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FOR RELEASE SEPTEMBER 13, 2018

In Advanced and Emerging Economies Alike, Worries About Job Automation

Many fear robots, computers will eliminate jobs, increase inequality

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RECOMMENDED CITATION

Pew Research Center, September, 2018 "In Advanced and Emerging Economies Alike, Worries About Job Automation"

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In Advanced and Emerging Economies Alike, Worries About Job Automation

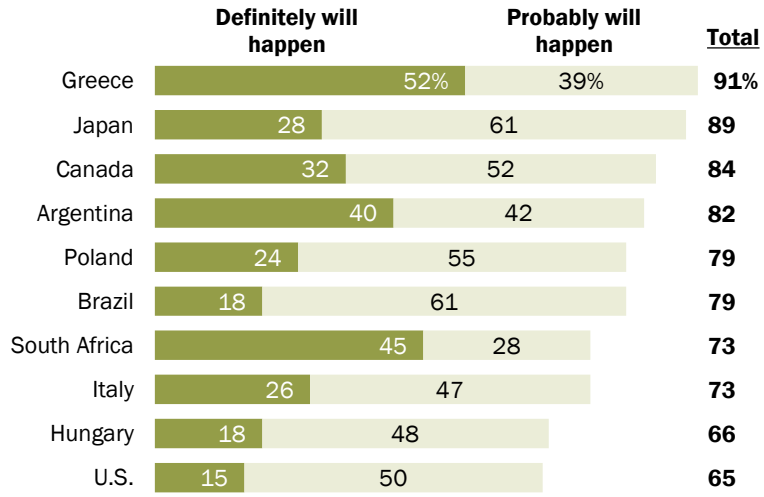
Many fear robots, computers will eliminate jobs, increase inequality

Across the globe, new technologies are transforming the nature of work. Advances in robotics and artificial intelligence are displacing jobs in manufacturing and, increasingly, in the service sector. And while automation may boost productivity and overall economic growth, there is a recognition that it will also disrupt the workplace, with repercussions for workers, employers, education systems and governments.

Average citizens see a revolution coming in the workplace, and they are concerned. As a new Pew Research Center study of public opinion in 10 countries highlights, there is a widely shared view that the nature of work will likely be transformed over the next half-century, though not everyone is equally convinced.

Most think robots and computers will take over many jobs now done by humans

How likely do you think it is that in the next 50 years, robots and computers will do much of the work currently done by humans?



Note: U.S. data from survey conducted June 10-July 12, 2015.
Source: Spring 2018 Global Attitudes Survey. Q80.

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In some countries and economic sectors, of course, the transformation of the workplace has already begun. In South Korea, there are more than 600 installed industrial robots for every 10,000 workers in manufacturing facilities. In Japan there are more than 300 and in the United States nearly 200. Profit maximization, and the relatively high cost of human labor, helps drive automation. The average hourly cost of a manufacturing worker is $49 in Germany and $36 in the U.S. The hourly cost of a robot is $4. How far will the use of computers and artificial intelligence spread? The Organization for Economic Cooperation and

Development (OECD) estimates that 14% of jobs in advanced economies could become susceptible to automation and another 32% substantially changed, affecting the lives of millions of workers.

In all 10 advanced and emerging economies polled, large majorities say that in the next 50 years robots and computers will probably or definitely do much of the work currently done by humans. In three countries – Greece, South Africa and Argentina – four-in-ten or more believe this will *definitely* happen.

And most believe that increasing automation will have negative consequences for jobs. Large majorities in each nation surveyed think ordinary people will have a hard time finding jobs as a result of automation. Relatively few predict new, better-paying jobs will be created by technological advances.

Publics believe the responsibility for dealing with these challenges should be widely shared across key institutions and actors in society. Most tend to say that governments, schools, individuals themselves and, to a somewhat lesser extent, employers all have a lot of responsibility for ensuring that workers have the right skills and education to be successful in the future economy.

These are among the key findings of a Pew Research Center survey conducted in nine countries from April 30 to August 10, 2018, among 9,670 respondents. It also includes analysis from previous Pew Research Center surveys conducted in the United States in 2015, 2016 and 2017.

Most see robots and computers displacing human jobs

The belief that in the next 50 years robots and computers will definitely or probably do much of the work currently done by humans is widespread in the nations surveyed. This view is especially common in Greece, the only nation where more than half of those polled believe this will definitely happen, although many in South Africa (45%) and Argentina (40%) also share this opinion. Americans are somewhat less likely than others to think that robots will replace human jobs in the next half-century.[1]

There are not a lot of differences on this issue between major demographic groups surveyed in each nation, though in some countries younger people are particularly likely to think automation will displace human jobs. In Canada, Hungary, South Africa and Brazil, people ages 18 to 29 are

[1] It is worth noting that this question was asked in 2015 in the U.S., and opinions could have shifted since then.

