

SOCIAL PERCEPTION OF INNOVATION

EUROPEAN COOPERATION NETWORK ON ENERGY TRANSITION IN ELECTRICITY, TR@NSENER

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An amplified concept of innovation

EVERY CHANGE “not only technological”

BASED IN KNOWLEDGE “not only scientific”

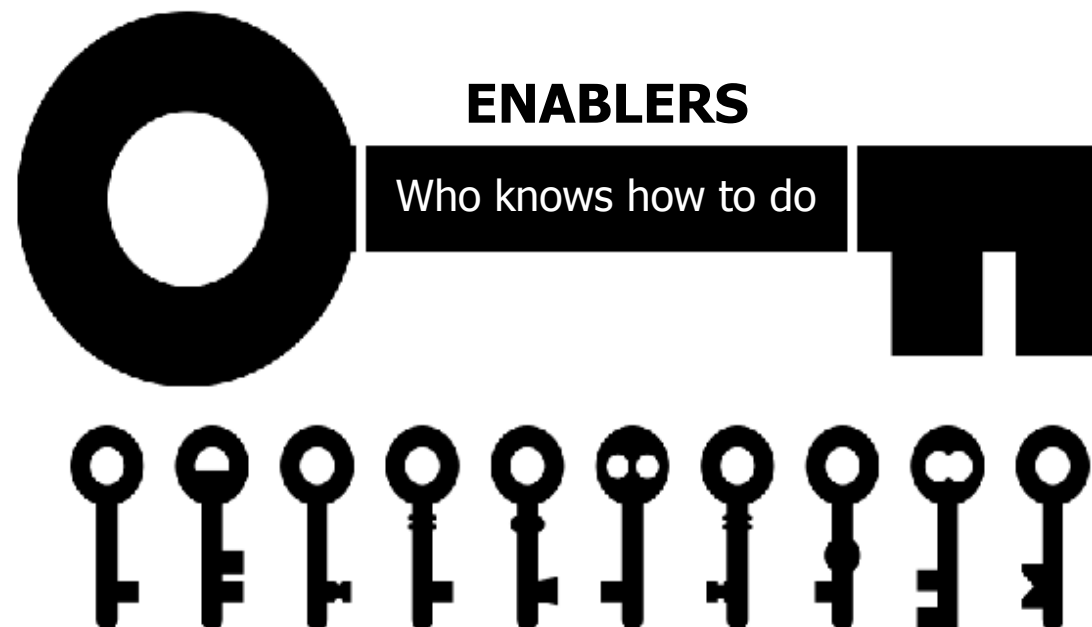
THAT GENERATES VALUE “not only economic”

INFLUENCERS

Who says what to do

PIONEERS

Who tried and/or succeeded



EXPERTS

Who knows what to do

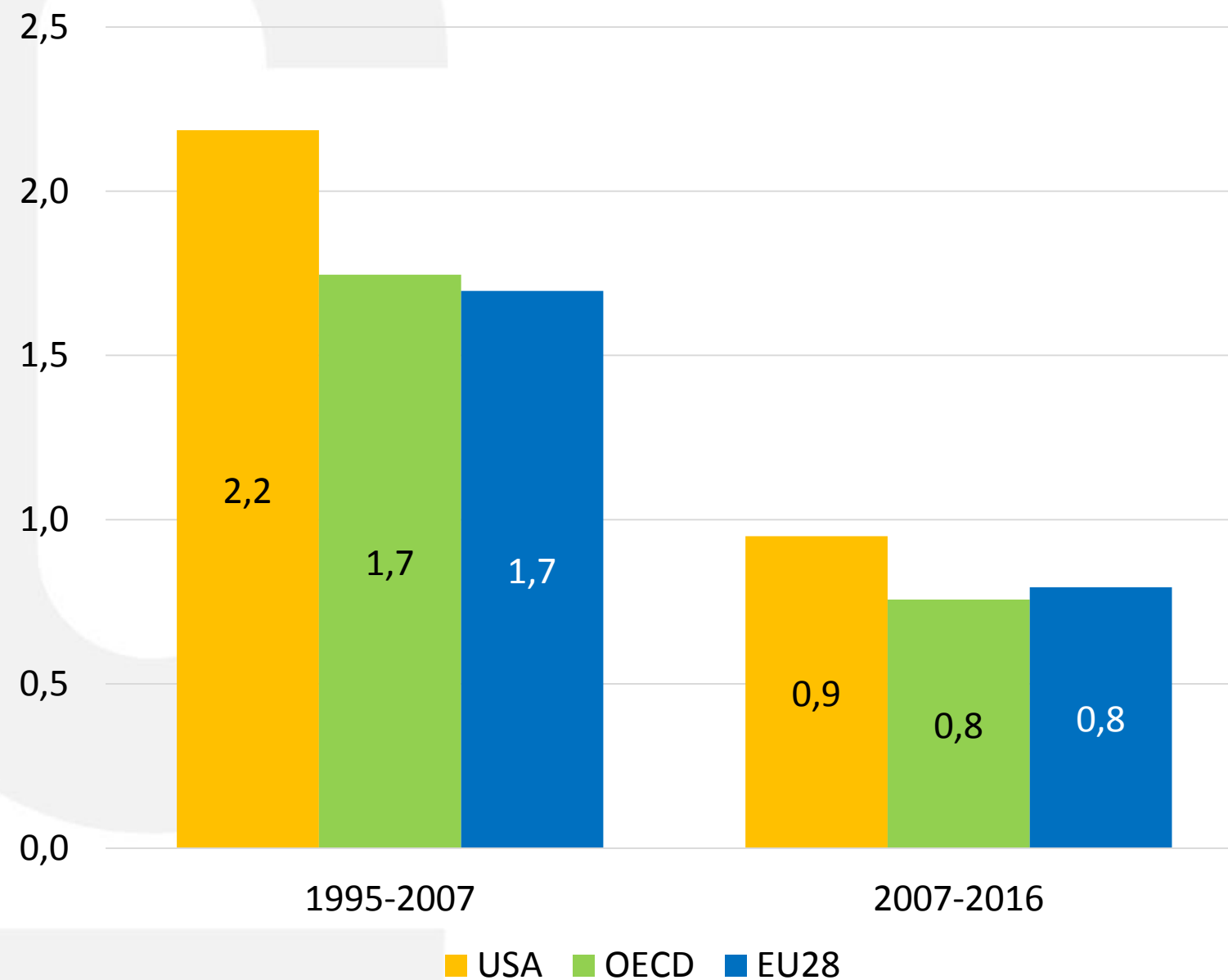
SUMMARY

TOWARDS THE INTANGIBLE ECONOMY

SOCIAL PERCEPTION OF INNOVATION

PRODUCTIVITY SLOWDOWN

Average annual GDP growth rate per hour worked, 1995-2016. (%)



INCREASING INEQUALITY IN DEVELOPED COUNTRIES

Increased earning inequality and increased between-firms wage dispersion, 2001-2012



