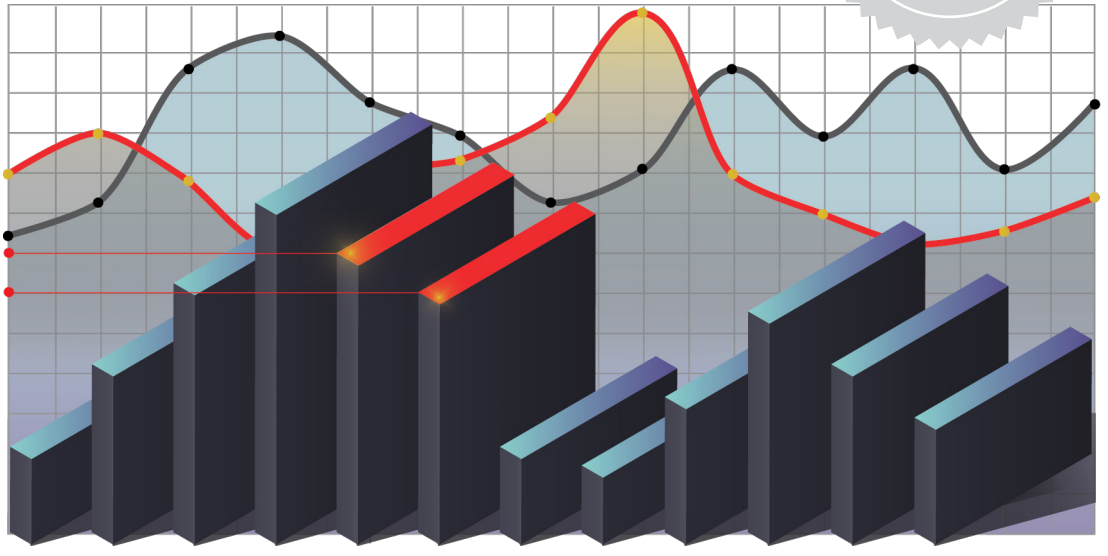
SPIE.

THE INTERNATIONAL SOCIETY
FOR OPTICS AND PHOTONICS

2018 OPTICS & PHOTONICS

GLOBAL SALARY REPORT

Early Review Version



SPIE. CAREER CENTER

www.SPIECareerCenter.org

Introduction

The optics and photonics community includes workers and students on every continent, engaged in disciplines ranging from aerospace to semiconductor to biotechnology. The Optics and Photonics Global Salary Report provides the community with up-to-date information on pay, job satisfaction, and other important workplace topics. A key goal of this report is to provide a reference for employees, students, and managers interested in understanding compensation across the career landscape: How does my pay compare with that of my colleagues? What is a typical mid-career salary in my country? What can I expect to earn in industry versus academia?

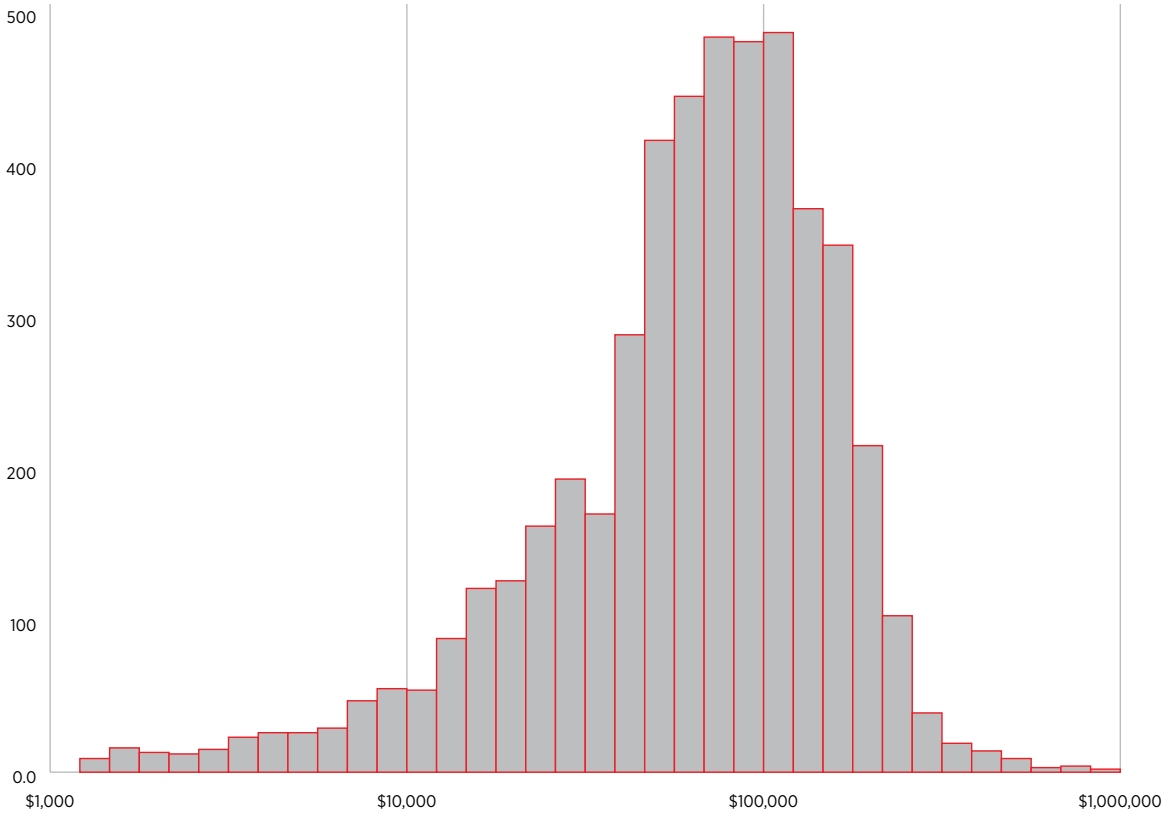
SPIE delivers the report each year, free of charge, as part of its mission as a not-for-profit educational society supporting the science and application of light. The report builds on data from over 7,000 individuals in 102 countries[1] who shared career information in a short online survey. This is the eighth annual survey and report, the largest such study in the optics and photonics community.

Unless otherwise noted, all results are based on full-time workers. For a complete list of participant countries and other details on survey methodology, please see Methodology and Endnotes on page 25.

KEY FINDINGS:

- The median salary for full-time employees is $71,748, up over ten percent from $65,000 last year.[2] This increase likely reflects the growing global economy and tight labor markets for the highly-skilled workers in our community.
- Salaries paid in Chinese yuan are up 25% versus last year, and have increased an impressive 67% since 2011. Euro salaries were flat, while earnings in U.S. dollars were up three percent, up one percent in Japanese yen, and down two percent in British pounds.
- Entry-level pay for PhDs is highest in Switzerland, where employees with 1 to 2 years of experience earn a median salary of $84,082. The United States, Germany, and Canada follow, with respective salaries of $83,500, $66,965, and $58,225.
- The highest-paid discipline is aerospace, with a median income of $112,764. Aerospace has held the top spot for all eight years that the survey has been conducted.
- Median salaries are 28% higher overall for men than for women, though gaps in median pay are smaller during early career stages. 71% of women feel that they are paid fairly, versus 79% of men.
- Survey respondents are highly satisfied with their jobs overall: 96% enjoy their work, 95% find their work meaningful, and 93% feel that their work is respected by their peers.
- 31% of workers in higher-income Asian countries work 50 or more hours per week versus 22% in North America and 14% in higher-income European countries.
- Most full time workers (69%) identify as engineers. Within this group, 65% have engineering degrees and are working as engineers, 22% have engineering degrees but are not working as engineers, and 14% work as engineers without having engineering degrees.
- Startups account for just over 16% of workers at for-profit organizations. These workers earn median salaries of $80,787, versus $96,000 for those at traditional companies.
- Almost two thirds of student respondents (61%) are working towards a PhD, followed by 25% pursuing master's degrees, and 11% seeking a bachelor's degree.

DISTRIBUTION OF FULL-TIME SALARIES



Log scale

DATA OVERVIEW

Full-time Salary Summary Statistics

Mean = $89,843

Median = $71,748

Percentiles:

- 5th = $9,219
- 25th = $39,863
- 75th = $117,189
- 95th = $200,000
- 99th = $350,000

n = 4919

Response Demographics

7035	Valid responses
4919	Full-time employees
206	Part-time employees
146	Unemployed
97	Retired
5437	Men
1289	Women
1667	Students

Country Overview

The countries in the survey represent a broad range of incomes, job satisfaction, and gender balance. Workers in Switzerland, the United States, and Israel enjoy the highest median salaries. Within these high-earning countries, the United States has the highest percentage of women in the workforce, and the highest level of satisfaction with work/life balance.