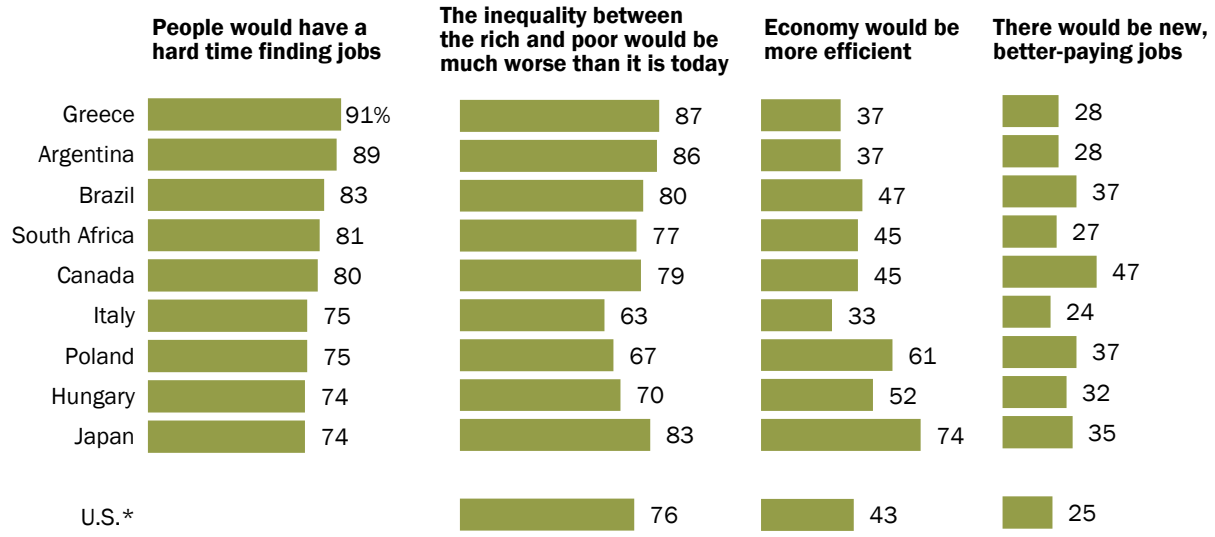
more likely to believe automation will have a significant impact on jobs in the next half-century. This view is also common among those with higher levels of education in South Africa and Brazil.[2]

Trepidation about the effects of automation

Publics are generally more worried than hopeful about the prospect that robots and computers may one day be able to do much of the work done by humans today. Their greatest concern is that automation will make it harder for ordinary people to find jobs. More than eight-in-ten adults in Greece, Argentina, Brazil, South Africa and Canada voice such worries, and more than seven-in-ten in Hungary, Poland, Italy and Japan agree.

Publics more convinced of the downsides than potential upsides of job automation

% of adults who think it is likely that __ if robots and computers were able to do much of the work currently being done by humans



Note: U.S. data from Pew Research survey conducted May 1-15, 2017. No U.S. data for "people will have a hard time finding jobs." In the U.S., the efficiency question referred to "economy as a whole" and the jobs question read "economy will create new, better-paying jobs."
Source: Spring 2018 Global Attitudes Survey. Q81a-d.

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[2] For the purpose of comparing educational groups across countries, we standardize education levels based on the UN's International Standard Classification of Education. The lower education category is below secondary education and the higher category is secondary or above in Brazil and South Africa. The lower education category is secondary education or below and the higher category is postsecondary or above in Argentina, Canada, Greece, Hungary, Italy, Japan and Poland.

Worries about shrinking the job market are widely shared among both men and women and across age groups. Japan and Brazil, however, stand out as countries where those ages 18 to 29 are significantly more worried than older generations about the impact of automation on employment.

Many in the nations surveyed also believe that the greater use of robots and computers will worsen inequality between the rich and the poor. More than eight-in-ten in Greece, Argentina, Japan and Brazil express this view, as do more than seven-in-ten in Canada, South Africa, the U.S. and Hungary. Worsening inequality due to technological advances is a particular concern among the more highly educated in countries such as Japan, South Africa and Brazil.