THREE POSSIBLE EXPLANATIONS

Permanent phenomenon (TECNO-PESSIMISTS) ← →



Robert Gordon

Temporary phenomenon (TECNO-OPTIMISTS) ← →



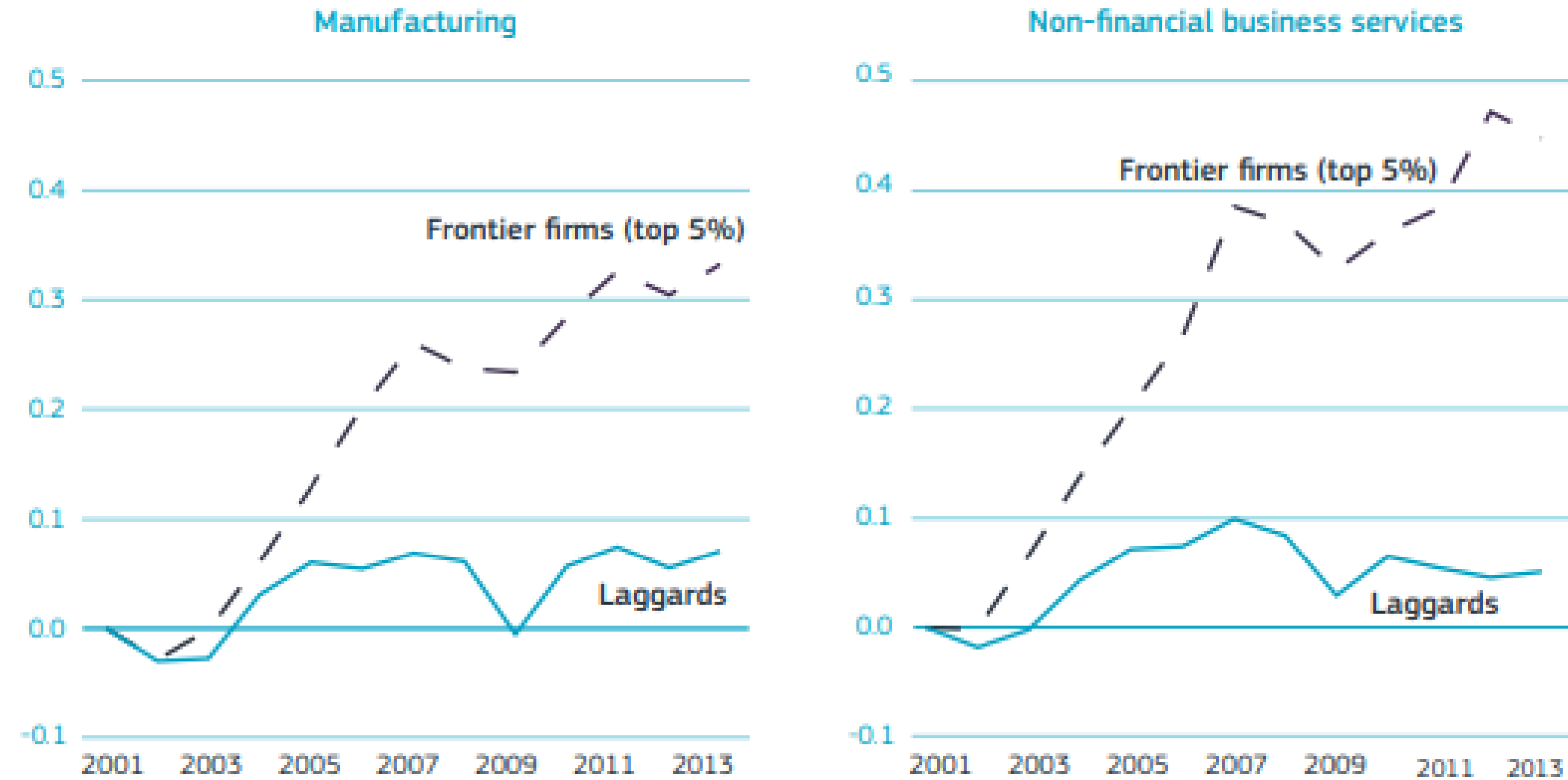
Paul Krugman

Measurement problem



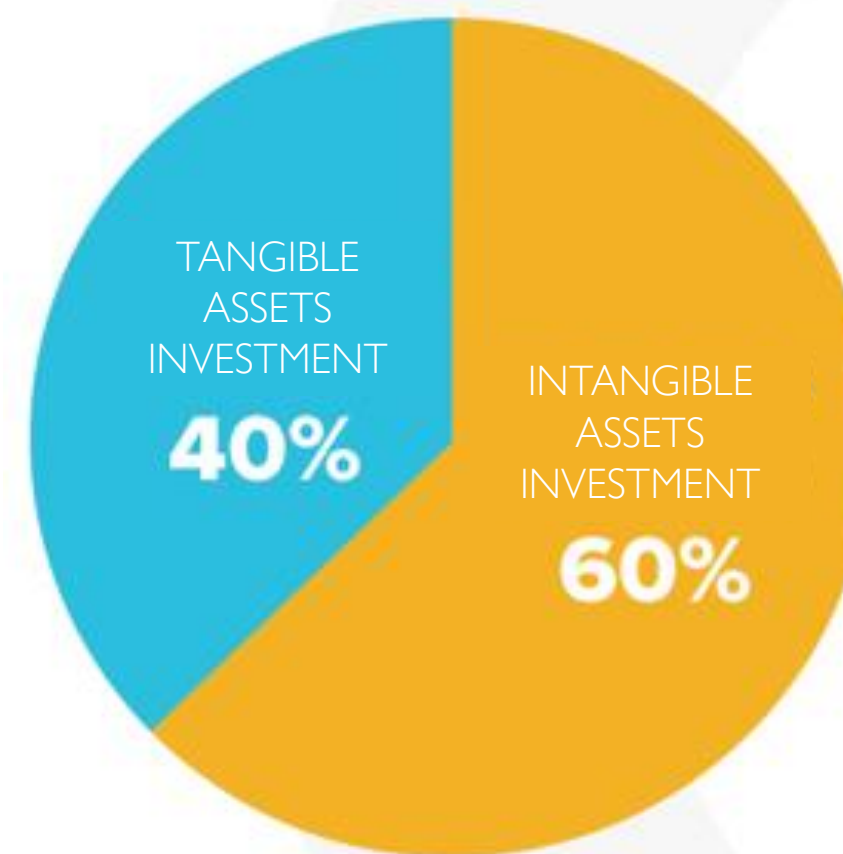
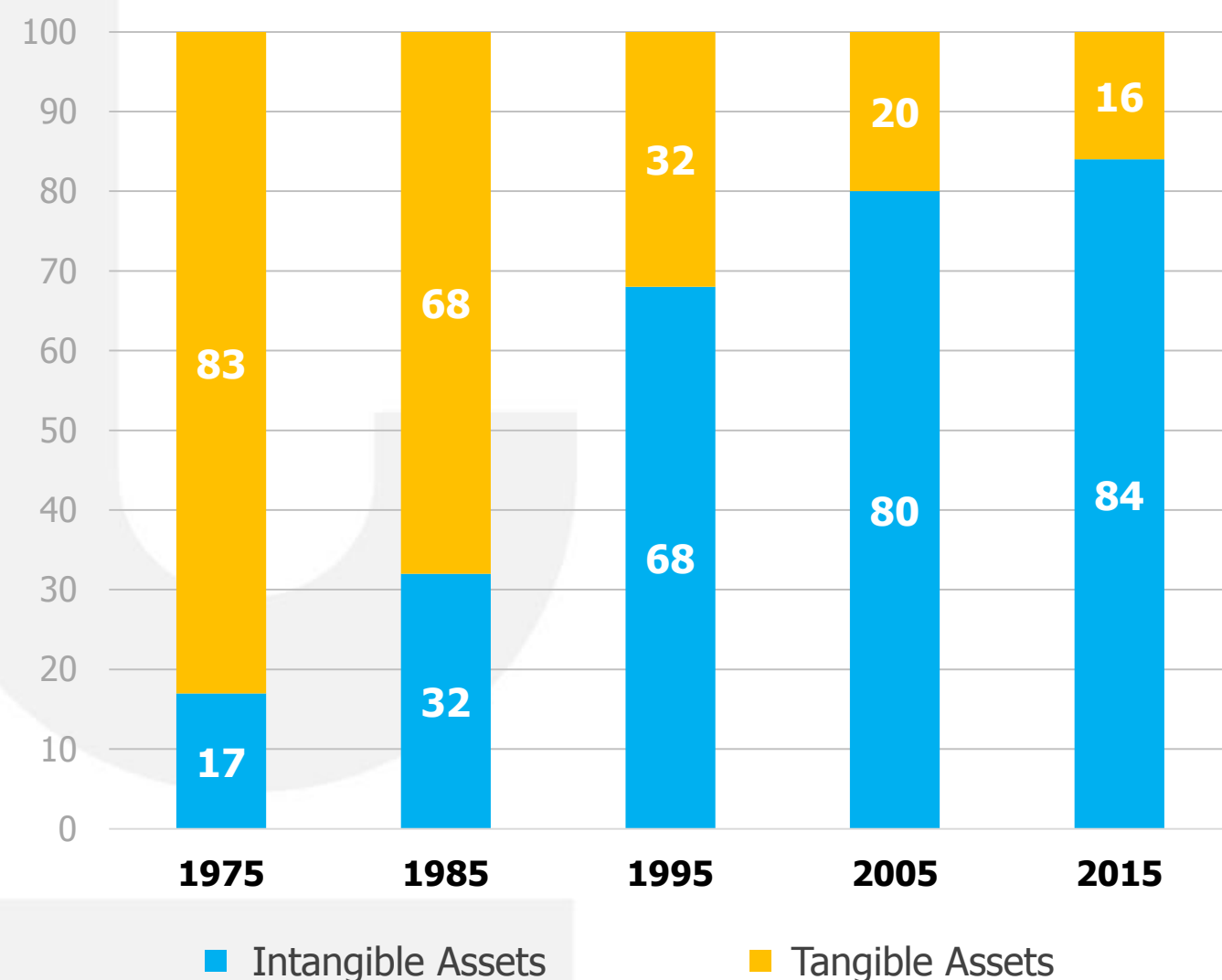
A MICRO-LEVEL EXPLANATION

The widening labour productivity gap between global frontier firms and other firms

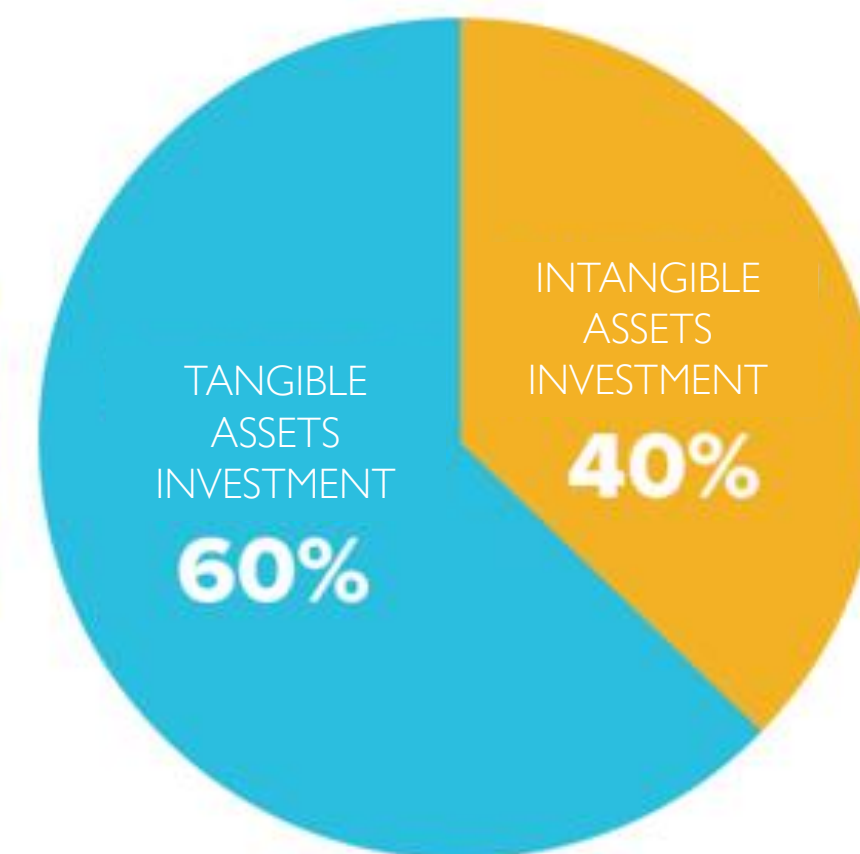


INTANGIBLE ASSETS INVESTMENT

Market capitalization components of the S&P 500 (%)



