to find tradespeople for particular jobs, like auto repair. Others go to exchange fresh vegetables, grown in urban gardens they've created amid Youngstown's vacant lots.

When an entire area, like Youngstown, suffers from high and prolonged unemployment, problems caused by unemployment move beyond the personal sphere; widespread joblessness shatters neighborhoods and leaches away their civic spirit. John Russo, the Youngstown State professor, who is a co-author of a history of the city, *Steeltown USA*, says the local identity took a savage blow when residents lost the ability to find reliable employment. "I can't stress this enough: this isn't just about economics; it's psychological," he told me.

Russo sees Youngstown as the leading edge of a larger trend toward the development of what he calls the "precariat"—a working class that swings from task to task in order to make ends meet and suffers a loss of labor rights, bargaining rights, and job security. In Youngstown, many of these workers have by now made their peace with insecurity and poverty by building an identity, and some measure of pride, around contingency. The faith they lost in institutions—the corporations that have abandoned the city, the police who have failed to keep them safe—has not returned. But Russo and Woodroofe both told me they put stock in their own independence. And so a place that once defined itself single-mindedly by the steel its residents made has gradually learned to embrace the valorization of well-rounded resourcefulness.

Karen Schubert, a 54-year-old writer with two master's degrees, accepted a part-time job as a hostess at a café in Youngstown early this year, after spending months searching for full-time work. Schubert, who has two grown children and an infant grandson, said she'd loved teaching writing and literature at the local university. But many colleges have replaced full-time professors with part-time adjuncts in order to control costs, and she'd found that with the hours she could get, adjunct teaching didn't pay a living wage, so she'd stopped. "I think I would feel like a personal failure if I didn't know that so many Americans have their leg caught in the same trap," she said.

Among Youngstown's precariat, one can see a third possible future, where millions of people struggle for years to build a sense of purpose in the absence of formal jobs, and where entrepreneurship emerges out of necessity. But while it lacks the comforts of the consumption economy or the cultural richness of Lawrence Katz's artisanal future, it is more complex than an outright dystopia. "There are young people working part-time in the new economy who feel independent, whose work and personal relationships are contingent, and say they like it like this—to have short hours so they have time to focus on their passions," Russo said.

Schubert's wages at the café are not enough to live on, and in her spare time, she sells books of her poetry at readings and organizes gatherings of the literary-arts community in Youngstown, where other writers (many of them also underemployed) share their prose. The evaporation of work has deepened the local arts and music scene, several residents told me, because people who are inclined toward the arts have so much time to spend with one another. "We're a devastatingly poor and hemorrhaging population, but the people who live here are fearless and creative and phenomenal," Schubert said.

Whether or not one has artistic ambitions as Schubert does, it is arguably growing easier to find short-term gigs or spot employment. Paradoxically, technology is the reason. A constellation of Internet-enabled companies matches available workers with quick jobs, most prominently including Uber (for drivers), Seamless (for meal deliverers), Homejoy (for house cleaners), and TaskRabbit (for just about anyone else). And online markets like Craigslist and eBay have likewise made it easier for people to take on small independent projects, such as furniture refurbishing. Although the on-demand economy is not yet a major part of the employment picture, the number of "temporary-help services" workers has grown by 50 percent

since 2010, according to the Bureau of Labor Statistics.

Some of these services, too, could be usurped, eventually, by machines. But on-demand apps also spread the work around by carving up jobs, like driving a taxi, into hundreds of little tasks, like a single drive, which allows more people to compete for smaller pieces of work. These new arrangements are already challenging the legal definitions of *employer* and *employee*, and there are many reasons to be ambivalent about them. But if the future involves a declining number of full-time jobs, as in Youngstown, then splitting some of the remaining work up among many part-time workers, instead of a few full-timers, wouldn't necessarily be a bad development. We shouldn't be too quick to excoriate companies that let people combine their work, art, and leisure in whatever ways they choose.

Today the norm is to think about employment and unemployment as a black-and-white binary, rather than two points at opposite ends of a wide spectrum of working arrangements. As late as the mid-19th century, though, the modern concept of "unemployment" didn't exist in the United States. Most people lived on farms, and while paid work came and went, home industry—canning, sewing, carpentry—was a constant. Even in the worst economic panics, people typically found productive things to do. The despondency and helplessness of unemployment were discovered, to the bafflement and dismay of cultural critics, only after factory work became dominant and cities swelled.

The 21st century, if it presents fewer full-time jobs in the sectors that can be automated, could in this respect come to resemble the mid-19th century: an economy marked by episodic work across a range of activities, the loss of any one of which would not make somebody suddenly idle. Many bristle that contingent gigs offer a devil's bargain—a bit of additional autonomy in exchange for a larger loss of security. But some might thrive in a market where versatility and hustle are rewarded—where there are, as in Youngstown, few jobs to have, yet many things to do.

6. Government: The Visible Hand

In the 1950s, Henry Ford II, the CEO of Ford, and Walter Reuther, the head of the United Auto Workers union, were touring a new engine plant in Cleveland. Ford gestured to a fleet of machines and said, "Walter, how are you going to get these robots to pay union dues?" The union boss famously replied: "Henry, how are you going to get them to buy your cars?"

As Martin Ford (no relation) writes in his new book, *The Rise of the Robots*, this story might be apocryphal, but its message is instructive. We're pretty good at noticing the immediate effects of technology's substituting for workers, such as fewer people on the factory floor. What's harder is anticipating the second-order effects of this transformation, such as what happens to the consumer economy when you take away the consumers.

Technological progress on the scale we're imagining would usher in social and cultural changes that are almost impossible to fully envision. Consider just how fundamentally work has shaped America's geography. Today's coastal cities are a jumble of office buildings and residential space. Both are expensive and tightly constrained. But the decline of work would make many office buildings unnecessary. What might that mean for the vibrancy of urban areas? Would office space yield seamlessly to apartments, allowing more people to live more affordably in city centers and leaving the cities themselves just as lively? Or would we see vacant shells and spreading blight? Would big cities make sense at all if their role as highly sophisticated labor ecosystems were diminished? As the 40-hour workweek faded, the idea of a lengthy twice-daily commute would almost certainly strike future generations as an antiquated and baffling waste of time. But would those generations prefer to live on streets full of high-rises, or in smaller towns?

The next wave of automation could return us to an age of craftsmanship and artistry.

Today, many working parents worry that they spend too many hours at the office. As full-time work declined, rearing children could become less overwhelming. And because job opportunities historically have spurred migration in the United States, we might see less of it; the diaspora of extended families could give way to more closely knitted clans. But if men and women lost their purpose and dignity as work went away, those families would nonetheless be troubled.

The decline of the labor force would make our politics more contentious. Deciding how to tax profits and distribute income could become the most significant economic-policy debate in American history. In *The Wealth of Nations*, Adam Smith used the term *invisible hand* to refer to the order and social benefits that arise, surprisingly, from individuals' selfish actions. But to preserve the consumer economy and the social fabric, governments might have to embrace what Haruhiko Kuroda, the governor of the Bank of Japan, has called the visible hand of economic intervention. What follows is an early sketch of how it all might work.

In the near term, local governments might do well to create more and more-ambitious community centers or other public spaces where residents can meet, learn skills, bond around sports or crafts, and socialize. Two of the most common side effects of unemployment are loneliness, on the individual level, and the hollowing-out of community pride. A national policy that directed money toward centers in distressed areas might remedy the maladies of idleness, and form the beginnings of a long-term experiment on how to reengage people in

their neighborhoods in the absence of full employment.

We could also make it easier for people to start their own, small-scale (and even part-time) businesses. New-business formation has declined in the past few decades in all 50 states. One way to nurture fledgling ideas would be to build out a network of business incubators. Here Youngstown offers an unexpected model: its business incubator has been recognized internationally, and its success has brought new hope to West Federal Street, the city's main drag.

Near the beginning of any broad decline in job availability, the United States might take a lesson from Germany on job-sharing. The German government gives firms incentives to cut all their workers' hours rather than lay off some of them during hard times. So a company with 50 workers that might otherwise lay off 10 people instead reduces everyone's hours by 20 percent. Such a policy would help workers at established firms keep their attachment to the labor force despite the declining amount of overall labor.

Spreading work in this way has its limits. Some jobs can't be easily shared, and in any case, sharing jobs wouldn't stop labor's pie from shrinking: it would only apportion the slices differently. Eventually, Washington would have to somehow spread wealth, too.

Will big cities make sense if their role as sophisticated labor ecosystems is diminished?

One way of doing that would be to more heavily tax the growing share of income going to the owners of capital, and use the money to cut checks to all adults. This idea—called a "universal basic income"—has received bipartisan support in the past. Many liberals currently support it, and in the 1960s, Richard Nixon and the conservative economist Milton Friedman each proposed a version of the idea. That history notwithstanding, the politics of universal income in a world without universal work would be daunting. The rich could say, with some accuracy, that their hard work was subsidizing the idleness of millions of "takers." What's more, although a universal income might replace lost wages, it would do little to preserve the social benefits of work.

The most direct solution to the latter problem would be for the government to pay people to do something, rather than nothing. Although this smacks of old European socialism, or Depression-era "makework," it might do the most to preserve virtues such as responsibility, agency, and industriousness. In the 1930s, the Works Progress Administration did more than rebuild the nation's infrastructure. It hired 40,000 artists and other cultural workers to produce music and theater, murals and paintings, state and regional travel guides, and surveys of state records. It's not impossible to imagine something like the WPA—or an effort even more capacious—for a post-work future.

What might that look like? Several national projects might justify direct hiring, such as caring for a rising population of elderly people. But if the balance of work continues to shift toward the small-bore and episodic, the simplest way to help everybody stay busy might be government sponsorship of a national online marketplace of work (or, alternatively, a series of local ones, sponsored by local governments). Individuals could browse for large long-term projects, like cleaning up after a natural disaster, or small short-term ones: an hour of tutoring, an evening of entertainment, an art commission. The requests could come from local governments or community associations or nonprofit groups; from rich families seeking nannies or tutors; or from other individuals given some number of credits to "spend" on the site each year. To ensure a baseline level of attachment to the workforce, the government could pay adults a flat rate in return for some minimum level of activity on the site, but people could always earn more by taking on more gigs.

Although a digital WPA might strike some people as a strange anachronism, it would be similar to a federalized version of Mechanical Turk, the popular Amazon sister site where individuals and companies post projects of varying complexity, while so-called Turks on the other end browse tasks and collect money for the ones they complete. Mechanical Turk was designed to list tasks that cannot be performed by a computer. (The name is an allusion to an 18th-century Austrian hoax, in which a famous automaton that seemed to play masterful chess concealed a human player who chose the moves and moved the pieces.)

A government marketplace might likewise specialize in those tasks that required empathy, humanity, or a personal touch. By connecting millions of people in one central hub, it might even inspire what the technology writer Robin Sloan has called "a Cambrian explosion of mega-scale creative and intellectual pursuits, a generation of Wikipedia-scale projects that can ask their users for even deeper commitments."

THERE'S A CASE to be made for using the tools of government to provide other incentives as well, to help people avoid the typical traps of joblessness and build rich lives and vibrant communities. After all, the members of the Columbus Idea Foundry probably weren't born with an innate love of lathe operation or laser-cutting. Mastering these skills requires discipline; discipline requires an education; and an education, for many people, involves the expectation that hours of often frustrating practice will eventually prove rewarding. In a post-work society, the financial rewards of education and training won't be as obvious. This is a singular challenge of imagining a flourishing post-work society: How will people discover their talents, or the rewards that come from expertise, if they don't see much incentive to develop either?

Modest payments to young people for attending and completing college, skills-training programs, or community-center workshops might eventually be worth considering. This

seems radical, but the aim would be conservative—to preserve the status quo of an educated and engaged society. Whatever their career opportunities, young people will still grow up to be citizens, neighbors, and even, episodically, workers. Nudges toward education and training might be particularly beneficial to men, who are more likely to withdraw into their living rooms when they become unemployed.

7. Jobs and Callings

Decades from now, perhaps the 20th century will strike future historians as an aberration, with its religious devotion to overwork in a time of prosperity, its attenuations of family in service to job opportunity, its conflation of income with self-worth. The post-work society I've described holds a warped mirror up to today's economy, but in many ways it reflects the forgotten norms of the mid-19th century—the artisan middle class, the primacy of local communities, and the unfamiliarity with widespread joblessness.

The three potential futures of consumption, communal creativity, and contingency are not separate paths branching out from the present. They're likely to intertwine and even influence one another. Entertainment will surely become more immersive and exert a gravitational pull on people without much to do. But if that's all that happens, society will have failed. The foundry in Columbus shows how the "third places" in people's lives (communities separate from their homes and offices) could become central to growing up, learning new skills, discovering passions. And with or without such places, many people will need to embrace the resourcefulness learned over time by cities like Youngstown, which, even if they seem like museum exhibits of an old economy, might foretell the future for many more cities in the next 25 years.

On my last day in Youngstown, I met with Howard Jesko, a 60-year-old Youngstown State graduate student, at a burger joint along the main street. A few months after Black Friday in 1977, as a senior at Ohio State University, Jesko received a phone call from his father, a specialty-hose manufacturer near Youngstown. "Don't bother coming back here for a job," his dad said. "There aren't going to be any left." Years later, Jesko returned to Youngstown to work, but he recently quit his job selling products like waterproofing systems to construction companies; his customers had been devastated by the Great Recession and weren't buying much anymore. Around the same time, a left-knee replacement due to degenerative arthritis resulted in a 10-day hospital stay, which gave him time to think about the future. Jesko decided to go back to school to become a professor. "My true calling," he told me, "has always been to teach."

One theory of work holds that people tend to see themselves in jobs, careers, or callings. Individuals who say their work is "just a job" emphasize that they are working for money rather than aligning themselves with any higher purpose. Those with pure careerist ambitions are focused not only on income but also on the status that comes with promotions and the growing renown of their peers. But one pursues a calling not only for pay or status, but also for the intrinsic fulfillment of the work itself.

When I think about the role that work plays in people's self-esteem—particularly in America—the prospect of a *no-work* future seems hopeless. There is no universal basic income that can prevent the civic ruin of a country built on a handful of workers permanently subsidizing the idleness of tens of millions of people. But a future of *less work* still holds a glint of hope, because the necessity of salaried jobs now prevents so many from seeking immersive activities that they enjoy.