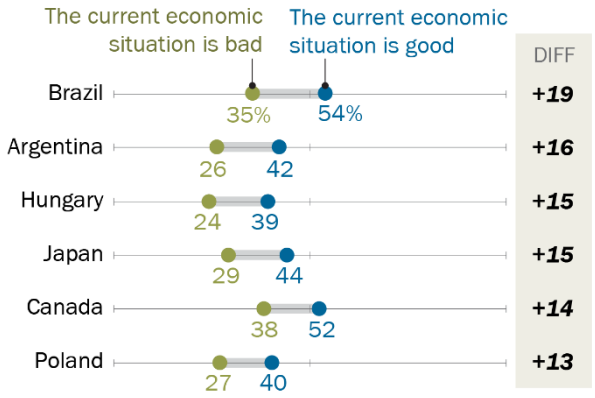
Along with concern about negative consequences, there is widespread skepticism about the potential economic benefits of automation. Only in Japan, Poland and Hungary does half or more of the public believe that automation will enable their economy to become more efficient. Older Canadians – those ages 50 and older – are particularly dubious of the purported efficiency gains from using more robots and computers. Women are especially skeptical in Canada, Japan, Argentina and Brazil, as are people with less than a college education in Greece, Italy and Japan.

And less than half the publics surveyed believe that robots and computers doing much of the work currently done by humans would lead to new, better-paying jobs. In fact, only about a quarter of Americans and Italians and roughly a third of Japanese and Hungarians hold this view. Women are less hopeful than men in Canada, Japan and Brazil. And in Canada, Greece and Japan, those without a college education are less likely than the college-educated to say that automation will lead to new, better-paying jobs.

In most nations, pessimism about the likelihood of high-quality new jobs is linked to views about the current state of the economy. For instance, 42% of Argentines who say their current national economy is in good shape believe automation will lead to new, better-paying jobs; among those who rate the current economy poorly, just 26% express this opinion.

Those satisfied with current economy more likely to have positive view of job automation

% who say automation will lead to new, better-paying jobs



Note: Only statistically significant differences shown.
Source: Spring 2018 Global Attitudes Survey. Q81d.

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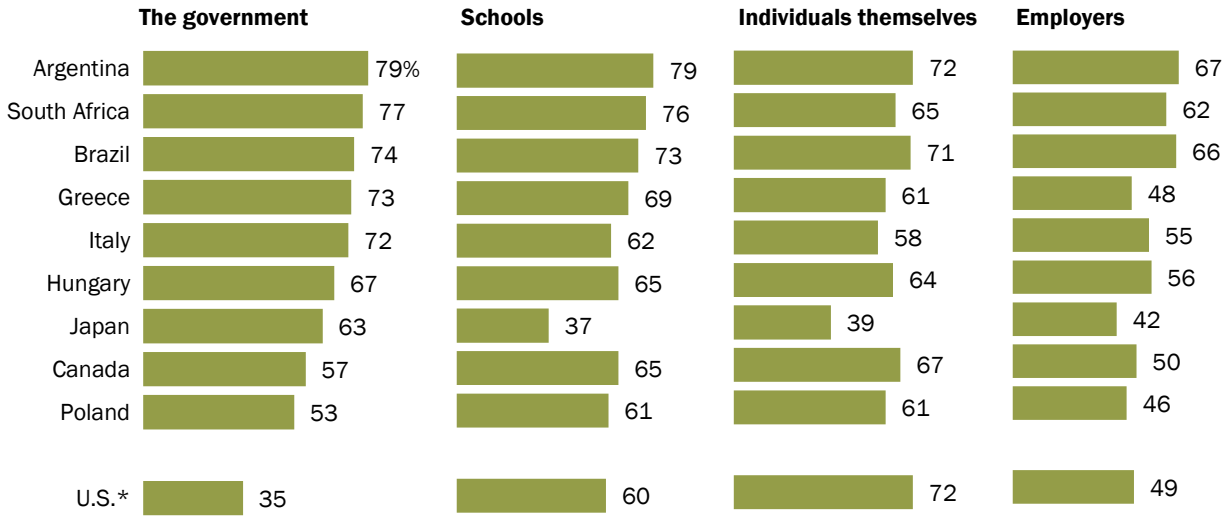
Who is responsible for making sure the workforce is prepared?

Publics place responsibility for dealing with the evolving nature of work on a variety of institutions and actors. Government looms large in the minds of many. Nearly eight-in-ten Argentines say government has a lot of responsibility for ensuring that the nation's workforce has the right skills and education to succeed in the future, and more than seven-in-ten hold this view in South Africa, Brazil, Greece and Italy. Only in the U.S. do fewer than half believe the government has a lot of responsibility for preparing the nation's workforce.