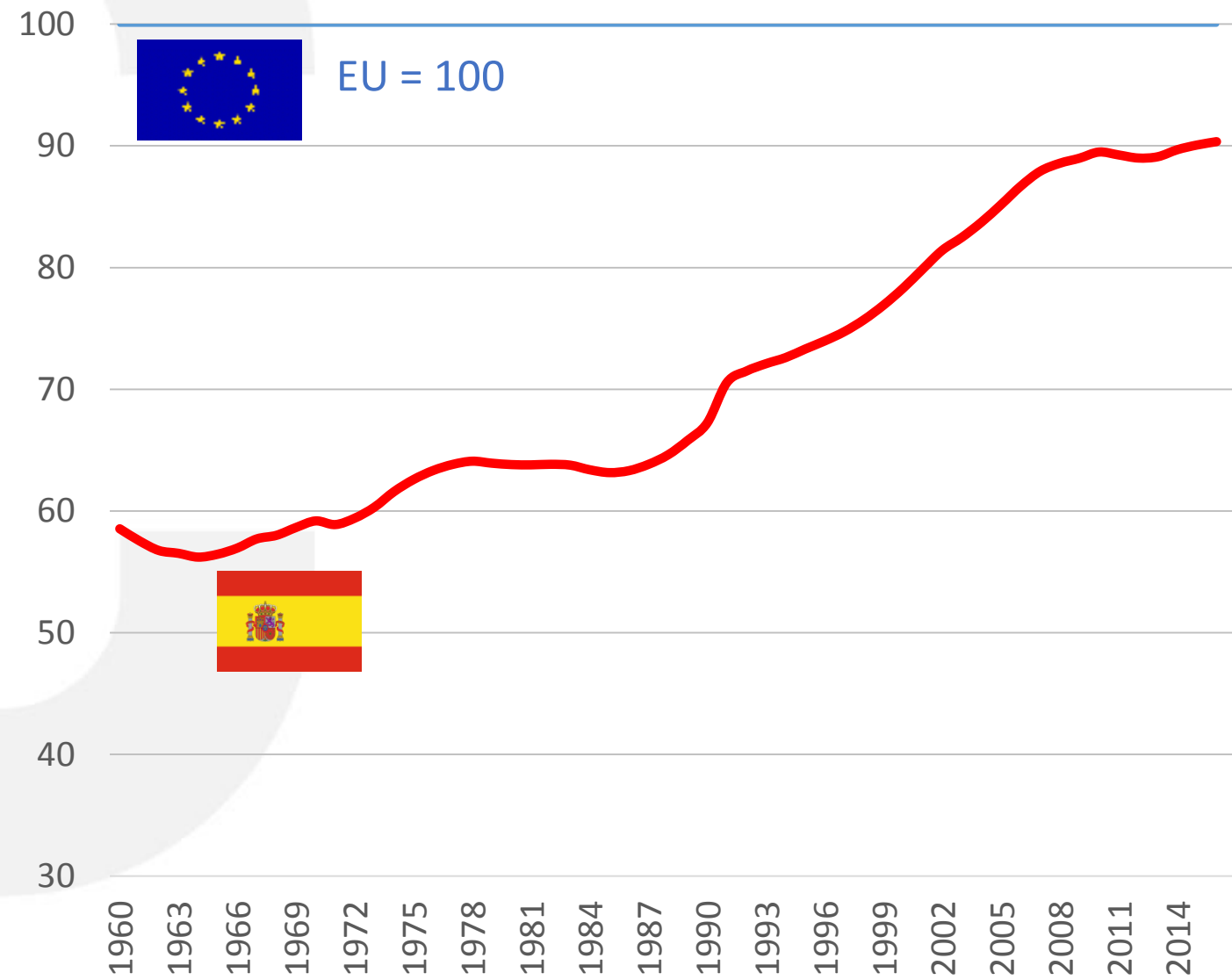
USA



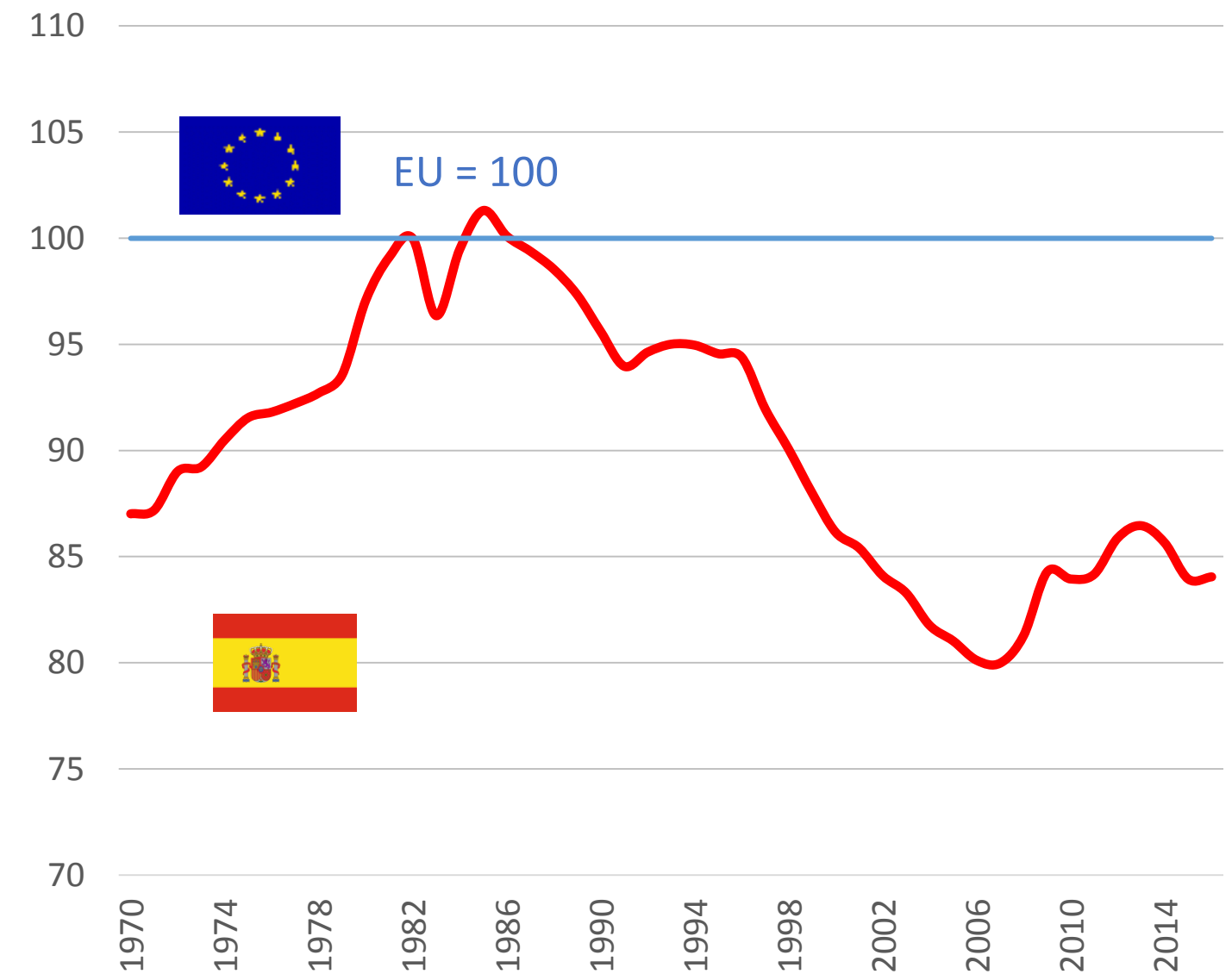
EU

CAPITAL STOCK AND CAPITAL AND LABOUR PRODUCTIVITY

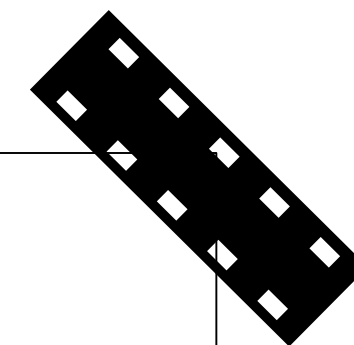
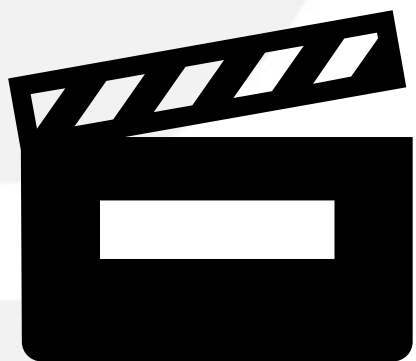
Capital stock per capita. EU15 = 100.
1960-2016



Labour productivity per hour worked. EU15 = 100. 1970-2016



R&D DIVERGENCE VERSUS EUROPE



Between all of these transitions, Cotec has focused on three of them:

FROM ANALOGUE TO DIGITAL



FROM LINEAL TO CIRCULAR



FROM TANGIBLE TO INTANGIBLE





SUMMARY

TOWARDS THE INTANGIBLE ECONOMY

SOCIAL PERCEPTION OF INNOVATION

In your opinion, innovation is...

In addition, voters of all parties agree:

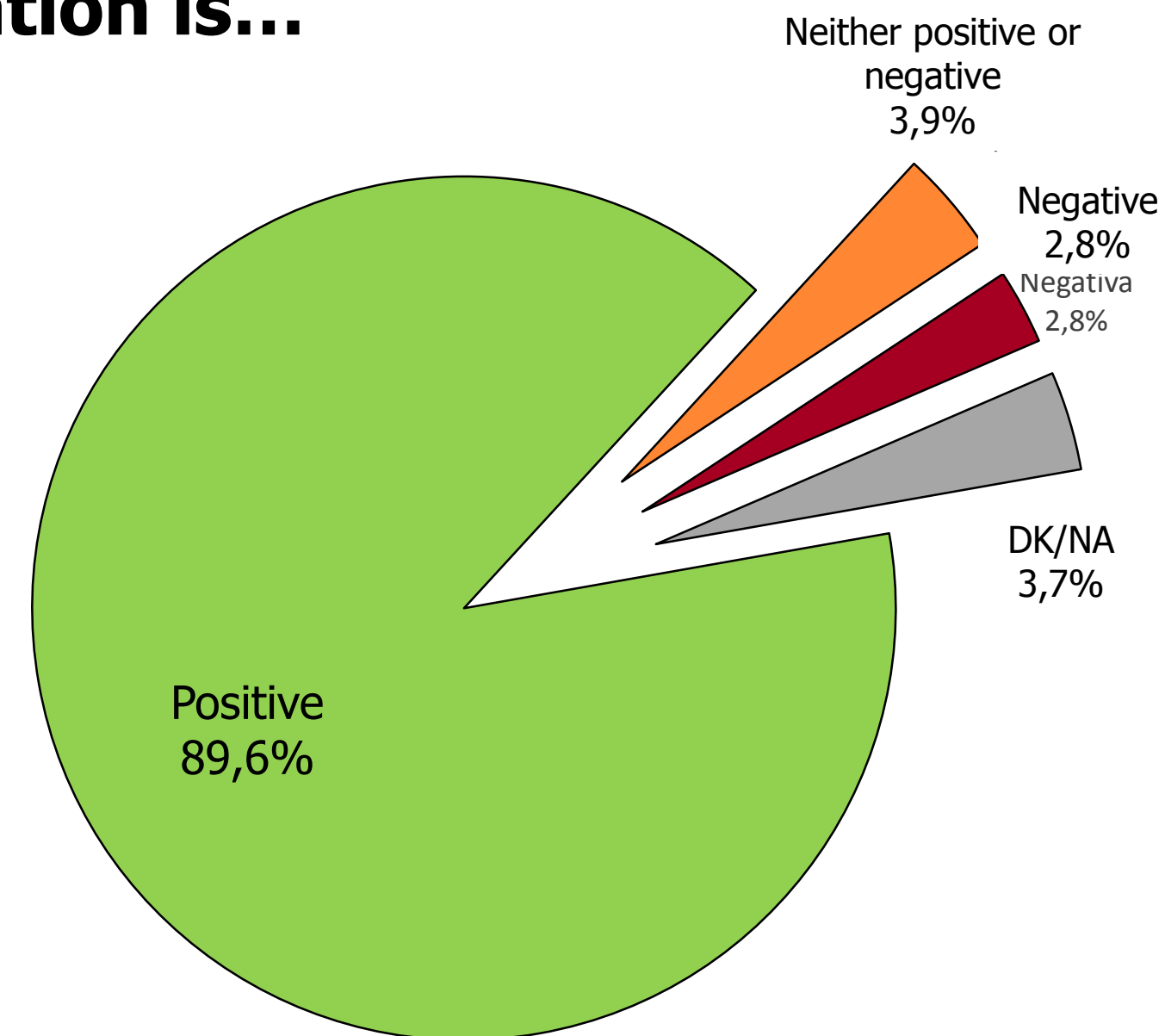
Agree or strongly agree with the following statements

	PP	PSOE	Podemos	Ciudadanos	Otros
Innovation is positive (%)	89,4	90	93	92,4	88,5
Public investment in R&I is insufficient (%)	73,6	85,4	86,5	86,7	78

