

Artificial intelligence and the EU labour market

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The challenges of the EU labour market

Widespread automation is often named as the greatest long-term threat to human employment. But Europe's immediate job market problems are of a different sort: regulatory, structural and demographic.

The **regulatory** problem stems from models of employment protection devised in a different time and with a different workforce in mind. EU Member States tend to rank among the more regimented countries in the OECD's Index of Employment Protection (OECD 2017), and employment outcomes in the more regulated countries tend to fall behind those of more flexible regimes (Addison and Teixeira 2005). Not all is bad news. Some Member States (notably UK, Ireland, and Estonia) perform well on the OECD Index. Others (Spain, Italy) have recently reformed their labour markets, with Spain experiencing a strong job recovery since late 2013 (The Economist, 2017). Perhaps the most infamously onerous labour regulation of all, France's, is slated to be slimmed down in the near future.

The EU labour market is currently facing three challenges: the regimented employment protection, the economic restructuring, and the changing demographics, which can be partly addressed through policy measures.

The **structural** problem relates to EU countries' need to adapt to a dynamic labour market in the context of rapid technological change and increasing global competition. As more of EU economic output shifts from manufacturing to the service sector, there will be skills mismatches which, in the short term, may result in above-equilibrium unemployment and subdued wage growth (Rogoff 2012). There are a range of policy measures that may be used to facilitate the transition. They include national and EU-wide retraining programmes; the removal of national regulatory barriers to professional services (e.g. healthcare, legal, transport) to facilitate the movement of labour; and a lowering of marginal employment and capital tax rates to encourage job creation and investment.

The **demographic** problem has to do with Europe's ageing populations, rising life expectancies and dependency ratios, and declining fertility rates (Fig. 1). It presents a challenge to public finances, as well as to investment and productivity if ageing leads to lower savings rates and reduced risk-taking (Deaton 2005). The public-finance challenge can be resolved through reform of social security and pension systems, whereas changing savings patterns will be harder to address through policy (although a reliance on private pensions and a reduction in capital taxation can help).

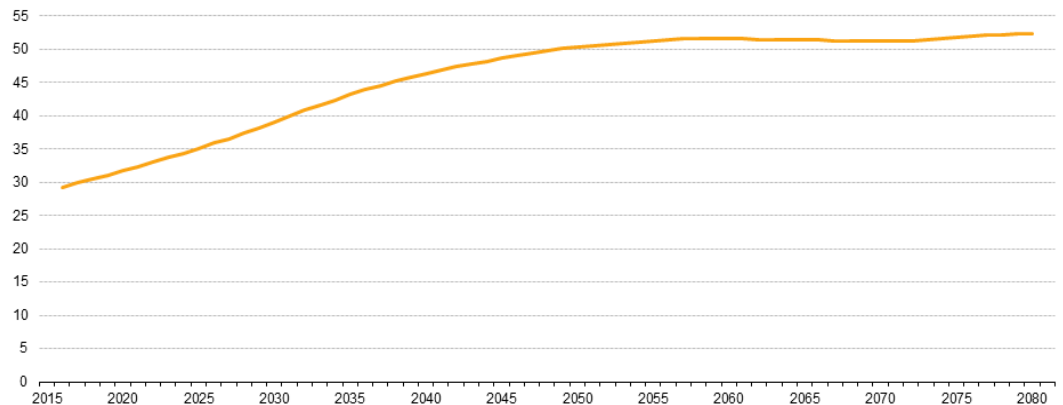


Fig. 1. Projected old-age dependency ratio, 2016-2080

The role of artificial intelligence

How does artificial intelligence (AI) interact with the challenges faced by the EU labour market?

The **regulatory** problem affects AI in Europe in two ways.² On one hand, regulatory costs increase incentives for mechanisation, since higher labour costs from regulation make the substitution of a human workforce by machines more attractive. On the other hand, regulation may hinder capital deployment, and it may also pose a barrier to the redeployment of surplus labour to other activities.