Government, schools, individuals all seen as sharing responsibility for preparing workforce for the future

% of adults who think __ have/has a lot of responsibility to make sure their nation's workforce has the right skills and education to be successful in the future



Note: U.S. data from Pew Research Center survey conducted May 25–June 29, 2016. In U.S., question asked about success in "today's economy." In U.S., asked about "federal government" and "public K-12 education system."
Source: Spring 2018 Global Attitudes Survey. Q82a-d.

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Government investment to help workers adapt to the new technological age varies greatly from country to country. Denmark, for instance, spends 3.22% of its gross domestic product on active and passive labor market policies, according to the OECD. Germany spends 1.45% and the United States 0.27%.

Schools, according to most, also have a major role to play in preparing workers for the future. Majorities in every country surveyed except Japan believe the educational system has a lot of

responsibility for ensuring that the workforce has the proper skills and education for the jobs of the future. This perspective is especially common in Argentina, South Africa and Brazil.

Most also see a role for individuals. This is particularly true in the U.S, Argentina and Brazil, where more than seven-in-ten say individuals themselves have a lot of responsibility for making sure they are prepared for the future economy. Again, Japan – where just 39% express this opinion – is an outlier.

Employers are seen as having somewhat less responsibility for making sure the workforce has the education and skills necessary for success. Still, roughly half or more believe employers have a lot of responsibility in Argentina, Brazil, South Africa, Hungary, Italy, the U.S., Canada and Greece.

Acknowledgments

This report is a collaborative effort based on the input and analysis of the following individuals.

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Methodology

About the Pew Research Center's Spring 2018 Global Attitudes Survey

Results for the survey are based on telephone and face-to-face interviews conducted under the direction of D3 Systems, Inc., Kantar Public UK, Kantar Public Korea and Langer Research Associates. The results are based on national samples, unless otherwise noted. More details about our international survey methodology and country-specific sample designs are available here.

Detailed information on survey methods for this report

General information on international survey research

Topline Questionnaire

Pew Research Center
Spring 2018 Survey
September 13, 2018 Release

Methodological notes:

- Survey results are based on national samples. For further details on sample designs, see Methodology section and our international survey methods database.
- Due to rounding, percentages may not total 100%. The topline "total" columns show 100%, because they are based on unrounded numbers.
- Not all questions included in the Spring 2018 survey are presented in this topline. Omitted questions have either been previously released or will be released in future reports.

		Q80. Overall, how likely do you think it is that in the next 50 years, robots and computers will do much of the work currently done by humans?					
		Definitely happen	Probably happen	Probably NOT happen	Definitely NOT happen	DK/Refused	Total
Canada	**Spring, 2018**	32	52	14	2	0	100
Greece	**Spring, 2018**	52	39	5	1	3	100
Hungary	**Spring, 2018**	18	48	20	6	7	100
Italy	**Spring, 2018**	26	47	12	4	11	100
Poland	**Spring, 2018**	24	55	9	4	8	100
Japan	**Spring, 2018**	28	61	8	1	1	100
South Africa	**Spring, 2018**	45	28	9	14	4	100
Argentina	**Spring, 2018**	40	42	6	8	4	100
Brazil	**Spring, 2018**	18	61	8	10	4	100

		Q81a. If robots and computers were able to do much of the work currently being done by humans, do you think each of the following is likely or not likely to happen in (survey country) as a result? a. Inequality between rich and poor would be much worse than it is today			
		Yes, likely	No, not likely	DK/Refused	Total
Canada	**Spring, 2018**	79	19	3	100
Greece	**Spring, 2018**	87	8	5	100
Hungary	**Spring, 2018**	70	20	9	100
Italy	**Spring, 2018**	63	20	17	100
Poland	**Spring, 2018**	67	15	18	100
Japan	**Spring, 2018**	83	13	4	100
South Africa	**Spring, 2018**	77	20	2	100
Argentina	**Spring, 2018**	86	10	4	100
Brazil	**Spring, 2018**	80	16	3	100

		Q81b. If robots and computers were able to do much of the work currently being done by humans, do you think each of the following is likely or not likely to happen in (survey country) as a result? b. Ordinary people would have a hard time finding jobs			
		Yes, likely	No, not likely	DK/Refused	Total
Canada	**Spring, 2018**	80	19	1	100
Greece	**Spring, 2018**	91	7	2	100
Hungary	**Spring, 2018**	74	19	6	100
Italy	**Spring, 2018**	75	16	9	100
Poland	**Spring, 2018**	75	14	11	100
Japan	**Spring, 2018**	74	23	3	100
South Africa	**Spring, 2018**	81	18	1	100
Argentina	**Spring, 2018**	89	8	2	100
Brazil	**Spring, 2018**	83	15	2	100