INNOVATION IS POSITIVE



PUBLIC INVESTMENT IN R&I IS INSUFFICIENT



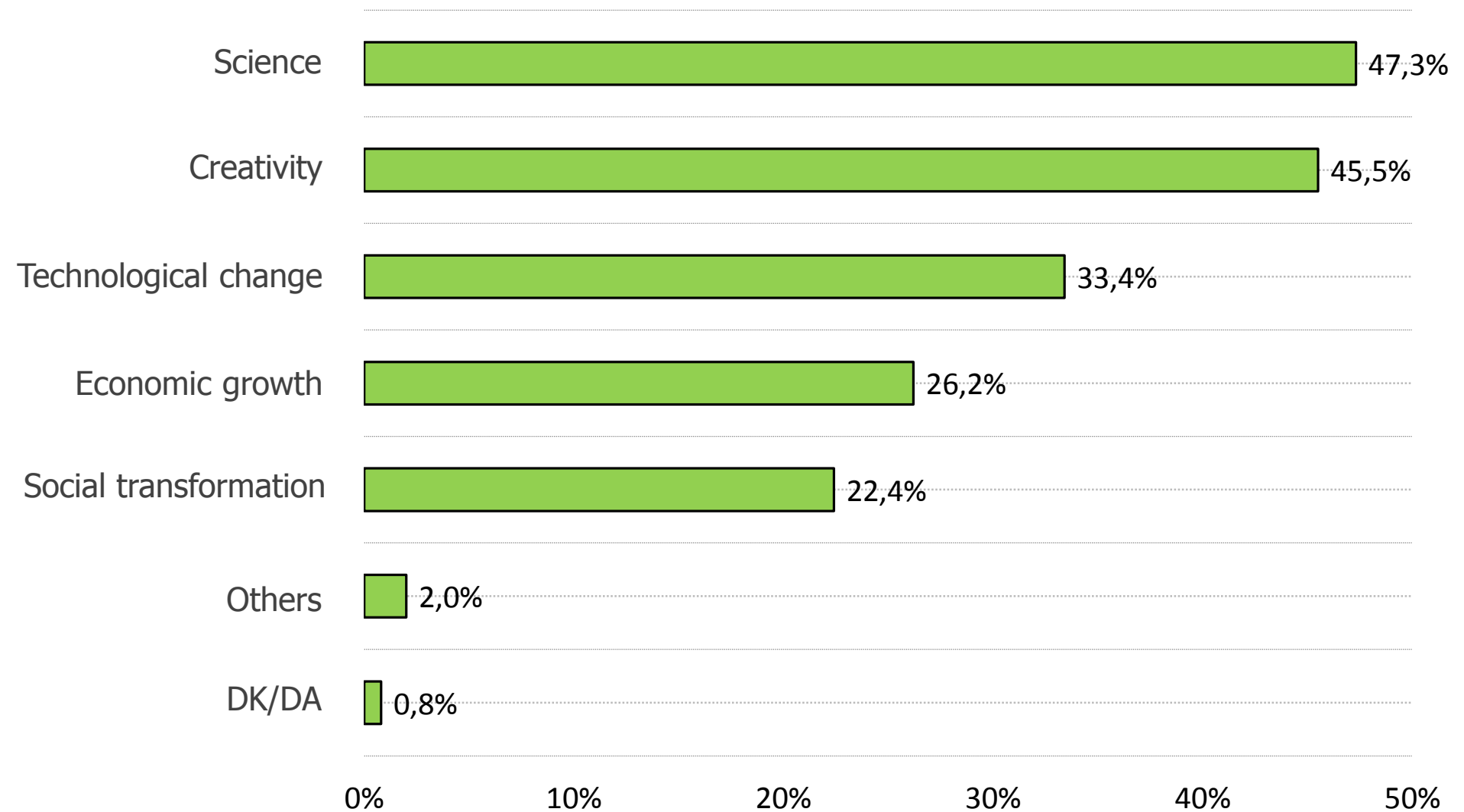
*Basis: population set



INNOVATION IS
MOSTLY RELATED TO
SCIENCE
AND CREATIVITY



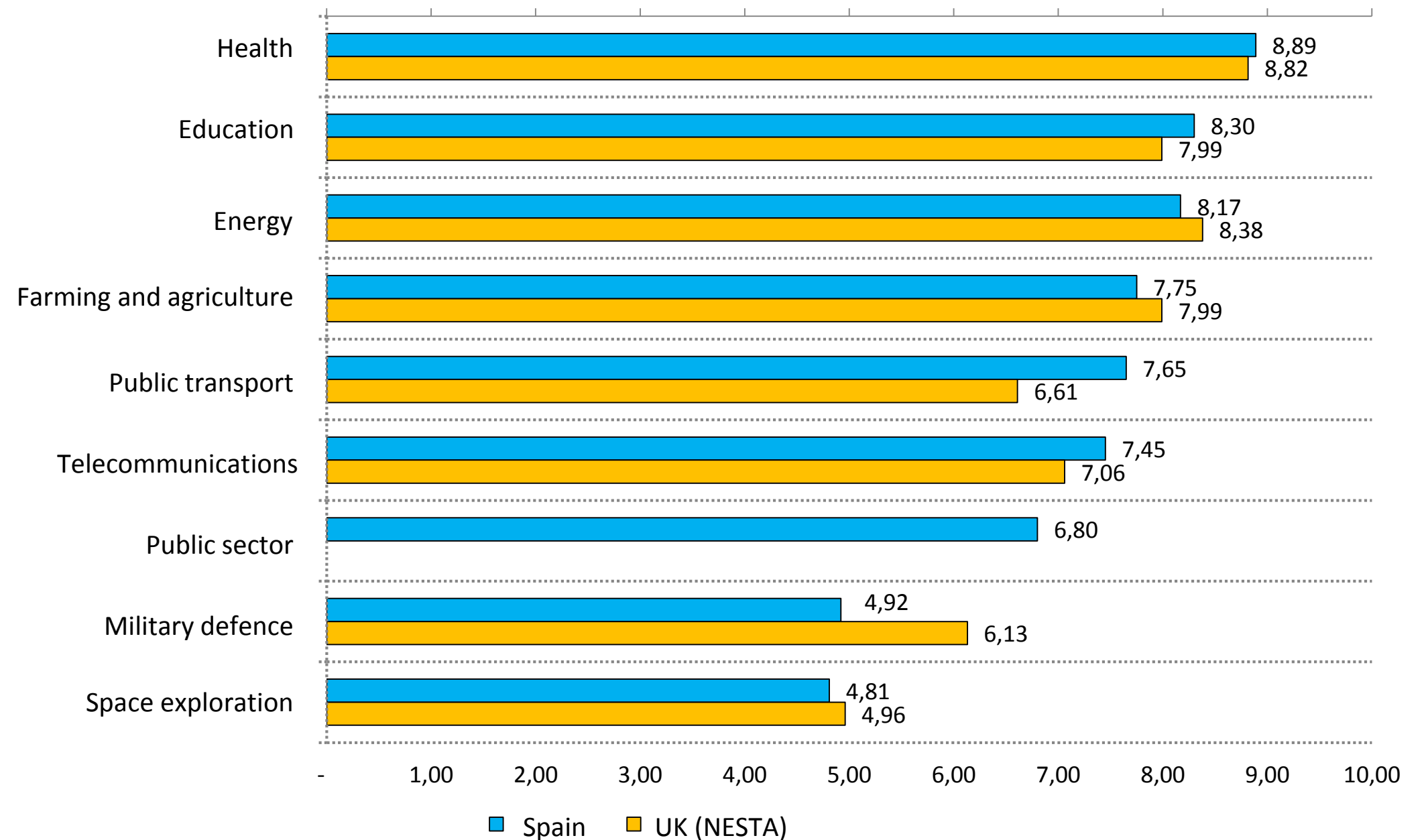
Which of the following statements are most closely linked to innovation? (choose two options):



*Basis: population set

HEALTH AND
EDUCATION, MAIN
AREAS
TO INNOVATE

From 1 to 10, with 1 representing the minimum and 10 the maximum importance, how important or unimportant is for the human species to continue innovating in the following areas?:



*Basis: population set

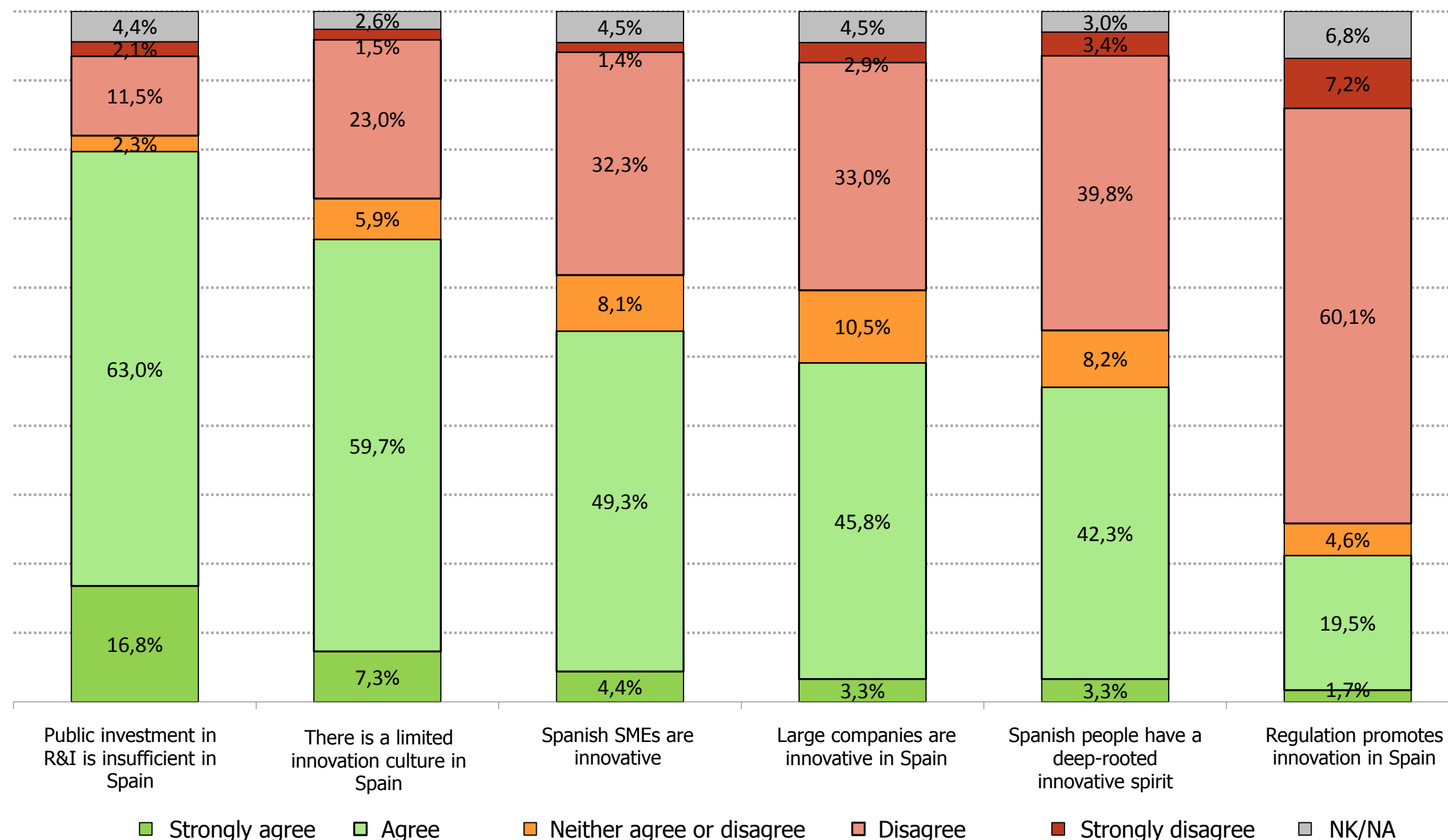
*A re-scaling of the NESTA survey assessment mode has been carried out, where the score was 1 to 7.



8 out of **10** citizens
demand to increase public
investment in R&I

7 out of **10** citizens are
in favour of better
regulation to promote
innovation

From the following sentences, please indicate to what extent you agree or disagree:

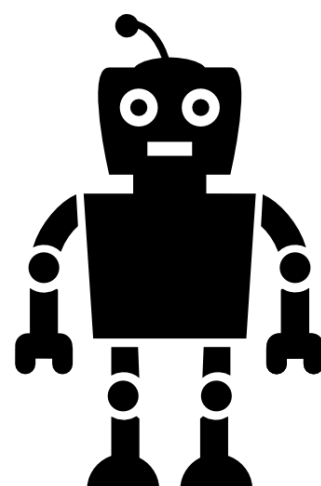


*Basis: population set

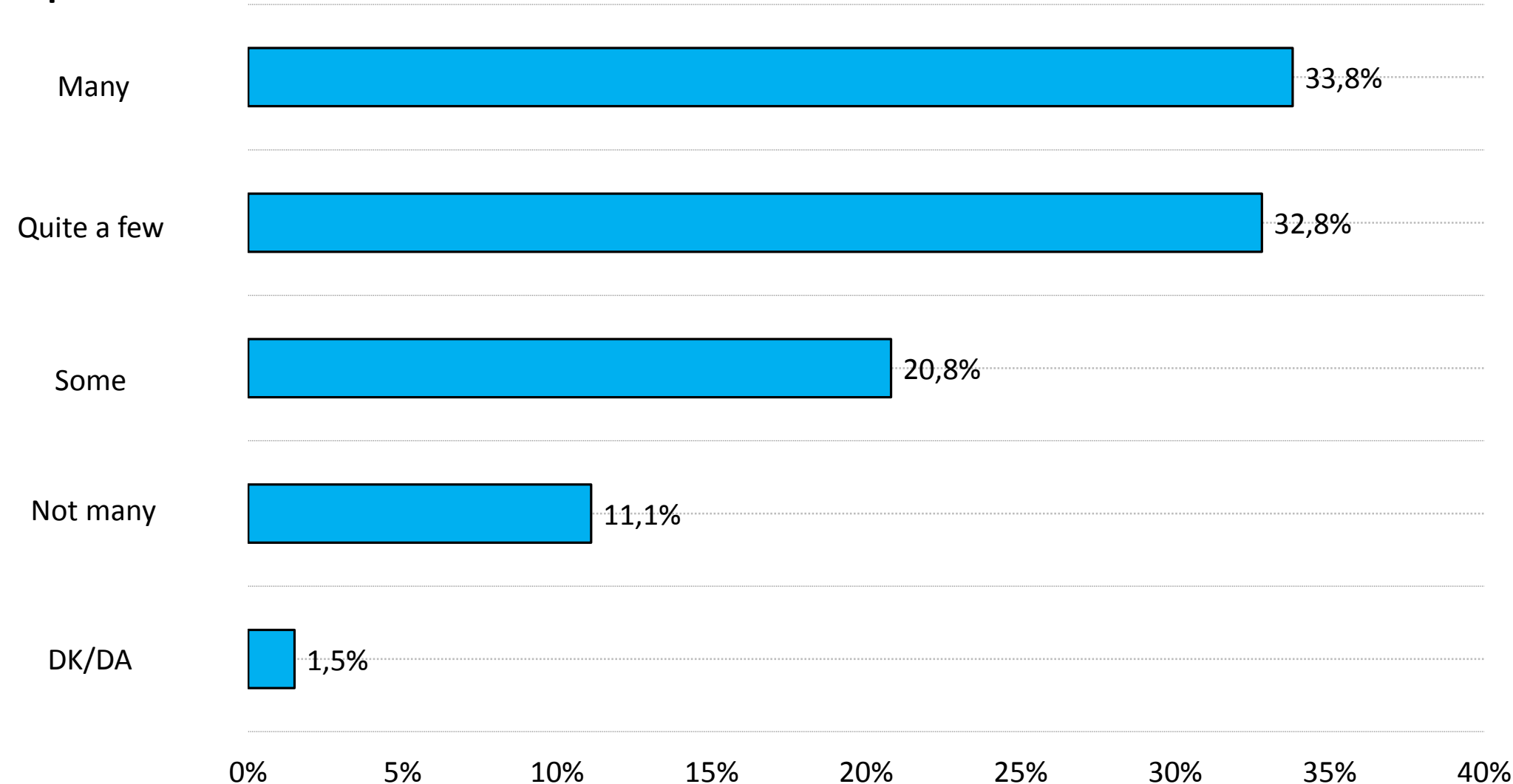


IMPACT OF TECHNOLOGICAL CHANGE ON LABOUR MARKET

IMPACT OF THE AUTOMATIZACION OVER EMPLOYMENT: JOB POSITIONS



How many jobs do you think that will be replaced by robots/computers in 15 years in Spain?



