

# SPECIAL REPORT

## TD Economics



January 29, 2013

## ASSESSING THE LONG TERM COST OF YOUTH UNEMPLOYMENT

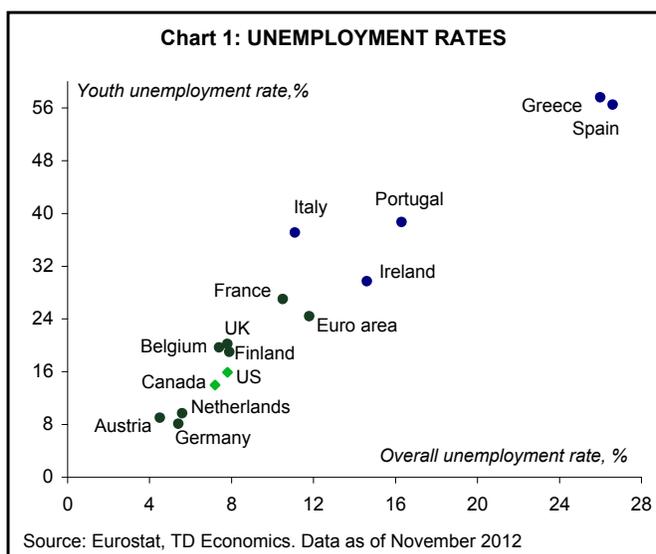
### Highlights

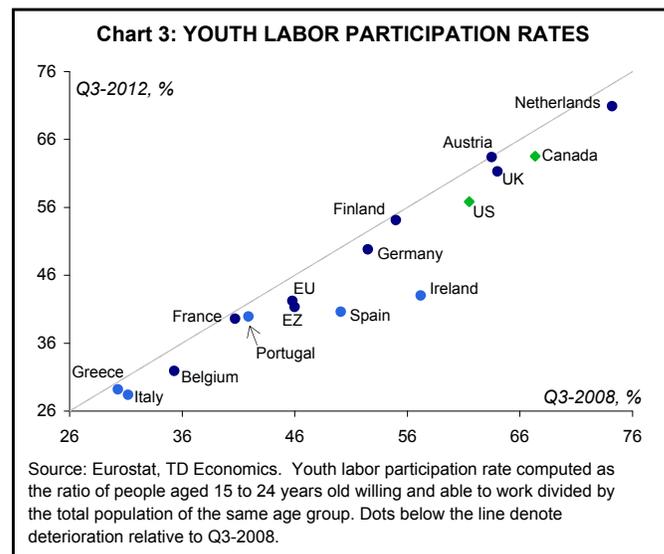
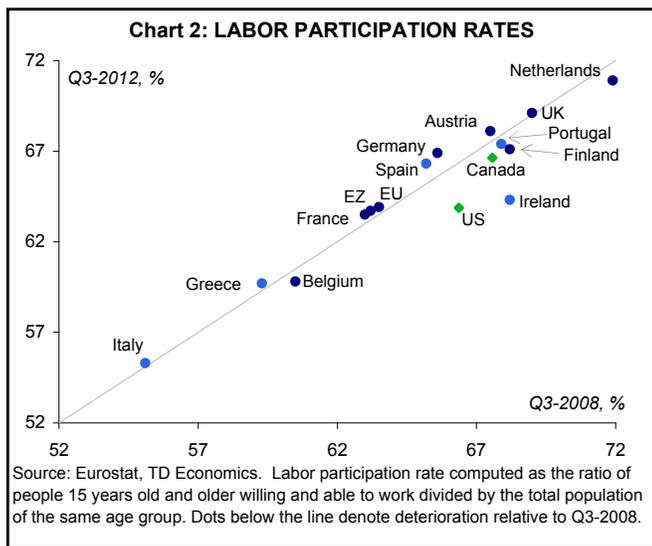
- Youth unemployment has risen sharply in many advanced economies in recent years. In this report we measure the potential macroeconomic impact of this decline in youth employment levels.
- We use estimates of long-term wage penalties suffered by those who experience a spell of youth unemployment to gauge the potential aggregate earning losses in a group of European countries, the U.S., and Canada.
- Ireland, with an estimated impact of roughly 12% of GDP over the next two decades, is the country where youth job losses will impose the heaviest burden. Spain and Greece follow, with lower, but still significant impacts.
- Canada and the U.S. face similar and much lower potential earnings losses, at around 1.3% of GDP, whereas the impact will be negligible for some of the northern euro zone countries.

