Research Report

College Educated Yet Disconnected:

Exploring Disconnection From Education and Employment in OECD Countries, With a Comparative Focus on the U.S.

Marisol J. C. Kevelson, ETS
Gabriele Marconi, OECD
Catherine M. Millett, ETS
Nevena Zhelyazkova, Independent Researcher

ETS POLICY EVALUATION & RESEARCH CENTER

This Policy Evaluation & Research Center Report was written by:

Marisol J. C. Kevelson
Educational Testing Service, Princeton, New Jersey

Gabriele Marconi
OECD, Paris, France

Catherine M. Millett
Educational Testing Service, Princeton, New Jersey

Nevena Zhelyazkova
Independent Researcher, Paris, France

ETS Policy Evaluation & Research Center
Mail Stop 19-R
Educational Testing Service
Rosedale Road Princeton, NJ 08541-0001
PERC-WEB@ets.org

Copies can be downloaded from www.ets.org/research/perc

About ETS

At ETS, we advance quality and equity in education for people worldwide by creating assessments based on rigorous research. ETS serves individuals, educational institutions and government agencies by providing customized solutions for teacher certification, English language learning, and elementary, secondary and postsecondary education, and by conducting education research, analysis and policy studies. Founded as a nonprofit in 1947, ETS develops, administers and scores more than 50 million tests annually — including the *TOEFL*® and *TOEIC*® tests, the *GRE*® tests and *The Praxis Series*® assessments — in more than 180 countries, at over 9,000 locations worldwide.

RESEARCH REPORT

College Educated Yet Disconnected: Exploring Disconnection From Education and Employment in OECD Countries, With a Comparative Focus on the U.S.

Marisol J. C. Kevelson[1], Gabriele Marconi[2], Catherine M. Millett[1], & Nevena Zhelyazkova[3]

1 Educational Testing Service, Princeton, NJ
2 OECD, Paris, France
3 Independent Researcher, Paris, France

In this study, we investigated factors predictive of disconnection, or not being in education, employment, or training (NEET), among young adults with at least a 2-year college degree. We also explored the extent to which disconnection influences civic participation and well-being among NEETs with and without college degrees. The authors used 2012 and 2015 Organisation for Economic Co-operation and Development (OECD) data from the Survey of Adult Skills in the Program for the International Assessment of Adult Competencies (PIAAC) for 29 countries, including the United States, along with US 2012 data from the Education Longitudinal Study of 2002 (ELS:2002), collected by the National Center for Education Statistics (NCES). Results highlight that college-educated individuals whose parents have low levels of educational attainment actually have a higher likelihood of becoming NEET relative to college-educated individuals whose parents are more highly educated. Study findings also emphasize the influence of economic and geographic differences (country-level for OECD and county-level for United States) on NEET rates, in addition to the extent to which mothers have a higher likelihood and fathers have a lower likelihood of being NEET relative to their childless peers and the influence of country-level family leave policies on the odds of being NEET across the OECD. College field of study also emerges as an important influence on disconnection across the 29 OECD countries in the study, but not in the United States separately. Finally, comparing results for college-educated NEETs and NEETs without degrees, we found that higher education appears to reduce the likelihood of community disengagement and reports of poor health among NEETs across the OECD countries. However, this is not the case within the United States where NEETs are less likely to be engaged in their communities and more likely to describe themselves as in poor health regardless of their educational attainment.

Keywords NEET youth; college-educated NEET youth; NEETs; opportunity youth; disconnected youth; postsecondary outcomes; higher education outcomes; postsecondary employment; job training; ELS:2002; PIAAC; OECD

doi:10.1002/ets2.12305

A critical issue around the globe is the substantial proportion of young adults not engaged in education, employment, or training. These individuals—referred to as "NEETs" internationally, in the United States as "disconnected youth" and "opportunity youth," in Latin America as "NiNis," and in Japan as "freeters,"—are disconnected from education and the labor market, and their disconnection costs countries large amounts of money due to a loss of economic opportunity and lower productivity (Belfield et al., 2012; Organisation for Economic Co-operation and Development [OECD], 2016a).

Studies of the NEET population are important due to the risks not only for the individual but for families and society as well. Disconnection has drastic consequences for NEETs and their families and may have ramifications for generations, as NEETs have an increased likelihood of raising children who fare similarly (Belfield et al., 2012; Carcillo et al., 2015, 2016; Hair et al., 2009). They are also at risk for reduced community engagement and civic participation and poorer health outcomes. Relative to their employed or enrolled counterparts, NEETs may have fewer relationships, less trust in societal institutions, more mental and physical health problems, and a greater tendency to abuse drugs and engage in criminal activities (Alfieri, Rosina, et al., 2015; Atkinson & Hills, 1998).