After my conversation with Jesko, I walked back to my car to drive out of Youngstown. I thought about Jesko's life as it might have been had Youngstown's steel mills never given way to a steel museum—had the city continued to provide stable, predictable careers to its residents. If Jesko had taken a job in the steel industry, he might be preparing for retirement today. Instead, that industry collapsed and then, years later, another recession struck. The outcome of this cumulative grief is that Howard Jesko is not retiring at 60. He's getting his master's degree to become a teacher. It took the loss of so many jobs to force him to pursue the work he always wanted to do. *A*

Derek Thompson is a senior editor at The Atlantic.

The Myth of Sisyphus

Albert Camus

from *The Myth of Sisyphus and Other Essays*, translated by Justin O'Brien, 1955

The gods had condemned Sisyphus to ceaselessly rolling a rock up to the top of a mountain, whence the stone would fall back of its own weight. They had thought with some reason that there is no more dreadful punishment the futile and hopeless labor.

If one believes Homer, Sisyphus was the wisest and most prudent of mortals. According to another tradition, however, he was disposed to practice the profession of highwayman. I see no contradiction in this. Opinions differ as to why he became the futile laborer of the underworld. To begin with, he is accused of a certain levity[1] in regard to the gods. He stole their secrets. Aegina, the daughter of Aesopus, was carried off by Jupiter[2]. The father was shocked by that disappearance and complained to Sisyphus. He, who knew of the abduction, offered to tell about it on condition that Aesopus would give water to the citadel of Corinth[3]. To the celestial thunderbolts he preferred the benediction of water. He was punished for this in the underworld. Homer tells us also that Sisyphus had put Death in chains. Pluto[4] could not endure the sight of his deserted, silent empire. He dispatched the god of war, who liberated Death from the hands of her conqueror.

It is said also that Sisyphus, being near death, rashly wanted to test his wife's love. He ordered her to cast his unburied body into the middle of the public square. Sisyphus woke up in the underworld. And there, annoyed by an obedience so contrary to human love, he obtained from Pluto permission to return to earth in order to chastise his wife. But when he had seen again the face of this world, enjoyed water and sun, warm stones and the sea, he no longer wanted to go back to the infernal darkness. Recalls, signs of anger, warnings were of no avail. Many years more he lived facing the curve of the gulf, the sparkling sea, and the smiles of earth. A decree of the gods was necessary. Mercury came and seized the impudent man by the collar and, snatching him from his joys, led him forcibly back to the underworld, where his rock was ready for him.

You have already grasped that Sisyphus is the absurd hero. He *is,* as much through his passions as through his torture. His scorn of the gods, his hatred of death, and his passion for life won him that unspeakable penalty in which the whole being is exerted toward accomplishing nothing. This is the price that must be paid for the passions of this earth. Nothing is told us about Sisyphus in the underworld. Myths are made for the imagination to breathe life into them. As for this myth, one sees merely the whole effort of a body straining to raise the huge stone, to roll it and push it up a slope a hundred times over; one sees the face screwed up, the cheek tight against the stone, the shoulder bracing the clay-covered mass, the foot wedging it, the fresh start with arms outstretched, the wholly human security of two earth-clotted hands. At the very end of his long effort measured by skyless space and time without depth, the purpose is achieved. Then Sisyphus watches the stone rush down in a few moments toward that lower world whence he will have to push it up again toward the summit. He goes back down to the plain.

It is during that return, that pause, that Sisyphus interests me. A face that toils so close to stones is already stone itself! I see that man going back down with a heavy yet measured step toward the torment of which he will never know the end. That hour like a breathing-space which returns as surely as his suffering, that is the hour of consciousness. At each of those moments when he leaves the heights and gradually sinks toward the lairs of the gods, he is superior to his fate. He is stronger than his rock.

If this myth is tragic, that is because its hero is conscious. Where would his torture be, indeed, if at every step the hope of succeeding upheld him? The workman of today works every day in his life at the same tasks, and this fate is no less absurd. But it is tragic only at the rare moments when it becomes conscious. Sisyphus, proletarian[5] of the gods, powerless and rebellious, knows the whole extent of his wretched condition: it is what he thinks of during his descent. The lucidity that was to constitute his torture

1. levity (lev′ i tē) *n.*: Lightness of disposition or conduct; flippancy.

2. Jupiter (jo͞o′ pit ər): In Roman mythology, the chief god.

3. Corinth (kôr′ inth): An ancient city in Greece.

4. Pluto (plo͞ot′ ō): In Roman mythology, the god ruling over the lower world.

5. proletarian (prō′ lə ter′ ē ən) n.: A member of the working class.

at the same time crowns his victory. There is no fate that cannot be surmounted by scorn.

If the descent is thus sometimes performed in sorrow, it can also take place in joy. This word is not too much. Again I fancy Sisyphus returning toward his rock, and the sorrow was in the beginning. When the images of earth cling too tightly to memory, when the call of happiness becomes too insistent, it happens that melancholy rises in man's heart: this is the rock's victory, this is the rock itself. The boundless grief is too heavy to bear. These are our nights of Gethsemane.[6] But crushing truths perish from being acknowledged. Thus, Oedipus[7] at the outset obeys fate without knowing it. But from the moment he knows, his tragedy begins. Yet at the same moment, blind and desperate, he realizes that the only bond linking him to the world is the cool hand of a girl. Then a tremendous remark rings out: "Despite so many ordeals, my advanced age and the nobility of my soul make me conclude that all is well." Sophocles' Oedipus, like Dostoevsky's Kirilov,[8] thus gives the recipe for the absurd victory. Ancient wisdom confirms modern heroism.

One does not discover the absurd without being tempted to write a manual of happiness. "What! by such narrow ways—?" There is but one world, however. Happiness and the absurd are two sons of the same earth. They are inseparable. It would be a mistake to say that happiness necessarily springs from the absurd discovery. It happens as well that the feeling of the absurd springs from happiness. "I conclude that all is well," says Oedipus, and that remark is sacred. It echoes in the wild and limited universe of man. It teaches that all is not, has not been, exhausted. It drives out of this world a god who had come into it with dissatisfaction and a preference for futile sufferings. It makes of fate a human matter, which must be settled among men.

All Sisyphus' silent joy is contained therein. His fate belongs to him. His rock is his thing. Likewise, the absurd man, when he contemplates his torment, silences all the idols. In the universe suddenly restored to its silence, the myriad wondering little voices of the earth rise up. Unconscious, secret calls, invitations from all the faces, they are the necessary reverse and price of victory. There is no sun without shadow, and it is essential to know the night. The absurd man says yes and his effort will henceforth be unceasing. If there is a personal fate, there is no higher destiny, or at least there is but one which he concludes is inevitable and despicable. For the rest, he knows himself to be the master of his days. At that subtle moment when man glances backward over his life, Sisyphus returning toward his rock, in that slight pivoting he contemplates that series of unrelated actions which becomes his fate, created by him, combined under his memory's eye and soon sealed by his death. Thus, convinced of the wholly human origin of all that is human, a blind man eager to see who knows that the night has no end, he is still on the go. The rock is still rolling.

I leave Sisyphus at the foot of the mountain! One always finds one's burden again. But Sisyphus teaches the higher fidelity that negates the gods and raises rocks. He too concludes that all is well. This universe henceforth without a master seems to him neither sterile nor futile. Each atom of that stone, each mineral flake of that night-filled mountain, in itself forms a world. The struggle itself toward the heights is enough to fill a man's heart. One must imagine Sisyphus happy.

6. Gethsemane (geth sem ′ ə nē): The garden, east of Jerusalem, where Jesus Christ underwent an ordeal as he contemplated his possible death.

7. Oedipus (ed ′ i pəs): A character in Greek mythology who unwittingly killed his father and married his mother. The Greek dramatist Sophocles (496-406 B.C.) wrote three famous plays about him. In the last of these, Oedipus at Colonus, Oedipus is blind and led by his daughter Antigone (an tig ′ ə nē).

8. Kirilov (kē rē ′ luf): A character in Dostoevsky's novel *The Possessed* (1871-1872

SHORT COMMUNICATION

BJC

British Journal of Cancer (2016), 1–6 | doi: 10.1038/bjc.2016.9

Keywords: Breast cancer; colorectal cancer; lung cancer; prostate cancer; working hours

Long working hours and cancer risk: a multi-cohort study

Katriina Heikkila*[,1,2], Solja T Nyberg[2], Ida EH Madsen[3], Ernest de Vroome[4], Lars Alfredsson[5,6], Jacob J Bjorner[3], Marianne Borritz[7], Hermann Burr[8], Raimund Erbel[9], Jane E Ferrie[10,11], Eleonor I Fransson[6,12,13], Goedele A Geuskens[4], Wendela E Hooftman[4], Irene L Houtman[4], Karl-Heinz Jöckel[14], Anders Knutsson[15], Markku Koskenvuo[16], Thorsten Lunau[17], Martin L Nielsen[18], Maria Nordin[13,19], Tuula Oksanen[2], Jan H Pejtersen[20], Jaana Pentti[2], Martin J Shipley[10], Andrew Steptoe[10], Sakari B Suominen[21,22,23], Töres Theorell[13], Jussi Vahtera[2,21,24], Peter JM Westerholm[25], Hugo Westerlund[13], Nico Dragano[17], Reiner Rugulies[3,26], Ichiro Kawachi[27], G David Batty[10,28], Archana Singh-Manoux[10,29], Marianna Virtanen[2], Mika Kivimäki[2,10,30] for the IPD-Work Consortium

Background: Working longer than the maximum recommended hours is associated with an increased risk of cardiovascular disease, but the relationship of excess working hours with incident cancer is unclear.

Methods: This multi-cohort study examined the association between working hours and cancer risk in 116 462 men and women who were free of cancer at baseline. Incident cancers were ascertained from national cancer, hospitalisation and death registers; weekly working hours were self-reported.

Results: During median follow-up of 10.8 years, 4371 participants developed cancer (*n* colorectal cancer: 393; *n* lung cancer: 247; *n* breast cancer: 833; and *n* prostate cancer: 534). We found no clear evidence for an association between working hours and the overall cancer risk. Working hours were also unrelated the risk of incident colorectal, lung or prostate cancers. Working ⩾55 h per week was associated with 1.60-fold (95% confidence interval 1.12–2.29) increase in female breast cancer risk independently of age, socioeconomic position, shift- and night-time work and lifestyle factors, but this observation may have been influenced by residual confounding from parity.

Conclusions: Our findings suggest that working long hours is unrelated to the overall cancer risk or the risk of lung, colorectal or prostate cancers. The observed association with breast cancer would warrant further research.

Epidemiological research suggests that working long hours has a detrimental effect on health. Extended working hours have been reported as being associated with an increased incidence of coronary heart disease and stroke (Kang *et al*, 2012; Virtanen *et al*, 2012; Kivimaki *et al*, 2015a) pre-term delivery (van Melick *et al*, 2014) and, in manual occupations, type 2 diabetes (Kivimaki *et al*, 2015b), as well as a high prevalence of anxiety, depression, sleeping difficulties and accidental injuries at work. (Dembe *et al*, 2005; Bannai and Tamakoshi, 2014). The relationship between long working hours and cancer, however, is unclear.

Long working hours could impact on cancer risk via their association with lifestyle-related exposures. Observational evidence suggests that working longer than recommended hours is linked to many behavioural cancer risk factors, such as excessive alcohol intake (Virtanen *et al*, 2015) and physical inactivity (Kirk and Rhodes, 2011; Angrave *et al*, 2015), possibly because individuals feel that they lack time to exercise because they spend extensive time at work (Escoto *et al*, 2012). As far as we are aware, the association between long working hours and incident cancer has been examined in only one previous investigation, which had inconclusive findings: in that prospective cohort study the

*Correspondence: Dr K Heikkila; E-mail: katriina.heikkila@lshtm.ac.uk

Received 22 September 2015; revised 10 December 2015; accepted 26 December 2015

association between working 45 h or longer per week and breast cancer was imprecisely estimated (hazard ratio (HR): 0.93, 95% confidence interval (CI): 0.54, 1.58) and no other cancer outcomes were examined (Nielsen *et al*, 2008).

To address this evidence gap, we examined the relationship between weekly working hours and the overall incident cancer as well as incident colorectal, lung, breast and prostate cancers using individual participant data from 116 000 men and women from 12 prospective cohort studies from six European countries.

MATERIALS AND METHODS

Studies. The 12 studies in our analyses were conducted between 1992 and 2004 in Denmark, Finland, Germany, Sweden, The Netherlands and UK. All were a part of the Individual-Participant-Data Meta-analysis of Working Populations (IPD-Work) Consortium, a collaborative research effort to investigate the health impact of work-related exposures (Kivimaki *et al*, 2012). Details of each study's design, recruitment of participants, data collection and ethics committee approval are provided in Supplementary eAppendix 1.

Participants. Our analyses were based on 116 462 men and women who were working and free of cancer at study baseline, whose records were linked to register-based information on incident cancers and who had complete data available on covariates (Supplementary eAppendix 1 and Supplementary Table S1).

Exposures and outcomes. Weekly working hours were ascertained from baseline self-report questions on usual weekly working hours and defined as the total number of hours in the main job and any secondary jobs (Supplementary eAppendix 2 and Supplementary Table S2).

Cancer events were identified from national cancer, hospitalisation and death registers in all studies apart from one (for details, see Supplementary eAppendix 2). The date of the cancer event was defined as the date of diagnosis or hospital admission due to cancer, whichever was earlier. Cancer cases were categorised according to the type and time of diagnosis of their first cancer. We excluded individuals whose first cancer record came from their death certificate ($n = 10$), as the date of diagnosis for these cancers was uncertain. Codes for the incident cancer events were harmonised using ICD-10 (International Classification of Diseases, version 10) as any cancer (ICD-10 codes C00-C97), colorectal (C18-C20), lung (C34), female breast (C50) and prostate (C61) cancers.

Potential confounders and mediators. Details of the selection and ascertainment of the covariates included in our models are provided in Supplementary eAppendix 2. Briefly, potential confounders were age, sex, socioeconomic position, shift work and night-time work. Potential mediators were smoking, alcohol intake and body mass index (BMI). All covariates, measured at baseline, were harmonised across the studies as reported previously (Heikkila *et al*, 2012; Heikkilä *et al*, 2012; Nyberg *et al*, 2012, 2014).