Stubbornly high unemployment is one of the legacies of the 2008 financial crisis and the recession that followed it. In the euro zone, the impact of the sovereign debt crisis on economic activity worsened the situation for millions of workers in many countries. The region's unemployment rate rose to 11.8% in November of 2012, the highest level since the inception of the common currency. Young Europeans have been hit the hardest. The unemployment rate for those between the ages of 15 and 24 years old has climbed to 24.4%. There are significant variations in unemployment rates among member states. While youth unemployment is as low as 8% in Germany, Greece and Spain are enduring rates as high as 58% and 57%, respectively.

Being unemployed at a young age can have a long-lasting impact on an individual's career prospects. Economic research indicates that a period of unemployment at the time of entry into the labor market is associated with persistently lower wages many years thereafter. This stylized fact, known in the literature as “scarring”, has been documented in studies using data from different countries.

In a [previous report](#) we analyzed different youth unemployment metrics for Greece and Spain and compared them with the corresponding statistics in U.S. and Canada. In this report, we estimate the current and future wage losses caused by the significant rise in youth unemployment registered in recent years in a group of European countries, as well as in the U.S. and Canada. The objective is to provide a lower bound for the economic losses that result from this underutilization of human capital. The total losses could be





higher. However, their estimation is cumbersome because it involves measuring costs such as the increase in crime and the deterioration in public health conditions resulting from the increase in youth unemployment.

Our first step is to explore the economics literature to find estimates of the long-term consequences of youth unemployment. Second, we apply those estimates to our sample of countries to yield comparable figures as a share of each country's GDP. Our estimates suggest that the macroeconomic impact of rising youth unemployment will be significant for countries such as Ireland, Spain, and Greece. Contrarily, they will be negligible for some of the northern euro zone members that saw less severe contractions in youth employment.

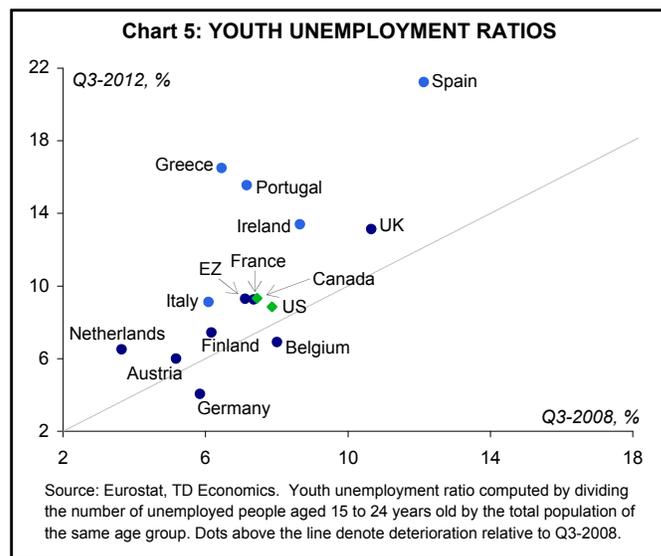
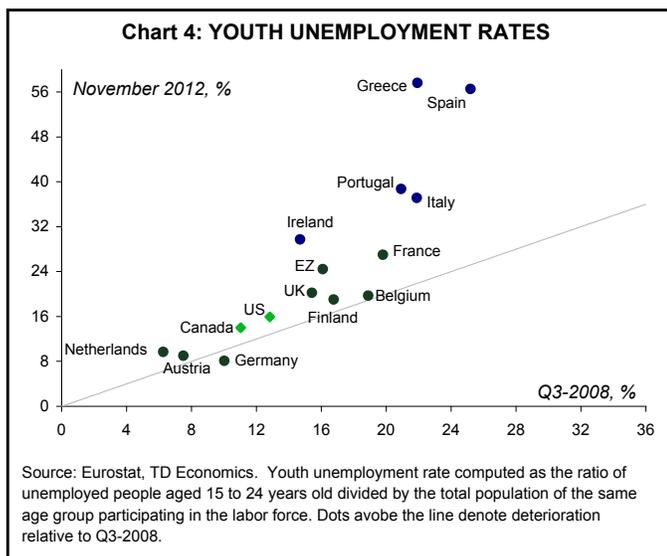
### What does the Economics literature say about youth unemployment?