MEDIAN SALARY, WORK/LIFE BALANCE, AND GENDER, BY COUNTRY

Country	Median Salary	"I have an excellent work/life balance"	Women Workers
Switzerland (*n*=69)	$122,747	67%	12%
United States (*n*=1826)	$120,000	75%	17%
Israel (*n*=63)	$90,457	66%	13%
Germany (*n*=318)	$82,510	61%	12%
Australia (*n*=43)	$81,608	68%	26%
Japan (*n*=225)	$75,132	57%	6%
Sweden (*n*=37)	$74,440	77%	16%
Canada (*n*=128)	$72,582	79%	14%
South Korea (*n*=78)	$72,411	74%	8%
Netherlands (*n*=62)	$71,748	74%	7%
Belgium (*n*=37)	$60,822	73%	14%
United Kingdom (*n*=189)	$59,454	63%	11%
France (*n*=177)	$53,811	71%	20%
Spain (*n*=107)	$53,811	63%	26%
Singapore (*n*=40)	$53,239	65%	13%
Brazil (*n*=40)	$51,201	79%	18%
Italy (*n*=161)	$44,245	61%	21%
Taiwan (*n*=71)	$43,241	77%	13%
Lithuania (*n*=38)	$29,895	62%	19%
Mexico (*n*=45)	$26,974	83%	21%
Poland (*n*=54)	$25,063	78%	23%
Turkey (*n*=47)	$23,676	52%	11%
Czechia (*n*=44)	$23,639	64%	18%
China, Peoples Republic of (*n*=321)	$23,048	72%	19%
Romania (*n*=25)	$21,524	65%	36%
India (*n*=114)	$15,689	78%	18%
Russia (*n*=146)	$13,146	64%	20%

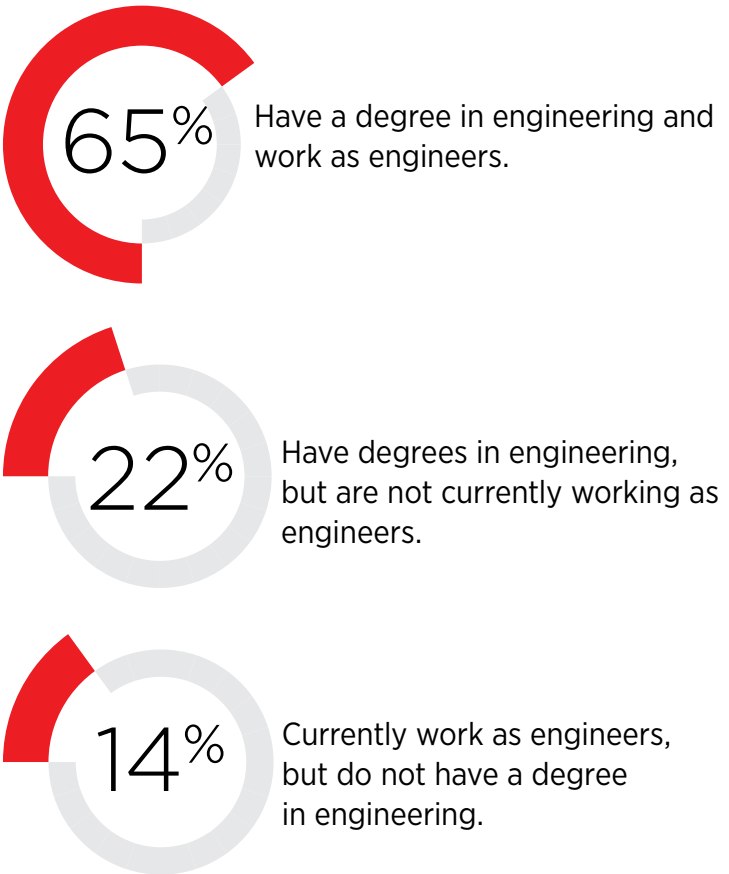
Table includes all countries with a sample size of 25 or more full-time workers. For work/life balance, the percentage is the sum of respondents who agree or strongly agree with the statement "I have an excellent work/life balance."

Employees in Mexico, Brazil, and Canada are much happier about their work/life balance compared to their colleagues in Germany, Japan, and Turkey. More than a third of Romanian workers are women, versus six percent in Japan.

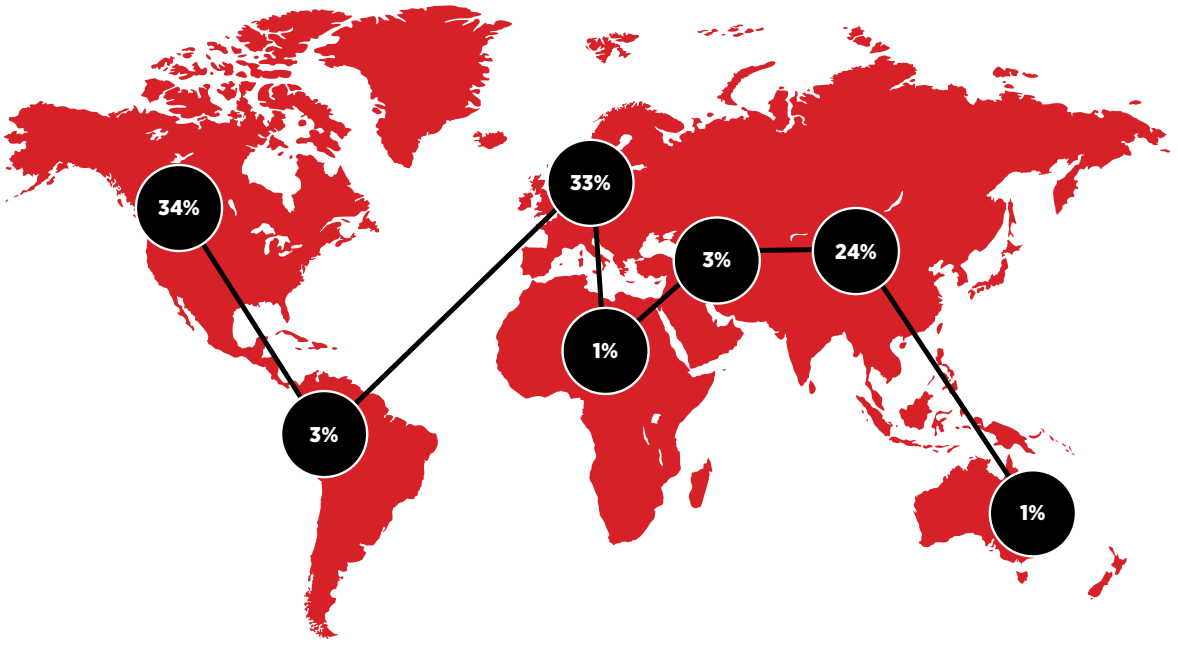
In comparison to broader populations within surveyed countries, the optics and photonics community fares quite well. For example, the median earnings of Swiss survey participants is $122,747 versus the average for the general population at $85,718. In Czechia, survey participants earn $23,639 versus $13,587 for the country.[3]

69% OF FULL-TIME WORKERS IDENTIFY THEMSELVES AS ENGINEERS

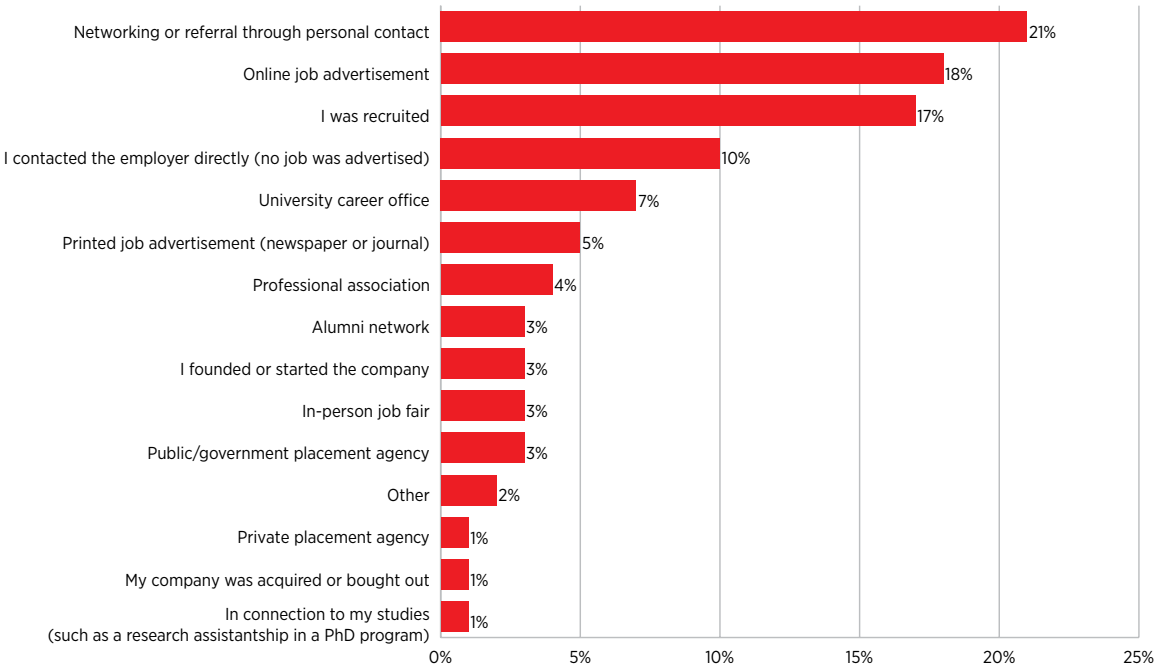
Within this group:



SURVEY RESPONSES BY REGION



HOW DID YOU FIND YOUR LAST JOB?



Job Satisfaction and Workplace

Large majorities of optics and photonics workers enjoy their work (96%), find it meaningful (95%), and feel that their peers respect it (93%). Most would recommend their field to their child or a friend (82%), feel they are paid fairly (78%), and perceive that promotions are handled fairly in their workplaces (71%).