Statistical analysis. Weekly working hours were analysed as a categorical exposure: <35 h, 35–40 h (reference category: standard working hours for the majority of the workforce in Europe), 41–48 h (the upper limit for the European Union Working Time Directive), 49–54 h and $\geqslant 55$ h. Incident cancers (any cancer, colorectal, lung, female breast and prostate cancers) were analysed as binary outcomes. Each participant was followed-up from the date of their baseline assessment to the earliest of the following: incident cancer, death or the end of the registry follow-up. We modelled the associations between working hours and each cancer outcome in each study using Cox proportional hazards regression with the participant's age (i.e., time since birth) as the time scale in the model. Study-specific results were combined using random effects meta-analyses. All statistical analyses were conducted using Stata MP 13 (Stata Corporation, College Station, TX, USA) bar the study-specific analyses in the Danish studies, which were conducted using SAS 9.3 (SAS Institute Inc., Cary, NC, USA) and POLS, which were conducted using SPSS 20.0 (SPSS Inc., Chicago, IL, USA).

RESULTS

The characteristics of the 116 462 participants are summarised in Table 1. Overall, these men and women were aged 15–73 at baseline and the majority worked a standard 35–40 h per week, with the study-specific proportions varying from 31 to 71%. During a follow-up ranging from 4 to 22 years (median of study-specific medians: 10.8), 4371 individuals were diagnosed with cancer. Of these, 393 men and women had colorectal cancer and 247 had lung cancer; 833 women developed breast cancer and 534 men prostate cancer.

The associations between weekly working hours and incident cancers are shown in Figure 1. The study-specific estimates are provided in Supplementary eAppendices 3–7. We observed no association between longer than recommended weekly working hours and overall cancer risk, although working <35 h per week was associated with a slightly reduced average risk of any incident cancer (multivariable-adjusted random effects HR: 0.86, 95% CI: 0.76, 0.98). Our meta-analyses provided no clear evidence for an association between weekly working hours and the risk of colorectal or lung cancers. Working hours were also generally unrelated to incident prostate cancer, though the risk was slightly elevated among men who worked 49–54 h per week (multivariable-adjusted HR: 1.39, 95% CI: 1.02, 1.89). There was negligible heterogeneity among the study-specific estimates for these cancer outcomes. Generally, adjustment for work-related factors (socioeconomic position, night-time work and shift work) or lifestyle factors (BMI, smoking or alcohol intake) had little impact on the estimates.

Working 55 h or longer was associated with an increased risk of female breast cancer in the age-adjusted analyses (HR: 1.54, 95% CI: 1.09, 2.18). This association remained after additional adjustment for socioeconomic position; night-time work, shift work (HR: 1.49, 95% CI: 1.05, 2.11) and BMI; smoking; and alcohol intake (HR: 1.60, 95% CI: 1.12, 2.29). The study-specific estimates were similar to one another in direction and magnitude (I^2: $<0\%$).

DISCUSSION

In our study of over 116 000 European men and women and up to 4371 incident cancer cases, we found no evidence for an association between long weekly working hours and the overall cancer incidence, although those working <35 h per week had a slightly reduced risk. No evidence was observed for an association between weekly working hours and the risks of colorectal, lung or prostate cancers. Working 55 h or longer per week was associated with an increased breast cancer risk (multivariable-adjusted random effects HR: 1.60, 95% CI: 1.12, 2.29). Overall, there was little heterogeneity among the study-specific association estimates and adjustment for work characteristics, socioeconomic position, obesity and lifestyle factors did not markedly change these.

To our knowledge, ours is the largest investigation of this topic to-date and the first to examine the association of working hours with the overall cancer risk as well as the specific risks of common cancers. In the IPD-Work Consortium we have previously reported associations of work-related stress exposures with cardiovascular disease outcomes but not with incident cancers (Kivimaki *et al*, 2012; Heikkila *et al*, 2013; Nyberg *et al*, 2013; Nyberg *et al*, 2014;

Table 1. Participant characteristics

							Working hours		Incident cancer	
Study	Baseline Year	Country	*N* Participants[a]	Follow-up (years) Median	*N* (%) Men	Age Mean (s.d.)	Category	*N* (%)	Type	*N*
WOLF Stockholm	1992	Sweden	5363	14.8	3117 (58.1)	41.3 (11.0)	<35 35–40 41–48 49–54 ⩾55	281 (6.2) 2397 (52.7) 1666 (36.6) 152 (3.3) 55 (1.2)	Any Colorectal Lung Breast Prostate	468 51 28 61 83
Whitehall II	1992–1993	UK	7341	22.6	5096 (69.4)	48.8 (5.7)	<35 35–40 41–48 49–54 ⩾55	229 (3.1) 3865 (52.7) 1458 (19.9) 1057 (14.4) 732 (10.0)	Any Colorectal Lung Breast Prostate	953 96 38 146 175
WOLF Norrland	1996	Sweden	4551	11.8	3838 (84.3)	43.9 (10.2)	<35 35–40 41–48 49–54 ⩾55	527 (9.8) 2614 (48.7) 1611 (30.0) 385 (7.2) 226 (4.2)	Any Colorectal Lung Breast Prostate	255 32 18 17 66
IPAW	1996–1997	Denmark	1989	14.0	661 (33.2)	41.1 (10.4)	<35 35–40 41–48 49–54 ⩾55	648 (32.6) 1244 (62.5) 77 (3.9) 14 (0.7) 6 (0.3)	Any Colorectal Lung Breast Prostate	142 12 18 38 8
COPSOQ-I	1997	Denmark	1788	13.1	928 (51.9)	40.5 (10.6)	<35 35–40 41–48 49–54 ⩾55	342 (19.1) 974 (54.5) 249 (13.9) 113 (6.3) 110 (6.2)	Any Colorectal Lung Breast Prostate	105 11 7 24 4
HeSSup	1998	Finland	15 888	8.0	7151 (45.0)	39.5 (10.2)	<35 35–40 41–48 49–54 ⩾55	1882 (11.9) 8511 (53.6) 2912 (18.3) 1176 (7.4) 1407 (8.9)	Any Colorectal Lung Breast Prostate	401 25 9 109 39
PUMA	1999	Denmark	1740	11.1	307 (17.6)	42.6 (10.1)	<35 35–40 41–48 49–54 ⩾55	557 (32.0) 1013 (58.2) 120 (6.9) 33 (1.9) 17 (1.0)	Any Colorectal Lung Breast Prostate	105 12 10 30 6
DWECS	2000	Denmark	5439	10.5	2924 (53.8)	41.6 (11.0)	<35 35–40 41–48 49–54 ⩾55	884 (16.3) 3002 (55.2) 788 (14.5) 330 (6.1) 435 (8.0)	Any Colorectal Lung Breast Prostate	227 21 19 49 23
FPS	2000	Finland	42 794	4.5	8528 (19.9)	44.4 (9.4)	<35 35–40 41–48 49–54 ⩾55	3413 (8.0) 30 475 (71.2) 6108 (14.3) 1440 (3.4) 1358 (3.2)	Any Colorectal Lung Breast Prostate	860 37 27 310 44
HNR	2000	Germany	1833	9.2	1074 (58.6)	53.5 (5.1)	<35 35–40 41–48 49–54 ⩾55	473 (25.8) 559 (30.5) 289 (15.8) 206 (11.2) 306 (16.7)	Any Colorectal Lung Breast Prostate	150 8 17 21 25
POLS	1997–2002	Netherlands	24 417	9.9	14 382 (58.9)	38 (11.1)	<35 35–40 41–48 49–54 ⩾55	8253 (33.8) 12 331 (50.5) 1001 (4.1) 1001 (4.1) 1831 (7.5)	Any Colorectal Lung Breast Prostate	624 79 49 10 58
COPSOQ-II	2004	Denmark	3319	6.0	1585 (47.7)	42.6 (10.2)	<35 35–40 41–48 49–54 ⩾55	528 (15.9) 1748 (52.7) 658 (19.8) 212 (6.4) 173 (5.2)	Any Colorectal Lung Breast Prostate	81 9 7 18 3

Abbreviations: COPSOQ-I = Copenhagen Psychosocial Questionnaire I; COPSOQ-II = Copenhagen Psychosocial Questionnaire II; DWECS = Danish Work Environment Cohort Study; FPS = Finnish Public Sector Study; HeSSup = Health and Social Support Study; HNR = Heinz-Nixdorf Recall Study; IPAW = Intervention Project on Absence and Well-being; POLS = Permanent Onderzoek Leefsituatie; WOLF = Work, Lipids and Fibrinogen.

[a]With complete data on weekly working hours, cancer outcomes, age and sex, and free of cancer at study baseline and within the first year of follow-up.

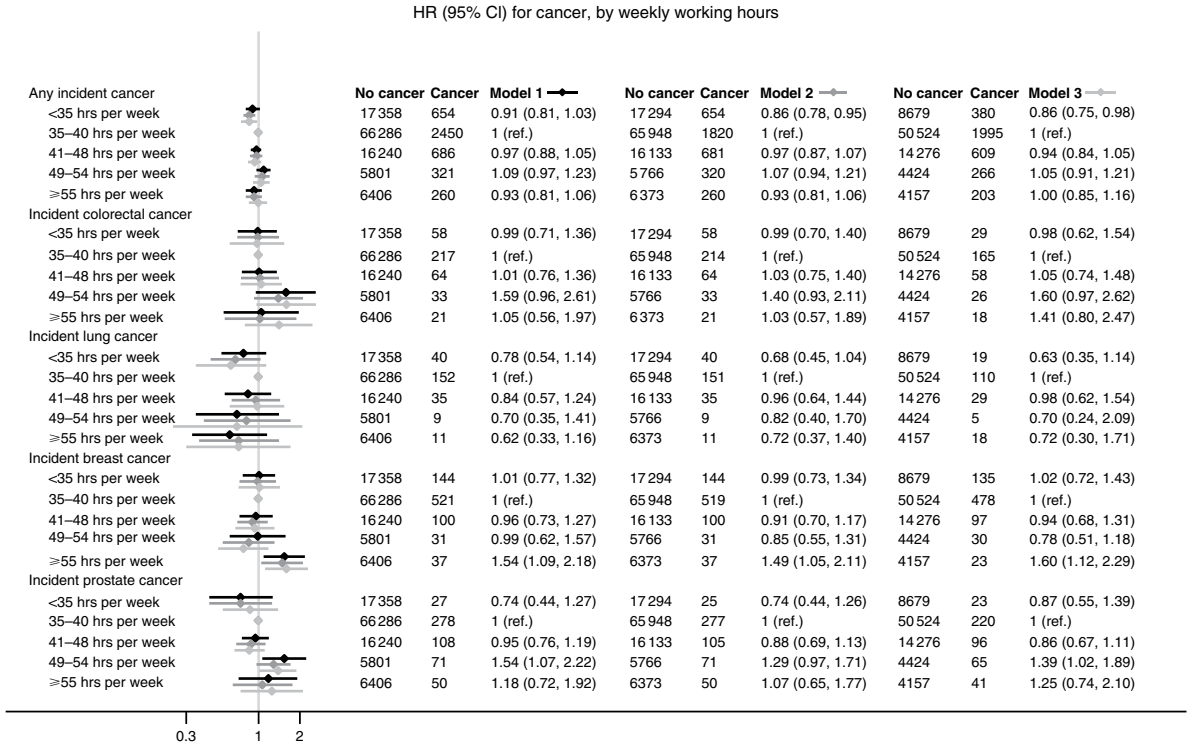
Fransson *et al*, 2015; Kivimaki *et al*, 2015a; Kivimaki *et al*, 2015b), findings that the current observations seem to support. Our findings are also in keeping with the only previous study of this topic. Working 45 h or longer per week was reported being unrelated to breast cancer risk among female Danish nurses aged 44 years and over (HR: 0.93, 95% CI: 0.54, 1.58) (Nielsen *et al*, 2008). The categorisation of weekly working hours as well as the reference category in this study were different from ours, and the estimates thus not directly comparable, but the previously published null-association is compatible with our estimates for similar exposure categories (41–48 h per week, HR: 0.94, 95% CI: 0.68, 1.31) and 49–54 h per week, HR: 0.78, 95% CI: 0.51, 1.18). As no other cancer outcomes were examined in the Danish Nurse Cohort study, we were unable to gauge the compatibility of the rest of our findings with previous research.

The association of working 55 h or longer per week with incident breast cancer should be interpreted with caution: no trend in risk was observed across the working-hour categories and this association could thus have been observed by chance or it could relate to the residual confounding. The observed association between these extensively long working hours and incident breast cancer was not markedly influenced by adjustment for lifestyle factors, shift work or night-time work, the latter of which has been suggested to increase breast cancer risk by disrupting the body's circadian rhythms and altering the nocturnal melatonin production, thus impacting on the development of hormone-related breast cancers. However, the evidence for the relationship between night-time work and breast cancer has been recently summarised in systematic reviews and meta-analyses, which showed that the associations reported in case–control studies were not corroborated by prospective evidence. (Ijaz *et al*, 2013; Jia *et al*, 2013; Kamdar *et al*, 2013; Wang *et al*, 2013). One important factor that could have a role in the relationship between working hours and breast cancer, and would merit further research, is parity (Ewertz *et al*, 1990; Collaborative Group on Hormonal Factors in Breast Cancer, 2002): it could be a confounder or a mediator, as women who work long hours may have fewer children because of childcare demands or cost, or women with children may restrict their working hours. Other potentially relevant exposures include age at first birth, menopausal status, use of hormone replacement therapy and sedentary behaviour at work (Schmid and Leitzmann, 2014). However, as we had no harmonised data on these factors, we were unable to investigate them further.

It is unclear what the slightly reduced overall cancer risk among men and women working fewer than 35 h per week relates to (multivariable-adjusted HR: 0.86, 95% CI: 0.75, 0.98). As the association between working hours and incident prostate cancer was not consistent across the exposure categories, we suspect that the slightly elevated risk observed in men who worked 49–54 h per week is a chance finding.