Disconnection is often associated with background factors such as poverty and lack of parental education. College education is an important factor in the NEET issue, as the likelihood of becoming NEET may be reduced by higher levels

Corresponding author: M. Kevelson, E-mail: mkevelson@ets.org

of educational attainment (Carcillo et al., 2015; Eurofound, 2016; Julian & Kominski, 2011). Yet, despite the potential protectiveness of college degrees, NEETs exist even among the college educated. In fact, approximately 12% of individuals through age 29 who completed at least a 2-year college degree[1] are NEET across the OECD countries, including the United States (OECD, 2018a).

In this study, we explored (a) factors predictive of disconnection (i.e., being a NEET) among young adults with at least a 2-year college degree and those without a college degree and (b) the extent to which disconnection influences community engagement, belief in civic participation, and health among NEETs, relative to non-NEETs, with and without college degrees. We designed the study to explore factors associated with NEET status among college-educated young adults based on an assumption that they should have more employment opportunities than their peers without a college degree.

Because disconnection is a global issue, we used data on young adults in 29 OECD countries and economies. We also used nationally representative, longitudinal data on a cohort of US youth and young adults to look specifically at college-educated NEETs in the United States, one of the 29 OECD countries, to provide a finer-grained look at the college-educated NEET phenomenon in a large, developed country for comparison with OECD-wide results. This comparison is valuable because it provides an opportunity for us to better understand factors influencing disconnection and its influence on community engagement, civic engagement, and health among college-educated adults in the OECD overall and specifically in the United States. Given the historical economic strength of the United States and its tendency to provide less policy support for vulnerable individuals and families relative to many OECD nations (Glynn & Corley, 2016; National Conference of State Legislatures, 2016, 2018), it is interesting to understand how predictors of NEET status may differ among the college educated within the United States in particular.

We opted to employ the widely used definition of NEETs as "individuals not in education, employment, or training" regardless of whether they are actively searching for work or have opted out of the labor force (Bardak et al., 2015; Elder, 2015; Eurofound, 2012; Eurostat, 2019). This definition of the NEET indicator originated in the United Kingdom and was adopted and agreed upon by EuroStat, the statistical office of the European Union, and the International Labour Organization (Elder, 2015), a specialized agency of the United Nations connecting governments, employers, and workers of 187 nations around the world. Within the United States, the NEET rate is defined in the same way; however, it is generally referred to as the rate of disconnected youth (Belfield et al., 2012; Fernandes-Alcantara, 2015).

One criticism of this definition of NEET status, or disconnection, is that it includes young adults who may have opted out of the labor force, often temporarily, for reasons such as a need to provide care for children or ill relatives, to address disability or health issues, or even to travel before entering the labor force (Bardak et al., 2015; Elder, 2015; Eurofound, 2012). It also includes young adults who may be referred to as "discouraged workers" because they have given up on finding work that matches their skills and qualifications or on finding work altogether (Bardak et al., 2015). Whereas discouraged workers and those unable to work due to poor health or disabilities, or even some of those opting out due to parenthood duties, may be a vulnerable population, we want to acknowledge that some of those who opted out of the workforce may not be as financially vulnerable. These complexities are difficult to tease out and are not the focus of this paper.[2] As this is perhaps one of the first studies of the college-educated NEET population and predictors and consequences of NEET status among this population, we opted to use the standard definition of NEET status to remain in line with other literature on the topic.

Finally, a note about the focal ages of our study. We focus on young adults in their twenties who are or will be new labor force entrants and are old enough to have completed at least a 2-year college degree; differences between the United States and OECD study focal ages are defined by the available data. In the cross-sectional OECD data, we have access to and focus specifically on young adults ages 20–29 in 2012 and 2015, whereas in analyses using the longitudinal US data, we focus on young adults who are approximately age 26 in 2012, the latest age at which data were collected for this study cohort. However, the prior literature supporting the study rationale and design almost exclusively focuses on ages 15–29 in the OECD and ages 16–24 in the United States because these are the age ranges commonly of interest in studies of the NEET phenomenon. Because our study is innovative in its focus on college-educated NEETs, there is little to no prior literature focused solely on NEETs old enough to have completed at least a 2-year degree. Therefore, our literature review is largely limited to studies of the broader population of NEETs ages 15–29 in the OECD and ages 16–24 in the United States as the most relevant literature supporting our study. There is evidence that disconnection rates are higher at the upper end of these age ranges, both for the OECD overall and for the United States specifically (Millett & Kevelson, 2018; OECD, 2018b;

Ross & Svajlenka, 2016); however, prior literature on NEETs not only does not focus explicitly on college-educated NEETs, but it also does not focus on NEETs old enough to have earned a 2-year college degree.

Although the OECD provides data on NEET rates by educational attainment level, which highlighted for us the existence of college-educated NEETs and led to the development of this study, we have not identified literature on risk factors for disconnection, consequences of NEET status, or outcomes for college-educated NEETs in particular. In the next section, we provide background information on the extent of the NEET problem and risk factors for and consequences of disconnection, primarily among those aged 15–29 in the OECD and 16–24 in the United States, or limited to those in their twenties where such data are available. We focus this review of prior literature on NEETs in general—those with and without college degrees. We then present an overview of our study focus and research questions followed by our findings. We conclude with a discussion of our findings and their implications for policy and practice.

