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Article

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IZA World of Labor
Evidence-based policy making

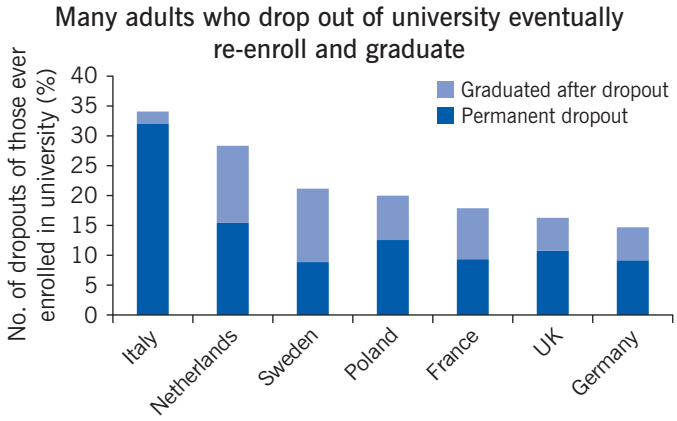
University dropouts and labor market success

Dropping out of university can be more advantageous than not having enrolled in university at all

Keywords: higher education, dropout, labor market chances, international comparison

ELEVATOR PITCH

With university education continuing to expand worldwide, university dropouts will make up a large group in future labor markets. Dropping out is routinely viewed as a negative indicator. However, data on university dropouts does not generally provide information on their labor market outcomes, so empirical evidence is sparse. The studies that have examined the issue show that dropping out can be more of an advantage than not having enrolled in university at all. Many dropouts are more likely than upper secondary school graduates with no university education to progress in their careers. And many graduate later in their life.



KEY FINDINGS

Pros

- Recent international surveys with information on university dropout experience provide comparable cross-country information on whether dropping out is permanent and how dropouts fare in the labor market.
- Dropping out is often temporary: almost 40% of university dropouts graduate later in their life.
- In about half the countries examined, university dropouts have better career progression than other upper secondary school graduates who are similar in many characteristics except university enrollment and dropout.
- Dropouts fare best in countries with a low share of university graduates and a predominantly vocational orientation among upper secondary school graduates.

Cons

- Most data focusing on university students do not include information on their labor market careers, so cross-national evidence on university dropouts' labor market success is scarce.
- Some international surveys that do include information on dropout experience and labor market status focus on a country's entire population, and therefore small sample size makes in-depth research on sub-groups of dropouts impossible.
- While theoretical frameworks can explain some of the country results, explaining dropouts' labor market outcomes requires further examination of both educational systems and labor markets.

AUTHOR'S MAIN MESSAGE

Analysis of cross-national data with information on the labor market status of university dropouts calls into question the standard negative view of dropping out. First, dropout is often not permanent: on average, two of five adults who report dropping out re-enroll and graduate later in their lives. Second, in about half the countries examined, university dropouts fare better in their career progression than upper secondary school graduates who never enrolled, when differences in other personal characteristics are taken into account. Given these findings, it is better to enroll in university and drop out than not to enroll at all.

MOTIVATION

Around the world, higher education has been expanding in recent decades [1]. Across OECD countries, enrollment rose 25 percentage points between 1995 and 2009 [2]. Because many university students never graduate, university dropouts constitute a growing group in the labor market.

Dropping out is generally discussed as a negative outcome for society and for individuals, wasting educational resources and making the higher education system less efficient [3]. But in some cases it could be an efficient, rational, and natural selection process for individuals [4]. Every year of higher education could increase the employability of university dropouts because of the additional knowledge acquired [5].

How can we best judge whether dropping out has a negative or positive impact? Most obvious would be to compare the labor market chances of upper secondary school graduates who are similar in characteristics that determine labor market success (such as socio-economic background) but who differ in whether they ever enrolled in university and dropped out.

DISCUSSION OF PROS AND CONS

Not much is known about the labor market chances of university dropouts, but the evidence generally contradicts the common view that dropping out has only negative consequences. In the UK, university dropouts have lower chances of employment than graduates, but about half of them move into university graduate-track occupations and earn as much as graduates [5]. In the US, years since highest grade completed have a higher effect on wages for non-graduates than for university graduates net of other factors associated with wages [6]. In Serbia, dropping out is a better predictor of job entry than not starting higher education, and the time spent in higher education increases the employment choices for university dropouts [7].