		Q81c. If robots and computers were able to do much of the work currently being done by humans, do you think each of the following is likely or not likely to happen in (survey country) as a result? c. The economy would be much more efficient			
		Yes, likely	No, not likely	DK/Refused	Total
Canada	**Spring, 2018**	45	50	4	100
Greece	**Spring, 2018**	37	48	15	100
Hungary	**Spring, 2018**	52	32	16	100
Italy	**Spring, 2018**	33	39	29	100
Poland	**Spring, 2018**	61	20	19	100
Japan	**Spring, 2018**	74	21	5	100
South Africa	**Spring, 2018**	45	50	5	100
Argentina	**Spring, 2018**	37	52	12	100
Brazil	**Spring, 2018**	47	46	7	100

		Q81d. If robots and computers were able to do much of the work currently being done by humans, do you think each of the following is likely or not likely to happen in (survey country) as a result? d. There would be new, better-paying jobs			
		Yes, likely	No, not likely	DK/Refused	Total
Canada	**Spring, 2018**	47	51	3	100
Greece	**Spring, 2018**	28	66	7	100
Hungary	**Spring, 2018**	32	54	15	100
Italy	**Spring, 2018**	24	60	15	100
Poland	**Spring, 2018**	37	44	20	100
Japan	**Spring, 2018**	35	58	6	100
South Africa	**Spring, 2018**	27	69	3	100
Argentina	**Spring, 2018**	28	63	8	100
Brazil	**Spring, 2018**	37	58	5	100

		Q82a. How much responsibility should each of the following have in making sure that the (survey country nationality) workforce has the right skills and education to be successful in the future? a. individuals themselves					
		A lot	Some	Only a little	None	DK/Refused	Total
Canada	**Spring, 2018**	67	27	5	0	1	100
Greece	**Spring, 2018**	61	33	5	1	0	100
Hungary	**Spring, 2018**	64	24	7	2	3	100
Italy	**Spring, 2018**	58	26	8	2	5	100
Poland	**Spring, 2018**	61	27	5	2	5	100
Japan	**Spring, 2018**	39	50	7	1	3	100
South Africa	**Spring, 2018**	65	19	10	5	1	100
Argentina	**Spring, 2018**	72	12	7	5	3	100
Brazil	**Spring, 2018**	71	11	9	6	3	100

		Q82b. How much responsibility should each of the following have in making sure that the (survey country nationality) workforce has the right skills and education to be successful in the future? b. the government					
		A lot	Some	Only a little	None	DK/Refused	Total
Canada	Spring, 2018	57	34	6	2	1	100
Greece	Spring, 2018	73	23	3	1	1	100
Hungary	Spring, 2018	67	18	8	4	3	100
Italy	Spring, 2018	72	16	5	2	4	100
Poland	Spring, 2018	53	32	6	2	7	100
Japan	Spring, 2018	63	31	3	1	2	100
South Africa	Spring, 2018	77	11	7	4	1	100
Argentina	Spring, 2018	79	8	4	7	3	100
Brazil	Spring, 2018	74	7	5	12	2	100

		Q82c. How much responsibility should each of the following have in making sure that the (survey country nationality) workforce has the right skills and education to be successful in the future? c. schools					
		A lot	Some	Only a little	None	DK/Refused	Total
Canada	Spring, 2018	65	31	3	1	0	100
Greece	Spring, 2018	69	23	5	1	1	100
Hungary	Spring, 2018	65	23	7	3	3	100
Italy	Spring, 2018	62	24	7	2	5	100
Poland	Spring, 2018	61	26	5	2	6	100
Japan	Spring, 2018	37	51	8	2	1	100
South Africa	Spring, 2018	76	14	6	2	1	100
Argentina	Spring, 2018	79	10	6	2	2	100
Brazil	Spring, 2018	73	13	8	5	2	100

		Q82d. How much responsibility should each of the following have in making sure that the (survey country nationality) workforce has the right skills and education to be successful in the future? d. employers					
		A lot	Some	Only a little	None	DK/Refused	Total
Canada	Spring, 2018	50	43	5	2	1	100
Greece	Spring, 2018	48	36	12	3	1	100
Hungary	Spring, 2018	56	28	9	3	4	100
Italy	Spring, 2018	55	29	10	2	5	100
Poland	Spring, 2018	46	38	8	2	6	100
Japan	Spring, 2018	42	50	5	2	1	100
South Africa	Spring, 2018	62	23	9	4	2	100
Argentina	Spring, 2018	67	18	6	7	3	100
Brazil	Spring, 2018	66	15	9	7	2	100