Background

OECD and US Disconnection Rates Among All NEETs (College-Educated and Non-College-Educated)

Whereas nearly 16% of all 20- to 24-year-olds of any educational attainment level were NEET across the OECD in 2017, NEET rates varied widely by country (OECD, 2018b). Estimated 2017 NEET rates for this age group were as high as 33% in Turkey, 30% in Italy, and 24% in Greece and Mexico, whereas they were 9% or lower in Iceland, the Netherlands, and Switzerland. According to that same data, the NEET rate for the United States was 14%, slightly lower than the rate for the OECD overall. The disconnection rates for college-educated individuals also varied greatly across OECD nations, from a low of less than 4% in Iceland to a high of 35% in Greece (see Figure 1; OECD, 2018a). The rate for the United States, at about 10% of college-educated NEETs, was just slightly below the OECD average.

Data from US-specific sources on overall disconnection rates across educational attainment levels has produced varying estimates in recent years. An estimate using 2015 data from the American Community Survey pegged it at 12% of 16- to 24-year-olds or nearly 5 million US youth and young adults (Burd-Sharps & Lewis, 2017). Although most reports of the US disconnection rate group 16- to 24-year-olds together, studies have shown that rates are higher among those in their twenties than those in their teens (Ross & Svajlenka, 2016) and that rates increase with age (Millett & Kevelson, 2018). The same trend has been documented across OECD nations for NEETs overall and for female NEETs in particular (OECD, 2016a, 2018a).

As was the case throughout the OECD, overall US disconnection rates increased during the global financial crisis when they may have risen as high as 15% to 17% (Belfield et al., 2012; Burd-Sharps & Lewis, 2017). Whereas disconnection rates returned to their prerecession levels in many OECD countries, including the United States, they remained higher than prerecession levels in countries that struggled to recover from the recession, including Italy, Greece, and Spain (OECD, 2018b).

Predictors of Disconnection for College-Educated and Non-College-Educated NEETs

In this section, we review the prior literature on factors associated with disconnection. As we noted above, studies of this topic were conducted on NEETs across levels of educational attainment and across the age ranges included in NEET definitions. Our study may provide some of the first estimates of risk factors for disconnection specifically for NEETs at the upper end of these age ranges.

Economic Conditions and Geographic Location

The great variation in overall NEET rates across OECD countries highlights the important influence of economic conditions and geographic location for predicting the individual probability of being a NEET. Vastly different economic conditions across OECD nations, including differences in national debt loads and unemployment rates, clearly point to differences in economic opportunities between countries (OECD, 2019a). For example, in 2017, the high unemployment rates in countries such as Greece (17%) and Spain (14%) were a stark contrast to the much lower unemployment rates in Japan (2%) and the Czech Republic (2%; OECD, n.d.).

Similarly, within countries these conditions also vary across regions within OECD nations (OECD, 2018b) and US disconnection rates vary by county, state, and metropolitan area (Burd-Sharps & Lewis, 2017; Ross & Svajlenka, 2016).

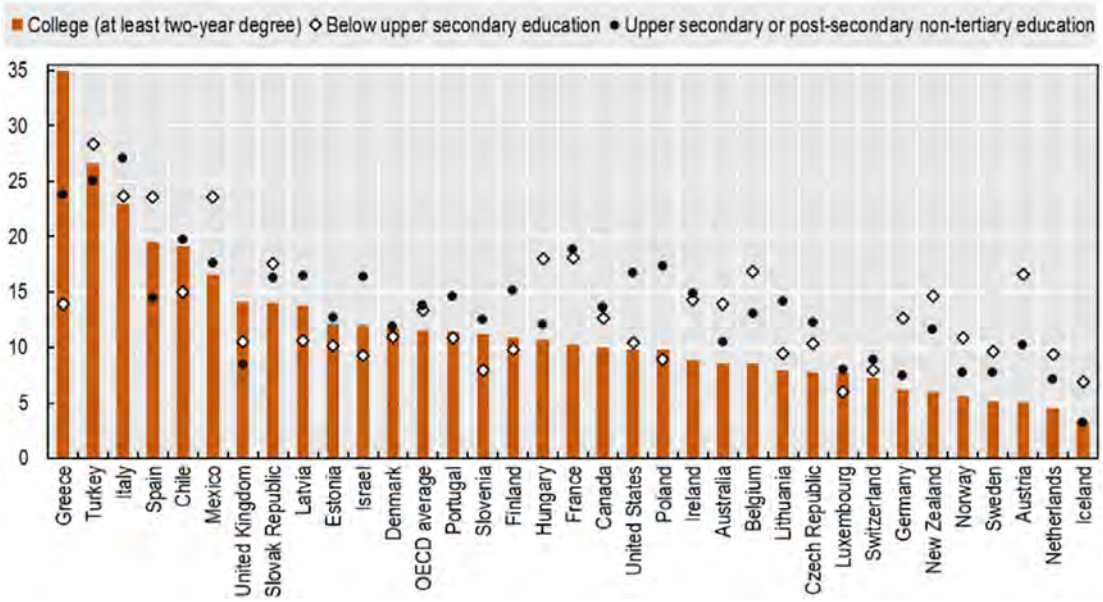

Figure 1 Educational attainment of 15- to 29-year-old individuals not in education, employment, or training (NEETs) by Organisation for Economic Co-operation and Development (OECD) country, 2016. Source: OECD (2018a).