Data and definition of who is a university dropout

A reason for a dearth of studies on dropout and labor market status is that data either cover information on adults' labor market success or on university students' dropout experience, but seldom combine both. One exception is the 2011 Programme for the International Assessment of Adult Competencies (PIAAC) survey, organized by the OECD, which comprises rich representative cross-national data and information on dropout experience for 15 countries. Exploiting these data can provide the first comparable cross-national evidence on the topic.

University dropouts are defined as individuals aged 25–64 who are not currently attending formal education and who answered yes to the following question: "Did you ever start studying for any formal qualification, but leave before completing it?" and who identified the formal qualification not completed as a university degree. Respondents were not to report themselves as dropping out if they took a temporary break from their university program. Because the year of dropout is reported, it is possible to examine whether dropout is permanent or whether dropouts returned to university and graduated later in their life. The definition of university dropout exploiting PIAAC data differs from that generally used in university retention studies, which follow individuals enrolled in higher education over time (student cohort data) and define dropouts as individuals who did not complete their education within the nationally

allocated duration (generally three to four years). Except for a few countries, the national dropout rates based on the definition used in PIAAC data are similar to those of the only other internationally comparable sources on student cohort data on dropout rates [2], [8].

Higher education dropout rates vary across countries

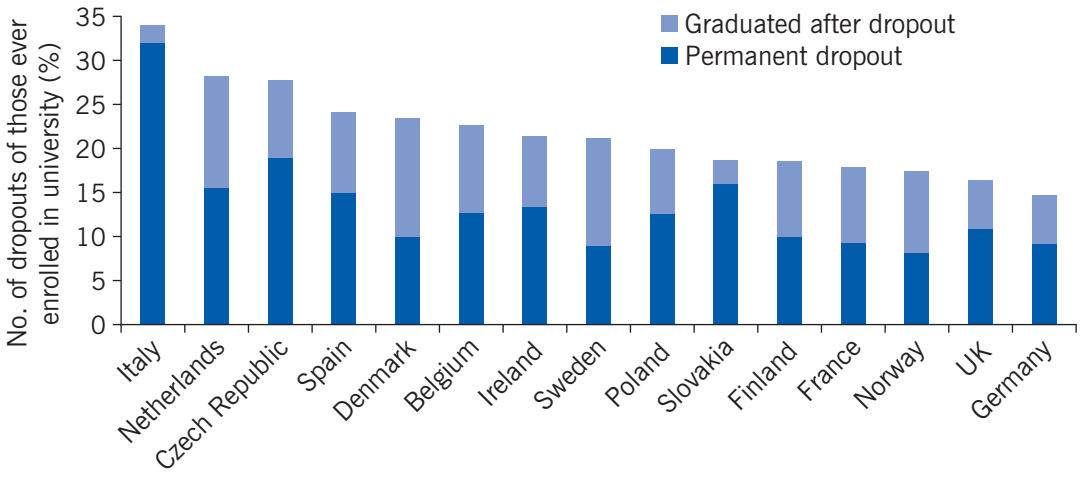
In Italy and the Netherlands, about every third person withdraws from higher education (Figure 1). Compare that with about every seventh person in Norway, the UK, and Germany.

The use of PIAAC data rather than student cohort data enables the identification of the share of university dropouts that re-enroll later in life and complete their degree. In Denmark, Norway, and Sweden, more than half of university dropouts re-enroll and complete their degree. Italy is again the outlier, since just 6% of dropouts return to university. On average across the 15 countries, 38% of university dropouts complete a university degree at some time in their life. This result contrasts with the common view that dropping out of university is a permanent decision [9].

The following discussion of results considers only adults aged 25–64 with an upper secondary school diploma who enrolled and then withdrew *permanently* from higher education (the lower section of the bars in Figure 1). It does not include those who re-enrolled in university and graduated later in their lives. All reported percentage-point differences are significant (at the 5% level; standard errors for the estimates can be obtained from [8]).