JOB SATISFACTION

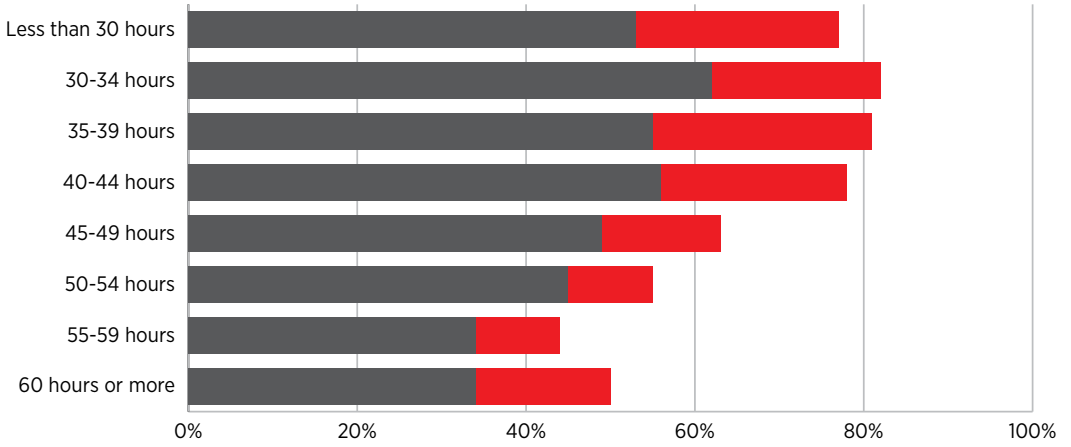
While 78% of workers say they are paid fairly, only 61% are happy with their pay. The highest earners also enjoy their work the most—the median salary for the happiest respondents is $75,633 versus $62,698 for the least satisfied.

"I ENJOY MY WORK": MEDIAN SALARIES BY ENJOYMENT OF WORK

Strongly agree (*n*=2222)	$75,633
Agree (*n*=2399)	$70,000
Disagree (*n*=176)	$61,482
Strongly disagree (*n*=35)	$62,698

More than two-thirds of respondents feel they have an excellent work/life balance. Workers at 30-39 hours per week fall into the "sweet spot" for the balance between career and private life, with over 80% deeming it excellent. At the other end of the spectrum, only 44% of people working 55-59 hours per week agree that they have an excellent work/life balance.

"I HAVE AN EXCELLENT WORK/LIFE BALANCE" BY HOURS WORKED PER WEEK



"I love the company I work for. I could go somewhere else to make a little more but the culture that I am a part of is incomparable to anywhere else."

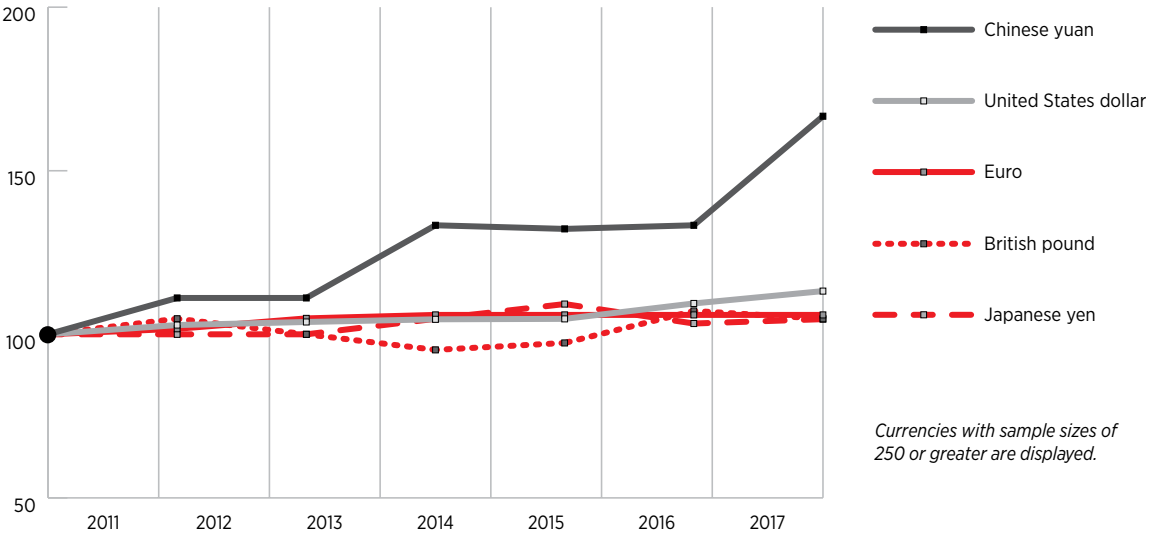
"Jobs in my organisation are underpaid by about 10%. However the work/life balance is particularly good and many colleagues agree this is fair."

"I do like my research work, but I am dissappointed with the salary."

Wage Growth

Wages grew for three out of five of the largest currency groups, with median salaries paid in Chinese yuan, U.S. dollars, and Japanese yen increasing 25%, 3%, and 1% respectively. Euro salaries were flat, while salaries paid in British pounds declined 2% over the last year.[4]

CHANGE IN MEDIAN SALARIES 2011–2017, LARGEST CURRENCY GROUPS



2011 = 100

Over the longer term, median salaries have increased in all five currency groups. Pay in Chinese yuan has increased the most, rising 67% since 2011.

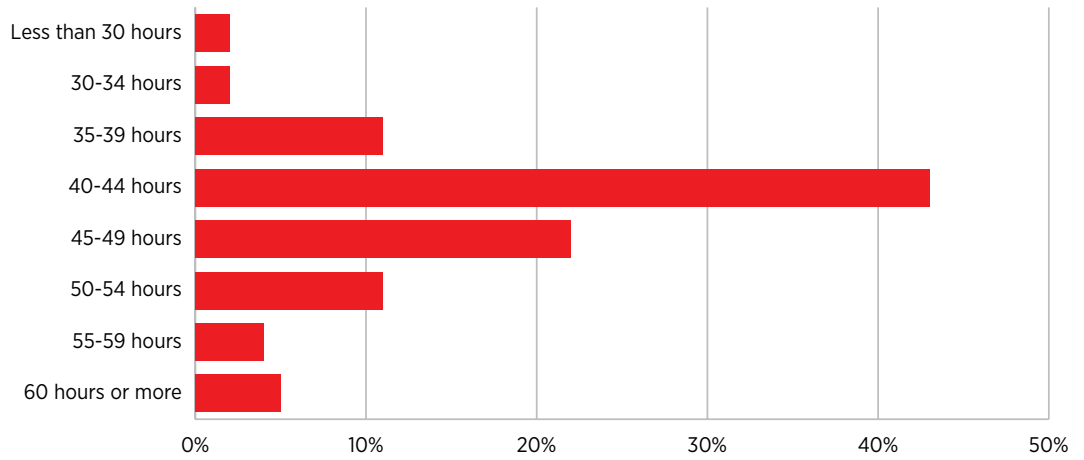
GROWTH IN MEDIAN SALARIES, 2011-17, LARGEST CURRENCY GROUPS

	2011 Median Salary	2017 Median Salary	Growth
Chinese yuan	¥90,000	¥150,000	67%
United States dollar	$106,000	$120,000	13%
Euro	€ 47,200	€ 50,000	6%
British pound	£42,000	£44,000	5%
Japanese yen	¥8,000,000	¥8,370,000	5%

Workload

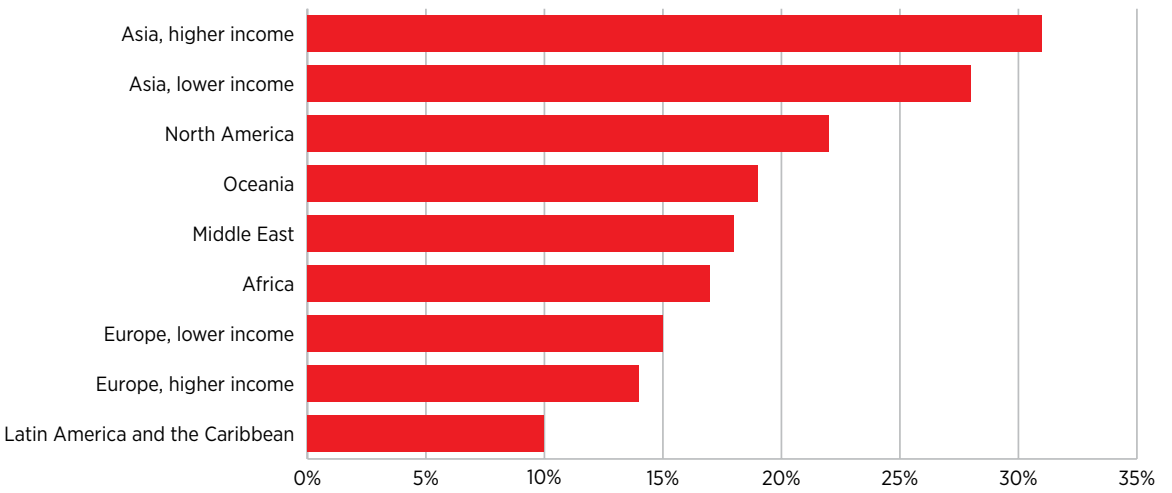
Most survey respondents work between 40 and 50 hours per week (64%), while just over one in five spend 50 or more hours per week at their jobs (21%). Higher workloads align with higher salaries from lower through middle ranges, then drop off at 55-59 and 60+ hour levels.