The OECD reports that in 10 of 17 OECD and partner countries that provide region-level data, the percentage of 15- to 29-year-old NEETs in the region with the most NEETs is at least twice as high as the percentage of 15- to 29-year-old NEETs in the region with the fewest NEETs and about twice as high in the United States in particular. In Canada, Italy, the Russian Federation, and Spain, there are three times as many NEETs in the regions with the highest NEET rates relative to the regions with the lowest NEET rates (OECD, 2018b).

Also within countries, those living in remote or rural areas are more often NEET; this is the case both within the United States and within the OECD more broadly (Burd-Sharps & Lewis, 2017; Eurofound, 2012). In the United States, average disconnected youth rates may be as high as 22% in rural counties but 14% in urban counties and 12% in suburban counties (Burd-Sharps & Lewis, 2017). Rural counties in the southern region of the United States have a particularly high youth disconnection rate of 24% (Burd-Sharps & Lewis, 2017). Furthermore, high county-level rates of unemployment, child poverty, children in single-parent households, teen births, and lower levels of educational attainment are associated with higher county-level rates of NEETs in the United States (Burd-Sharps & Lewis, 2017; Givens et al., 2017; OECD, 2020). These higher NEET rates may in some cases be related to access to educational opportunities and training (OECD, 2016b). Such opportunities and training can affect parents' educational attainment, which, in turn, can impact their children's attainment.

Childhood Background

Across all OECD countries, other prominent influences on the likelihood of disconnection include childhood background factors such as parental educational attainment (Alfieri, Sironi, et al., 2015; Carcillo et al., 2015) and parental unemployment (Eurofound, 2012). In fact, recent research conducted in the European Union has found that children of unemployed parents are more likely to experience unemployment and less likely to attend college; these effects are theorized to be due to the stress of parental unemployment, the parental unemployment's influence on children's expectations for themselves and understanding of gender roles, diminished access to parental job networks, and children's declining optimism about their academic prospects (Berloffa et al., 2019; Lindemann & Gangl, 2019). Relatedly, research from the United States, the United Kingdom, the European Union, and the OECD has shown that family background factors, including low parental income and parental divorce, may also increase the likelihood of being NEET (Carcillo et al., 2015, 2016; Crawford et al., 2016; Eurofound, 2012; Millett & Kevelson, 2018). Parental and childhood background are not the only factors that influence NEET status, however.

Individual Experiences and Characteristics

A range of individual characteristics also play a clear role in the likelihood of becoming NEET. We know that disabled individuals, those in poor health or with health concerns, and those with special educational needs more often end up NEET (Belfield et al., 2012; Millett & Kevelson, 2018). In fact, NEETs are over five times more likely to complain of poor health than their non-NEET peers and more than twice as likely to report limitations on their daily activity due to their health (OECD, 2016a).

Gender also plays a role, as young women are more often disconnected than young men across the OECD and within the United States in particular (Belfield et al., 2012; Carcillo et al., 2015; Eurofound, 2012; Millett & Kevelson, 2018). Not only are NEET rates for 15- to 29-year-olds higher among women than men, but more than 25% of women ages 25–29 are NEET, whereas only 15% of men of the same age are NEET (OECD, 2016a). Within the 25–29 age group, there are 3 times as many inactive NEET women (18%) as inactive NEET men (6%) across the OECD (OECD, 2016a).

Another trend documented throughout the OECD, including the United States, is that young people from ethnic minority groups and immigrant backgrounds are more likely to be unemployed (Belfield et al., 2012; Froy & Pyne, 2011). Accordingly, they are also more likely to be disconnected (Belfield et al., 2012; Carcillo et al., 2015; Eurofound, 2012; OECD, 2018b). However, both the relationship between immigrant status and disconnection and the relationship between minority race/ethnicity and disconnection are complex, as both are influenced by other factors, such as labor market discrimination, socioeconomic status, language barriers, and educational attainment, and tend to vary by country of origin and length of time in the new country (Eurofound, 2012; Froy & Pyne, 2011). Within the United States alone, in addition to first generation immigrants having a higher NEET rate, more young people from underrepresented minority groups, such as those with Native American, African American, or Hispanic heritage, are NEET, relative to Asian American and White young people (Belfield et al., 2012; Millett & Kevelson, 2018; Ross & Svajlenka, 2016). In some parts of the United States, young African American and Hispanic individuals are up to three to six times more likely to be disconnected than young whites (Ross & Svajlenka, 2016).