*Basis: population set

IMPACT OF THE AUTOMATIZACION OVER EMPLOYMENT: TASKS



What kind of tasks do you think could be performed by a robot/computer in the next 15 years?

Both routine and creative tasks



Creative tasks, but not so much



A lot of routine tasks



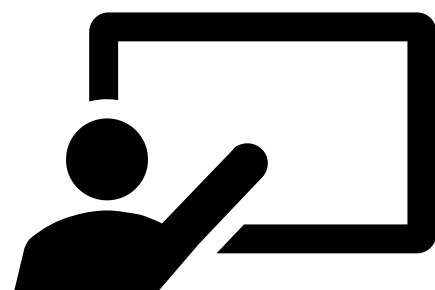
DK/DA



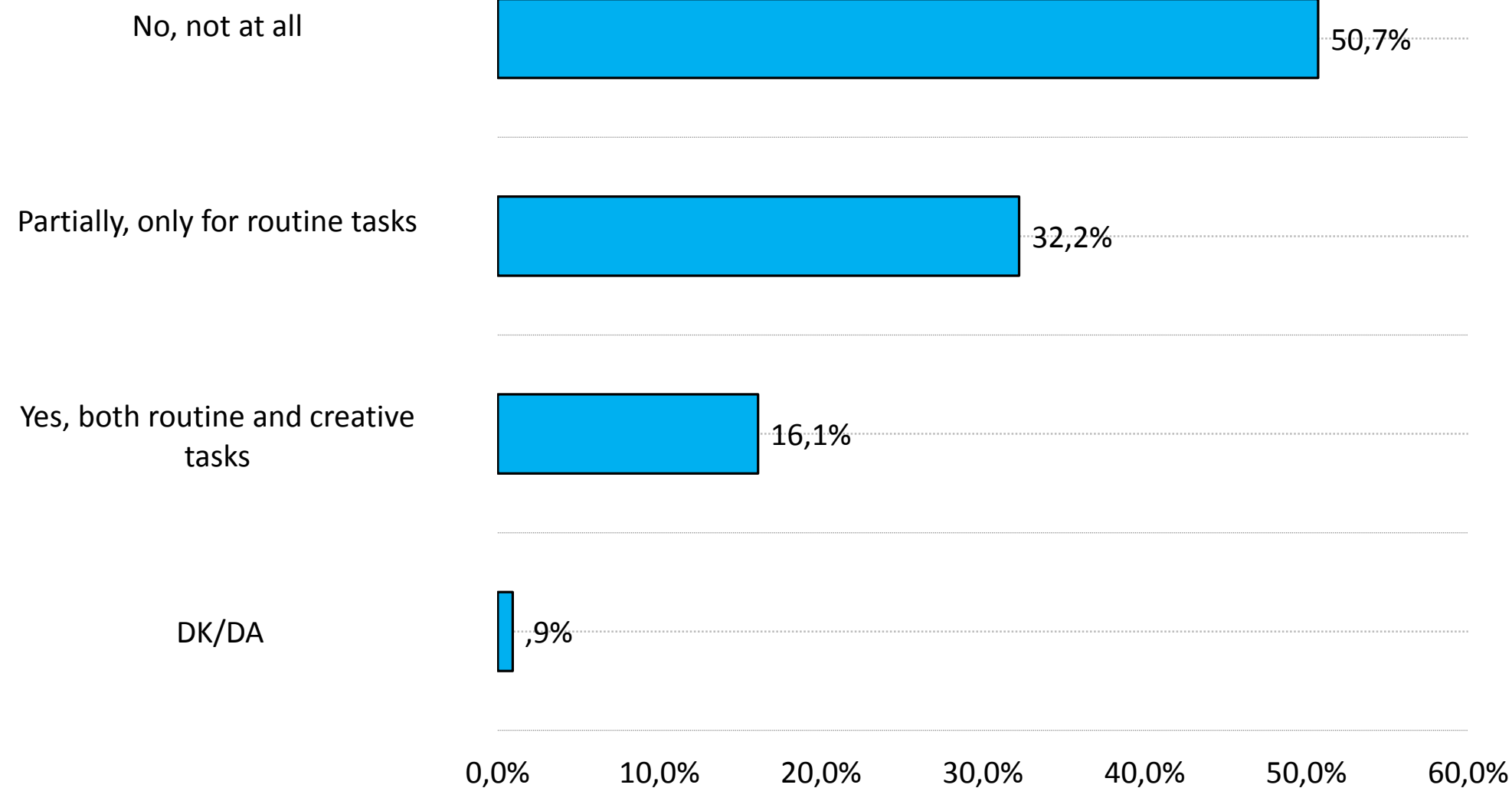
0,0% 5,0% 10,0% 15,0% 20,0% 25,0% 30,0% 35,0% 40,0%

*Basis: population set

THE **IMPACT** WILL BE
LOWER
ON MY CURRENT JOB



Do you believe that your current job could be carried out by a robot in 15 years?



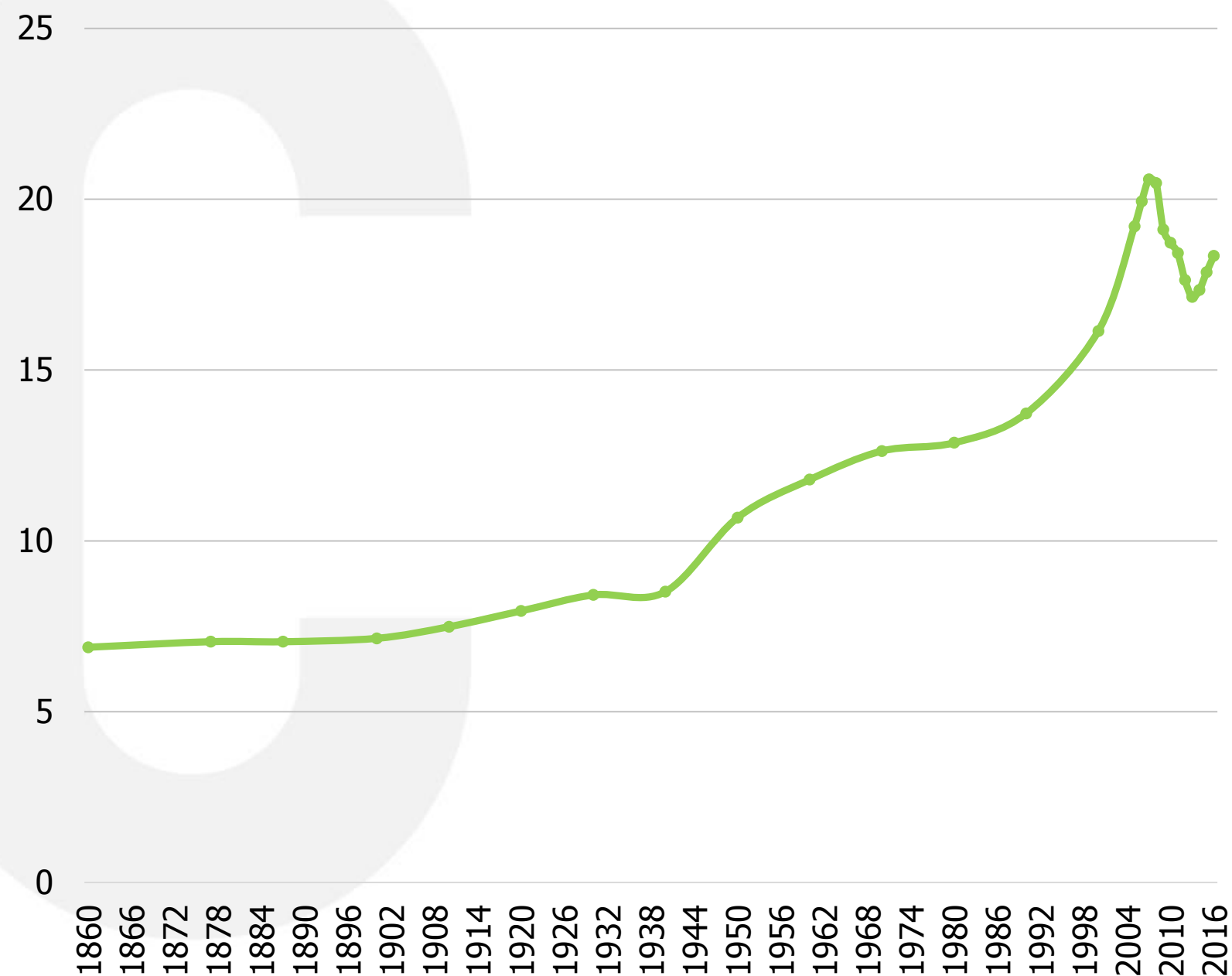
*Basis: population set

*"Thou aimest high, Master Lee. Consider thou
what the invention could do to my poor subjects.
It would assuredly bring to them ruin by depriving
them of employment, thus making them beggars."*