As our investigation was based on previously unpublished data, the findings presented here have not been influenced by publication bias. Our analyses were based on a relatively large number of participants from several countries, and with occupations ranging from manual labour to managerial positions, making our findings widely generalisable to the working populations in the Northern and Western Europe. However, at the same time this limits the generalisability of our observations to other continents or low-income countries.

In conclusion, our findings suggest that long working hours are unlikely to be associated with the overall cancer risk or the specific risks of colorectal, lung or prostate cancers. The observed



	No cancer	Cancer	Model 1	No cancer	Cancer	Model 2	No cancer	Cancer	Model 3
Any incident cancer									
<35 hrs per week	17358	654	0.91 (0.81, 1.03)	17294	654	0.86 (0.78, 0.95)	8679	380	0.86 (0.75, 0.98)
35–40 hrs per week	66286	2450	1 (ref.)	65948	1820	1 (ref.)	50524	1995	1 (ref.)
41–48 hrs per week	16240	686	0.97 (0.88, 1.05)	16133	681	0.97 (0.87, 1.07)	14276	609	0.94 (0.84, 1.05)
49–54 hrs per week	5801	321	1.09 (0.97, 1.23)	5766	320	1.07 (0.94, 1.21)	4424	266	1.05 (0.91, 1.21)
⩾55 hrs per week	6406	260	0.93 (0.81, 1.06)	6373	260	0.93 (0.81, 1.06)	4157	203	1.00 (0.85, 1.16)
Incident colorectal cancer									
<35 hrs per week	17358	58	0.99 (0.71, 1.36)	17294	58	0.99 (0.70, 1.40)	8679	29	0.98 (0.62, 1.54)
35–40 hrs per week	66286	217	1 (ref.)	65948	214	1 (ref.)	50524	165	1 (ref.)
41–48 hrs per week	16240	64	1.01 (0.76, 1.36)	16133	64	1.03 (0.75, 1.40)	14276	58	1.05 (0.74, 1.48)
49–54 hrs per week	5801	33	1.59 (0.96, 2.61)	5766	33	1.40 (0.93, 2.11)	4424	26	1.60 (0.97, 2.62)
⩾55 hrs per week	6406	21	1.05 (0.56, 1.97)	6373	21	1.03 (0.57, 1.89)	4157	18	1.41 (0.80, 2.47)
Incident lung cancer									
<35 hrs per week	17358	40	0.78 (0.54, 1.14)	17294	40	0.68 (0.45, 1.04)	8679	19	0.63 (0.35, 1.14)
35–40 hrs per week	66286	152	1 (ref.)	65948	151	1 (ref.)	50524	110	1 (ref.)
41–48 hrs per week	16240	35	0.84 (0.57, 1.24)	16133	35	0.96 (0.64, 1.44)	14276	29	0.98 (0.62, 1.54)
49–54 hrs per week	5801	9	0.70 (0.35, 1.41)	5766	9	0.82 (0.40, 1.70)	4424	5	0.70 (0.24, 2.09)
⩾55 hrs per week	6406	11	0.62 (0.33, 1.16)	6373	11	0.72 (0.37, 1.40)	4157	18	0.72 (0.30, 1.71)
Incident breast cancer									
<35 hrs per week	17358	144	1.01 (0.77, 1.32)	17294	144	0.99 (0.73, 1.34)	8679	135	1.02 (0.72, 1.43)
35–40 hrs per week	66286	521	1 (ref.)	65948	519	1 (ref.)	50524	478	1 (ref.)
41–48 hrs per week	16240	100	0.96 (0.73, 1.27)	16133	100	0.91 (0.70, 1.17)	14276	97	0.94 (0.68, 1.31)
49–54 hrs per week	5801	31	0.99 (0.62, 1.57)	5766	31	0.85 (0.55, 1.31)	4424	30	0.78 (0.51, 1.18)
⩾55 hrs per week	6406	37	1.54 (1.09, 2.18)	6373	37	1.49 (1.05, 2.11)	4157	23	1.60 (1.12, 2.29)
Incident prostate cancer									
<35 hrs per week	17358	27	0.74 (0.44, 1.27)	17294	25	0.74 (0.44, 1.26)	8679	23	0.87 (0.55, 1.39)
35–40 hrs per week	66286	278	1 (ref.)	65948	277	1 (ref.)	50524	220	1 (ref.)
41–48 hrs per week	16240	108	0.95 (0.76, 1.19)	16133	105	0.88 (0.69, 1.13)	14276	96	0.86 (0.67, 1.11)
49–54 hrs per week	5801	71	1.54 (1.07, 2.22)	5766	71	1.29 (0.97, 1.71)	4424	65	1.39 (1.02, 1.89)
⩾55 hrs per week	6406	50	1.18 (0.72, 1.92)	6373	50	1.07 (0.65, 1.77)	4157	41	1.25 (0.74, 2.10)

Model 1: adjusted for age and sex (where appropriate).
Model 2: adjusted for age, sex (where appropriate), socioeconomic position, shift work and night-time work.
Model 3: adjusted for age, sex (where appropriate), socioeconomic position, shift work, night-time work, BMI, smoking and alcohol intake.

Figure 1. Associations of weekly working hours with incident cancer.

association between very long working hours and increased breast cancer risk should be interpreted cautiously and would warrant further research.

ACKNOWLEDGEMENTS

We thank Ross J Harris, from Public Health England, for help and advice with Stata graphics. This work was supported by the European Union New OSH ERA research programme; the Finnish Work Environment Fund, Finland; Swedish Research Council for Health, Working Life and Welfare, Sweden; the German Social Accident Insurance, Germany (the AeKo-Project); Danish National Research Centre for the Working Environment, Denmark; the Academy of Finland; the BUPA Foundation (grant 22094477); and the Ministry of Social Affairs and Employment, The Netherlands. Mika Kivimaki is supported by the Medical Research Council (K013351) and Economic and Social Research Council, UK, and the US National Institutes of Health (R01HL036310; R01AG034454) and NordForsk, the Nordic Programme on Health and Welfare. Details of the funding bodies for each participating study are provided on each study's website. The funders had no role in the study design, data collection and analysis, decision to publish or preparation of the manuscript.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

Angrave D, Charlwood A, Wooden M (2015) Long working hours and physical activity. *J Epidemiol Community Health* **69**: 738–744.

Bannai A, Tamakoshi A (2014) The association between long working hours and health: a systematic review of epidemiological evidence. *Scand J Work Environ Health* **40**: 5–18.

Collaborative Group on Hormonal Factors in Breast Cancer (2002) Breast cancer and breastfeeding: collaborative reanalysis of individual data from 47 epidemiological studies in 30 countries, including 50302 women with breast cancer and 96973 women without the disease. *Lancet* **360**: 187–195.

Dembe AE, Erickson JB, Delbos RG, Banks SM (2005) The impact of overtime and long work hours on occupational injuries and illnesses: new evidence from the United States. *Occup Environ Med* **62**: 588–597.

Escoto KH, Laska MN, Larson N, Neumark-Sztainer D, Hannan PJ (2012) Work hours and perceived time barriers to healthful eating among young adults. *Am J Health Behav* **36**: 786–796.

Ewertz M, Duffy SW, Adami HO, Kvale G, Lund E, Meirik O, Mellemgaard A, Soini I, Tulinius H (1990) Age at first birth, parity and risk of breast cancer: a meta-analysis of 8 studies from the Nordic countries. *Int J Cancer* **46**: 597–603.

Fransson EI, Nyberg ST, Heikkila K, Alfredsson L, Bjorner JB, Borritz M, Burr H, Dragano N, Geuskens GA, Goldberg M, Hamer M, Hooftman WE, Houtman IL, Joensuu M, Jokela M, Knutsson A, Koskenvuo M, Koskinen A, Kumari M, Leineweber C, Lunau T, Madsen IE, Hanson LL, Nielsen ML, Nordin M, Oksanen T, Pentti J, Pejtersen JH, Rugulies R, Salo P, Shipley MJ, Steptoe A, Suominen SB, Theorell T, Toppinen-Tanner S, Vahtera J, Virtanen M, Vaananen A, Westerholm PJ, Westerlund H, Zins M, Britton A, Brunner EJ, Singh-Manoux A, Batty GD, Kivimaki M (2015) Job strain and the risk of stroke: an individual-participant data meta-analysis. *Stroke* **46**: 557–559.

Heikkila K, Nyberg ST, Fransson EI, Alfredsson L, de Bacquer D, Bjorner JB, Bonenfant S, Borritz M, Burr H, Clays E, Casini A, Dragano N, Erbel R, Geuskens GA, Goldberg M, Hooftman WE, Houtman IL, Joensuu M, Jöckel K-H, Kittel F, Knutsson A, Koskenvuo M, Koskinen A, Kouvonen A, Leineweber C, Lunau T, Madsen IE, Magnusson Hanson LL, Marmot MG, Nielsen ML, Nordin M, PENTTI J, Salo P, Rugulies R, Steptoe A, Siegrist J, Suominen S, Vahtera J, Virtanen M, Väänänen A, Westerholm P, Westerlund H, Zins M, Theorell T, Hamer M, Ferrie JE, Singh-Manoux A, Batty GD, Kivimäki M (2012) Job strain and alcohol intake: a collaborative meta-analysis of individual-participant data from 140 000 men and women. *PLoS One* **7**: e40101.

Heikkilä K, Nyberg ST, Fransson EI, Alfredsson L, de Bacquer D, Bjorner JB, Bonenfant S, Borritz M, Burr H, Clays E, Casini A, Dragano N, Erbel R, Geuskens GA, Goldberg M, Hooftman WE, Houtman IL, Joensuu M, Jöckel K-H, Kittel F, Knutsson A, Koskenvuo M, Koskinen A, Kouvonen A, Leineweber C, Lunau T, Madsen IE, Magnusson Hanson LL, Marmot MG, Nielsen ML, Nordin M, Pentti J, Salo P, Rugulies R, Steptoe A, Siegrist J, Suominen S, Vahtera J, Virtanen M, Väänänen A, Westerholm P, Westerlund H, Zins M, Theorell T, Hamer M, Ferrie JE, Singh-Manoux A, Batty GD, Kivimäki M (2012) Job strain and tobacco smoking: an individual-participant data meta-analysis of 166 130 adults in 15 European studies. *PLoS One* **7**: e35463.

Heikkila K, Nyberg ST, Theorell T, Fransson EI, Alfredsson L, Bjorner JB, Bonenfant S, Borritz M, Bouillon K, Burr H, Dragano N, Geuskens GA, Goldberg M, Hamer M, Hooftman WE, Houtman IL, Joensuu M, Knutsson A, Koskenvuo M, Koskinen A, Kouvonen A, Madsen IE, Magnusson Hanson LL, Marmot MG, Nielsen ML, Nordin M, Oksanen T, Pentti J, Salo P, Rugulies R, Steptoe A, Suominen S, Vahtera J, Virtanen M, Vaananen A, Westerholm P, Westerlund H, Zins M, Ferrie JE, Singh-Manoux A, Batty GD, Kivimaki M (2013) Work stress and cancer risk: a meta-analysis of 5700 incident cancer events in 116 000 European men and women. *BMJ* **346**: f165.

Ijaz S, Verbeek J, Seidler A, Lindbohm ML, Ojajarvi A, Orsini N, Costa G, Neuvonen K (2013) Night-shift work and breast cancer – a systematic review and meta-analysis. *Scand J Work Environ Health* **39**: 431–447.

Jia Y, Lu Y, Wu K, Lin Q, Shen W, Zhu M, Huang S, Chen J (2013) Does night work increase the risk of breast cancer? A systematic review and meta-analysis of epidemiological studies. *Cancer Epidemiol* **37**: 197–206.

Kamdar BB, Tergas AI, Mateen FJ, Bhayani NH, Oh J (2013) Night-shift work and risk of breast cancer: a systematic review and meta-analysis. *Breast Cancer Res Treat* **138**: 291–301.

Kang MY, Park H, Seo JC, Kim D, Lim YH, Lim S, Cho SH, Hong YC (2012) Long working hours and cardiovascular disease: a meta-analysis of epidemiologic studies. *J Occup Environ Med* **54**: 532–537.

Kirk MA, Rhodes RE (2011) Occupation correlates of adults' participation in leisure-time physical activity: a systematic review. *Am J Prev Med* **40**: 476–485.

Kivimaki M, Jokela M, Nyberg ST, Singh-Manoux A, Fransson EI, Alfredsson L, Bjorner JB, Borritz M, Burr H, Casini A, Clays E, de Bacquer D, Dragano N, Erbel R, Geuskens GA, Hamer M, Hooftman WE, Houtman IL, Jockel KH, Kittel F, Knutsson A, Koskenvuo M, Lunau T, Madsen IE, Nielsen ML, Nordin M, Oksanen T, Pejtersen JH, Pentti J, Rugulies R, Salo P, Shipley MJ, Siegrist J, Steptoe A, Suominen SB, Theorell T, Vahtera J, Westerholm PJ, Westerlund H, O'Reilly D, Kumari M, Batty GD, Ferrie JE, Virtanen M. IPD-Work Consortium (2015a) Long working hours and risk of coronary heart disease and stroke: a systematic review and meta-analysis of published and unpublished data for 603,838 individuals. *Lancet* **386**: 1739–1746.

Kivimaki M, Nyberg ST, Batty GD, Fransson E, Heikkila K, Alfredsson L, Bjorner JB, Borritz M, Burr H, Casini A, Clays E, de Bacquer D, Dragano N, Ferrie JE, Geuskens GA, Goldberg M, Hamer M, Hooftman WE, Houtman IL, Joensuu M, Jokela M, Kittel F, Knutsson A, Koskenvuo M, Koskinen A, Kouvonen A, Kumari M, Madsen I, Marmot MG, Nielsen ML, Nordin M, Oksanen T, Pentti J, Rugulies R, Salo P, Siegrist J, Singh-Manoux A, Suominen S, Väänänen A, Vahtera J, Virtanen M, Westerholm J, Westerlund H, Zins M, Steptoe A, Theorell T. IPD-Work Consortium (2012) Job strain as a risk factor for future coronary heart disease: collaborative meta-analysis of 2358 events in 197,473 men and women. *Lancet* **380**: 1491–1497.