HOURS WORKED PER WEEK

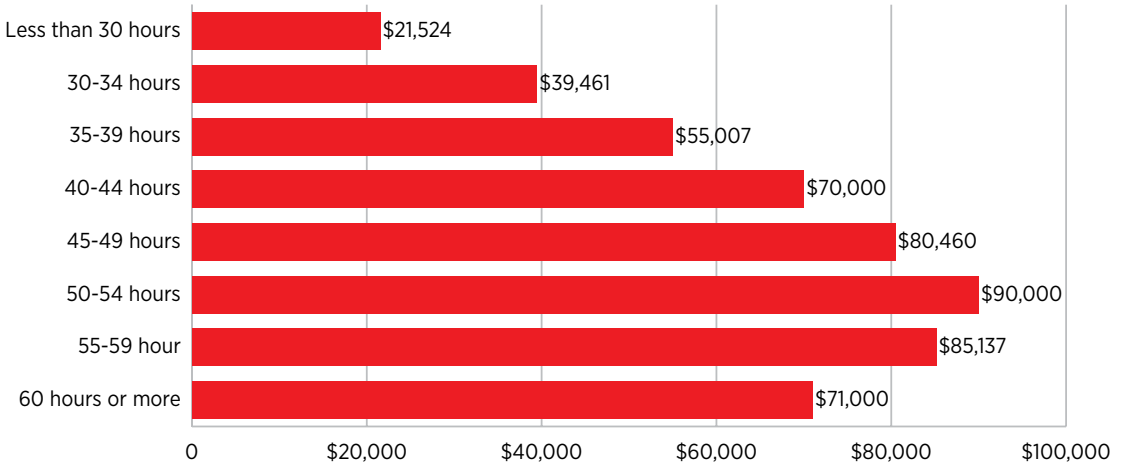


Respondents from higher-income Asian countries spend the most time in their offices and labs, with 32% working 50 hours or more per week and only 8% working less than 40 hours per week.

PERCENTAGE OF RESPONDENTS WORKING 50 HOURS OR MORE PER WEEK



MEDIAN SALARY BY HOURS WORKED PER WEEK



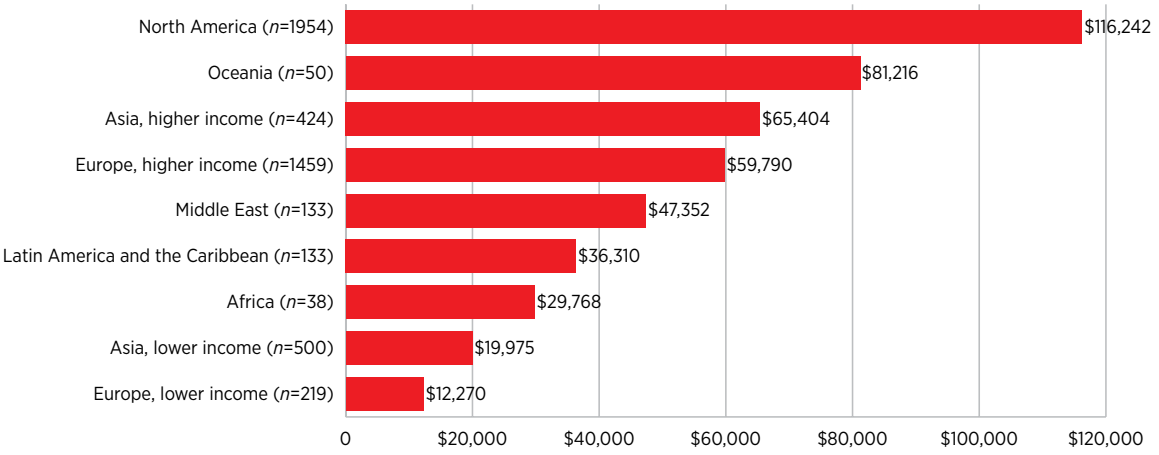
"I love working on the leading edge of technology!"

"It is a meaningful career, and I am glad that I chose it."

Region

North America and Oceania stand out as the regions with the highest salaries, with median earnings well above other areas.[5] North American median incomes are 86% greater than higher-income Asian countries and more than double higher-income European countries. A large portion of regional income gaps is explained by the level of economic development of countries within each area.[6]

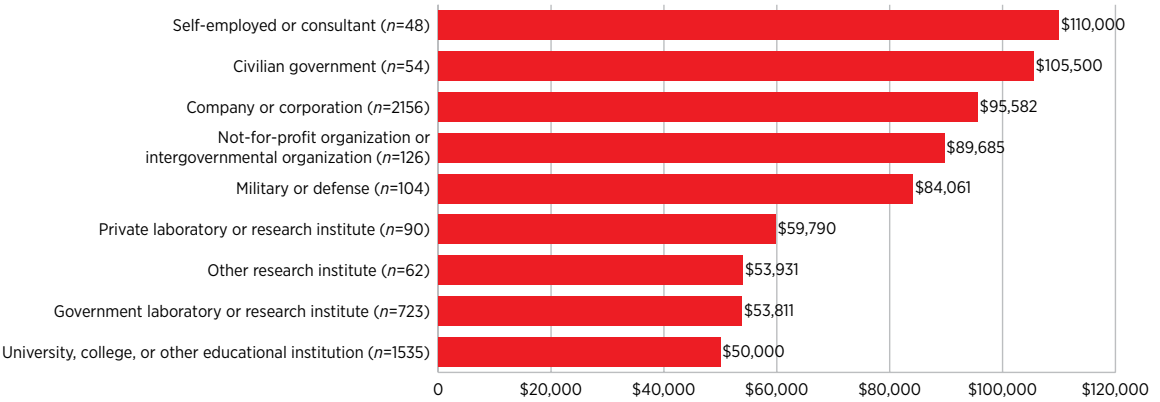
MEDIAN SALARY BY REGION



Employer Type

Median salaries are greatest in civilian government, followed by for-profit companies. Universities, colleges, and other educational institutions pay the least.[7]

MEDIAN SALARY BY EMPLOYER TYPE



For-profit pay is higher than academic pay in most countries at most career stages, but the gap narrows with higher levels of experience. Earnings in North America are highest in both academia and for-profits, across regions and career stages.

MEDIAN SALARY BY REGION: FOR-PROFIT, GOVERNMENT/MILITARY, AND ACADEMIC EMPLOYERS

Region	For-profit	Government/Military	Academic
North America	$125,000	$123,000	$90,000
Middle East	$76,743	$31,569	$25,255
Asia, higher income	$74,747	$68,669	$54,051
Oceania	$73,761	$69,838	$84,455
EuropeHigherIncome	$72,346	$53,811	$56,259
Latin America & Caribbean	$42,328	$36,310	$36,310
Africa	$29,350	$56,851	$17,352
Asia, lower income	$21,511	$23,048	$18,438
Europe, lower income	$21,139	$9,755	$12,270

Startups account for just over 16% of workers at for-profit organizations. These entrepreneurs earn median salaries of $80,787, versus $96,000 for their colleagues at traditional companies.

MEDIAN SALARIES AT STARTUP VERSUS TRADITIONAL COMPANIES

	Percentage of Respondents	Median Salary
Traditional companies	84%	$96,000
Startup companies	16%	$80,787

The question was seen only by respondents indicating "Company or corporation" or "Private laboratory or research institute" for organization type.

Detailed Salaries by Countries and Region

MEDIAN SALARIES BY ORGANIZATION TYPE AND TOTAL YEARS EMPLOYED, SELECTED COUNTRIES

ACADEMIC

Country	1-2 years	3-5 years	6-10 years	11-15 years	16-20 years	21-25 years	26-30 years	More than 30 years
Germany	$62,182	$59,790	$65,171	$76,531	$89,685	$95,664*	$95,664*	$119,580*
United States	$48,000	$63,500	$78,000	$92,250	$102,500	$120,500	$148,000	$142,000
United Kingdom	$43,239	$47,293	$58,971	$67,561*	$79,046	$75,668*	$97,288*	$101,341
Japan	$35,905*	$43,086	$53,858	$62,834	$71,811	$85,275*	$89,763	$94,251
France	$35,874*	$36,472	$50,224	$44,245	$65,769	$77,727*		$66,965*
Italy	$23,159*	$28,101	$41,734	$42,451	$59,790	$59,790*		$59,997*
Spain	$21,524*		$39,461*	$43,049	$59,790*	$62,182	$62,182	$84,902*
Peoples Republic of China	$15,365	$24,584	$21,511	$23,048	$23,048*	$23,048	$27,657*	$32,116*

n=1609. Minimum cell sample size is 5 respondents, with an asterisk indicating sample size of 5-9.