Educational Experiences and Attainment

Educational attainment appears to be highly associated with likelihood of disconnection, where lower levels increase an individual's risk of being NEET and higher levels appear to provide a level of protection, across the OECD, in Europe, and in the United States (Eurofound, 2012; Fernandes-Alcantara, 2015; Lauff et al., 2014; OECD, 2016a; Radford et al., 2018). Relatedly, high school academic experiences, engagement, and skill levels are also associated with disconnection; in the United States specifically, those who ended up NEET performed worse on high school reading and mathematics tests, had weaker beliefs in their own ability to succeed in reading and mathematics courses (i.e., academic self-efficacy), were more often truant or tardy, and were less likely to have above-average grade point averages or be on a college preparatory track in high school, as evidenced by the proportion that took a college readiness examination (Millett & Kevelson, 2018). Across the OECD, those with low and medium literacy and numeracy skills were four times as likely to end up NEET relative to their peers with high skill levels (OECD, 2016a).

Parenthood and Related Policies

Having children is a clear factor as well, as young mothers are more often disconnected than young women without children, across the OECD and within the United States specifically (Eurofound, 2016; Millett & Kevelson, 2018). Young mothers are also more often NEET than young fathers. In fact, among inactive NEETs across the OECD, caring/family responsibilities was the top reason for disconnection cited by young women, whereas it was not even included in the top three reasons given by young men who had dropped out of the labor force (OECD, 2016a).

Although many women may choose to stay home while their children are young, for others, the high cost of quality childcare may make the decision for them as it impedes their ability to make employment outside the home work financially (Glynn & Corley, 2016; OECD, 2016a). However, the latter case may be more common in the United States than in in OECD nations that provide government-sponsored, high-quality childcare for all families (OECD, 2019b).

Across OECD countries, variations in policies affecting families with young children, including family leave policies and childcare expenditures, might influence mothers' and fathers' choices regarding working or staying at home and how

soon to return to work after the birth of a child (Glynn & Corley, 2016; Pronzato, 2009). Whereas many OECD countries have generous policies on paid family leave and childcare subsidies, the United States provides comparatively less policy support for families with young children (Glynn & Corley, 2016; National Conference of State Legislatures, 2016, 2018). In the United States, the high cost of quality childcare is primarily subsidized by the government for families living in poverty, unlike in many other OECD nations in which childcare subsidies are not means-tested (Glynn & Corley, 2016; Schott et al., 2015). Across the OECD, childcare costs vary as a percentage of family income, with an average of 15% of the net income of a single parent or a dual-earner couple. Costs are highest in the United States, where childcare costs for a single parent account for over half of net income, on average (OECD, 2016a). In contrast, childcare costs account for 42% of net income in Ireland and around one third of net income in New Zealand and the United Kingdom.

Such high childcare costs can pose a major obstacle to employment, especially in families with several young children (OECD, 2016a). Moreover, it has been shown that it is difficult for individuals to find employment after years out of the workforce, and women are often paid less if they do return to work (Budig & England, 2001); such challenges may increase the likelihood of long-term disconnection.

Consequences of Disconnection: Later Outcomes of College-Educated and Non-College-Educated NEETs

Disconnection may have lasting adverse impacts on individual lives and even contribute to intergenerational patterns of poverty by reducing educational opportunities for their children. Presumably this may more often be the case for those NEETs who did not have the financial means to voluntarily drop out of the work force. For the population of NEETs overall, research in the OECD overall and the United States in particular shows that in the years following a period of disconnection, NEETs are less likely to be employed, more likely to have dropped out of the labor market altogether, and more likely to be receiving public benefits (Carcillo et al., 2015; OECD, 2016a; Samoilenko & Carter, 2015). In addition, they tend to have lower incomes if they do find employment and are at risk for long spells of unemployment, substance abuse, criminal behavior, and incarceration (Belfield et al., 2012; Carcillo et al., 2015; Hair et al., 2009; Ross & Svajlenka, 2016). Because they may more often have children at a young age (Alfieri, Rosina, et al., 2015), NEETs have an increased likelihood of raising children who may face similar problems (Belfield et al., 2012; Hair et al., 2009; OECD, 2016a). As we noted previously, NEETs across the OECD and in the United States specifically may also be at risk for a range of poor outcomes related to community, civic, and social engagement, mental and physical health, and drug abuse and crime (Alfieri, Rosina, et al., 2015; Atkinson & Hills, 1998; Carcillo et al., 2015; OECD, 2016a).

Even in countries with low NEET rates, such as Germany and Japan, the existence of NEETs highlights the challenges faced by young adults trying to build their lives (Pilz et al., 2015). The existence of college-educated NEETs across the OECD further highlights these challenges, given the documented advantages of postsecondary degrees (Fernandes-Alcantara, 2015).