There is general consensus among labour economists that a spell of unemployment at an early stage of a worker's career imposes a persistent wage penalty that could last for their entire working lifetime. This effect is known as "scarring". Economists have tried for decades to determine whether this happens because being out of work as a youth causes workers to earn less and work fewer weeks later in life; or, contrarily, because those youngsters who work less than their peers have personal characteristics that impact their wages and reduce their chances of employment during both youth and adulthood. Economists call the first possible explanation "state dependency" and the latter "heterogeneity". Discerning between these two competing explanations is very challenging.

A plethora of studies have been conducted on this subject, generally using data from surveys that follow several cohorts of individuals, tracking their employment history, wages, and other individual characteristics for a number of years. In all studies there is a common finding: youth unemployment causes long-lasting wage penalties. We discuss briefly the findings of some of the most representative studies.

For example, using data from the U.S. National Longitudinal Survey of Youth whose respondents graduated from college between 1979 and 1989, a study found an average annual wage loss of 4.4%, which lasts for up to 17 years after college graduation, in response to a one-percentage point increase in the national unemployment rate. In other words, someone graduating in a year with an average unemployment rate 2 percentage points higher than the lowest unemployment rate in the sample would suffer an average wage loss of 8.8% each year, for up to 17 years after graduation, relative to someone who graduated during the year with the lowest unemployment rate.<sup>1</sup>

Another study using data of Japanese and U.S. white men found that a one percentage point rise in the unemployment rate at entry leads to 7.5% average annual earning losses for over 12 years for the group of Japanese men without college education. For the more educated group; the initial annual loss is 4.6% and the gap gradually fades to 2.3%. In the case of U.S. men, the unemployment rate at entry has only a temporary effect for the less educated group, whereas the effect for more educated Americans fades gradually within 10 years and is fairly close to the average annual 4.4% estimate mentioned in the preceding paragraph.<sup>2</sup>



In turn, a study using administrative university employee-employer data for college graduates in Canada found that a typical recession – defined as a rise in unemployment rates by five percentage points – implies an initial loss in earnings of about 9% that halves within 5 years and finally fades to zero after 10 years, suggesting a 4.5% average annual earnings loss over a decade.<sup>3</sup>

Lastly, a study analyzing data from the National Child Development Survey of Great Britain found that a period of youth unemployment ranging from 7 to 12 months would cause a wage penalty of 10.9% at the age of 33, which would decline to 7.6% when the individual reaches 42 years old. Moreover, a spell of unemployment longer than 12 months would cause the corresponding wage penalties to increase to 14.9% and 10.5%, respectively.<sup>4</sup> These results are broader in scope than the ones we cited above because they correspond not only to college graduates, but also to individuals with different educational attainment levels. Therefore, we utilize these wage penalty estimates in the following section to compute the current and future earnings losses caused by the increase in youth unemployment registered after the 2008 financial crisis in the countries in our sample.

### What do these estimates mean from a macroeconomic perspective?

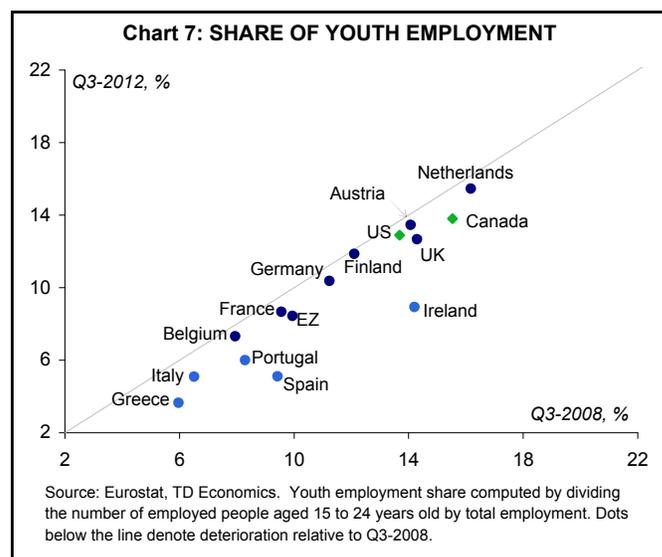
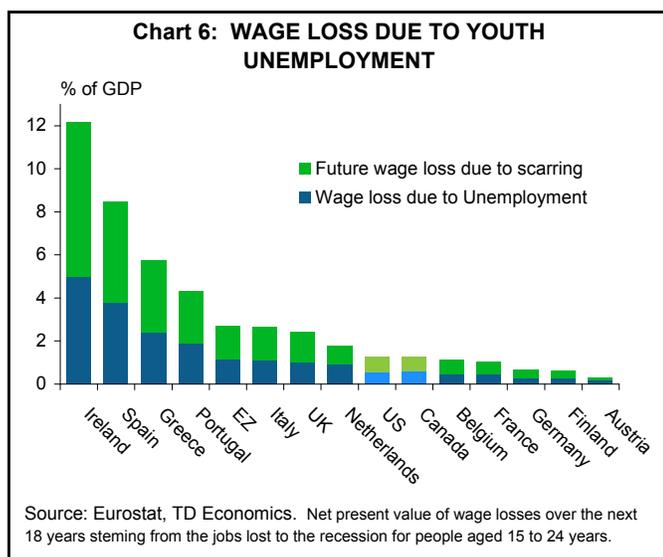
In order to assess the macroeconomic implications of rising youth unemployment levels we estimate the magnitude of the earnings foregone due both to the wage loss and the scarring effect.