FOR-PROFIT

Country	1-2 years	3-5 years	6-10 years	11-15 years	16-20 years	21-25 years	26-30 years	More than 30 years
United States	$83,000	$100,000	$105,000	$132,000	$141,000	$150,000	$150,000	$160,000
Israel		$90,457*	$73,533	$105,047*	$105,047*	$87,539*		
Germany	$71,629	$76,531	$83,706	$89,685	$105,829	$113,601	$143,496	$119,580
Canada	$57,028	$57,427	$64,406	$64,606*	$88,534	$119,640*	$142,771*	
United Kingdom	$47,293*	$55,400*	$58,102*	$62,494*	$81,073	$89,687*	$79,452*	
Japan	$44,882*	$44,882*	$53,858	$73,471	$87,519	$89,763	$98,739	$98,739
France	$38,385	$47,832*	$56,203	$59,790	$72,053		$95,664*	$131,538*
Peoples Republic of China	$18,438*	$15,365	$20,743	$33,803		$88,349*		

n=1669. Minimum cell sample size is 5 respondents, with an asterisk indicating sample size of 5-9.

"As the chief executive of this start up company, I often work for no pay during times of financial insecurity for the company."

MEDIAN SALARIES BY ORGANIZATION TYPE, TOTAL YEARS EMPLOYED, AND REGION

ACADEMIC								
Country	1-2 years	3-5 years	6-10 years	11-15 years	16-20 years	21-25 years	26-30 years	More than 30 years
North America	$48,000	$59,820	$77,400	$92,250	$100,000	$119,700	$143,000	$143,250
Europe, higher income	$40,265	$45,201	$52,718	$50,822	$68,056	$75,668	$76,531	$97,120
Latin America and the Caribbean	$35,631*	$25,936	$31,123	$30,385	$45,652	$51,061	$46,476*	$51,872*
Asia, higher income	$33,782	$37,492	$49,706	$61,821	$69,687	$89,486	$89,763	$98,739
Middle East	$21,045*	$31,627*	$28,202*	$50,644*	$21,703	$21,045*		$107,069*
Asia, lower income	$12,292	$19,206	$16,861	$18,677	$19,401	$20,937	$25,612	$30,730
Europe, lower income		$15,775*	$11,393	$9,465	$11,266	$18,404*	$12,270*	$12,892
n=725. Minimum cell sample size is 5 respondents, with an asterisk indicating sample size of 5-9.								

FOR-PROFIT								
Country	1-2 years	3-5 years	6-10 years	11-15 years	16-20 years	21-25 years	26-30 years	More than 30 years
North America	$79,000	$95,000	$103,000	$130,000	$140,000	$150,000	$150,000	$158,600
Europe, higher-income	$47,293	$55,400	$66,045	$66,367	$88,757	$108,818	$106,311	$119,580
Asia, higher-income	$43,586	$52,430	$62,834	$71,811	$89,763	$89,763	$98,739	$95,912
Middle East		$35,262	$71,028	$102,858*	$102,129	$87,539*		
Asia, lower income	$16,902	$15,365	$23,048	$25,265		$65,302*		
n=2074. Minimum cell sample size is 5 respondents, with an asterisk indicating sample size of 5-9.								

"The three most decisive factors in my career were: education, network and luck."

MEDIAN SALARY BY TOTAL YEARS EMPLOYED FOR RESPONDENTS WITH PHD, SELECTED COUNTRIES

	1-2 years	3-5 years	6-10 years	11-15 years	16-20 years	21-25 years	26-30 years	More than 30 years
Switzerland	$84,082	$84,389*	$107,404*	$127,862*	$151,388*	$153,434*		
United States	$83,500*	$100,000	$109,263	$135,000	$150,000	$151,000	$167,500	$175,000
Germany	$66,965	$71,748	$77,727	$81,912	$95,664	$104,035	$107,622	$119,580
Canada	$58,225*	$59,820	$63,808*	$79,760*	$87,736*	$115,652*	$131,604*	$107,198*
United Kingdom	$44,117	$47,293	$59,454	$67,561	$81,073	$73,641	$97,288	$97,120
Japan	$38,814	$44,882	$53,858	$68,669	$80,787	$89,763	$89,763	$98,739
France	$35,874	$41,853	$53,512	$47,832	$65,769	$65,769		$72,286
Spain			$42,451	$41,853	$59,132	$65,171	$62,182*	$84,902*
Italy	$25,829*	$27,503	$39,461	$45,440	$59,790	$59,790	$69,357	$68,699
China, Peoples Republic of	$15,365	$30,730	$23,048	$23,048	$24,584	$30,730	$38,413*	$61,460*
India	$5,785	$10,983	$18,827	$20,396	$20,396		$25,103	$31,379
Russia		$17,528	$13,146	$14,513	$21,034	$15,775*	$12,270*	$17,090

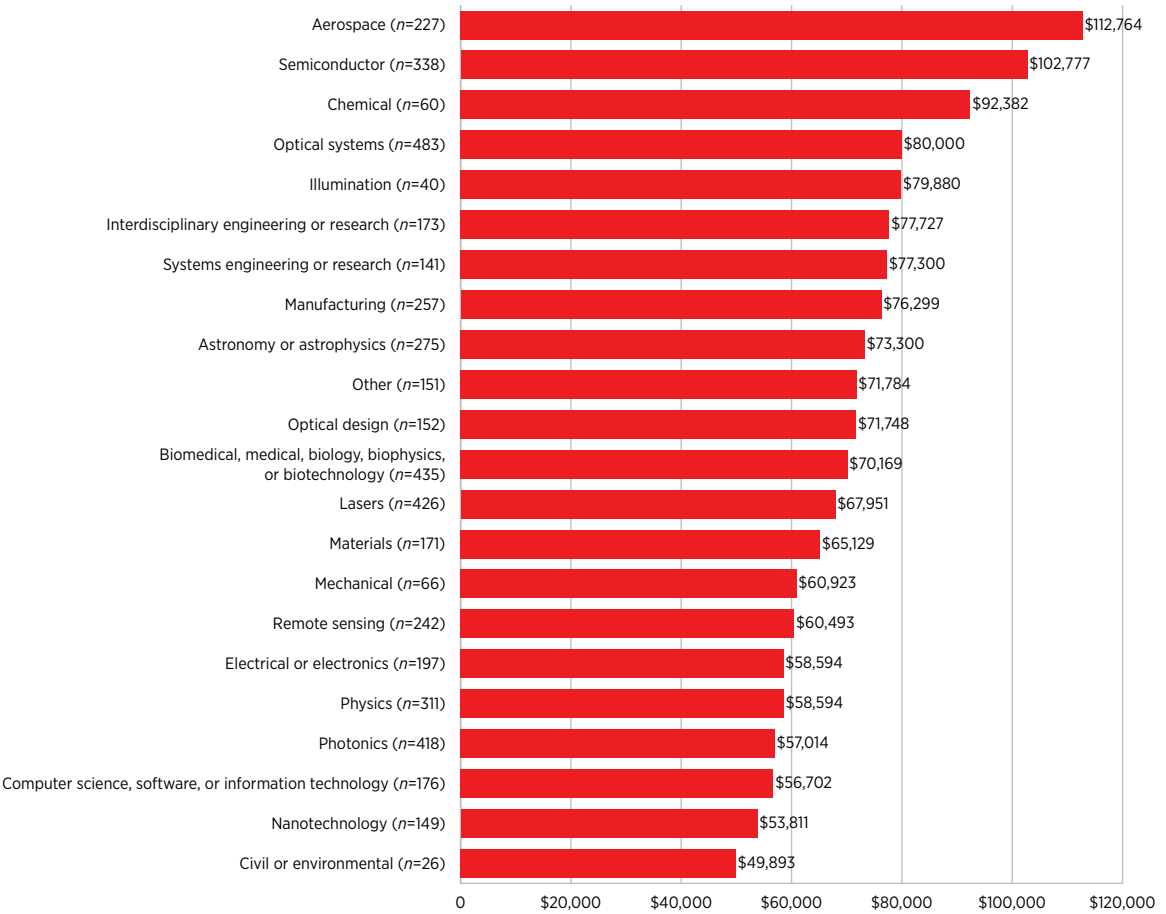
n=2136. Minimum cell sample size is 5 respondents, with an asterisk indicating sample size of 5-9.

"I highly recommend optical engineering as a career path. SPIE should make sure to engage students starting in elementary school as part of educational outreach programs."

Discipline

Aerospace and semiconductor disciplines enjoy the highest median earnings, at $112,764 and $102,764, respectively. Civil/environmental falls at the opposite end of the spectrum, with a median salary of $49,893.

MEDIAN SALARY BY PRIMARY DISCIPLINE



The two most important factors driving salary gaps across disciplines are organization type and country income level. The highest-paying disciplines have much higher representation at for-profit companies: The top three disciplines by pay (aerospace, semiconductor, and chemical) have 335 people at for-profits versus 190 combined in government/military and academia.

"Spectronomy is the future!"

Country income level has a similar impact on median salaries of optics and photonics disciplines. In the highest paid category, aerospace, 86% of workers are located in North America or higher-income European countries.