Only in two of the 15 European countries for which data are available (France and the UK) is withdrawing from higher education gender neutral. In all the other countries, men are considerably more likely to drop out than women. Dropouts have a much higher socio-economic background, as measured by parental education, than upper secondary school graduates who never enrolled in higher education. The same pattern holds for cognitive skills: dropouts generally outperform their upper secondary school graduate counterparts [8].

Figure 1. Adults aged 25–64 who report dropping out of university as a percentage of adults ever enrolled, by permanency of dropout



Source: Calculations using PIAAC data. Online at: http://www.oecd.org/site/piaac/publicdataandanalysis.htm; and Schnepf, S. V. *Do Tertiary Dropout Students Really Not Succeed in European Labor Markets?* IZA Discussion Paper No. 8015, 2014. Online at: http://ftp.iza.org/dp8015.pdf [8].

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Basic framework for examining labor market outcomes of university dropouts

Among upper secondary school graduates, are labor market chances greater for those who enrolled in university but did not graduate or for those who never enrolled? Research on the labor market chances of different marginal groups generally highlights the education system's signaling function. Since employers do not know the skill level and productivity of potential workers, in recruiting employees they need to rely on signals, such as educational credentials or individuals' educational choices [8]. University dropouts' signaling power is likely to differ depending on a country's education system and labor market demand. Dropouts thus signal that they have received some academic (as opposed to vocational) education and have successfully enrolled in higher education but failed to complete it. For the labor market, the value of general training depends on the availability of generally educated upper secondary school graduates and of university graduates, as well as on the link between vocational education and employers' needs. Furthermore, hiring a university dropout might be regarded as a risk, which is likely to be lower in a more flexible labor market. These perspectives are discussed briefly in the following description of a basic framework for examining the labor market outcome of university dropouts.

Do upper secondary school graduates have a more vocational or more general orientation?

Employers might assume that university entry requirements screen out all applicants except for the best upper secondary school graduates [7], [10]. In countries with a high share of vocational orientation among upper secondary school graduates, university dropouts are likely to signal potential employability given their more general education and previous university enrollment. The Czech Republic, Finland, the Netherlands, Poland, and Slovakia fit into this group [2], [8].

Is the share of university graduates in the population low or high?

The positive signaling power of enrollment in higher education is likely to operate only in countries where a minority of adults graduate from university. University graduation rates are relatively low in the Czech Republic, France, Italy, Poland, Slovakia, and Spain [2], [8].

Is the link between vocational education and work weak or strong?

The labor market chances of university dropouts depend on the link between the institutional structure of the education system and the labor market [10], [11]. For example, in Germany and Denmark, vocational training is school- and work-based [11], so future employers can screen employees, mold them to their requirements, and employ them directly after they complete their education. University dropouts, in contrast, cannot link directly to employers' expectations. Therefore, they are unlikely to fare well in these occupational labor markets, while they might fare better in France, Italy, and Spain, where vocational education is not strongly linked to the labor market [8], [12].

Is the labor market's flexibility low or high?

Low labor market flexibility (high level of regulation) is likely to be related to employers choosing and promoting individuals with clear skill-related qualifications [11]. So, university dropouts are likely to perform better in more flexible labor markets, as in the Czech Republic, Denmark, Ireland, Norway, Poland, Slovakia, and the UK [8].

Grouping countries by these four sets of characteristics

It is impossible to test these four country characteristics separately because of data limitations, so the approach here is to combine them. The following combination is likely to promote the labor market chances of university dropouts: a low percentage of university graduates, a high share of vocationally oriented upper secondary school graduates, low participation of employers in vocational training, and high labor market flexibility. The 15 countries examined can be grouped into four categories based on these characteristics. (For more information on the country groups, see [8].)

- In the Czech Republic, Poland, and Slovakia, all four of these characteristics are met, so university dropouts are likely to fare better than other upper secondary school graduates.
- In contrast, in Belgium, Ireland, Norway, Sweden, and the UK, the number of university graduates is relatively high, and vocational education is less common among upper secondary school graduates. In these countries, university dropouts are less likely to outperform other upper secondary school graduates.
- In between are France, Italy, and Spain, with low shares of university graduates, indicating an advantage for university dropouts, but vocational education among the upper secondary school graduates is low, as is labor market flexibility.
- In Denmark, Finland, Germany, and the Netherlands, the share of upper secondary school graduates with a vocational orientation is high and university education is widespread, thus lowering the labor market chances for university dropouts.