First, to calculate the current earnings loss due to youth

unemployment we use country-specific average earnings by occupation for young workers and multiply it by the number of jobs lost to the recession by occupation in the corresponding country. The only exception is the U.S., in which data on employment levels and wages by age and occupation were not readily available. Therefore, we used total youth employment levels and total medium wages for young workers. The results from the other countries suggests that the latter methodology would underestimate the wage losses by up to 20% relative to the occupational breakdown alternative.

Second, we compute the net present value of the earnings loss due to scarring. In order to do this, we combine the wage penalty estimates mentioned above with the wage structure by age and occupation for each of the countries in our sample. This yields an estimate of the annual wages by occupation for each country over the next 18 years. In turn, we multiply each of those series by the corresponding jobs lost to the recession by country and occupation.

Finally, to produce our ultimate estimate of the net present value of the earnings loss caused by youth unemployment we assumed that the jobs lost to the recession will be recouped over the next three years. The results, expressed as a share of each country's GDP, can be seen on Chart 6 in the following page. We chose a 3-year convergence timeframe to accommodate for the varying youth unemployment levels within our sample. Admittedly, we could have chosen a longer adjustment period for those countries in our sample experiencing the larger increases in youth unemployment and vice versa. For instance, had we chosen a 5-year con-



vergence period, the estimated wage losses (the blue portion of each bar on the chart) would have been higher than the estimates we present here by around 47%.

Our results suggest that the magnitude of the earnings foregone due to the increase in youth unemployment range from very significant in Ireland, Spain, Greece and Portugal to almost negligible in Germany, Finland, and Austria. For instance, the wage losses caused by the spike in youth unemployment in the aftermath of the financial crisis in Ireland will add up, over the next three years, to an equivalent of 5% of Ireland’s 2012 GDP. In addition, the net present value of the losses related to the wage penalty caused by youth unemployment will add up, over the next 18 years, to an equivalent of 7.4% of Ireland’s 2012 GDP. The analogous figures for Spain are 3.8% and 4.8% of GDP, respectively; and for Greece, 2.4% and 3.4% of GDP, respectively. The larger estimated impact in Ireland stems in part from the fact that youth wages are noticeable higher in that country than in the other countries that also suffered significant spikes in youth unemployment.

In addition to the relative wages across countries, what also matters are both the share of youth employment over total employment at the onset of the crisis – i.e., the distance of each country from the vertical axis in Chart 7 – and the extent to which it subsequently deteriorated – i.e., how far a country has dropped from the diagonal dotted line in the same chart. At 14.1%, Ireland had one of the highest youth employment shares in our sample at the onset of the financial crisis. Then the country registered one of the steepest declines on this metric, together with Spain and Greece.