MEDIAN SALARY BY DISCIPLINE: FOR-PROFIT, GOVERNMENT/MILITARY, AND ACADEMIC EMPLOYERS

Discipline	For-profit	Government/ Military	Academic
Aerospace (*n*=227)	$120,000	$99,500	$90,000
Chemical (*n*=60)	$119,000	$65,877	$60,927
Semiconductor (*n*=338)	$111,198	$57,549	$60,625
Biomedical, medical, biology, biophysics, or biotechnology (*n*=435)	$108,500	$48,500	$54,429
Interdisciplinary engineering or research (*n*=173)	$107,622	$66,965	$59,895
Civil or environmental (*n* n=26)	$107,374	$29,297	$49,953
Nanotechnology (*n*=149)	$101,346	$53,811	$44,080
Physics (*n*=311)	$101,014	$57,732	$53,302
Photonics (*n*=418)	$98,028	$41,853	$45,440
Other (*n*=151)	$95,664	$68,520	$50,112
Remote sensing (*n*=242)	$95,000	$47,832	$44,940
Materials (*n*=171)	$94,000	$68,490	$47,832
Optical systems (*n*=483)	$90,940	$54,680	$47,500
Systems engineering or research (*n*=141)	$89,724	$73,220	$60,986
Computer science, software, or information technology (*n*=175)	$85,045	$47,832	$38,413
Manufacturing (*n*=256)	$83,049	$57,399	$61,460
Lasers (*n*=426)	$83,000	$46,095	$50,149
Illumination (*n*=40)	$82,250	$54,832	$26,642
Optical design (*n*=152)	$80,059	$60,822	$37,492
Electrical or electronics (*n*=196)	$75,132	$56,824	$41,853
Mechanical (*n*=66)	$75,000	$59,790	$58,000
Astronomy or astrophysics (*n*=275)	$63,356	$63,378	$82,575

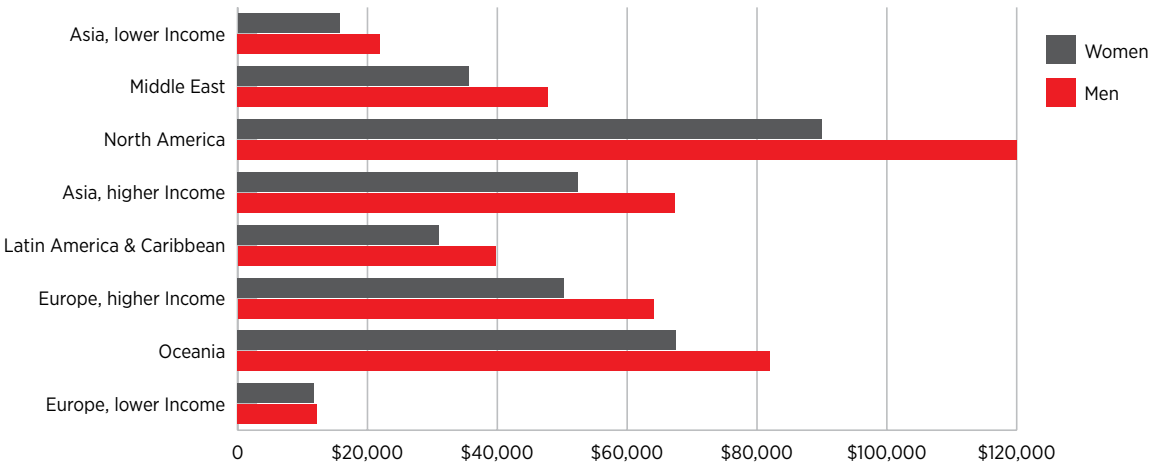
"The key issue in astrophysics research is securing sufficient funding. I spend far too much of my time writing proposals."

Gender

Women make up 19% of the respondents to the survey, 28% of students, and 16% of full-time workers. Women earn less than men overall, with respective median salaries of $58,542 and $75,000.

The largest wage differences are associated with lower-income Asian and Middle East countries, employment at not-for-profit organizations, and employment of more than 30 years. Wage gaps persist in most demographic subsets of the data, though gaps are lower in early career stages. Women in military/defense and at "other research institutes" earn more than men.

MEDIAN SALARY BY GENDER AND REGION



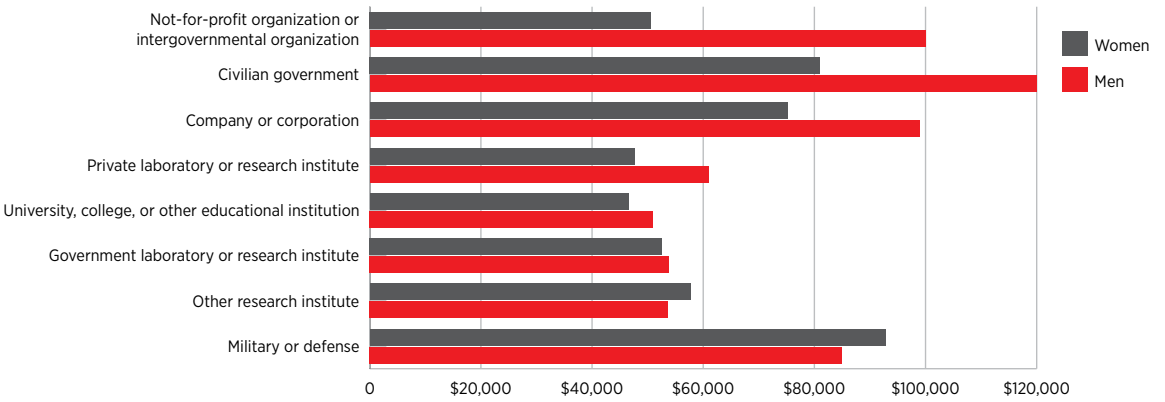
n=773 women, 3994 men.

MEDIAN SALARY BY GENDER AND YEARS EMPLOYED

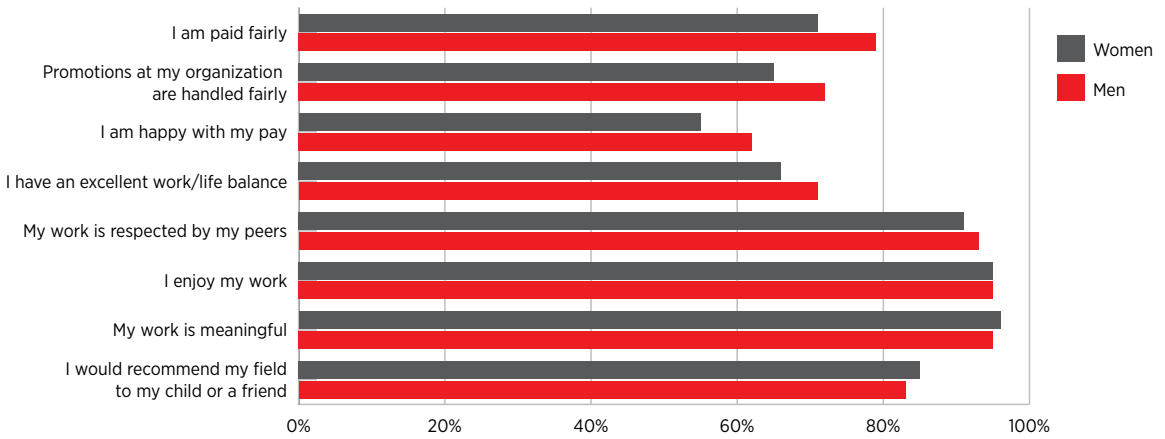
	Women	Men
1-2 years	$41,435	$47,293
3-5 years	$47,293	$52,697
5-10 years	$50,224	$59,790
11-15 years	$62,834	$65,769
16-20 years	$77,876	$85,127
21-25 years	$76,299	$105,231
26-30 years	$85,049	$118,500
More than 30 years	$82,500	$123,750
n=758 women, 3970 men		

Women and men report similar levels of job satisfaction in most categories. The largest difference of opinion concerns fairness of pay and promotion: 71% or women feel that they are paid fairly, versus 79% of men. Equal percentages of women and men (85%) enjoy their work

MEDIAN SALARY BY GENDER AND EMPLOYER TYPE



JOB SATISFACTION BY GENDER

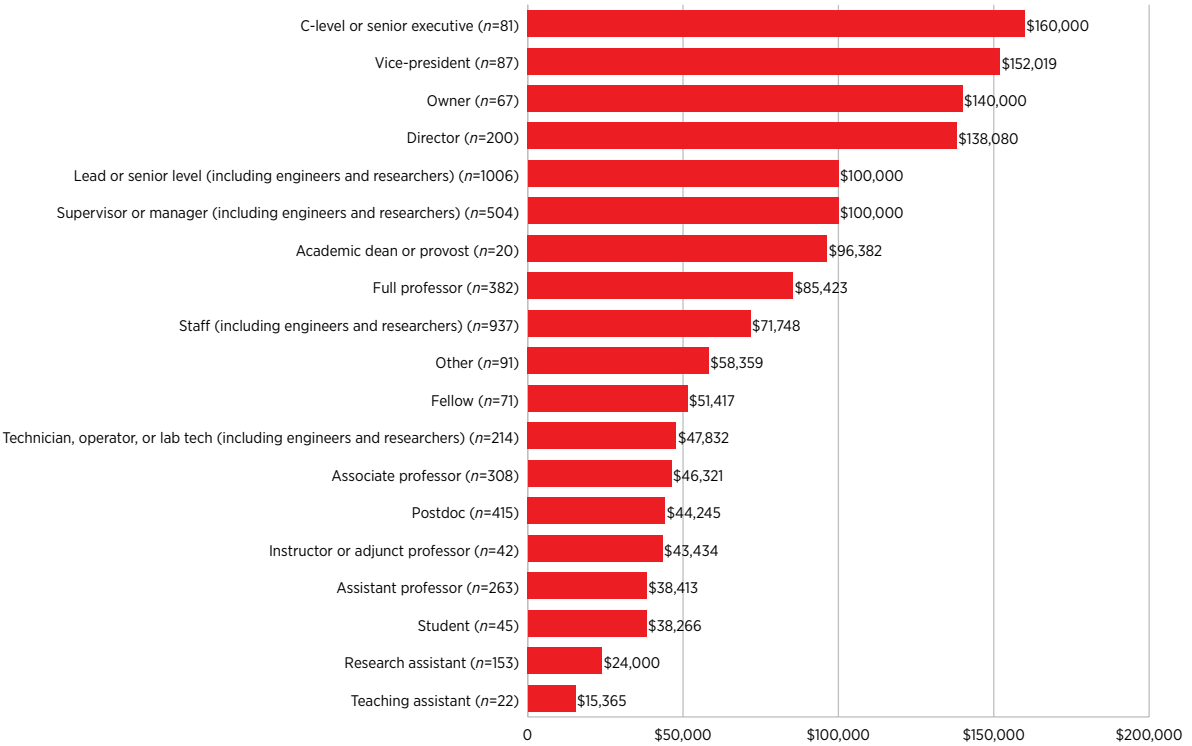


"Though initially I felt like the only girl in the lab, my fascination in the field warded off the thoughts. My lab members have been very kind as well to help me out with my work."

