Digital transformation and its impact on labour markets and social protection

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The storyline

• Major challenges lie ahead: Ageing will require higher productivity growth. Rapid robotisation and digitalisation, while fuelling productivity, may come at the expense of job losses.

• Investing in skills and education can turn digitalisation into a net job creator.

• The world of work is also changing. Digitalised platform work is increasing rapidly.

• Digitalised platform work may go along with more atypical forms of work, and higher social risks. New social challenges emerge.

• The adequacy as well as the financing of social protection become increasingly challenging.
The influence of megatrends grows stronger

Technological Transformation ➔ ESDE 2018

Globalisation (globalised competitive markets and offshorable labour demand)

Demographic change (ageing and its impact on intergenerational fairness) ➔ ESDE 2017

The changing world of work
Ageing is not occurring only in Europe ... but the ageing pattern will be particular in Europe.

Working-age population here: age group 20-64

Sources: UN World Population Prospects 2015 for the US, Eurostat 2015 population projection for the EU
EU-28

Employment will face its limits ...

Own calculations based on Eurostat 2015 population projections, Eurostat LFS
EU-28

Employment will face its limits...

Working-age population

millions

% of working Age Population (20-64 years)

Active population

HIGH activity scenario

LOW activity scenario

Employment

+1.1% p.a.

Employment rate

Own calculations based on Eurostat 2015 population projections, Eurostat LFS
Robots are becoming cheaper relative to labour

Cost of automation

Index of average robot prices and labor compensation in manufacturing in United States, 1990 = 100%
The number of robots is increasing rapidly

Level of the operational stock of robots in the EU28

Most robots are installed in Germany.

Source: International Federation of Robotics
Robots fuel productivity

Robot intensity and total factor productivity in manufacturing between 2010 and 2015

\[ y = 1.2048x + 3.3029 \]
Jobs with high automatable task content may be lost

If today’s cutting-edge science and technology were applied in production processes, a substantial part of jobs could be automated.
New jobs are created: increasing robot density and net job creation go hand-in-hand ...

Operational stock of robots in manufacturing and employment in Germany

- Industrial robots in manufacturing
- Workers in manufacturing
- Workers in services

change since 1995

+214% (robots)
+35% (services)
-7% (manuf.)
Capital and high-skill labour are complementary:

- Employers buy robots because capital is more efficient than labour, so labour gets displaced, initially;
- THEN, employers hire new labour, skilled enough to operate and fulfil the new capital's higher productivity potential OR,
- Employers buy robots to equip higher-skilled workers with better capital and thus achieve higher productivity
Today, platform work makes only a small share of the EU labour force...

- Only 1 in 10 adults have experience of platform work.
- Only 1 in 43 (2.3%) make a living from platform work, earning more than 50% of their income from it.

![Bar chart showing:
- Daily internet users in 14 MS in survey
- Have ever done platform work
- Of those.... Monthly or more
- Of those.... 10h per week or more
- Of those.... 50% of income or more](chart.png)
... but a rapid increase is under way (example: Uber statistics).

Number of active Uber drivers in the US by month

Uber gross revenue, bn $

Many platform workers consider themselves as self-employed...

More than half of main-job platform workers indicate they are self-employed in one or the other way.

Source: COLLEEM survey
The increasing significance of platform work may lead to further rise in self-employment

Increase between 2011 and 2016 (%) according to LFS in the 14 EU countries covered by the COLLEEM survey

"Platform tasks" as classified in COLLEEM are: Clerical tasks, professional activities, creative tasks, software development, transport tasks, on-location tasks.

Source: LFS, COLLEEM survey
Atypical employment is associated with higher social risks...

Workers at risk of poverty by type of employment

- All types of workers
- Full-time, open-ended contract, i.e. "standard worker"
- Part time
- Full time temporary
- Solo Self employed
Atypical employment is also associated with lower access to social protection.

Risk of no statutory access to unemployment benefits, by employment type, in red

Source: computations by Matsaganis et al, 2015

EU-28
The financing of social protection is becoming more challenging

Social protection relies increasingly on government subsidies.

Graph:
- Social Contributions (paid by employers and by the protected persons)
- Government contributions from taxation
Funding social security in an environment of fast change

Hypothetical contribution rate as % of wages
(Unemployment and pension insurance), EU-28

- Standard scenario
- Faster hours reduction scenario
- Hours recovery scenario

For all: Constant share of self-employed (15%)

.. assuming "High Activity" labour market scenario (ESDE 2017)
In the medium-term, a higher share of self-employed will make social insurance costlier.

Hypothetical social security contribution rate (unemployment benefits and pensions, EU-28)

.. assuming "High Activity" labour market scenario (ESDE 2017)
Higher skills and education attract investment and foster productivity

Structural shift, away from low qualified workers (-5% of workforce) towards medium (+3%) and highly qualified workers (+2%), Germany
Conclusions

Major challenges lie ahead: Ageing will require higher productivity growth. Rapid robotisation and digitalisation, while fuelling productivity, may come at the expense of job losses.

Investing in skills and education can turn digitalisation into a net job creator.

The world of work is also changing. Digitalised platform work is increasing rapidly.

Digitalised platform work may go along with more atypical forms of work, and higher social risks. New social challenges emerge.

Adequacy as well as the financing of social protection are becoming more challenging.
Thank you for your attention!

ESDE 2018 link:

https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8110&furtherPubs=yes
High speed of robotisation; by industry

Level of the operational stock of robots in the EU28

Automotive industries rely heavily on robots.

Source: International Federation of Robotics
Platform work is increasing, as is atypical work in general.
Benefits of platform work (and similar new forms of work)

- Increased flexibility for both businesses and workers (time and location)
- Better work-life balance
- More inclusive labour markets: new opportunities including for LM-challenged groups (women caring for children/elderly at home, the disabled, those discriminated against in standard jobs, etc.)
Downsides of new forms of work

Potentially worse working conditions and job quality for workers unable to take advantage of changes.

New forms of work have the potential to amplify income (and other) inequalities.

Many workers may not be covered by social security schemes. This implies:

- Lower social protection coverage of the workforce;
- Growing pressure on the financing of social welfare systems, as the contribution base shrinks, compounded by demographic ageing.

Facilitate more frequent labor market transitions and offshorability of labor demand
### Platform work: A cross-country comparison

<table>
<thead>
<tr>
<th>Country</th>
<th>Daily internet users</th>
<th>Has ever done platform work</th>
<th>Of those....</th>
<th>10h per week or more</th>
<th>50% of income or more</th>
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<tr>
<td></td>
<td></td>
<td>Monthly or more</td>
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<tr>
<td>UK</td>
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<tr>
<td>Total</td>
<td>10%</td>
<td>7.7%</td>
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Source: COLLEEM survey (JRC)
EU-28

Employment will face its limits...

Own calculations based on Eurostat 2015 population projections, Eurostat LFS
EU-28

Employment will face its limits...

- **Working-age population** (millions)
  - Peak in 2014
  - Decline thereafter

- **% of working Age Population (20-64 years)**
  - Low activity scenario
  - "Europe 2020": 75% by 2020

- **Active population**
- **Employment**
  - +1.1% p.a.

Own calculations based on Eurostat 2015 population projections, Eurostat LFS