

## Education 4.0

*Giovanni Caccavello, Research Fellow, EPICENTER*

Current schooling systems are badly equipped to deal with rapid technological innovation and changing work patterns such as the sharing economy and the rise of portfolio careers. This is particularly true of southern European countries where centralisation has restricted educational freedom and has led to weaker student performance and persistently high rates of youth unemployment.

In these countries, national governments should work more closely with the private sector in order to connect education and employment. At the same time, they should grant local schools more autonomy, freedom and responsibility.

By following the example of Germany, Sweden and the Netherlands, European countries currently grappling with high rates of structural and youth joblessness and poor student outcomes will be able to reverse the status quo.

### Introduction

There are a number of reasons why the impact of technology on the economy and, in particular, labour-market outcomes have captured the attention of policymakers in recent years. Firstly, despite the economic recovery, structural unemployment in many EU countries remains high, and there are concerns about a slowdown in productivity growth (ECB, 2016). Secondly, a consensus has gradually formed that technological innovation in the immediate future is likely to lead to the replacement by machines of a significant share of jobs currently performed by humans. The historical experience of innovation suggests that new and more productive jobs are likely to emerge to replace those made redundant by technology (EPICENTER, 2017). Nevertheless, the economic and political impact and the uncertain nature of second-order effects from this change naturally concern those drafting laws and regulations.

It is evident from the macroeconomic record of EU countries, particularly in southern Europe, that education policy and labour-market regulation are in dire need of reform. Furthermore, the evidence from relatively successful countries such as Germany, Sweden and the Netherlands suggests that the desirable direction of travel is one of decentralisation – transferring control of school curricula and teaching practices to teachers, parents and students; transferring bargaining power to individual workers, their employers, and local communities. It is no coincidence that those Member States which have restricted educational freedom and innovation, and introduced rigid employment rules, are underperforming whereas those that have liberalised have thrived (Fraser Institute, 2016).<sup>i</sup>

### The importance of reforming education looking at best practices

As of January 2017, EU28 seasonally-adjusted unemployment rate was 8.1%, down from 8.9% one year earlier (Eurostat, 2017). However, large differences amongst Member States remain. Whilst countries such as Estonia, Germany, Sweden and The Netherlands report below-average unemployment rates, southern European Member States such as Spain, Italy, Croatia, Portugal and France have all unemployment rates at or above – sometimes well above - 10%. Even more significant are the disparities in youth unemployment across countries, with rates ranging from the single digits – Germany, Austria – to over 40 per cent in Greece and Spain (Eurostat, 2017)

According to the latest PISA student achievement scores, northern European countries such as Finland (523 points), Germany (508) and the Netherlands (508) are among the top performing nations in the world. On the contrary, southern European Member States such as Portugal (497), France (496), Spain (491), Italy (485) and Greece (458), lag behind (OECD, 2016a).

This strong discrepancy across EU countries has very little to do with the rise of industry 4.0 or the emergence of the gig economy. On the contrary, it is a persistent divergence which is explained by overly tight regulation, centralised labour-market policies and outdated educational systems. By entrenching high rates of joblessness and low student achievement, government policies in the laggard Member States are harming worker productivity and the welfare of a large number of citizens.

### Towards decentralisation: the case of Germany

Since re-unification in 1990, Germany has experienced a significant shift towards decentralisation in both its education system and labour-market regulations (Turner and Rowe, 2015). This decision has proved key in increasing productivity, making the economy more competitive and bringing unemployment down from historical highs.

On the one hand, the country has gone through a remarkable decentralisation of wage determination from the industry level to the level of the single firm or single worker (Dustmann et al. 2014). On the other hand, the German higher education system has

In 2011-12, 29% of German graduates qualified to enter university decided to take up an apprenticeship. Most apprenticeships last 36 months and the average age of a graduate apprentice is 22 (GTAI, 2014).

strongly moved in the direction of further regionalisation in the last two decades, with Länder and local authorities holding a higher degree of autonomy (OECD, 2014).

Moreover, the country's successful vocational education and training schemes, also supported and funded by the private sector, encapsulate the strong interaction between workers, employers, the public sector and other social partners (Heike et al. 2014).

According to the German economic development agency (GTAI, 2014), the current VET system provides around 350 certified training occupations and more than 549,000 vocational contracts were signed in 2012 only. Furthermore, thanks to its strong link with the business sector, the dual system enjoys a high reputation, especially among employers. In 2011, around 1.4 million apprentices supported German companies. Of these, 83% directly supported firms with fewer than 500 employees.

### **The Dutch solution: freedom of choice and lifelong learning opportunities**

The decentralising experiment made by Germany has also been followed, in a different way, by the Netherlands, where since the 1980s and '90s successive education reforms have increased localised power and widened freedom of choice (Ritzen et al. 1997). As reported by the OECD (2016b), increasing decentralisation has benefitted Dutch students, in particular by encouraging innovative educational practices.