The Current Study

Given the lack of research specifically investigating the experiences of college-educated NEETs, we set out to explore how they might differ from the overall population of NEETs. In this study, we used large-scale international and national data sets to investigate the factors associated with disconnection after earning at least a 2-year college degree and the extent to which college-educated NEETs are more or less likely than non-college-educated NEETs to be engaged in their communities, to believe in civic participation, and to report being in good health.

We defined "college educated" as holding a 2-year or higher degree, based on the International Standard Classification of Education (ISCED). The ISCED, the reference classification for organizing education programs and related qualifications by education levels and fields, uses the term "tertiary educated" to indicate possession of a postsecondary degree (UNESCO Institute of Statistics, 2015). Tertiary education is defined as a degree program building on secondary education that could be academic, advanced vocational, or professional; in the United States, this corresponds to an associate's degree or higher (i.e., bachelor's degrees, master's degrees, and doctoral and professional degrees). In the United States and in the OECD more broadly, individuals with 2-year degrees are more likely to be employed relative to those without a degree (OECD, 2018b; Vilorio, 2016). Hereafter, we use the term college educated to refer to individuals with at least a 2-year degree.

Although a college education may be "the best protection against unemployment and exclusion" (Eurofound, 2016, p. 2), it is well documented that college graduates still encounter unemployment (Green, 2015; Nunez & Livanos, 2010; Wu, 2011). Graduate unemployment rates may vary by many factors, including country and field of study (Nunez & Livanos, 2010), as well as by the various demographic factors that influence the likelihood of becoming a NEET (see previous sections). With this in mind, we set out to investigate the following research questions:

1. To what extent are family background, individual characteristics, economic conditions, and college field of study associated with the likelihood of becoming NEET among those with a college degree in the OECD and in the United States in particular?
2. To what extent does possession of at least a 2-year degree moderate the influence of family background, individual characteristics, and economic conditions on the likelihood of becoming NEET? In other words, do family background, individual characteristics, and economic conditions matter the same amount for those with and without college degrees?
3. To what extent are college-educated NEETs more or less likely than non-college-educated NEETs to be engaged in their communities, to believe in civic participation, or to report good health (OECD) or poor health or disability (United States)?[3]

Methodological Approach

Because the focus of the study is the NEET status of college-educated individuals, we began our analysis with an overview of factors associated with NEET status among those with and without college degrees across industrialized countries, for which we used the OECD Survey of Adult Skills from the Program for the International Assessment of Adult Competencies (PIAAC). This data set provides information on the skill levels and employment status of young adults across the OECD. Unfortunately, the sample sizes for college-educated NEETs in the individual countries included in the OECD data were not large enough to perform the analysis at a country level. Therefore, as a second step, we took a more detailed look into the United States by using a large, nationally representative data set, the Education Longitudinal Study of 2002 (ELS:2002), which contains comparable information on educational attainment, background characteristics, and self-reported health and community inclusion.

Data

The OECD Survey of Adult Skills (PIAAC) is designed to measure adults' proficiency in information-processing skills, including numeracy, and contains detailed information on respondents' work and life (OECD, 2013, 2016a). In 2012 and 2015, two representative samples of adults aged 16–65 completed interviews. The two waves included different countries, whereby 22 OECD countries and economies were covered in 2012 and seven were added in 2015. For this analysis, we focused on OECD economies; therefore, we pooled the data from both waves for a combined sample of 29 countries, including the United States. We restricted the analysis to young adults, thus selecting only respondents aged 20–29 at the time of the interview. The final sample included 37,721 individuals, of whom 30% had earned at least a 2-year college degree and 17% were NEET at the time of the interview. Weighted estimates represented 488,918,717 adults across the 29 OECD countries.

The ELS:2002 is a nationally representative longitudinal study, which followed US students from midway through their secondary years (Grade 10) through age 26, with a focus on their educational attainment and labor market participation. Data were collected using a national probability sample of 752 US public and private schools in the spring term of the 2001–02 school year (Ingels et al., 2005). Data collection included direct cognitive assessments of students' reading and mathematics skills, as well as parent, student, and school administrator surveys. Follow-up surveys were conducted in the spring of 2004, 2006, and 2012 (Ingels et al., 2005; Lauff et al., 2014). Our longitudinal sample included 10,895 students, of whom 50% ($N = 5{,}411$) had earned at least a 2-year college degree and 11% were NEET at approximately age 26. The study sample included base year survey respondents with data for all 4 years of the study (out of the 15,362 that completed a base year questionnaire). Our analyses included either the 5,411 college graduates (for models limited to those with college degrees) or the 5,484 students who had not earned a 2-year college degree (for models limited to those without a degree). Seven percent of college graduates were NEET at the time of the survey, compared with 14% of those who had not earned a college degree.

A panel weight was used to compensate for the stratified sampling design of the study and to adjust for the differential probabilities of sample selection at each stage. Initial models resulted in estimates representing 1,232,266 US high school sophomores in 2002 with at least a 2-year college degree at age 26. Adding a measure of parenthood reduced this population to 1,163,115 due to missing data, and adding college major data further reduced the population to 898,819. Weighted population estimates for those without a 2-year degree represented 13,327,332,002 US high school sophomores in initial models and 1,348,640 individuals once parenthood was added to the analytic model, once again due to missing data, which we address later in this paper.