Kivimaki M, Virtanen M, Kawachi I, Nyberg ST, Alfredsson L, Batty GD, Bjorner JB, Borritz M, Brunner EJ, Burr H, Dragano N, Ferrie JE, Fransson EI, Hamer M, Heikkila K, Knutsson A, Koskenvuo M, Madsen IE, Nielsen ML, Nordin M, Oksanen T, Pejtersen JH, Pentti J, Rugulies R, Salo P, Siegrist J, Steptoe A, SUOMINEN S, Theorell T, Vahtera J, Westerholm PJ, Westerlund H, Singh-Manoux A, Jokela M (2015b) Long working hours, socioeconomic status, and the risk of incident type 2 diabetes: a meta-analysis of published and unpublished data from 222 120 individuals. *Lancet Diabetes Endocrinol* **3**: 27–34.

Nielsen NR, Stahlberg C, Strandberg-Larsen K, Kristensen TS, Zhang ZF, Hundrup YA, Gronbaek M (2008) Are work-related stressors associated

with diagnosis of more advanced stages of incident breast cancers? *Cancer Causes Control* **19**: 297–303.

Nyberg ST, Fransson EI, Heikkila K, Ahola K, Alfredsson L, Bjorner JB, Borritz M, Burr H, Dragano N, Goldberg M, Hamer M, Jokela M, Knutsson A, Koskenvuo M, Koskinen A, Kouvonen A, Leineweber C, Madsen IE, Magnusson Hanson LL, Marmot M, Nielsen ML, Nordin M, Oksanen T, Pejtersen JH, Pentti J, Rugulies R, Salo P, Siegrist J, Steptoe A, Suominen S, Theorell T, Vaananen A, Vahtera J, Virtanen M, Westerholm PJM, Westerlund H, Zins M, Batty GD, Brunner E, Ferrie JE, Singh-Manoux A, Kivimaki M (2014) Job strain as a risk factor for type 2 diabetes: a pooled analysis of 124,808 men and women. *Diabetes Care* **37**: 2268–2275.

Nyberg ST, Fransson EI, Heikkila K, Alfredsson L, Casini A, Clays E, de Bacquer D, Dragano N, Erbel R, Ferrie JE, Hamer M, Jockel KH, Kittel F, Knutsson A, Ladwig KH, Lunau T, Marmot MG, Nordin M, Rugulies R, Siegrist J, Steptoe A, Westerholm PJ, Westerlund H, Theorell T, Brunner EJ, Singh-Manoux A, Batty GD, Kivimaki M (2013) Job strain and cardiovascular disease risk factors: meta-analysis of individual-participant data from 47,000 men and women. *PLoS One* **8**: e67323.

Nyberg ST, Heikkila K, Fransson EI, Alfredsson L, de Bacquer D, Bjorner JB, Bonenfant S, Borritz M, Burr H, Casini A, Clays E, Dragano N, Erbel R, Geuskens GA, Goldberg M, Hooftman WE, Houtman IL, Jockel KH, Kittel F, Knutsson A, Koskenvuo M, Leineweber C, Lunau T, Madsen IE, Hanson LL, Marmot MG, Nielsen ML, Nordin M, Oksanen T, Pentti J, Rugulies R, Siegrist J, Suominen S, Vahtera J, Virtanen M, Westerholm P, Westerlund H, Zins M, Ferrie JE, Theorell T, Steptoe A, Hamer M, Singh-Manoux A, Batty GD, Kivimaki M (2012) Job strain in relation to body mass index: pooled analysis of 160 000 adults from 13 cohort studies. *J Intern Med* **272**: 65–73.

Schmid D, Leitzmann MF (2014) Television viewing and time spent sedentary in relation to cancer risk: a meta-analysis. *J Natl Cancer Inst* 106.

van Melick MJ, van Beukering MD, Mol BW, Frings-Dresen MH, Hulshof CT (2014) Shift work, long working hours and preterm birth: a systematic review and meta-analysis. *Int Arch Occup Environ Health* **87**: 835–849.

Virtanen M, Heikkila K, Jokela M, Ferrie JE, Batty GD, Vahtera J, Kivimaki M (2012) Long working hours and coronary heart disease: a systematic review and meta-analysis. *Am J Epidemiol* **176**: 586–596.

Virtanen M, Jokela M, Nyberg S, Madsen I, Lallukka T, Ahola K, Alfredsson L, Batty G, Bjorner J, Borritz M, Burr H, Casini A, Clays E, de Bacquer D, Dragano N, Erbel R, Ferrie J, Fransson E, Hamer M, Heikkilä K, Jöckel K-H, Kittel F, Knutsson A, Koskenvuo M, Ladwig K-H, Lunau T, Nielsen M, Nordin M, Oksanen T, Pejtersen J, Pentti J, Rugulies R, Salo P, Schupp J, Siegrist J, Singh-Manoux A, Steptoe A, Suominen S, Theorell T, Vahtera J, Wagner G, Westerholm P, Westerlund H, Kivimäki M (2015) Long working hours and alcohol use: systematic review and meta-analysis of published studies and unpublished individual participant data. *BMJ* **350**: g7772.

Wang F, Yeung KL, Chan WC, Kwok CC, Leung SL, Wu C, Chan EY, Yu IT, Yang XR, Tse LA (2013) A meta-analysis on dose-response relationship between night shift work and the risk of breast cancer. *Ann Oncol* **24**: 2724–2732.

[1]Department of Health Services Research and Policy, London School of Hygiene and Tropical Medicine, London WC1H 9SH, UK; [2]Finnish Institute of Occupational Health, 33100 Tampere and 205200 Turku, Helsinki 0250, Finland; [3]National Research Centre for the Working Environment, Copenhagen DK-2100, Denmark; [4]TNO, Leiden 2316 ZL, The Netherlands; [5]Centre for Occupational and Environmental Medicine, Stockholm County Council, Sweden; [6]Institute of Environmental Medicine, Karolinska Institutet, Stockholm 171 77, Sweden; [7]Køge Hospital, Køge 4600, Denmark; [8]Federal Institute for Occupational Safety and Health, Berlin 10317, Germany; [9]Department of Cardiology, West-German Heart Center Essen, University Duisburg-Essen, Essen 45122, Germany; [10]Department of Epidemiology and Public Health, University College London, London WC1E 6BT, UK; [11]School of Social and Community Medicine, University of Bristol, Bristol BS8 2PS, UK; [12]School of Health and Welfare, Jönköping University, SE-551 11 Jönköping, Sweden; [13]Stress Research Institute, Stockholm University, Stockholm SE-106 91, Sweden; [14]Institute for Medical Informatics, Biometry and Epidemiology, Faculty of Medicine, University Duisburg-Essen, Essen 45122, Germany; [15]Department of Health Sciences, Mid Sweden University, Sundsvall 851 70, Sweden; [16]Department of Public Health, University of Helsinki, Helsinki 00140, Finland; [17]Institute for Medical Sociology, Medical Faculty, University of Düsseldorf, Düsseldorf 40225, Germany; [18]Unit of Social Medicine, Frederiksberg University Hospital, Fredriksberg 2000, Denmark; [19]Department of Psychology, Umeå University, Umeå 901 87, Sweden; [20]The Danish National Centre for Social Research, Copenhagen 1052, Denmark; [21]Department of Public Health, University of Turku, Turku 20014, Finland; [22]Folkhälsan Research Center, Helsinki 00290, Finland; [23]Nordic School of Public Health, Göteborg 426 71, Sweden; [24]Turku University Hospital, Turku 20521, Finland; [25]Occupational and Environmental Medicine, Uppsala University, Uppsala 751 85, Sweden; [26]Department of Public Health and Department of Psychology, University of Copenhagen, Copenhagen 2200, Denmark; [27]Department of Society, Human Development and Health, Harvard School of Public Health, Boston, Massachusetts 02115, USA; [28]Centre for Cognitive Ageing and Cognitive Epidemiology, University of Edinburgh, Edinburgh EH8 9JZ, UK; [29]Inserm U1018, Centre for Research in Epidemiology and Population Health, Villejuif 94807, France and [30]Clinicum, Faculty of Medicine, University of Helsinki, Helsinki FI-00014, Finland

Supplementary Information accompanies this paper on British Journal of Cancer website (http://www.nature.com/bjc)

We Can Do It, 1942

J. Howard Miller

Image courtesy of the National Archives and Records Administration.

Address to the Nation on Labor Day

Richard Nixon

September 6, 1971

Good afternoon:

On this Labor Day, 1971, I call upon all Americans to dedicate ourselves to a goal we have rarely been able to achieve in the past 40 years—a new prosperity without war and without inflation.

A nation starting out in quest of a great goal, like a young worker starting out on his career, does not always get what it wants; rather, a nation gets what it deserves.

What must we do, as a nation, to deserve a generation of peace? What must we be, as a people, to deserve and to achieve the new prosperity?

I would like you to join me in exploring one of the basic elements that gives character to a people and which will make it possible for the American people to earn a generation of prosperity in peace.

Central to that character is the competitive spirit. That is the inner drive that for two centuries has made the American workingman unique in the world, that has enabled him to make this land the citadel of individual freedom and of opportunity.

The competitive spirit goes by many names. Most simply and directly, it is called the work ethic.

As the name implies, the work ethic holds that labor is good in itself; that a man or woman at work not only makes a contribution to his fellow man but becomes a better person by virtue of the act of working.

That work ethic is ingrained in the American character. That is why most of us consider it immoral to be lazy or slothful-even if a person is well off enough not to have to work or deliberately avoids work by going on welfare.

That work ethic is why Americans are considered an industrious, purposeful people, and why a poor nation of 3 million people, over a course of two centuries, lifted itself into the position of the most powerful and respected leader of the free world today.

Recently we have seen that work ethic come under attack. We hear voices saying that it is immoral or materialistic to strive for an ever-higher standard of living. We are told that the desire to get ahead must be curbed because it will leave others behind. We are told that it doesn't matter whether America continues to be number one in the world economically and that we should resign ourselves to being number two or number three or even number four. We see some members of disadvantaged groups being told to take the welfare road rather than the road of hard work, self-reliance, and self-respect.

It is not surprising that so many hard working Americans are wondering: What's happening to the work ethic in America today? What's happening to the willingness for self-sacrifice that enabled us to build a great nation, to the moral code that made self-reliance a part of the American character, to the competitive spirit that made it possible for us to lead the world?

One answer to those questions was given in the response of the American people to the new economic policy I announced last month. I called then for some degree of sacrifice, some inconvenience, some belt tightening, some temporary restrictions on our economic freedom in order to create new jobs, to stop the rise in the cost of living, to protect the American dollar.

The overwhelming response to that call is a new justification for every American's faith in himself and faith in his country.

Of course, there have been complaints; there have been counter-suggestions; there have been criticisms by special interest groups.

But the most heartening reaction was the surge of national confidence, the reaffirmation of our competitive spirit, the willingness to make a personal sacrifice in pursuit of worthy goals by the man in the street, the worker on the job, the homemaker trying to balance the family budget.

This letter from a State employee in Texas, whose wife is a schoolteacher, is typical of thousands that came into the White House after I made that speech. It reads: "We were both due for salary increases in September . . . but we will survive. If it were necessary to cut our income in half, I still know no other country I would choose to call my own. I've heard the young people using a phrase that might fit: RIGHT ON."

Let the detractors of America, the doubters of the American spirit, take note. America's competitive spirit, the work ethic of this people, is alive and well on Labor Day, 1971.

The dignity of work, the value of achievement, the morality of self-reliance-none of these is going out of style.

With that fact clearly understood, let us also recognize that the work ethic in America is undergoing some changes. It means that business, labor, and government should explore the new needs of today's wage earners: We must give the individual worker more responsibility-more of the feeling that his opinion counts.

We must find ways to better recognize and reward the extra effort a worker puts into his job.

We must open up new and equal opportunities to allow a person to grow in his job.

And we must give more respect to the proud men and women who do work that is all too often considered "menial."

I read a report recently about some on welfare in one of our cities who objected to taking jobs that they considered menial. As I read that report, I thought of my own father. During the years that I was growing up, he worked as a streetcar motorman, an oil field worker; he worked as a farmer; he worked also in a filling station.

Let us recognize once and for all—no job is menial in America if it leads to self-reliance, self-respect, and individual dignity.

We must make it possible for workers to try "refresher courses" and "second careers" to open up the chance for a new variety in work.

We must reinstill a pride of craftsmanship, a pride in good service, that results in quality workmanship.

And we must make sure that technology does not dehumanize work, but makes it more creative and rewarding for the people who will operate the plants of the future.

These are the needs of the American worker, taking their place alongside the needs we are more familiar with: the need for real wage increases that actually lead to a better life rather than wage increases which are completely eaten up by price increases, the need for steady employment, the need for a safe and clean place to work, the need for medical care and a secure retirement.

In our quest for a better environment, we must always remember that the most important part of the quality of life is the quality of work. And the new need for job satisfaction is the key to the quality of work.

As the American economy moves toward meeting the new needs of the American worker, what should it look for in return? The answer can be summed up in a single, often misunderstood word: productivity.

That word, productivity, puzzles and sometimes frightens people. It sounds like the old "speedup" or some new efficiency system that drives people harder.

Productivity really means getting more out of your work.

When you have the latest technology to help you do your job, it means you can do more with the same effort. That's why we say investment in modem equipment will increase productivity.

When you have the training you need to improve your skills, you can do more. That's why we say job training will improve productivity.

When you are organized to do away with red tape and duplicated effort, you can do more. That's why we say better management techniques will increase productivity.

And when you have your heart in what you're doing, when it gives you respect and pride as well as a good wage, you naturally do more. That's why we say job satisfaction is a key to productivity.

And so these are the four elements of productivity: investment in new technology, job training, good management, and high employee motivation. Taken together, they raise the amount each worker actually produces.

Think about what rising productivity means to you and to your family. It means that the individual worker gets a real increase in his wages, and not just a pay raise eaten away by inflation. It means that the consumer gets more for his money, the investor gets a greater return, and more money is available to help those who cannot help themselves in this country.

Think about what rising productivity means to our country.

Nations, like people, never really stand still. As change accelerates, they compete successfully and move ahead, or they relax and they fall behind.

This Nation is not going to turn inward. We are not going to build protective walls to shelter us from fair competition. We are not going to live in our own cocoon while the rest of the world passes us by.