Other Factors

Other factors that influence salary include job level and job role. Top organizational leaders enjoy the highest salaries, while teaching assistants and basic researchers anchor the bottom of the range.

MEDIAN SALARY BY JOB LEVEL

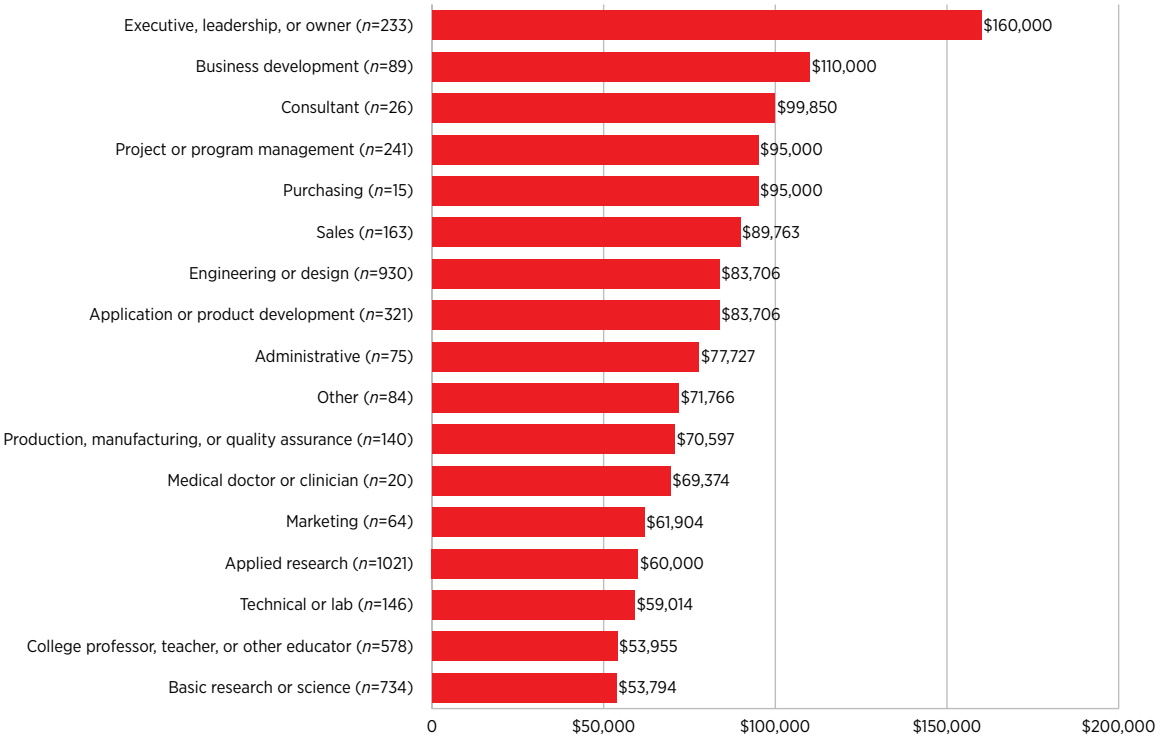


MEDIAN SALARY BY JOB LEVEL, SELECTED COUNTRIES

	Full professor	Lead or senior level (including engineers and researchers)	Supervisor or manager (including engineers and researchers)	Staff (including engineers and researchers)	Postdoc	Associate professor	Assistant professor	Director
United States	$155,000	$135,000	$130,000	$98,000	$51,000	$100,000	$89,250	$180,000
Canada	$143,568	$87,736	$77,766	$59,820	$39,880*	$81,754*		$103,688*
Germany	$107,622	$96,860	$100,447	$72,077	$65,171			$171,598
Italy	$107,622*	$54,409	$60,388	$43,350	$29,895	$59,790	$47,832*	$71,748*
United Kingdom	$97,120	$66,210	$71,615	$51,346	$44,590	$77,019	$64,858*	$104,719*
Japan	$89,763	$89,763	$89,763	$61,039	$39,496	$71,811	$53,858	
Spain	$75,336	$46,038	$59,790*	$46,636	$35,874	$59,790	$35,874*	
France	$71,748	$58,594	$80,717	$47,832	$35,874	$47,832		$102,241*
Taiwan	$60,808*	$50,673*	$64,186*	$40,538	$24,323*	$43,917*		$112,494*
China, Peoples Republic of	$30,730	$38,413	$30,730	$18,438	$23,816	$23,048	$18,438	$92,190*
India	$22,350*	$23,534	$15,689*	$15,689	$8,347*	$21,965	$11,375	
Russia	$16,652	$17,528	$13,058*	$12,270	$12,270	$15,425	$9,465*	

Minimum cell sample size is 5 respondents, with an asterisk indicating sample size of 5-9.

MEDIAN SALARY BY JOB ROLE

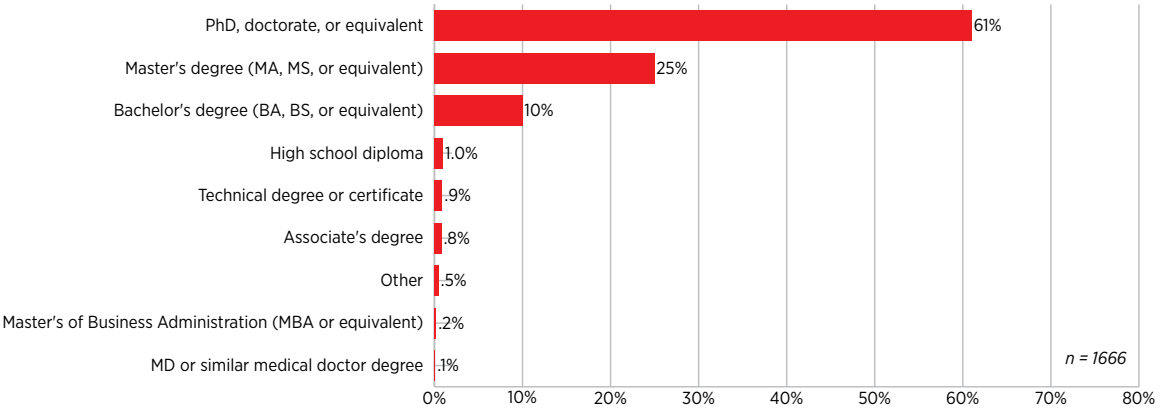


"I have thoroughly enjoyed working in the optics industry for over 30 years and would recommend optics as a career to any student who is just starting out."