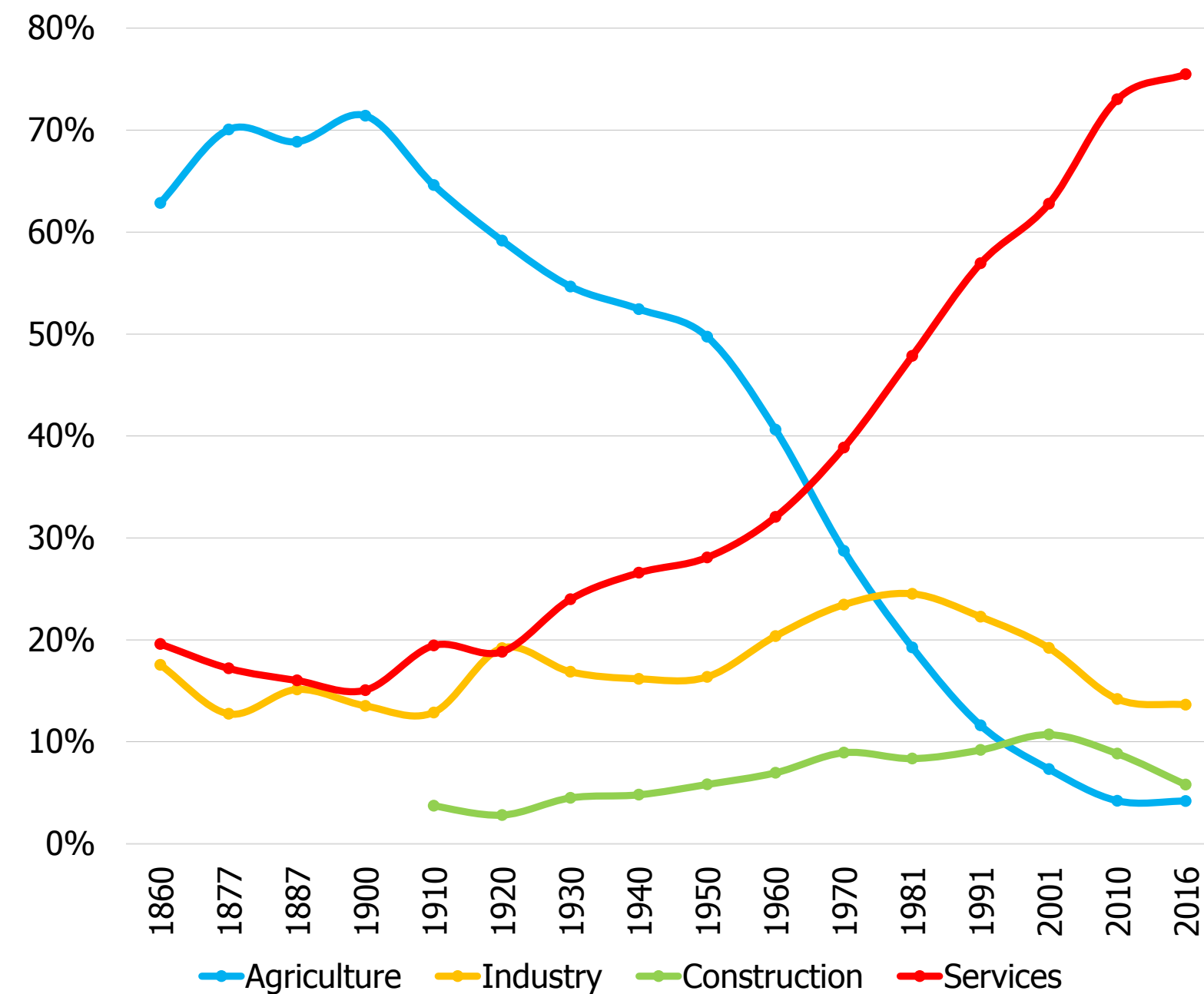
Queen Elisabeth I of England



Total labour force in Spain. 1860-2016. Millions.

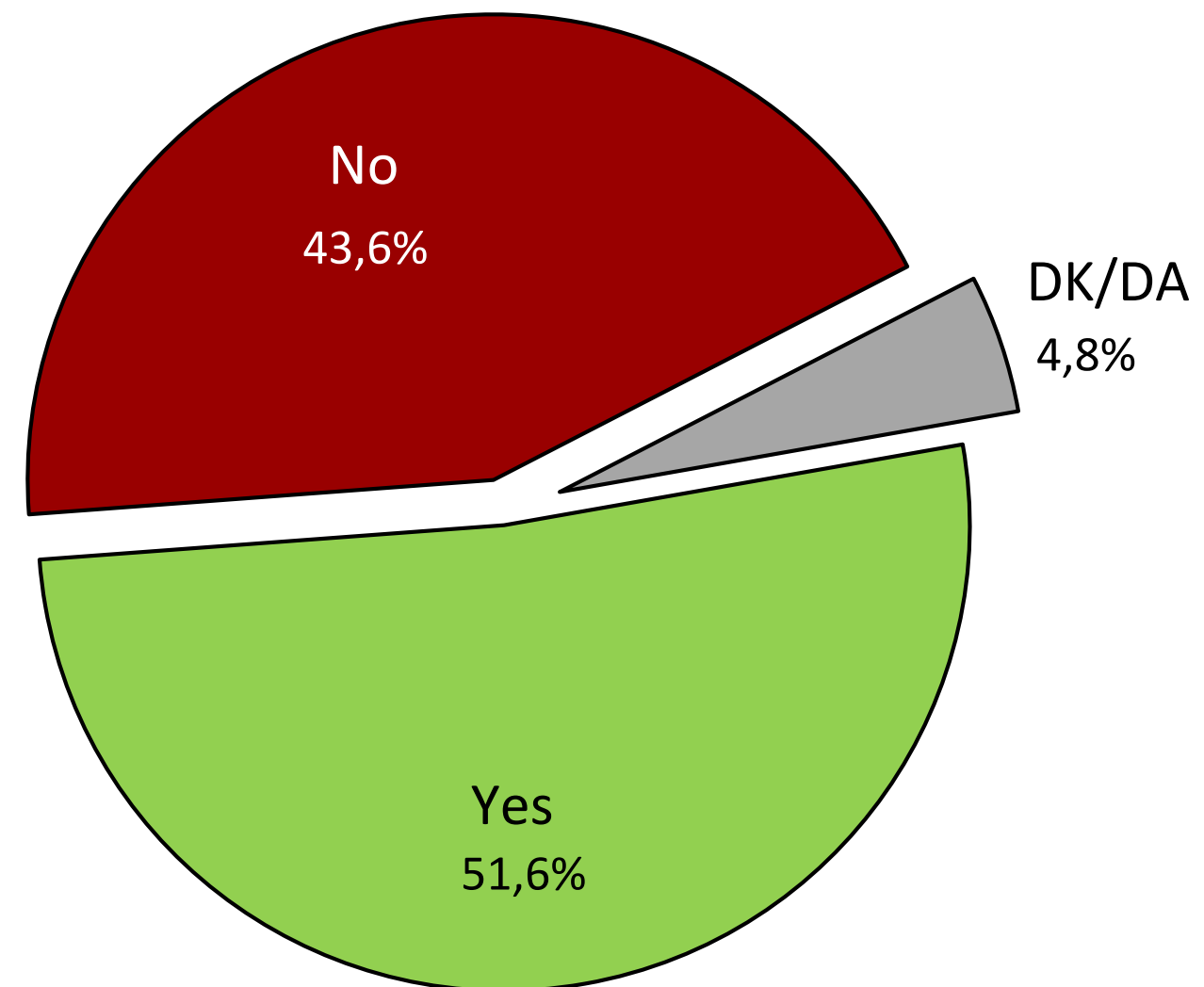


Labour force distribution by sector in Spain. 1860-2016. Percentage.



IT IS BELIEVED THAT
TECHNOLOGICAL CHANGE **WILL**
CREATE MORE
EMPLOYMENT THAN IT
DESTROYS

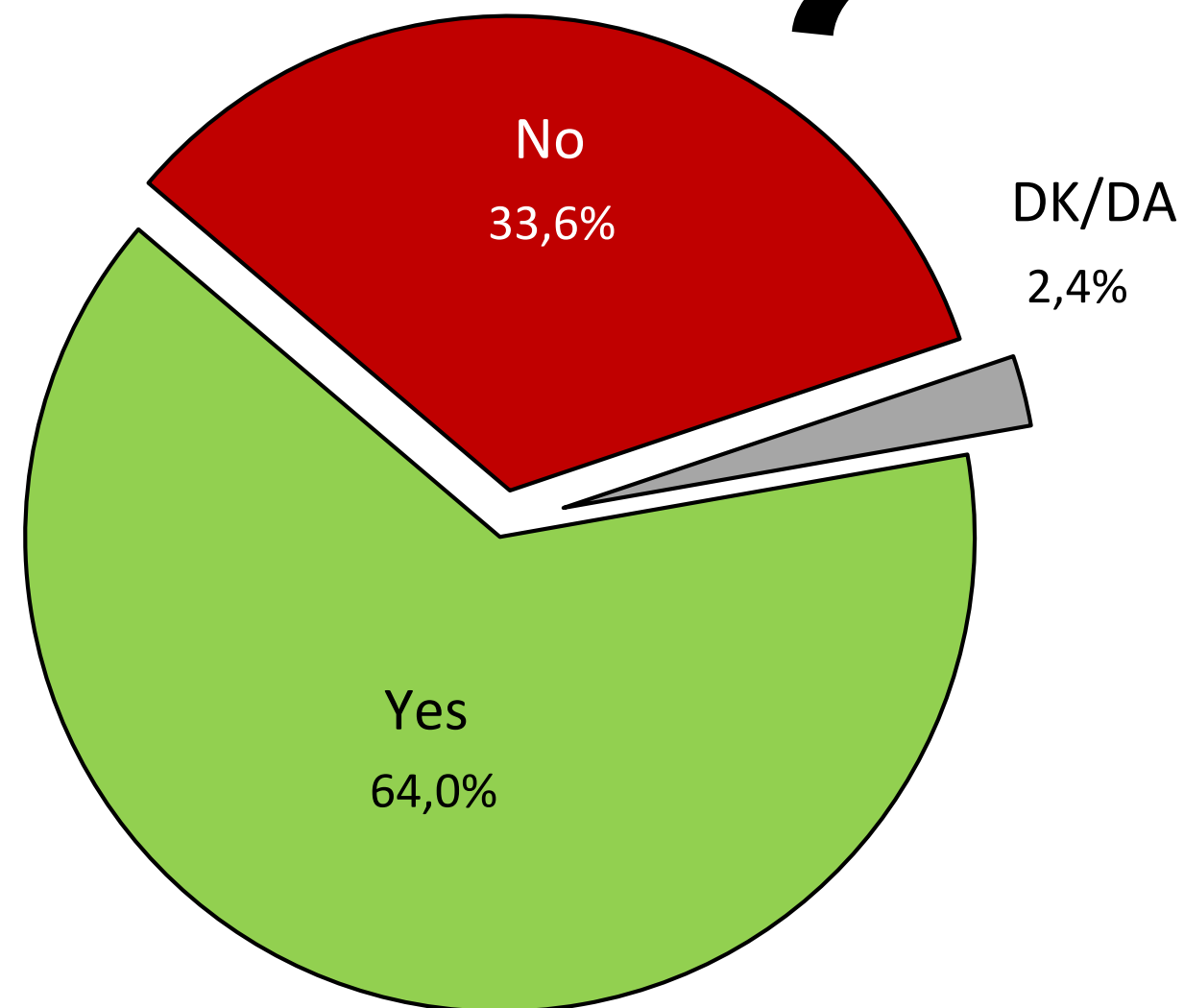
Technological change will imply the destruction of a given fraction of current jobs. Do you believe that this loss of jobs will be offset by the creation of new ones?