On the contrary, the nation that built its reputation over two centuries for keen competition will compete even more vigorously in the years ahead. By exporting more goods and services, we will create more jobs for our expanding work force.

We welcome fair competition—because it keeps us on our toes, because that alertness leads to increased productivity, because that in turn leads to a better life for the American workingman and for his family. Our success in rising to the challenge of peace will depend on the competitive spirit of the American people.

On this Labor Day, 1971, I am confident that this spirit is strong and healthy among America's 80 million wage earners.

This means that America has the character, the drive, and the greatness to succeed in achieving our goal of a new prosperity in a full generation of peace.

Thank you and good afternoon.

Note: The President spoke at 12 noon from Camp David in Maryland. His address was broadcast live on nationwide radio.

An advance text of the President's address was released on the same day.

Citation: Richard Nixon: "Address to the Nation on Labor Day.," September 6, 1971. Online by Gerhard Peters and John T. Woolley, *The American Presidency Project*. http://www.presidency.ucsb.edu/ws/?pid=3138

Chapter 10, Part 1

from *The Wealth of Nations*

by Adam Smith

CHAPTER X

OF WAGES AND PROFIT IN THE DIFFERENT EMPLOYMENTS OF LABOUR AND STOCK[1]

THE whole of the advantages and disadvantages of the different employments of labour and stock must, in the same neighbourhood, be either perfectly equal or continually tending to equality. If in the same neighbourhood, there was any employment evidently either[2] more or less advantageous than the rest, so many people would crowd into it in the one case, and so many would desert it in the other, that its advantages would soon return to the level of other employments. This at least would be the case in a society where things were left to follow their natural course, where there was perfect liberty,[3] and where every man was perfectly free both to chuse what occupation he thought proper, and to change it as often as he thought proper. Every man's interest would prompt him to seek the advantageous, and to shun the disadvantageous employment.

Pecuniary wages and profit, indeed, are every-where in Europe extremely different according to the different employments of labour and stock. But this difference arises partly from certain circumstances in the employments themselves, which, either really, or at least in the imaginations of men, make up for a small pecuniary gain in some, and counter-balance a great one in others; and partly from the policy of Europe, which no-where leaves things at perfect liberty.

The particular consideration of those circumstances and of that policy will divide this chapter into two parts.

[1] [The general design of this chapter, as well as many of its details, was doubtless suggested by Cantillon, *Essai*, pt. 1, chaps. vii. and viii. The first of these chapters is headed: 'Le travail d'un laboureur vaut moins que celui d'un artisan,' and the second: 'Les artisans gagnent les uns plus les autres moins selon les cas et les circonstances différentes.' The second ends thus: 'Par ces inductions et cent autres qu'on pourrait tirer de l'expérience ordinaire, on peut voir facilement que la différence de prix qu'on paie pour le travail journalier est fondée sur des raisons naturelles et sensibles.']

[2] [Ed. 1 reads 'either evidently'.]

[3] [Above pp. 58, 64.]

PART I

Inequalities arising from the Nature of the Employments themselves [1]

THE five following are the principal circumstances which, so far as I have been able to observe, make up for a small pecuniary gain in some employments, and counter-balance a great one in others: first, the agreeableness or disagreeableness of the employments themselves; secondly, the easiness and cheapness, or the difficulty and expence of learning them; thirdly, the constancy or inconstancy of employment in them; fourthly, the small or great trust which must be reposed in those who exercise them; and fifthly, the probability or improbability of success in them.

First, The wages of labour vary with the ease or hardship, the cleanliness or dirtiness, the honourableness or dishonourableness of the employment. Thus in most places, take the year round, a journeyman taylor earns less than a journeyman weaver. His work is much easier. A journeyman weaver earns less than a journeyman smith. His work is not always easier, but it is much cleanlier. A journeyman blacksmith, though an artificer, seldom earns so much in twelve hours as a collier, who is only a labourer, does in eight. His work is not quite so dirty, is less dangerous, and is carried on in day-light, and above ground. Honour makes a great part of the reward of all honourable professions. In point of pecuniary gain, all things considered, they are generally under-recompensed, as I shall endeavour to show by and by.[2] Disgrace has the contrary effect. The trade of a butcher is a brutal and an odious business; but it is in most places more profitable than the greater part of common trades. The most detestable of all employments, that of public executioner, is, in proportion to the quantity of work done, better paid than any common trade whatever.

Hunting and fishing, the most important employments of mankind in the rude state of society, become in its advanced state their most agreeable amusements, and they pursue for pleasure what they once followed from necessity. In the advanced state of society, therefore, they are all very poor people who follow as a trade, what other people

[1] [The foregoing introductory paragraphs would lead a logical reader to expect part 1 of the chapter to be entitled: 'Inequalities of pecuniary wages and profit which merely counterbalance inequalities of other advantages and disadvantages.' The rather obscure title actually chosen is due to the fact that nearly a quarter of the part is occupied by a discussion of three further conditions which must be present in addition to 'perfect freedom' in order to bring about the equality of total advantages and disadvantages. The chapter would have been clearer if this discussion had been placed at the beginning, but it was probably an afterthought.]

[2] [Below, pp. 107, 108.]

pursue as a pastime. Fishermen have been so since the time of[1] Theocritus. A poacher is every-where a very poor man in Great Britain. In countries where the rigour of the law suffers no poachers, the licensed hunter is not in a much better condition. The natural taste for those employments makes more people follow them than can live comfortably by them, and the produce of their labour, in proportion to its quantity, comes always too cheap to market to afford anything but the most scanty subsistence to the labourers.

Disagreeableness and disgrace affect the profits of stock in the same manner as the wages of labour. The keeper of an inn or tavern, who is never master of his own house, and who is exposed to the brutality of every drunkard, exercises neither a very agreeable nor a very creditable business. But there is scarce any common trade in which a small stock yields so great a profit.

Secondly, The wages of labour vary with the easiness and cheapness, or the difficulty and expence of learning the business.

When any expensive machine is erected, the extraordinary work to be performed by it before it is worn out, it must be expected, will replace the capital laid out upon it, with at least the[2] ordinary profits. A man educated at the expence of much labour and time to any of those employments which require extraordinary dexterity and skill, may be compared to one of those expensive machines. The work which he learns to perform, it must be expected, over and above the usual wages of common labour, will replace to him the whole expence of his education, with at least the ordinary profits of an equally valuable capital. It must do this too in a reasonable time, regard being had to the very uncertain duration of human life, in the same manner as to the more certain duration of the machine.

The difference between the wages of skilled labour and those of common labour, is founded upon this principle.

The policy of Europe considers the labour of all mechanics, artificers, and manufacturers, as skilled labour; and that of all country labourers as common labour. It seems to suppose that of the former to be of a more nice and delicate nature than that of the latter. It is so perhaps in some cases; but in the greater part it is quite otherwise, as I shall endeavour to shew by and by.[3] The laws and customs of Europe, therefore, in order to qualify any person for exercising the one species of labour, impose the necessity of an apprenticeship, though with different degrees of rigour in different places. They leave the other free and

[1] See Idyllium xxi. [This merely describes the life of two poor fishermen. The note appears first in ed. 2.]

[2] [Ed. 1 reads 'its'.]

[3] [Below, p. 128.]

open to every body. During the continuance of the apprenticeship, the whole labour of the apprentice belongs to his master. In the mean time he must, in many cases, be maintained by his parents or relations, and in almost all cases must be cloathed by them. Some money too is commonly given to the master for teaching him his trade. They who cannot give money, give time, or become bound for more than the usual number of years; a consideration which, though it is not always advantageous to the master, on account of the usual idleness of apprentices, is always disadvantageous to the apprentice. In country labour, on the contrary, the labourer, while he is employed about the easier, learns the more difficult parts of his business, and his own labour maintains him through all the different stages of his employment. It is reasonable, therefore, that in Europe the wages of mechanics, artificers, and manufacturers, should be somewhat higher than those of common labourers.[1] They are so accordingly, and their superior gains make them in most places be considered as a superior rank of people. This superiority, however, is generally very small; the daily or weekly earnings of journeymen in the more common sorts of manufactures, such as those of plain linen and woollen cloth, computed at an average, are, in most places, very little more than the day wages of common labourers. Their employment, indeed, is more steady and uniform, and the superiority of their earnings, taking the whole year together, may be somewhat greater. It seems evidently, however, to be no greater than what is sufficient to compensate the superior expence of their education.

Education in the ingenious arts and in the liberal professions, is still more tedious and expensive. The pecuniary recompence, therefore, of painters and sculptors, of lawyers and physicians, ought[2] to be much more liberal: and it is so accordingly.

The profits of stock seem to be very little affected by the easiness or difficulty of learning the trade in which it is employed. All the different ways in which stock is commonly employed in great towns seem, in reality, to be almost equally easy and equally difficult to learn. One branch either of foreign or domestic trade, cannot well be a much more intricate business than another.

[1] [This argument seems to be modelled closely on Cantillon, *Essai*, pp. 23, 24, but probably also owes something to Mandeville, *Fable of the Bees*, pt. ii., dialogue vi., vol. ii., p. 423. Cp. *Lectures*, pp. 173-175.]

[2] [The 'ought' is equivalent to 'it is reasonable they should be' in the previous paragraph, and to 'must' in 'must not only maintain him while he is idle' on p. 105. Cp. 'doivent' in Cantillon, *Essai*, p. 24: 'Ceux donc qui emploient des artisans ou gens de métier, doivent nécessairement payer leur travail plus haut que celui d'un laboureur ou manœuvre.' The meaning need not be that it is ethically right that a person on whose education much has been spent should receive a large reward, but only that it is economically desirable, since otherwise there would be a deficiency of such persons.]

Thirdly, The wages of labour in different occupations vary with the constancy or inconstancy of employment.[1]

Employment is much more constant in some trades than in others. In the greater part of manufactures, a journeyman may be pretty sure of employment almost every day in the year that he is able to work. A mason or bricklayer, on the contrary, can work neither in hard frost nor in foul weather, and his employment at all other times depends upon the occasional calls of his customers. He is liable, in consequence, to be frequently without any. What he earns, therefore, while he is employed, must not only maintain him while he is idle, but make him some compensation for those anxious and desponding moments which the thought of so precarious a situation must sometimes occasion. Where the computed earnings of the greater part of manufacturers, accordingly, are nearly upon a level with the day wages of common labourers, those of masons and bricklayers are generally from one half more to double those wages. Where common labourers earn four and five shillings a week, masons and bricklayers frequently earn seven and eight; where the former earn six, the latter often earn nine and ten, and where the former earn nine and ten, as in London, the latter commonly earn fifteen and eighteen. No species of skilled labour, however, seems more easy to learn than that of masons and bricklayers. Chairmen in London, during the summer season, are said sometimes to be employed as bricklayers. The high wages of those workmen, therefore, are not so much the recompence of their skill, as the compensation for the inconstancy of their employment.

A house carpenter seems to exercise rather a nicer and more ingenious trade than a mason. In most places, however, for it is not universally so, his day-wages are somewhat lower. His employment, though it depends much, does not depend so entirely upon the occasional calls of his customers; and it is not liable to be interrupted by the weather.

When the trades which generally afford constant employment, happen in a particular place not to do so, the wages of the workmen always rise a good deal above their ordinary proportion to those of common labour. In London almost all journeymen artificers are liable to be called upon and dismissed by their masters from day to

[1] [The treatment of this head would have been clearer if it had begun with a distinction between 'day-wages' (mentioned lower down on the page) and annual earnings. The first paragraph of the argument claims that annual earnings as well as day-wages will be higher in the inconstant employment so as to counterbalance the disadvantage or repulsive force of having 'anxious and desponding moments'. In the subsequent paragraphs, however, this claim is lost sight of, and the discussion proceeds as if the thesis was that annual earnings are equal though day-wages may be unequal.]

day, and from week to week, in the same manner as day-labourers in other places. The lowest order of artificers, journeymen taylors, accordingly, earn there half a crown a day,[1] though eighteen pence may be reckoned the wages of common labour. In small towns and country villages, the wages of journeymen taylors frequently scarce equal those of common labour; but in London they are often many weeks without employment, particularly during the summer.

When the inconstancy of employment is combined with the hardship, disagreeableness, and dirtiness of the work, it sometimes raises the wages of the most common labour above those of the most skilful artificers. A collier working by the piece is supposed, at Newcastle, to earn commonly about double, and in many parts of Scotland about three times the wages of common labour. His high wages arise altogether from the hardship, disagreeableness, and dirtiness of his work. His employment may, upon most occasions, be as constant as he pleases. The coal-heavers in London exercise a trade which in hardship, dirtiness, and disagreeableness, almost equals that of colliers; and from the unavoidable irregularity in the arrivals of coal-ships, the employment of the greater part of them is necessarily very inconstant. If colliers, therefore, commonly earn double and triple the wages of common labour, it ought not to seem unreasonable that coal-heavers should sometimes earn four and five times those wages. In the enquiry made into their condition a few years ago, it was found that at the rate at which they were then paid, they could earn from six to ten shillings a day. Six shillings are about four times the wages of common labour in London, and in every particular trade, the lowest common earnings may always be considered as those of the far greater number. How extravagant soever those earnings may appear, if they were more than sufficient to compensate all the disagreeable circumstances of the business, there would soon be so great a number of competitors as, in a trade which has no exclusive privilege, would quickly reduce them to a lower rate.

The constancy or inconstancy of employment cannot affect[2] the ordinary profits of stock in any particular trade. Whether the stock is or is not constantly employed depends, not upon the trade, but the trader.[3]

[1] [Below, p. 143.]

[2] [Misprinted 'effect' in ed. 5.]

[3] [That 'stock' consists of actual objects seems to be overlooked here. The constancy with which such objects can be employed is various: the constancy with which the hearse of a village is employed depends on the number of deaths, which may be said to be 'the trade,' and is certainly not 'the trader'. There is no difference of profits corresponding to differences of day-wages due to unequal constancy of employment, for the simple reason that 'profits' are calculated by their amount per annum, but the rural undertaker, liable to long interruption of

Fourthly, The wages of labour vary according to the small or great trust which must be reposed in the workmen.[1]

The wages of goldsmiths and jewellers are every-where superior to those of many other workmen, not only of equal, but of much superior ingenuity; on account of the precious materials with which they are intrusted.