So, in the latter two country groups, it is difficult to hypothesize whether university dropouts fare well or not.

Measuring the causal effect of dropping out on labor market chances

Comparing university dropouts with other upper secondary school graduates who never enrolled shows that dropouts fare better. But this advantage is not necessarily due to dropout experience. University dropouts tend to have higher cognitive skills and parental backgrounds than other upper secondary school graduates, which alone could explain their better career progression. In addition, other variables are likely to affect both dropping out and labor market status, such as gender, household composition, and work experience. To account for the selection of upper secondary school graduates into groups of individuals who enrolled in university and dropped out and into groups who never enrolled (known as selection bias), these variables also need to be taken into account.

Selection bias of university dropouts

To estimate the impact of a policy or an event on an outcome, the group of individuals who experienced the event can be compared with those who did not (the control group). A good control group demonstrates the counterfactual: how individuals would have performed without the specific policy or event (in this case dropout). Selection bias occurs when the selection of individuals into these two groups is not random, but associated with the variable of interest. If selection bias is not taken into account in the analysis, the identification of the impact associated with the policy or event will be biased.

To isolate the causal effect of dropping out of university on labor market chances, this selection bias needs to be accounted for. Propensity score matching is used to reduce selection bias.

Variables for creating this propensity score, and thus for comparing university dropouts with other upper secondary school graduates, are age, gender, educational background, migration background, parental education, work experience in years, young children in the household, living in a partnership, whether the partner is employed, and cognitive skills in numeracy and literacy. University dropouts are matched with other upper secondary school graduates who never enrolled in university but who have otherwise similar individual characteristics (the control group). The intention is to create groups of university dropouts and other individuals who are very similar in all these characteristics but not in their university dropout status.

Using propensity score matching to measure the effect of university dropout

The control group is created using matching. For every individual in the treatment group (in this case, for every dropout) another individual is identified in the data who shares the same characteristics except for the one of interest, in this case dropping out of university. Propensity score matching creates a score that summarizes in a single number all the characteristics used for matching. Individuals are then matched based on this score. A problem of propensity score matching is that individuals can only be matched on variables for which information is available in the data.

Employment status and professional status of university dropouts

Comparing all dropouts with all other upper secondary school graduates shows that on average university dropouts have a higher probability of being employed (rather than being unemployed or economically inactive) than upper secondary school graduates who never enrolled in higher education in six of 15 countries. In Italy, 84% of university dropouts are employed, compared with only 69% of other upper secondary school graduates, a difference of 15 percentage points. The difference is 11 percentage points in Ireland; 8 in Belgium, the Czech Republic, and Poland; and 6 in France.

This pattern of university dropouts outperforming other upper secondary school graduates is even stronger when career progression is considered for those working in professional or managerial positions, a variable available for 12 of the 15 countries. Figure 2 shows percentage point differences in holding managerial and professional positions between upper secondary school graduates who dropped out of university and those who never enrolled. The first bar shows the differences between university dropouts and all other upper secondary school graduates. In nine of the 12 countries, dropouts fare significantly better on career progression than do other upper secondary school graduates who never enrolled in a university. In none of the countries do university dropouts fare worse than upper secondary school graduates. In the Netherlands, Slovakia, the Czech Republic, Belgium, and Denmark, more university dropouts than other upper secondary school graduates (around 15 percentage points more) advanced to professional or managerial positions. In Germany and Poland, the difference is around 10 percentage points, and in Italy and France it is around five percentage points. Only in Norway, Spain, and the UK is the difference not significant (so they are not displayed in Figure 2).