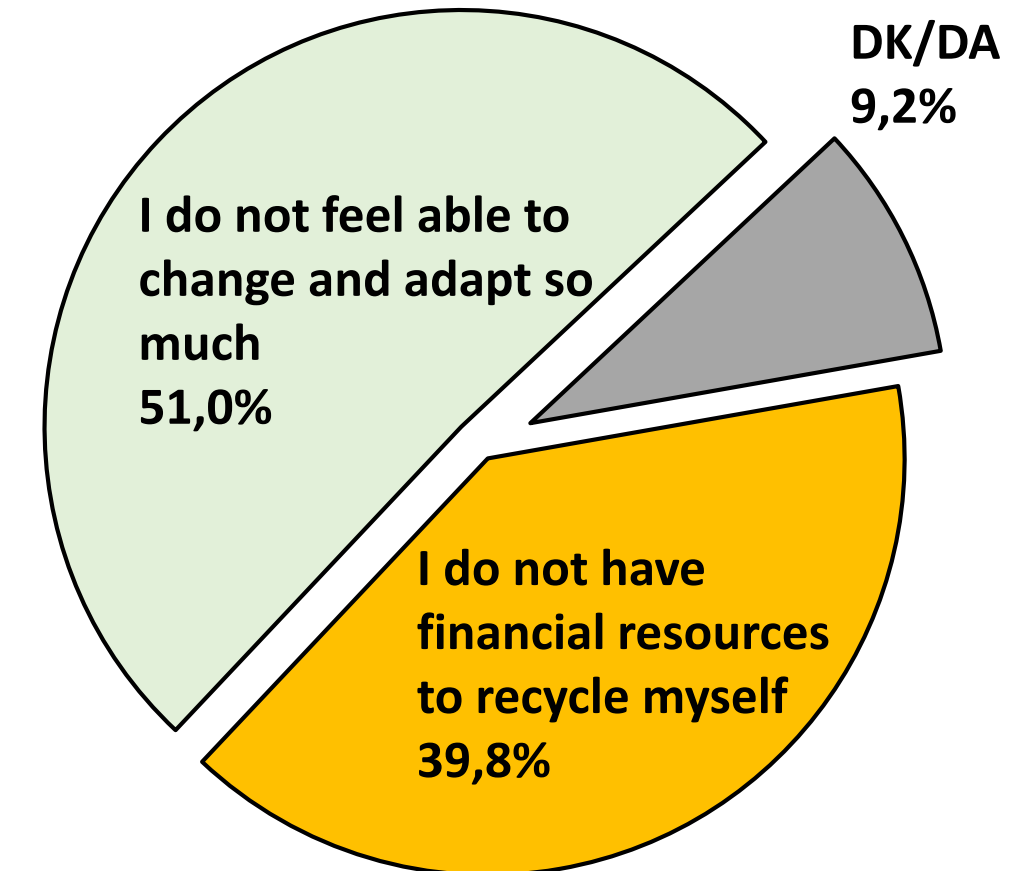
*Basis: population set

1 OUT OF 3 ACTIVE WORKERS
DOES NOT FEEL
QUALIFIED FOR THE NEW
LABOUR MARKET

Do you consider yourself qualified to compete in an automated labor market with a strong ICT presence?



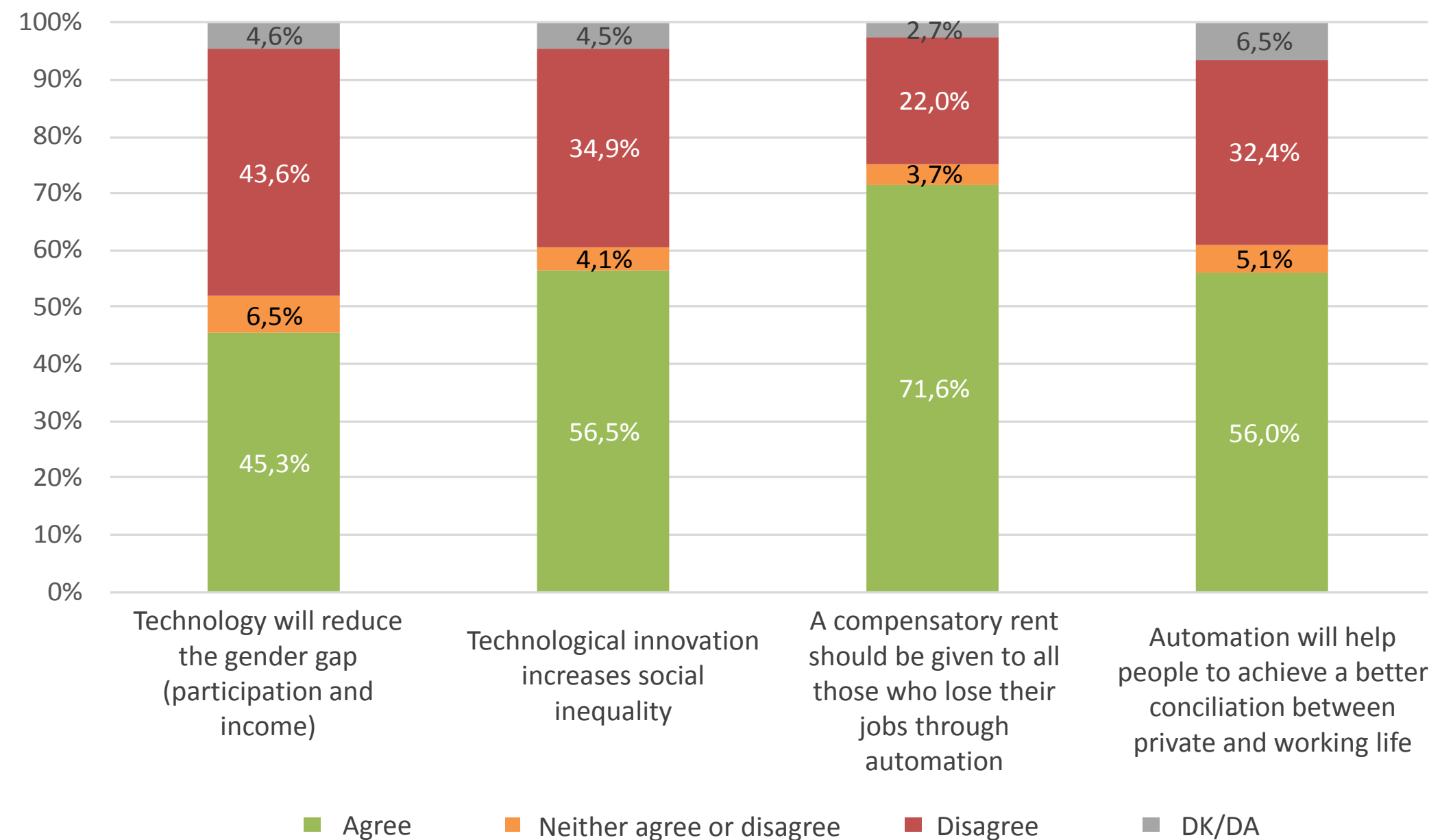
Why?



*Basis: population set

There is concern about the
effect of technological change
on **SOCIAL**
INEQUALITY

Please indicate how much you agree or disagree with the following statements:



*Basis: population set

BREAKDOWN BY:

GENDER PERSPECTIVE



EDUCATIONAL ATTAINMENT



VOTE REMINDER



AGE – MILLENNIALS PERCEPTION



Difference between **favourable** and **unfavourable** opinions with the following statements

	Man	Woman
Technological change will create more employment than destroy	+11,4	+4,7
Technological change will reduce the gender gap	+8,4	-4,9
Do you believe that your current job could be carried out by a robot in 15 years?	-5,4	+9,8
Do you consider yourself qualified to compete in an automated labor market with a strong ICT presence?	+27,5	+4,0