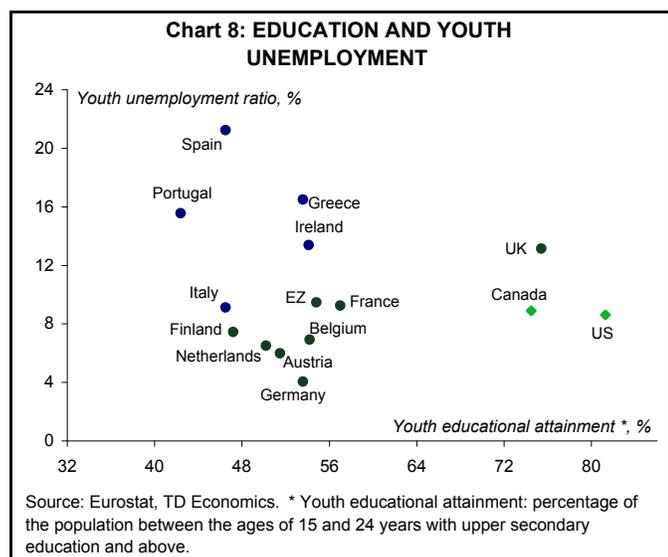
In turn, Canada’s estimated wage loss is equivalent to 0.6% of GDP, whereas the scarring effect over the next 18 years is equivalent to 0.7% of GDP. To put this in simple dollar terms, the earnings loss due to the rise in youth unemployment is equivalent to C\$10.7 billion and the loss due to scarring is equivalent to C\$12.4 billion.

In the case of the U.S., the estimated wage losses and scarring effect are virtually the same, as a share of GDP, as in Canada. However, accounting for the 20% underestimation caused by the difference in the methodology we used to produce the U.S. estimates would lead to even higher earning losses in the U.S. than in Canada.

### Foregone earnings are only a portion of the losses

The economic losses caused by unemployment far exceed the earning losses estimated above. They also include the foregone value added that would have been generated by the production of goods and services by those who are not at work, as well as the multiplier effect stemming from that additional production. Other indirect losses include the costs stemming from the increase in crime and the deterioration of health standards caused by higher unemployment.

The fiscal impact of rising youth unemployment is also significant; however, it is not an economic loss, but a redistribution of income from taxpayers to benefit recipients. Nevertheless, as a reference, a study from the U.K. suggests that a full year of unemployment benefits paid to jobless youngsters and the foregone taxes that result from their inactivity would amount to roughly 43% of their foregone annual earnings.<sup>5</sup>



### What can these countries do to reduce their losses?

The obvious answer to this question is to reduce both youth unemployment and the wage penalties suffered by those who have been out of work. The economic research that we cited above offers some guidance in terms of objectives for public policy. For instance, one of the studies identified a wage improvement of 11% for those men who upgraded their educational attainment between the ages of 23 and 33 years old.<sup>6</sup> This means public policies geared towards training and facilitating access to education for the unemployed would not only improve the odds of securing a new job but also would reduce the wage penalty. Another

study suggested that an important element in the catch-up process of earnings occurs when workers move to higher-paying firms.<sup>7</sup> Therefore, public policies aimed at improving labor mobility would also serve the dual purpose of reducing both youth unemployment and the scarring effect.

### Final remarks

We used estimates of wage penalty effects caused by a spell of youth unemployment to assess the earnings losses caused by the decline in youth employment that ensued after the 2008 financial crisis in a group of European countries, Canada, and the United States. Naturally, the countries hit the hardest by the recession and the sovereign debt crisis have suffered the largest impact. Although the analysis only captures part of the economic loss from elevated youth unemployment, the earnings impact alone suggests a significant economic toll.

We found that the impact on Ireland is worse than for Greece, Spain, and Portugal, despite the former having better youth unemployment metrics than the latter. This is caused by higher relative wages and a larger share of youth workers at the onset of the crisis. In turn, the estimated impact is moderate both in the U.S. and Canada.

Economic research suggests that training, educational upgrading, and labor mobility reduce the scarring effect caused by youth unemployment. Their facilitation should be at the top of the to-do-list of policymakers if they want to reduce the long term costs of youth unemployment.

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**Endnotes:**

- 1 See “The Long-Term Labor Market Consequences of Graduating from College in a Bad Economy”. Lisa B. Kahn, 2009.
- 2 See “Long-term effects of a recession at labor market entry in Japan and the United States”. Genda, Y., Kondo, A., Ohta, S., ISERP Working Paper 07-09, October 2007
- 3 See “The Short- and Long-Term Career Effects of Graduating in a Recession: Hysteresis and Heterogeneity in the Market for College Graduates” Oreopoulos, P., von Wachter, T., Heisz, A.
- 4 See “The wage scar from youth unemployment”. Gregg, P., Tominey, E. Labour Economics 12 (2005)
- 5 See “The cost of youth unemployment”. Lindsey Macmillan; from the ACEVO Report: Youth unemployment: the crisis we cannot afford, 2012
- 6 Idem endnote 4.
- 7 Idem endnote 3

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