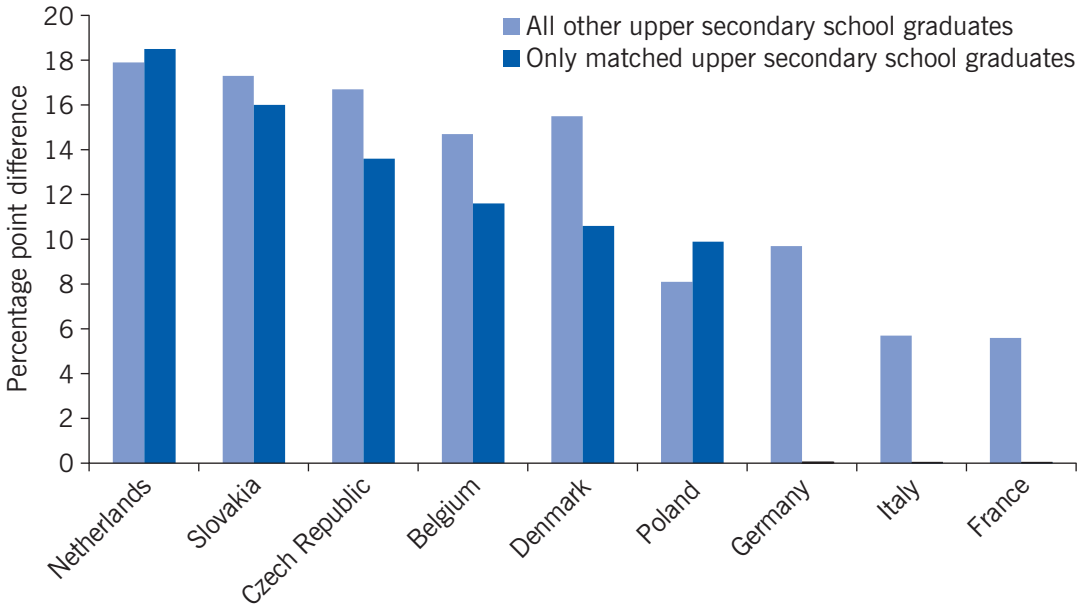
Do university dropouts who never re-enrolled gain from their university enrollment?

The findings discussed above all compare dropouts with all other upper secondary school graduates and thus are subject to selection bias. The second bar of each set in Figure 2 shows the difference once university dropouts and other upper secondary school graduates are matched for important individual characteristics, except for university dropout. So, for the second bar, the percentage point difference could theoretically be interpreted as the causal effect of dropping out of a university on holding a professional or a managerial position. But in practice it is better to interpret the difference as simply showing an association between them, since other, unobserved characteristics (such as motivation to perform) might determine selection into the groups of university dropouts and other secondary school graduates who never enrolled in university.

Dropouts fare significantly better than other upper secondary school graduates in six countries—Belgium, the Czech Republic, Denmark, the Netherlands, Poland, and Slovakia. In six other countries—France, Germany, Italy, Norway, Spain, and the UK—dropouts do not differ significantly from other upper secondary school graduates in their chance of holding managerial and professional positions.

The framework described above predicts an advantage in career progression for university dropouts employed in countries with a low share of university graduates and a predominantly

Figure 2. University dropouts have an advantage in holding professional and managerial positions over other upper secondary school graduates



Note: For "All other upper secondary school graduates" the difference in individuals in professional or managerial positions is between all upper secondary school graduates and university dropouts. For "Only matched upper secondary school graduates" the difference is between a control group of upper secondary school graduates matched with dropouts in age, gender, educational background, migration background, parental education, work experience, young children in the household, living with a partner, whether partner is employed, and cognitive skills in numeracy and literacy and university dropouts. Only significant percentage point differences (at the 5% level) are displayed. Results are not shown for Germany, Italy, and France for comparisons with matched control groups because the differences are non-significant, or for Norway, Spain, and the UK for either comparison because none of the differences are significant.

Source: Calculations using PIAAC data. Online at: http://www.oecd.org/site/piaac/publicdataandanalysis.htm; Schnepf, S. V. *Do Tertiary Dropout Students Really Not Succeed in European Labor Markets?* IZA Discussion Paper No. 8015, 2014. Online at: http://ftp.iza.org/dp8015.pdf [8].

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vocational orientation among upper secondary school graduates. These conditions are met in the Czech Republic, Poland, and Slovakia, which also have high labor market flexibility and a weak link between vocational education and the labor market. As predicted, in all three countries university dropouts fare better than upper secondary school graduates who never enrolled in university but have similar characteristics: by as much as 10 percentage points in Poland, 13 percentage points in the Czech Republic, and 16 percentage points in Slovakia (Figure 2).