We trust our health to the physician; our fortune and sometimes our life and reputation to the lawyer and attorney. Such confidence could not safely be reposed in people of a very mean or low condition. Their reward must be such, therefore, as may give them that rank in the society which so important a trust requires. The long time and the great expence which must be laid out in their education, when combined with this circumstance, necessarily enhance still further the price of their labour.

When a person employs only his own stock in trade, there is no trust; and the credit which he may get from other people, depends, not upon the nature of his trade, but upon their opinion of his fortune, probity, and prudence. The different rates of profit, therefore, in the different branches of trade, cannot arise from the different degrees of trust reposed in the traders.[2]

Fifthly, The wages of labour in different employments vary according to the probability or improbability of success in them.[3]

The probability that any particular person shall ever be qualified for the employment to which he is educated, is very different in different occupations. In the greater part of mechanic trades, success is almost certain; but very uncertain in the liberal professions. Put your son apprentice to a shoemaker, there is little doubt of his learning to make a pair of shoes: But send him to study the law, it is at least twenty to

business in healthy seasons, may just as well as the bricklayer be supposed to receive 'some compensation for those anxious and desponding moments which the thought of so precarious a situation must sometimes occasion'.]

[1] [The argument foreshadowed in the introductory paragraphs of the chapter requires an allegation that it is a disadvantage to a person to have trust reposed in him, but no such allegation is made. Cantillon, *Essai*, p. 27, says: 'lorsqu'il faut de la capacité et de la confiance, on paie encore le travail plus cher, comme aux jouailliers, teneurs de compte, caissiers, et autres.' Hume, *History*, ed. of 1773, vol. viii., p. 323, says: 'It is a familiar rule in all business that every man should be paid in proportion to the trust reposed in him and the power which he enjoys.']

[2] [But some trades, *e.g.*, that of a banker, may be necessarily confined to persons of more than average trustworthiness, and this may raise the rate of profit above the ordinary level if such persons are not sufficiently plentiful.]

[3] [The argument under this head, which is often misunderstood, is that pecuniary wages are (on the average, setting great gains against small ones) less in trades where there are high prizes and many blanks. The remote possibility of obtaining one of the high prizes is one of the circumstances which 'in the imaginations of men make up for a small pecuniary gain' (p. 101). Cantillon, *Essai*, p. 24, is not so subtle, merely making remuneration proportionate to risk.]

one if ever he makes such proficiency as will enable him to live by the business. In a perfectly fair lottery, those who draw the prizes ought to gain all that is lost by those who draw the blanks. In a profession where twenty fail for one that succeeds, that one ought to gain all that should have been gained by the unsuccessful twenty. The counsellor at law who, perhaps, at near forty years of age, begins to make something by his profession, ought to receive the retribution, not only of his own so tedious and expensive education, but of that of more than twenty others who are never likely to make any thing by it. How extravagant soever the fees of counsellors at law may sometimes appear, their real retribution is never equal to this.[1] Compute in any particular place, what is likely to be annually gained, and what is likely to be annually spent, by all the different workmen in any common trade, such as that of shoemakers or weavers, and you will find that the former sum will generally exceed the latter. But make the same computation with regard to all the counsellors and students of law, in all the different inns of court, and you will find that their annual gains bear but a very small proportion to their annual expence, even though you rate the former as high, and the latter as low, as can well be done. The lottery of the law, therefore, is very far from being a perfectly fair lottery; and that, as well as many other liberal and honourable professions, is,[2] in point of pecuniary gain, evidently under-recompenced.

Those professions keep their level, however, with other occupations, and, notwithstanding these discouragements, all the most generous and liberal spirits are eager to crowd into them. Two different causes contribute to recommend them. First, the desire of the reputation which attends upon superior excellence in any of them; and, secondly, the natural confidence which every man has more or less, not only in his own abilities, but in his own good fortune.

To excel in any profession, in which but few arrive at mediocrity, is the most decisive mark of what is called genius or superior talents. The public admiration which attends upon such distinguished abilities, makes always a part of their reward; a greater or smaller in proportion as it is higher or lower in degree. It makes a considerable part of that reward[3] in the profession of physic; a still greater perhaps in that of law; in poetry and philosophy it makes almost the whole.

There are some very agreeable and beautiful talents of which the possession commands a certain sort of admiration; but of which the exercise for the sake of gain is considered, whether from reason or prejudice, as a sort of public prostitution. The pecuniary recompence,

[1] [*Lectures*, p. 175.] [2] [Eds. 1-4 read 'are'.] [3] [Ed. 1 reads 'of it'.]

therefore, of those who exercise them in this manner, must be sufficient, not only to pay for the time, labour, and expence of acquiring the talents, but for the discredit which attends the employment of them as the means of subsistence. The exorbitant rewards of players, opera-singers, opera-dancers, &c. are founded upon those two principles; the rarity and beauty of the talents, and the discredit of employing them in this manner. It seems absurd at first sight that we should despise their persons, and yet reward their talents with the most profuse liberality. While we do the one, however, we must of necessity do the other. Should the public opinion or prejudice ever alter with regard to such occupations, their pecuniary recompence would quickly diminish. More people would apply to them, and the competition would quickly reduce the price of their labour. Such talents, though far from being common, are by no means so rare as is imagined. Many people possess them in great perfection, who disdain to make this use of them; and many more are capable of acquiring them, if any thing could be made honourably by them.

The over-weening conceit which the greater part of men have of their own abilities, is an ancient evil remarked by the philosophers and moralists of all ages. Their absurd presumption in their own good fortune, has been less taken notice of. It is, however, if possible, still more universal. There is no man living who, when in tolerable health and spirits, has not some share of it. The chance of gain is by every man more or less over-valued, and the chance of loss is by most men under-valued, and by scarce any man, who is in tolerable health and spirits, valued more than it is worth.

That the chance of gain is naturally over-valued, we may learn from the universal success of lotteries. The world neither ever saw, nor ever will see, a perfectly fair lottery; or one in which the whole gain compensated the whole loss; because the undertaker could make nothing by it. In the state lotteries the tickets are really not worth the price which is paid by the original subscribers, and yet commonly sell in the market for twenty, thirty, and sometimes forty per cent. advance. The vain hope of gaining some of the great prizes is the sole cause of this demand. The soberest people scarce look upon it as a folly to pay a small sum for the chance of gaining ten or twenty thousand pounds; though they know that even that small sum is perhaps twenty or thirty per cent. more than the chance is worth. In a lottery in which no prize exceeded twenty pounds, though in other respects it approached much nearer to a perfectly fair one than the common state lotteries, there would not be the same demand for

tickets. In order to have a better chance for some of the great prizes, some people purchase several tickets, and others, small shares in a still greater number. There is not, however, a more certain proposition in mathematics, than that the more tickets you adventure upon, the more likely you are to be a loser. Adventure upon all the tickets in the lottery, and you lose for certain; and the greater the number of your tickets the nearer you approach to this certainty.

That the chance of loss is frequently undervalued, and scarce ever valued more than it is worth, we may learn from the very moderate profit of insurers. In order to make insurance, either from fire or sea-risk, a trade at all, the common premium must be sufficient to compensate the common losses, to pay the expence of management, and to afford such a profit as might have been drawn from an equal capital employed in any common trade. The person who pays no more than this, evidently pays no more than the real value of the risk, or the lowest price at which he can reasonably expect to insure it. But though many people have made a little money by insurance, very few have made a great fortune; and from this consideration alone, it seems evident enough, that the ordinary balance of profit and loss is not more advantageous in this, than in other common trades by which so many people make fortunes. Moderate, however, as the premium of insurance commonly is, many people despise the risk too much to care to pay it. Taking the whole kingdom at an average, nineteen houses in twenty, or rather, perhaps, ninety-nine in a hundred, are not insured from fire. Sea risk is more alarming to the greater part of people, and the proportion of ships insured to those not insured is much greater. Many sail, however, at all seasons, and even in time of war, without any insurance. This may sometimes perhaps be done without any imprudence. When a great company, or even a great merchant, has twenty or thirty ships at sea, they may, as it were, insure one another. The premium saved upon them all, may more than compensate such losses as they are likely to meet with in the common course of chances. The neglect of insurance upon shipping, however, in the same manner as upon houses, is, in most cases, the effect of no such nice calculation, but of mere thoughtless rashness and presumptuous contempt of the risk.

The contempt of risk and the presumptuous hope of success, are in no period of life more active than at the age at which young people chuse their professions. How little the fear of misfortune is then capable of balancing the hope of good luck, appears still more evidently in the readiness of the common people to enlist as soldiers, or

to go to sea, than in the eagerness of those of better fashion to enter into what are called the liberal professions.

What a common soldier may lose is obvious enough. Without regarding the danger, however, young volunteers never enlist so readily as at the beginning of a new war; and though they have scarce any chance of preferment, they figure to themselves, in their youthful fancies, a thousand occasions of acquiring honour and distinction which never occur. These romantic hopes make the whole price of their blood. Their pay is less than that of common labourers, and in actual service their fatigues are much greater.

The lottery of the sea is not altogether so disadvantageous as that of the army. The son of a creditable labourer or artificer may frequently go to sea with his father's consent; but if he enlists as a soldier, it is always without it. Other people see some chance of his making something by the one trade: nobody but himself sees any of his making any thing by the other. The great admiral is less the object of public admiration than the great general, and the highest success in the sea service promises a less brilliant fortune and reputation than equal success in the land. The same difference runs through all the inferior degrees of preferment in both. By the rules of precedency a captain in the navy ranks with a colonel in the army: but he does not rank with him in the common estimation. As the great prizes in the lottery are less, the smaller ones must be more numerous. Common sailors, therefore, more frequently get some fortune and preferment than common soldiers; and the hope of those prizes is what principally recommends the trade. Though their skill and dexterity are much superior to that of almost any artificers, and though their whole life is one continual scene of hardship and danger, yet for all this dexterity and skill, for all those hardships and dangers, while they remain in the condition of common sailors, they receive scarce any other recompence but the pleasure of exercising the one and of surmounting the other. Their wages are not greater than those of common labourers at the port which regulates the rate of seamen's wages. As they are continually going from port to port, the monthly pay of those who sail from all the different ports of Great Britain, is more nearly upon a level than that of any other workmen in those different places; and the rate of the port to and from which the greatest number sail, that is the port of London, regulates that of all the rest. At London the wages of the greater part of the different classes of workmen are about double those of the same classes at Edinburgh. But the sailors who sail from the port of London seldom

earn above three or four shillings a month more than those who sail from the port of Leith, and the difference is frequently not so great. In time of peace, and in the merchant service, the London price is from a guinea to about seven-and-twenty shillings the calendar month. A common labourer in London, at the rate of nine or ten shillings a week, may earn in the calendar month from forty to five-and-forty shillings. The sailor, indeed, over and above his pay, is supplied with provisions. Their value, however, may not perhaps always exceed the difference between his pay and that of the common labourer; and though it sometimes should, the excess will not be clear gain to the sailor, because he cannot share it with his wife and family, whom he must maintain out of his wages at home.

The dangers and hair-breadth escapes of a life of adventures, instead of disheartening young people, seem frequently to recommend a trade to them. A tender mother, among the inferior ranks of people, is often afraid to send her son to school at a sea-port town, lest the sight of the ships and the conversation and adventures of the sailors should entice him to go to sea. The distant prospect of hazards, from which we can hope to extricate ourselves by courage and address, is not disagreeable to us, and does not raise the wages of labour in any employment. It is otherwise with those in which courage and address can be of no avail. In trades which are known to be very unwholesome, the wages of labour are always remarkably high. Unwholesomeness is a species of disagreeableness, and its effects upon the wages of labour are to be ranked under that general head.

In all the different employments of stock, the ordinary rate of profit varies more or less with the certainty or uncertainty of the returns. These are in general less uncertain in the inland than in the foreign trade, and in some branches of foreign trade than in others; in the trade to North America, for example, than in that to Jamaica. The ordinary rate of profit always rises more or less with the risk. It does not, however, seem to rise in proportion to it, or so as to compensate it completely. Bankruptcies are most frequent in the most hazardous trades. The most hazardous of all trades, that of a smuggler, though when the adventure succeeds it is likewise the most profitable, is the infallible road to bankruptcy. The presumptuous hope of success seems to act here as upon all other occasions, and to entice so many adventurers into those hazardous trades, that their competition reduces the[1] profit below what is sufficient to compensate the risk. To compensate it completely, the common returns ought, over and above the ordinary profits of stock, not only to make up for all occasional losses,

[1] [Eds. 4 and 5 read 'their,' doubtless a misprint.]

but to afford a surplus profit to the adventurers of the same nature with the profit of insurers. But if the common returns were sufficient for all this, bankruptcies would not be more frequent in these than in other trades.[1]

Of the five circumstances, therefore, which vary the wages of labour, two only affect the profits of stock; the agreeableness or disagreeableness of the business, and the risk or security with which it is attended. In point of agreeableness or disagreeableness, there is little or no difference in the far greater part of the different employments of stock; but a great deal in those of labour; and the ordinary profit of stock, though it rises with the risk, does not always seem to rise in proportion to it. It should follow from all this, that, in the same society or neighbourhood, the average and ordinary rates of profit in the different employments of stock should be more nearly upon a level than the pecuniary wages of the different sorts of labour. They are so accordingly. The difference between the earnings of a common labourer and those of a well employed lawyer or physician, is evidently much greater than that between the ordinary profits in any two different branches of trade. The apparent difference, besides, in the profits of different trades, is generally a deception arising from our not always distinguishing what ought to be considered as wages, from what ought to be considered as profit.[2]

Apothecaries profit is become a bye-word, denoting something uncommonly extravagant. This great apparent profit, however, is frequently no more than the reasonable wages of labour. The skill of an apothecary is a much nicer and more delicate matter than that of any artificer whatever; and the trust which is reposed in him is of much greater importance. He is the physician of the poor in all cases, and of the rich when the distress or danger is not very great. His reward, therefore, ought to be suitable to his skill and his trust, and it arises generally from the price at which he sells his drugs. But the whole drugs which the best employed apothecary, in a large market town, will sell in a year, may not perhaps cost him above thirty or forty pounds. Though he should sell them, therefore, for three or four hundred, or at a thousand per cent. profit, this may frequently be no more than the reasonable wages of his labour charged, in the only way in which he can charge them, upon the price of his drugs. The greater part of the apparent profit is real wages disguised in the garb of profit.