Measures

This section describes our measures in detail for both the PIAAC and ELS:2002 data sets. Note that we made our best effort to ensure that the variables used in the two data sets are as comparable as possible; however, variables differ in some cases due to differences in questionnaire items between the two data sets (see Table 1).

Outcome Variables

The main outcome variable used for the study is NEET status, which for both data sets was constructed following the definition "not in employment, education, or training" based on respondents' answers to survey items concerning current work status or participation in educational programs at the time of the survey. In the second part of the analysis, we investigated outcomes for NEETs and non-NEETs, including community engagement, belief in civic participation, and health. Although the questions used from each data set were not identical, they all addressed these three topics and allowed us to carry out the analysis in parallel (see Table 1). Both data sets allowed us to use volunteering as a proxy for community engagement. As a measure of belief in civic participation, we used a statement capturing the subjective belief in ability to influence government decisions from the OECD data set and reports of engagement in the act of voting from the US data set. Finally, the questionnaires for both data sets addressed respondents' health, but the measures were constructed in opposite directions (see Table 1); moreover, the US measure encompassed both health and disability, whereas the OECD measure only addressed health.

Explanatory Variables

Both data sets allowed us to look at a broad range of family background characteristics. Notably, we focused on parental educational level, whereby we distinguished individuals with fewer advantages (those from families in which no parent had completed high school) and a relatively advantaged group (in which at least one parent has a college education). These measures were based on ELS:2002 parent survey data for the US sample and on PIAAC adult survey data for the OECD sample. We also included dichotomous measures of status as a first- or second-generation immigrant to account for the association between immigrant background and disconnection noted previously. Items used in both data sets were drawn from respondent survey data.

In terms of individual characteristics, we focused on the respondents' age, gender, and presence of dependent children. Gender was included in the analytic models as a dichotomous indicator because females may more often be NEET, voluntarily or not; a continuous measure of age was included because disconnection rates may increase with age (Millett & Kevelson, 2018). However, it should be noted that the age range of PIAAC respondents (20–29) was larger than that for the ELS:2002 sample, all of whom were approximately age 26 at the time of the survey; as we will note later, this limited the interpretation of findings for the United States. In both data sets, a dichotomous measure of having dependent children was included on its own and interacted with gender.

In addition, a measure of mathematical skills was included in each data set as a continuous score on a skills assessment—the ELS:2002 mathematical cognitive assessment in the US data set (Ingels et al., 2005) and the PIAAC numeracy skills assessment in the OECD data set (Kirsch & Thorn, 2013), respectively—to explore the association of numeracy skills with disconnection from education or the labor market. Numeracy is a key information-processing skill related to the use of basic mathematical and numeric concepts; as such, it is relevant in many social contexts and work situations and necessary for full integration and participation in the labor market, education, training, and social and civic life. Whereas the PIAAC numeracy assessment measured mathematical skills useful for daily living, the ELS:2002

Table 1 Study Outcome and Explanatory Variables and Scales for OECD and US Data Sets

Variable	Type	OECD data set	US data set
Outcome variables			
NEET status	Binary indicator	Constructed following the definition "not in employment, education, or training." Based on respondents' answers concerning current work status or participation in educational programs at the time of the survey	
Education	Binary indicator (used to select college and non-college-educated NEETs)	Attainment (at the time of the data collection) of at least a 2-year college degree; definition based on the ISCED 1997 education category "tertiary education program, which includes all college-level degrees from 2-year degrees through doctoral and professional degrees." 0 = no; 1 = yes	
Community engagement	Binary indicator	Frequency of volunteering in the past 12 months. 0 = less than once; 1 = more often, including every day	Volunteering in the past 2 years. 0 = no; 1 = yes
Belief in civic participation	Binary indicator	Responses to the statement "People like me do not have any say about what the government does." 0 = strongly agree or agree; 1 = neither agree nor disagree, disagree, or strongly disagree	Registration for voting in the past 2 years. 0 = no; 1 = yes
Health (OECD)/health and disability (United States)	Binary indicator	Responses to the question "In general, would you say your health is excellent, very good, good, fair, or poor?" 0 = "good", "fair" or "poor"; 1 = "very good" and "excellent"	Responses to a survey item indicating whether the respondent had become ill or disabled during the preceding 6 years. 0 = no; 1 = yes
Explanatory variables			
At least one parent with a college education	Binary indicator	Constructed using survey items on parent education. College education of parents also follows the ISCED definition (see above) including 2-year-long degrees or higher	
No parent with a high school diploma or credential	Binary indicator	Constructed using survey items on parent education. This variable indicates neither of the respondent's parents earned a high school or secondary school diploma; thus, it indicates having high school "drop-out" parents	
First-generation immigrant	Binary indicator	This variable has been constructed based on the birthplace of the respondent and their parents. First-generation immigrants are those born abroad; second generation are those born in the country with both parents born abroad	
Second-generation immigrant	Binary indicator		
Female	Binary indicator	1 = female, 0 = male	1 = female, 0 = male
Age	Continuous	Measured in years	Measured in years
Has children	Binary indicator	Respondent has children, including stepchildren and children living outside the household. Given the young age of the respondents (20–29), all children are assumed to be dependent. 0 = no, 1 = yes	Respondent has dependent children under age 18 living at home. 0 = no, 1 = yes