At 8.85%, The Netherlands has the lowest level of young people aged 20 to 24 neither employed nor in education or training (NEET) in the EU. Its education system is as successful as those of East Asian leaders such as Japan and South Korea (OECD, 2016b).

Dutch students have the opportunity to enrol in competitive VET schemes, which are mainly directed at four sectors (Health and Care, Engineering, Economy and Agriculture) and which, as in Germany, have strong links with private employers. In order to reinforce the connection between schools and business, employers are also financially incentivised through various categories of tax rebates for training (Casey, 2013). In 2015 the VET system provided education to 484,985 students aged 16 and above. On top of this, one of the main strengths of Dutch vocational training schemes is that they are accessible to all adults and offer lifelong learning opportunities, such as in-service training for employees and re-training programmes for the unemployed (MBO Raad, 2017).

### **Sweden's expansion of independent schools has improved educational outcomes**

Following the 1992 voucher reform, Sweden is another country that moved towards a higher degree of decentralisation in education. However, compared to the German or the Dutch experience, recent education reforms – such as the 2011 Swedish Education Act – focused more on freedom of choice, independent schools and student safety and security (Holmgren et al., 2013).

The impact of a 10 percentage-point increase in the share of independent-school students has resulted in higher educational achievement at the end of compulsory and high school; a 2-point higher probability of choosing an academic high-school track and a 2-point higher probability of attending university.

Increasing school competition and the introduction of for-profit schools have increased levels of education achievement, improved conditions for teachers and, most importantly, primarily benefitted students, particularly those from less privileged backgrounds (Sahlgren 2010). Moreover, the increase in the share of independent school students has improved both short- and long-term educational outcomes (Bohlmark and Lindahl 2015). Whilst this may be surprising in light of Sweden's relative decline in scores tests such as PISA, the authors do not also find significant positive effects in educational outcomes for the earlier years, when Swedish relative test scores declined most dramatically.

### **Conclusion**

Technological change is the essence of economic progress – it is at the heart of what has enabled the 30-fold growth in average incomes experienced by Western countries since 1800 (McCloskey, 2016). There is thus reason to be sceptical of gloomy predictions about the future of employment and well-being as a result of the latest wave of innovation. Nevertheless, rapid technological change provides an additional powerful argument for the reform of EU countries' education systems and labour-market rules. Both of these areas of public policy have failed to deliver outcomes commensurate to the resources directed at them – intervention has in fact worsened outcomes in many cases.

The good news is that the experience of other Member States offers hope about the scope for, and likely consequences of, liberalising reform. By following the example of Germany in labour-market regulation, and the Netherlands and Sweden in education, countries currently grappling with high rates of structural and youth joblessness and poor student outcomes will be able to reverse course.