[1] [The fact is overlooked that the numerous bankruptcies may be counterbalanced by the instances of great gain. Below, on p. 127, the converse mistake is made of comparing great successes and leaving out of account great failures.]

[2] [Above, p. 55.]

In a small sea-port town,[1] a little grocer will make forty or fifty per cent. upon a stock of a single hundred pounds, while a considerable wholesale merchant in the same place will scarce make eight or ten per cent. upon a stock of ten thousand. The trade of the grocer may be necessary for the conveniency of the inhabitants, and the narrowness of the market may not admit the employment of a larger capital in the business. The man, however, must not only live by his trade, but live by it suitably to the qualifications which it requires. Besides possessing a little capital, he must be able to read, write, and account, and must be a tolerable judge too of, perhaps, fifty or sixty different sorts of goods, their prices, qualities, and the markets where they are to be had cheapest. He must have all the knowledge, in short, that is necessary for a great merchant, which nothing hinders him from becoming but the want of a sufficient capital. Thirty or forty pounds a year cannot be considered as too great a recompence for the labour of a person so accomplished. Deduct this from the seemingly great profits of his capital, and little more will remain, perhaps, than the ordinary profits of stock. The greater part of the apparent profit is, in this case too, real wages.

The difference between the apparent profit of the retail and that of the wholesale trade, is much less in the capital than in small towns and country villages. Where ten thousand pounds can be employed in the grocery trade, the wages of the grocer's labour make but a very trifling addition to the real profits of so great a stock. The apparent profits of the wealthy retailer, therefore, are there more nearly upon a level with those of the wholesale merchant. It is upon this account that goods sold by retail are generally as cheap and frequently much cheaper in the capital than in small towns and country villages.[2] Grocery goods, for example, are generally much cheaper; bread and butcher's meat frequently as cheap. It costs no more to bring grocery goods to the great town than to the country village; but it costs a great deal more to bring corn and cattle, as the greater part of them must be brought from a much greater distance. The prime cost of grocery goods, therefore, being the same in both places, they are cheapest where the least profit is charged upon them. The prime cost of bread and butcher's meat is greater in the great town than in the country village; and though the profit is less, therefore they are not always cheaper there, but often equally cheap. In such articles as bread and butcher's meat, the same cause, which diminishes

[1] [Doubtless Kirkcaldy was in Smith's mind.] [2] [Above, p. 76.]

apparent profit, increases prime cost. The extent of the market, by giving employment to greater stocks, diminishes apparent profit; but by requiring supplies from a greater distance, it increases prime cost. This diminution of the one and increase of the other seem, in most cases, nearly to counter-balance one another; which is probably the reason that, though the prices of corn and cattle are commonly very different in different parts of the kingdom, those of bread and butcher's meat are generally very nearly the same through the greater part of it.

Though the profits of stock both in the wholesale and retail trade are generally less in the capital than in small towns and country villages, yet great fortunes are frequently acquired from small beginnings in the former, and scarce ever in the latter. In small towns and country villages, on account of the narrowness of the market, trade cannot always be extended as stock extends. In such places, therefore, though the rate of a particular person's profits may be very high, the sum or amount of them can never be very great, nor consequently that of his annual accumulation. In great towns, on the contrary, trade can be extended as stock increases, and the credit of a frugal and thriving man increases much faster than his stock. His trade is extended in proportion to the amount of both, and the sum or amount of his profits is in proportion to the extent of his trade, and his annual accumulation in proportion to the amount of his profits. It seldom happens, however, that great fortunes are made even in great towns by any one regular, established, and well-known branch of business, but in consequence of a long life of industry, frugality, and attention. Sudden fortunes, indeed, are sometimes made in such places by what is called the trade of speculation. The speculative merchant exercises no one regular, established, or well known branch of business. He is a corn merchant this year, and a wine merchant the next, and a sugar, tobacco, or tea merchant the year after. He enters into every trade when he foresees that it is likely to be more than commonly profitable, and he quits it when he foresees that its profits are likely to return to the level of other trades. His profits and losses, therefore, can bear no regular proportion to those of any one established and well-known branch of business. A bold adventurer may sometimes acquire a considerable fortune by two or three successful speculations; but is just as likely to lose one by two or three unsuccessful ones. This trade can be carried on no where but in great towns. It is only in places of the most extensive commerce and correspondence that the intelligence requisite for it can be had.

The five circumstances above mentioned, though they occasion considerable inequalities in the wages of labour and profits of stock, occasion none in the whole of the advantages and disadvantages, real or imaginary, of the different employments of either. The nature of those circumstances is such, that they make up for a small pecuniary gain in some, and counter-balance a great one in others.

In order, however, that this equality may take place in the whole of their advantages or disadvantages, three things are requisite even where there is the most perfect freedom. First, the employments must be well known and long established in the neighbourhood; secondly, they must be in their ordinary, or what may be called their natural state; and, thirdly, they must be the sole or principal employments of those who occupy them.

First, this equality can take place only in those employments which are well known, and have been long established in the neighbourhood.

Where all other circumstances are equal, wages are generally higher in new than in old trades. When a projector attempts to establish a new manufacture, he must at first entice his workmen from other employments by higher wages than they can either earn in their own trades, or than the nature of his work would otherwise require, and a considerable time must pass away before he can venture to reduce them to the common level. Manufactures for which the demand arises altogether from fashion and fancy, are continually changing, and seldom last long enough to be considered as old established manufactures. Those, on the contrary, for which the demand arises chiefly from use or necessity, are less liable to change, and the same form or fabric may continue in demand for whole centuries together. The wages of labour, therefore, are likely to be higher in manufactures of the former, than in those of the latter kind. Birmingham deals chiefly in manufactures of the former kind; Sheffield in those of the latter; and the wages of labour in those two different places, are said to be suitable to this difference in the nature of their manufactures.

The establishment of any new manufacture, of any new branch of commerce, or of any new practice in agriculture, is always a speculation, from which the projector promises himself extraordinary profits. These profits sometimes are very great, and sometimes, more frequently, perhaps, they are quite otherwise; but in general they bear no regular proportion to those of other old trades in the neighbourhood. If the project succeeds, they are commonly at first very high. When the trade or practice becomes thoroughly established and well known, the competition reduces them to the level of other trades.

Secondly, This equality in the whole of the advantages and disadvantages of the different employments of labour and stock, can take place only in the ordinary, or what may be called the natural state of those employments.

The demand for almost every different species of labour is sometimes greater and sometimes less than usual. In the one case the advantages of the employment rise above, in the other they fall below the common level. The demand for country labour is greater at hay-time and harvest, than during the greater part of the year; and wages rise with the demand. In time of war, when forty or fifty thousand sailors are forced from the merchant service into that of the king, the demand for sailors to merchant ships necessarily rises with their scarcity, and their wages upon such occasions commonly rise from a guinea and seven-and-twenty shillings, to forty shillings and three pounds a month. In a decaying manufacture, on the contrary, many workmen, rather than quit their old trade, are contented with smaller wages than would otherwise be suitable to the nature of their employment.

The profits of stock vary with the price of the commodities in which it is employed. As the price of any commodity rises above the ordinary or average rate, the profits of at least some part of the stock that is employed in bringing it to market, rise above their proper level, and as it falls they sink below it. All commodities are more or less liable to variations of price, but some are much more so than others. In all commodities which are produced by human industry, the quantity of industry annually employed is necessarily regulated by the annual demand, in such a manner that the average annual produce may, as nearly as possible, be equal to the average annual consumption. In some employments, it has already been observed,[1] the same quantity of industry will always produce the same, or very nearly the same quantity of commodities. In the linen or woollen manufactures, for example, the same number of hands will annually work up very nearly the same quantity of linen and woollen cloth. The variations in the market price of such commodities, therefore, can arise only from some accidental variation in the demand. A public mourning raises the price of black cloth.[2] But as the demand for most sorts of plain linen and woollen cloth is pretty uniform, so is likewise the price. But there are other employments in which the same quantity of industry will not always produce the same quantity of commodities. The same quantity of industry, for example, will, in different years, produce very different quantities of corn, wine, hops, sugar, tobacco, &c. The price

[1] [Above, p. 60.] [2] [The illustration has already been used above, p. 61.]

of such commodities, therefore, varies not only with the variations of demand, but with the much greater and more frequent variations of quantity, and is consequently extremely fluctuating. But the profit of some of the dealers must necessarily fluctuate with the price of the commodities. The operations of the speculative merchant are principally employed about such commodities. He endeavours to buy them up when he foresees that their price is likely to rise, and to sell them when it is likely to fall.

Thirdly, This equality in the whole of the advantages and disadvantages of the different employments of labour and stock, can take place only in such as are the sole or principal employments of those who occupy them.

When a person derives his subsistence from one employment, which does not occupy the greater part of his time; in the intervals of his leisure he is often willing to work at another for less wages than would otherwise suit the nature of the employment.

There still subsists in many parts of Scotland a set of people called Cotters or Cottagers, though they were more frequent some years ago than they are now. They are a sort of out-servants of the landlords and farmers. The usual reward which they receive from their masters is a house, a small garden for pot herbs, as much grass as will feed a cow, and, perhaps, an acre or two of bad arable land. When their master has occasion for their labour, he gives them, besides, two pecks of oatmeal a week, worth about sixteen pence sterling. During a great part of the year he has little or no occasion for their labour, and the cultivation of their own little possession is not sufficient to occupy the time which is left at their own disposal. When such occupiers were more numerous than they are at present, they are said to have been willing to give their spare time for a very small recompence to any body, and to have wrought for less wages than other labourers. In ancient times they seem to have been common all over Europe. In countries ill cultivated and worse inhabited, the greater part of landlords and farmers could not otherwise provide themselves with the extraordinary number of hands, which country labour requires at certain seasons. The daily or weekly recompence which such labourers occasionally received from their masters, was evidently not the whole price of their labour. Their small tenement made a considerable part of it. This daily or weekly recompence, however, seems to have been considered as the whole of it, by many writers who have collected the prices of labour and provisions in ancient times, and who have taken pleasure in representing both as wonderfully low.

The produce of such labour comes frequently cheaper to market than would otherwise be suitable to its nature. Stockings in many parts of Scotland are knit much cheaper than they can any-where be wrought upon the loom. They are the work of servants and labourers, who derive the principal part of their subsistence from some other employment. More than a thousand pair of Shetland stockings are annually imported into Leith, of which the price is from five pence to seven pence a pair. At Learwick, the small capital of the Shetland islands, ten pence a day, I have been assured, is a common price of common labour. In the same islands they knit worsted stockings to the value of a guinea a pair and upwards.

The spinning of linen yarn is carried on in Scotland nearly in the same way as the knitting of stockings, by servants who are chiefly hired for other purposes. They earn but a very scanty subsistence, who endeavour to get their whole livelihood by either of those trades. In most parts of Scotland she is a good spinner who can earn twenty pence a week.

In opulent countries the market is generally so extensive, that any one trade is sufficient to employ the whole labour and stock of those who occupy it. Instances of people's living by one employment, and at the same time deriving some little advantage from another, occur chiefly in poor countries. The following instance, however, of something of the same kind is to be found in the capital of a very rich one. There is no city in Europe, I believe, in which house-rent is dearer than in London, and yet I know no capital in which a furnished apartment can be hired so cheap. Lodging is not only much cheaper in London than in Paris; it is much cheaper than in Edinburgh of the same degree of goodness; and what may seem extraordinary, the dearness of house-rent is the cause of the cheapness of lodging. The dearness of house-rent in London arises, not only from those causes which render it dear in all great capitals, the dearness of labour, the dearness of all the materials of building, which must generally be brought from a great distance, and above all the dearness of ground-rent, every landlord acting the part of a monopolist, and frequently exacting a higher rent for a single acre of bad land in a town, than can be had for a hundred of the best in the country; but it arises in part from the peculiar manners and customs of the people which oblige every master of a family to hire a whole house from top to bottom. A dwelling-house in England means every thing that is contained under the same roof. In France, Scotland, and many other parts of Europe, it frequently means no more than a single story. A tradesman in

London is obliged to hire a whole house in that part of the town where his customers live. His shop is upon the ground-floor, and he and his family sleep in the garret; and he endeavours to pay a part of his house-rent by letting the two middle stories to lodgers. He expects to maintain his family by his trade, and not by his lodgers. Whereas, at Paris and Edinburgh, the people who let lodgings have commonly no other means of subsistence; and the price of the lodging must pay, not only the rent of the house, but the whole expence of the family.

Credits

The College Board acknowledges all the third-party content that has been included in these materials and respects the Intellectual Property rights of others. If we have incorrectly attributed a source or overlooked a publisher, please contact us.

Page 5: "A World Without Work" by Derek Thompson. © 2015 The Atlantic Media Co., as first published in *The Atlantic* Magazine. All rights reserved. Distributed by Tribune Content Agency, LLC.

Page 17: "The Myth of Sisyphus" from *THE MYTH OF SISYPHUS: AND OTHER ESSAYS* by Albert Camus, translated by Justin O'Brien, translation copyright © 1955, copyright renewed 1983 by Alfred A. Knopf, a division of Penguin Random House LLC. Used by permission of Alfred A. Knopf, an imprint of the Knopf Doubleday Publishing Group, a division of Penguin Random House LLC, and Penguin Books Ltd. All rights reserved. Any third party use of this material, outside of this publication, is prohibited. Interested parties must apply directly to Penguin Random House LLC for permission.

Page 19: "Long working hours and cancer risk: a multi-cohort study." From the *British Journal of Cancer*, (2016), 1–6. © 2016 Cancer Research UK. All rights reserved.

Page 25: "We Can do it/Rosie the Riveter," by J. Howard Miller. Public Domain. Image courtesy of the National Archives and Records Administration.

Page 26: "Address to the Nation on Labor Day" by Richard Nixon. Source: Gerhard Peters and John T. Woolley, *The American Presidency Project* (http://www.presidency.ucsb.edu/ws/?pid=3138).

Page 30: "The Wealth of Nations" by Adam Smith. Originally published in 1904 by Methuen & Co. Public Domain.