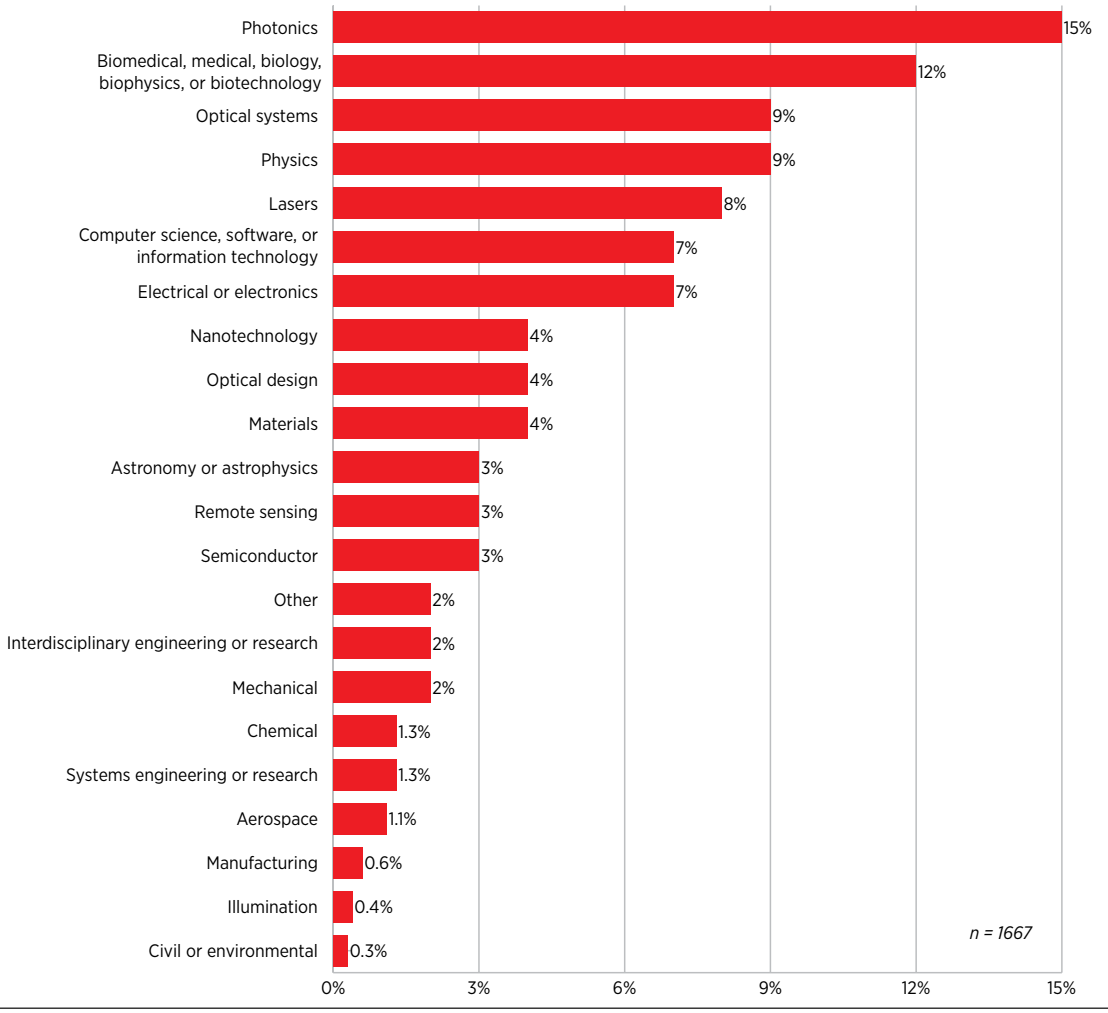
Students

The majority of student respondents are pursuing PhDs. A variety of disciplines are represented, with photonics, biomedical, optical systems, and physics, topping the list.

DEGREE BEING PURSUED



PRIMARY TOPIC STUDIED



Notes

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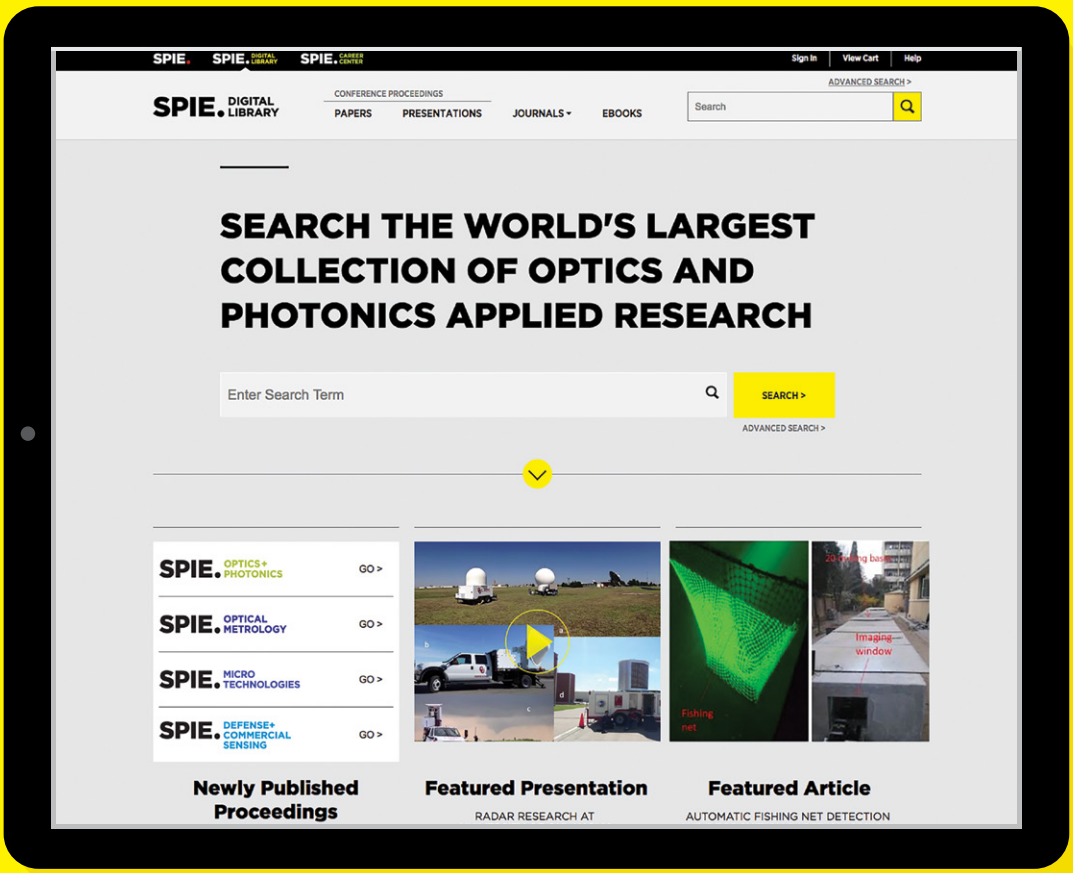

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Methodology and Endnotes

In December of 2017 and January of 2018, SPIE sent email survey invitations to a large subset of its global customer database. Response was voluntary and open. An iPad raffle and early access to this report were offered as incentives to encourage participation. Surveys were completed online using SurveyGizmo's enterprise survey tool. Results were filtered for duplicates and invalid data to yield 7,035 valid responses. Microsoft Excel and SPSS were utilized for summary statistics and related analyses

NOTES:

1. This list includes valid responses from full-time, part-time, student, and retiree respondents. United States (2179), Peoples Republic of China (668), Germany (441), India (296), Japan (290), United Kingdom (257), France (226), Russia (220), Italy (207), Canada (195), Spain (139), Taiwan (124), South Korea (119), Switzerland (88), Israel (87), Netherlands (84), Poland (77), Mexico (74), Australia (73), Brazil and Turkey (72), Czechia (60), Singapore (53), Belgium and Lithuania (48), Sweden (47), Ukraine (34), Denmark (33), Portugal (32), Austria (30), Finland and Ireland (29), Colombia and Romania (28), Pakistan (26), Egypt and Greece (24), Chile and South Africa (22), Malaysia (21), Argentina (18), Thailand (17), Hungary (15), New Zealand and Philippines (14), Hong Kong SAR, Indonesia, and Latvia (13), Algeria and Bulgaria (11), Slovenia and Tunisia (10), Armenia and Norway (9), Belarus, Nigeria, Saudi Arabia, and Vietnam (8), Slovakia (6), Bangladesh, Cameroon, Jordan, Moldova, and Serbia (5), Bolivia and Lebanon (4), Croatia, Ecuador, Estonia, Iraq, Luxembourg, Morocco, and Senegal (3), Brunei, Chad, Cyprus, Iran, Kazakhstan, Kenya, Kyrgyzstan, Libya, Tanzania, and Venezuela (2), Bahrain, Bosnia and Herzegovina, Iceland, Kuwait, Liechtenstein, Macau SAR, Malta, Mongolia, Oman, State of Palestine, Peru, Rwanda, Sri Lanka, Swaziland, Tajikistan, United Arab Emirates, Uruguay, and Zimbabwe (1).

2. U.S. dollars are used throughout. Local currencies were converted using January 2018 market exchange rates. Salary figures include total yearly compensation, both base pay and bonuses. Full-time employees are those who indicated working 35 or more hours per week. Unless otherwise noted, all data on pay is drawn from full-time employees.

3. Data for broader populations within countries are average annual wages per full-time and full-year equivalent employees in the total economy, 2016 USD exchange rates and constant prices, from https://stats.oecd.org/Index.aspx?DataSetCode=AV_AN_WAGE. Retrieved 16 January 2018.

4. Yearly growth was computed by comparing same-currency results for each year.

5. Oceania is comprised of Australia and New Zealand. North America is comprised of the United States and Canada. Mexico is included in the Latin America and Caribbean category.

6. Europe and Asia are composed of countries spanning a wide range of income levels, even when subdivided into higher- and lower-income groups. For example, the European higher-income category includes the Czechia and Norway, at $17,540 and $82,440 per capita Gross National Income (GNI), respectively for 2016.

   Higher- and lower-income subcategories are based on the World Bank's threshold for high-income countries, $12,236 per capita GNI in 2016. This threshold is used throughout this report when referring to "higher-income" and "lower-income" countries.

   For data on per capita GNI, see http://data.worldbank.org/indicator/NY.GNP.PCAP.CD/countries. For World Bank country income categories, see http://data.worldbank.org/about/country-classifications

7. The category "for-profit" is composed of company/corporation, self-employed/consultant, and open text "other" entries that indicate for-profit affiliation. "Academic" is composed of university/college, private lab or research institute, not-for-profit, intergovernmental, other research institute, and open text "other" entries that indicate academic organizations. "Government/military" is composed of government lab or research institute, civilian government, and military/defense.

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