## References

- Bohlmark, A. and Lindahl, M. (2015). *Independent Schools and Long-run Educational Outcomes: Evidence from Sweden's Large-scale Voucher Reform*. *Economica*. Available at: [http://onlinelibrary.wiley.com/doi/10.1111/ecca.12130/epdf?r3\\_referer=wol&tracking\\_action=preview\\_click&show\\_checkout=1&purchase\\_referrer=onlinelibrary.wiley.com&purchase\\_site\\_license=LICENSE\\_DENIED](http://onlinelibrary.wiley.com/doi/10.1111/ecca.12130/epdf?r3_referer=wol&tracking_action=preview_click&show_checkout=1&purchase_referrer=onlinelibrary.wiley.com&purchase_site_license=LICENSE_DENIED)
- Casey, P. (2013). *The vocational education and training system in the Netherlands*. UK Commission for Employment and Skills. Available at: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/303481/briefing-paper-vocational-education-system-netherlands.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/303481/briefing-paper-vocational-education-system-netherlands.pdf)
- Dustmann, C., Fitzenberger, B., Schonberg, U. and Spitz-Oener, A. (2014). From sick man of Europe to economic superstar: Germany's resurgent economy. *Journal of Economic Perspectives*. Available at: [http://www.cream-migration.org/publ\\_uploads/CDP\\_06\\_14.pdf](http://www.cream-migration.org/publ_uploads/CDP_06_14.pdf)
- EPICENTER (2017). *The Economics of Industry 4.0*. Available at: <http://www.epicenternetwork.eu/briefings/the-economics-of-industry-4-0/>
- European Central Bank (2016). *The productivity challenge for Europe*. Available at: [https://www.ecb.europa.eu/press/key/date/2016/html/sp161130\\_1.en.html](https://www.ecb.europa.eu/press/key/date/2016/html/sp161130_1.en.html)
- Eurostat (2017). *Unemployment Statistics*. Available at: [http://ec.europa.eu/eurostat/statistics-explained/index.php/Unemployment\\_statistics](http://ec.europa.eu/eurostat/statistics-explained/index.php/Unemployment_statistics)
- Fraser Institute (2016). *Economic Freedom of the World: 2016 Annual Report*. Available at: <https://www.fraserinstitute.org/studies/economic-freedom-of-the-world-2016-annual-report>
- German Trade and Invest (2014). *Vocational Training "Made in Germany" Germany's Dual System of Vocational Education and Training (VET)*. Available at: <https://www.gtai.de/GTAI/Content/EN/Invest/SharedDocs/Downloads/GTAI/BLG/blg--most-wanted--dual-vocational-training-in-germany-pdf.pdf?v=4>
- Hatfield, I. (2015). *Self-Employment in Europe*. Institute for Public Policy Research. Available at: [http://www.ippr.org/files/publications/pdf/self-employment-Europe\\_Jan2015.pdf?noredirect=1](http://www.ippr.org/files/publications/pdf/self-employment-Europe_Jan2015.pdf?noredirect=1)
- Holmgren, M., Johansson, O. and Nihlfors, E. (2013). *Sweden: centralisation and decentralisation as implementation strategies*. Series of Educational Leadership. Available at: [https://link.springer.com/chapter/10.1007/978-94-007-6226-8\\_6](https://link.springer.com/chapter/10.1007/978-94-007-6226-8_6)
- MBO Raad (2017). *Dutch vocational education and training system in a nutshell*. Available at: [https://www.mborraad.nl/sites/default/files/publications/dutch\\_vocational\\_education\\_and\\_training\\_in\\_a\\_nutshell.pdf](https://www.mborraad.nl/sites/default/files/publications/dutch_vocational_education_and_training_in_a_nutshell.pdf)
- Mccloskey, D.N. (2016). *Bourgeois Equality. How ideas, not capital or institutions, enriched the world*. The University of Chicago Press. Available at: <http://press.uchicago.edu/ucp/books/book/chicago/B/bo22655327.html>
- OECD (2014). *Education policy outlook: Germany*. OECD Publishing, Paris. Available at: [http://www.oecd.org/edu/EDUCATION%20POLICY%20OUTLOOK%20GERMANY\\_EN.pdf](http://www.oecd.org/edu/EDUCATION%20POLICY%20OUTLOOK%20GERMANY_EN.pdf)
- OECD (2016a). *PISA 2015 Results (Volume I): Excellence and Equity in Education*. PISA, OECD Publishing, Paris. Available at: [http://www.keepeek.com/Digital-Asset-Management/oecd/education/pisa-2015-results-volume-i\\_9789264266490-en#.WMu9WfmLSUk#page4](http://www.keepeek.com/Digital-Asset-Management/oecd/education/pisa-2015-results-volume-i_9789264266490-en#.WMu9WfmLSUk#page4)
- OECD (2016b). *Reviews of National Policies for Education: Netherlands 2016. Foundations for the future*. OECD Publishing, Paris. Available at: [http://www.keepeek.com/Digital-Asset-Management/oecd/education/netherlands-2016\\_9789264257658-en#.WL7Jv\\_mLSUk#page3](http://www.keepeek.com/Digital-Asset-Management/oecd/education/netherlands-2016_9789264257658-en#.WL7Jv_mLSUk#page3)
- Ritzen, J.M.M., Dommelen J.v. and De Vijlder, Frans (1997). *School finance and school choice in the Netherlands*. *Economics of Education Review*. Available at: <http://www.sciencedirect.com/science/article/pii/S0272775796000787>
- Salgren, G.H. (2010). *Schooling for Money: Swedish Education Reform and the Role of the Profit Motive*. Institute of Economic Affairs. Available at: [https://iea.org.uk/wp-content/uploads/2016/07/Schooling%20for%20money%20-%20web%20version\\_0.pdf](https://iea.org.uk/wp-content/uploads/2016/07/Schooling%20for%20money%20-%20web%20version_0.pdf)
- Solga, H., Protsch, P., Ebner, C. and Brzinsky-Fay, C. (2014). The German vocational education and training system: Its institutional configuration, strengths, and challenges. WZB Discussion Paper, No. SP I 2014-502. Available at: <http://econpapers.repec.org/paper/zbwwzbslm/spi2014502.htm>

Turner and Rowe (2015). *A race to the top, middle or bottom? The consequences of decentralisation in Germany?* Institute of Public Policy Research. Available at: <http://www.ippr.org/files/publications/pdf/decentralisation-in-germany.pdf?noredirect=1>

---

<sup>i</sup> The Fraser Institute Index of Economic Freedom provides strong empirical evidence of a relationship between economic freedom and decentralisation, on one hand, and good economic outcomes, on the other hand, across European countries and around the world.