Conditions in Belgium, Norway, and the UK (data for Sweden and Ireland are not available) do not favor university dropouts. Indeed, in neither Norway nor the UK do university dropouts fare significantly better than other upper secondary school graduates in career progression. In Belgium, however, tertiary dropouts outperform other upper secondary school graduates in professional positions. This shows that other institutional mechanisms might drive the labor market successes of university dropouts.

For the other two country groups, country characteristics partly favor and partly do not favor university dropouts. In Denmark and the Netherlands, university dropouts fare especially well; they have an 11–18 percentage point higher chance of being in a professional position than other upper secondary school graduates with similar characteristics. The combination of high vocational orientation among upper secondary school graduates and high labor market flexibility might explain the advantageous labor market position of university dropouts. Germany is very similar to both countries, except for slightly lower labor market flexibility, but dropouts do not have an advantage there (no information is available for Finland).

The fourth country group contains the southern European countries of France, Italy, and Spain, which have low university graduation rates, low vocational education among the upper secondary school graduates, and low labor market flexibility. This combination does not lead to university dropouts outperforming other upper secondary school graduates.

Thus far, labor market success has been measured as differences between employed university dropouts and other secondary school graduates in reaching professional and managerial positions. When labor market success is measured as employment (not shown), dropouts fare equally well as other secondary school graduates in 14 countries. Only in Belgium does the group of university dropouts include about seven percentage points more employed people than the control group [8].

So, dropouts gain in career progression in half the countries but generally do not have significant advantages for employment chances.

LIMITATIONS AND GAPS

The use of comparable cross-national data on representative samples of adult populations to examine the labor market success of dropouts is not without shortcomings. If the data are representative of the entire population, the sample size of dropouts is necessarily small. This means that the percentage point differences between dropouts and matched upper secondary school graduates need to be very large to be significant. For example, in France, Italy, and Germany, university dropouts fare four percentage points better in career progression than matched upper secondary school graduates with no university experience. But this figure is not reported here because the small sample means that the standard errors, which determine significance, are too big, thus rendering the estimates non-significant.

In addition, while cross-national data focusing on the entire population can be rich in information on socio-economic backgrounds and cognitive skills, they are likely to miss important variables for examining dropouts' success, such as university discipline studied. This lack of variables that might be linked to dropping out and labor market chances is problematic, since the effect of being a university dropout might not have been isolated perfectly. The same is true for assuming that the quality of the upper secondary school credential is the same for adults who withdraw from university education and for those who never enrolled.

Future work would hugely benefit from having internationally comparable student cohort data that cover labor market outcomes several years after dropping out of university.

SUMMARY AND POLICY ADVICE

In contrast to the negative connotation associated with university dropout, research results generally show that dropping out could very well be a positive indicator in the labor market. The dropout decision in many cases is not permanent: on average across 15 European countries almost 40% of students re-enter and complete university education after having dropped out, a fact largely ignored in existing research. On two measures of labor market success—and focusing only on upper secondary school graduates throughout—university dropouts are never significantly worse off in any country studied than upper secondary school graduates who never enrolled in university. On career progression, university dropouts have a better chance of acquiring professional and management positions than upper secondary school graduates who never enrolled in university in about half the countries examined. Dropping out is not associated with either better or worse employment chances in 14 of the 15 countries, with Belgium a notable exception.

University dropouts indeed fare best in countries with a low share of university-educated individuals, a vocational rather than general orientation of upper secondary school graduates, a weak link between vocational education and work, and a flexible labor market (Czech Republic, Slovakia, and Poland). But other combinations of these characteristics can only partly explain the country patterns, indicating the need to develop and investigate the theoretical framework further.

In sum, results indicate that individuals are likely to fare better if they enroll in university and drop out than if they do not enroll at all. In the case of individuals who rationally make this choice, policymakers need to revise the notion that dropping out is bad for the individual and society and a sign of inefficiency in university education.

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Competing interests

The IZA World of Labor project is committed to the *IZA Guiding Principles of Research Integrity*. The author declares to have observed these principles.

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