*Basis: population set

MOST **WOMEN** BELIEVE THAT

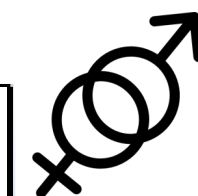
AUTOMATION **WILL AFFECT**

THEIR CURRENT JOB

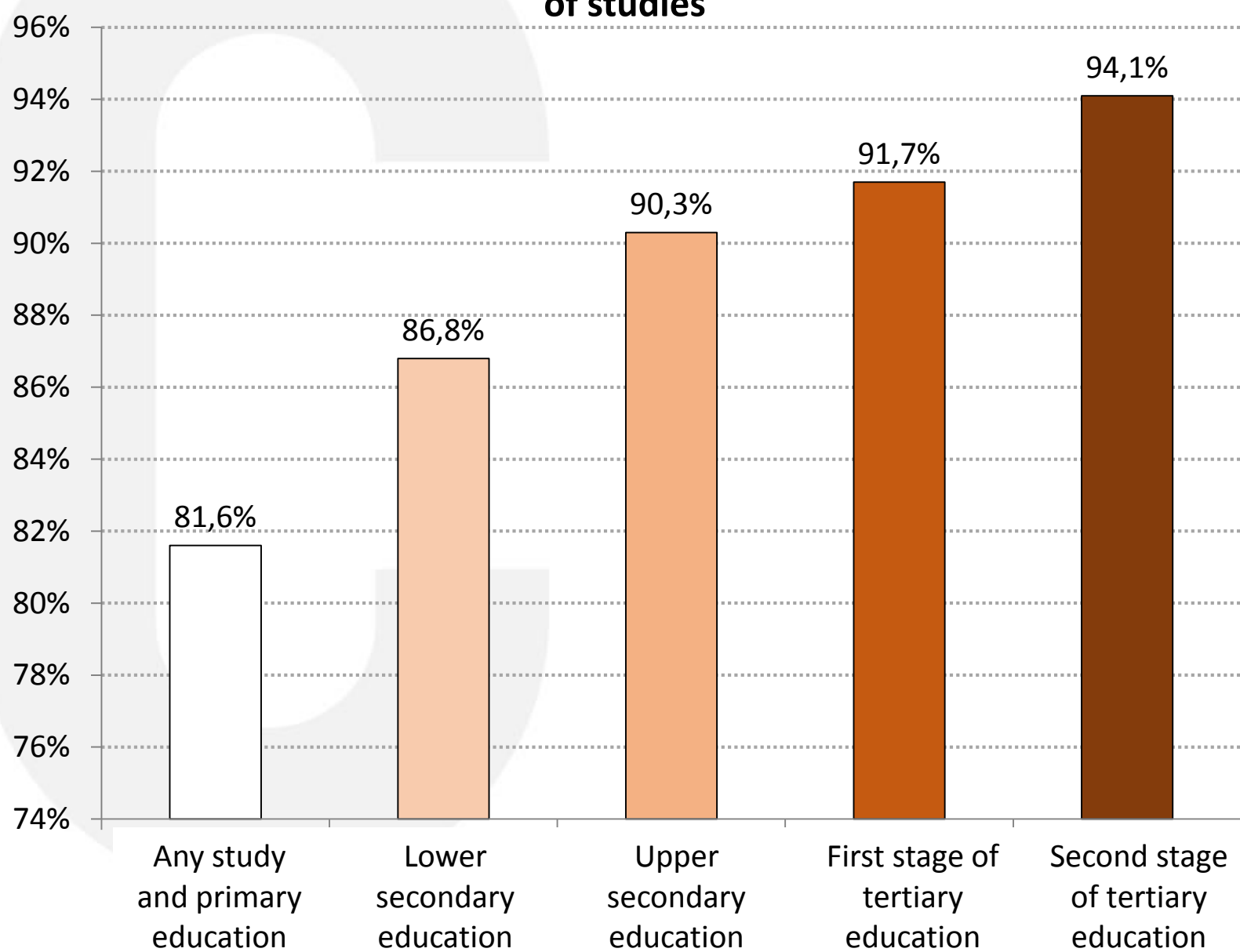
50,8% OF WOMEN CONSIDER THAT

THEIR CURRENT JOB IS **POTENTIALLY**

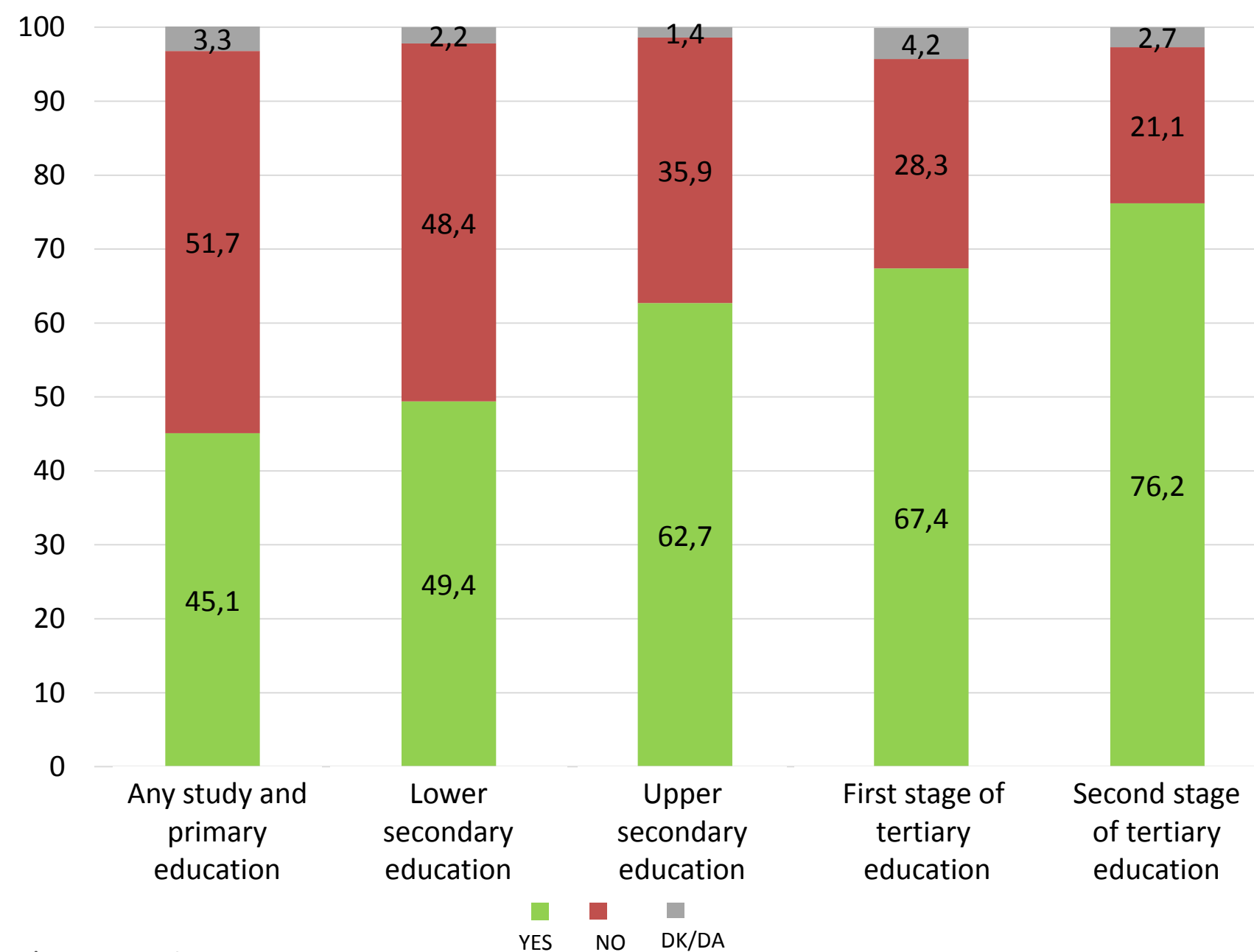
AUTOMATABLE (AT LEAST PARTIALLY)



They declare that the innovation is positive according to level of studies



Do you consider yourself qualified to compete in an automated labor market with a strong ICT presence?



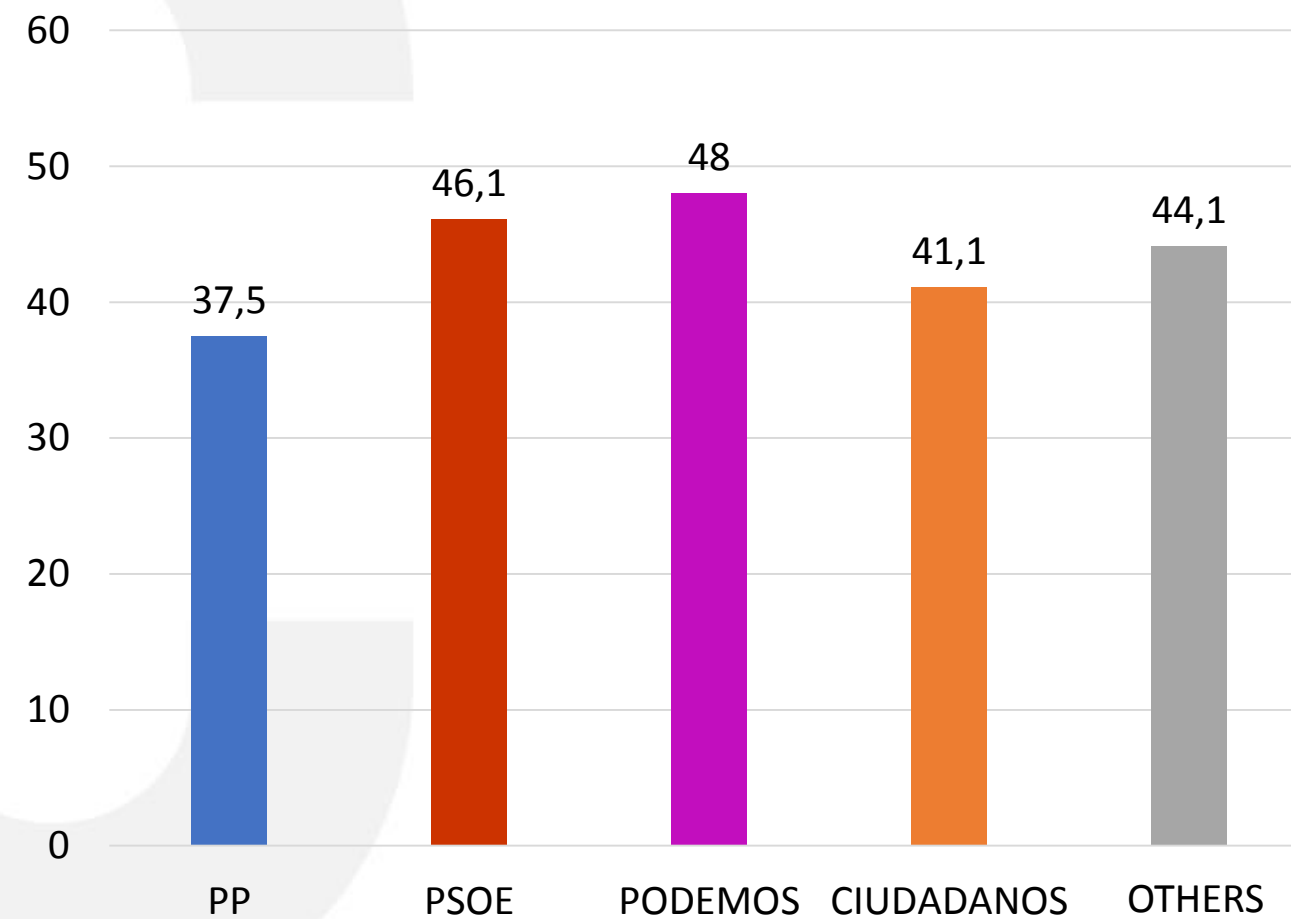
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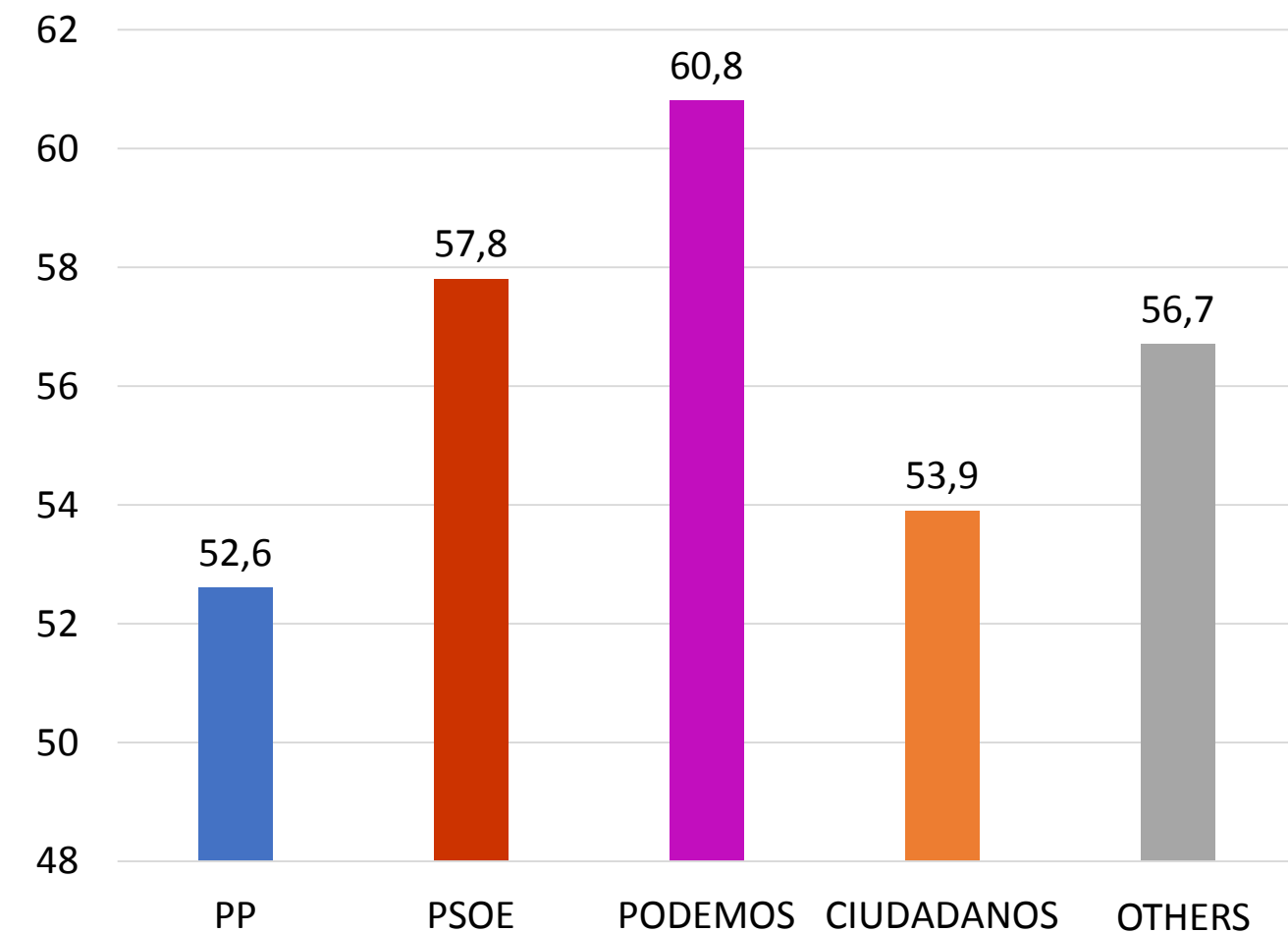
LEFT-WING VOTERS ARE MORE WORRIED ABOUT TECHNOLOGICAL CHANGE

They consider that the destruction of current jobs
WILL NOT be balanced out by new ones (%)



Most voters of all parties believe that technological change is a net generator of employment, but this conviction is lower among left-wing voters.

They consider that technological change increases
social inequality (%)



Most voters of all parties believe that technological change increases social inequality. Again, this perception is higher among left-wing voters.



Strongly agree or agree with the following statements (%)		
	Millennials (18-29 years)	Population set
Innovation		
Innovation is positive	93,1	89,6
I link innovation with creativity	54,2	45,5
There is a limited innovation culture in Spain	60	67
Technological change		
Automation may affect creative tasks	42,4	34,4
Technological change creates more employment than it destroys	55,1	51,6
I am able to compete in a more automated labour market (labour force)	73,3	64
Technological change will reduce the gender gap	51,8	45,3

MILLENNIALS ARE CONVINCED THAT TECHNOLOGICAL CHANGE IS A **NET GENERATOR OF**

EMPLOYMENT AND ABOUT ITS ABILITY TO **REDUCE THE GENDER GAP** IN THE LABOUR MARKET.

ALL DATA AVAILABLE

IN

WWW.INFORMECOTEC.ES

BEHAVIOURAL ECONOMY



Unlike the field of classical economics, in which decision-making is entirely based on cold-headed logic, behavioural economics allows for irrational behaviour and attempts to understand why this may be the case (*The Guardian*, 2017).

Some of the most famous examples are:



Richard Thaler,
Nobel prize in
economics 2017



BEHAVIOURAL ECONOMY EXPERIMENT:

“LA PERCEPCIÓN DE LA CUARTA REVOLUCIÓN INDUSTRIAL: UNA APROXIMACIÓN EXPERIMENTAL”

Main conclusions:

- ✓ Productivity
- ✓ Basic income
- ✓ Fixed tax to robots
- ✓ Replacement rate of workers

In partnership with:



COTEC

FUNDACIÓN
COTEC
PARA LA INNOVACIÓN