¹ The historical experience is that mechanisation has, in the long run, been accompanied by new employment opportunities which have compensated for the job losses from automation. Thus, new jobs have emerged, at higher wages and with shorter working hours as a form of non-pecuniary compensation (McCloskey 2017).

² These are analogous to the impact of other forms of physical capital.

Discussions of automation and machine learning usually focus on two general impacts: one is a gradual replacement of the human labour force by machines; the other, a gradual rise in productivity which will increase output, lower consumer prices, increase resource efficiency and potentially create new employment opportunities for surplus labour (Autor 2015).¹

The **structural** problem stems partly from technological innovation, of which AI will increasingly form a part. The spread of AI is expected to accelerate the transformation of labour markets, the need to retrain workforces and to provide income supplements for the unemployed and underemployed. But AI will also create new job opportunities for those with the skills to operate new capital resources.³ By lowering transaction costs, AI and automation can also be expected to create more opportunities for flexible work.

Finally, AI can be a key to partly address the **demographic** problem. As EU citizens age, there will be a need for cheap provision of old-age services, including health and social care. These are non-tradable services which cannot easily be imported

but are susceptible to automation. AI will also enable industries to do more with a smaller workforce, mitigating the burden of higher dependency ratios. Additionally, AI will make working in old age, and for shorter time periods, easier and less physically demanding.

AI and productivity

There are concerns that the recent decline in the growth of productivity may be permanent (Gordon 2015).⁴ But such concerns clash with high expectations from future technological innovation, as implied by the fear that machines might replace up to half of all jobs in developed countries (Frey and Osborne 2013). It cannot be that output efficiency stagnates even as machines are able to replace an increasing share of the workforce.

Past productivity performance has historically proved a poor predictor of future developments. There is, in fact, reason to believe that the present observed stagnation in productivity growth will not last: Brynjolfsson et al. (2017) show that AI application to US transport and telemarketing would on its own raise productivity growth by 0.25 per cent per year for 10 years.

They argue that AI meets the definition of a general purpose technology (GPT) and conclude that its implications may be as long-standing as those of electricity and the steam engine, although (like the latter) the full effects will take time to materialise.

AI and EU regulation

The European Commission has broadly taken a positive stance on AI deployment across the EU economy. A recent blog post by Vice President Ansip made clear that European firms are well-positioned to take advantage of new technologies, and that there is no correlation between robot installation and unemployment, as is sometimes pretended by AI sceptics (Ansip 2017). Given reticence in some Member States, the Commission's 'technoptimism' is welcome.

Concerns are raised, however, in regard to the regulatory barriers to experimentation, premature regulation on robots and AI, and EU's hostile attitude towards the foreign AI firms.

At the same time, there are reasons for concern about the present EU outlook on AI. Firstly, the focus is primarily on expenditure rather than regulation. The Commission has a range of funding programmes aimed at boosting AI investment and facilitating the industrial transition, but removing regulatory barriers to experimentation will be just as important. Greater openness to cross-border data flows is welcome, but new requirements on platforms, including on liability and contracts, are likely to slow the spread of new technologies.

Secondly, there are attempts to define regulation of robots and artificial intelligence at EU level (European Parliament 2017). Whilst well-intentioned, legislation at such an early stage may end up constraining the growth, thereby limiting the benefits, of AI deployment.

Finally, there is a tendency in EU strategic documents to refer to foreign firms in AI as 'competitors', when in fact many of them conduct research in AI within the EU.⁵ It may appear symbolic to speak against industrial nationalism of this sort, but in the current environment such inclinations can well influence policy. They must be stopped.

³ AI, like earlier production technologies, will thus substitute for some occupations and complement others.

⁴ By productivity, here we mean total factor productivity, which is defined as the growth in output which is not explained by increases in labour or capital inputs.

⁵ This is not the only reason why such mercantilist rhetoric is misplaced. Everyone, EU citizens included, benefits from innovation, regardless of its country of origin.

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