Table 1 Continued

Variable	Type	OECD data set	US data set
Numeracy or mathematical skills	Continuous	Reflects individual performance on a variety of numeracy tasks, including counting, sorting, basic mathematical processes, interpreting data and statistics, and choosing relevant problem-solving strategies to analyze mathematical relationships (OECD, 2016a) Standardized scale ($M = 500$, $SD = 100$, across OECD countries)	Based on question items concerning arithmetic, algebra, geometry, data/probability, and other advanced topics; process categories included skills and knowledge, comprehension, and problem solving (Ingels et al., 2005). Standardized scale ($M = 0$, $SD = 1$, across schools)
Field of study	Binary indicators	Response categories based on ISCED field of study categories: general programs; teacher training and education; humanities, languages and arts; social sciences, business, and law; science, mathematics, and computing; engineering, manufacturing and construction; agriculture and veterinary sciences; health and welfare; and services[a]	Response categories (recoded questionnaire data): education; arts and languages; science, mathematics and computing; engineering; health; and liberal/general studies or agriculture
Public expenditures on families at the national level	Continuous	*(Merged in from the OECD Social and Welfare statistics database)* Measures the total share of GDP spent on families for each OECD country for the year 2013; includes only in-kind benefits (direct or indirect subsidizing of public childcare) from the state to families with young children. Measured in percentage	Not included
Maximum length of paid parental leave, mother and father combined	Continuous	*(Merged in from the OECD Social and Welfare statistics database)* Measures the duration of paid leave available in a two-parent family. It combines the periods of maternity, paternity and parental leave. Measured in weeks	Not included
Control variables			
Aggregated NEET rates	Continuous	Computed at the country level based on the PIAAC dataset for the age group (20–29) included in the analysis. Measured in percentage	Computed at the county level based on the final timepoint of the ELS:2002; thus, they reflect NEET rates among 26-year-olds. Measured in percentage
Aggregated rates for community engagement, belief in civic participation, and health	Continuous	Computed at the national level for the OECD and at the county level for the United States for the respective age groups. Included in the regression models to control for variations in cultural, economic or political institutions, which can affect the outcome variables. Measured in percentage	

Note. GDP = gross domestic product; ISCED = International Standard Classification of Education; NEET = not in education, employment, or training; OECD = Organisation for Economic Co-operation and Development. [a] "Services" include personal services, transport services, environmental protection, and security services (UNESCO Institute of Statistics, 2015).

Grade 10 mathematics assessment measured skills and knowledge expected to be possessed by students during the sophomore year of high school (see Table 1 for details on specific mathematics skills and knowledge measured by each assessment).

In both data sets, we included measures of field of study, which, as we noted previously, may influence graduate unemployment rates; thus, we included binary variables representing field of study in college or university. These variables differed slightly for the PIAAC and ELS:2002 data sets, based on the items included in the respective questionnaires.

To account for the broader context in which individuals make employment decisions, we controlled for the NEET rates at the national level for the OECD data set and the county level for the US data set. For the United States, we chose the county level because of the greater variation in NEET rates between US counties than between US states (Burd-Sharps & Lewis, 2017). The NEET rate variables capture economic and institutional factors, such as the overall employment outlook. They can also indicate longer spells of unemployment, perhaps related to greater unemployment benefits in some countries.

Given the large proportion of women, and notably women with children, with NEET status, as we show in our results below (see Tables 3 and 8), we included two family-policy variables in the OECD analysis: (a) the public expenditure on families at the national level as a percentage of gross domestic product, which includes in-kind benefits such as state-sponsored childcare and (b) the maximum duration of paid parental leave for two-parent families. These two variables were merged into the PIAAC data set from the OECD Social and Welfare statistics database (OECD, 2019b). They allowed us to capture (a) the extent to which the state supports working families overall and (b) the probability that long parental leaves contribute to labor market exits. Evidence from European countries has suggested that work interruptions of parents closely follow parental leave duration (Lalive & Zweimüller, 2009; Ondrich et al., 1996). The variable representing public expenditures on families is measured as a percentage between zero and 11, and it ranges from a low of 0.4% in Turkey to a high of 3.7% in Denmark and France; the value for the United States is 1.1%. The family leave variable ranges from a low of zero weeks in the United States to a high of 170 weeks in Finland.

The family policy variables could not be included in the US analysis. Comparable within-country data on public expenditures on families are not available for the US sample, in which variations may exist at the state or local level. In the United States, childcare subsidies and direct cash transfers are only available to the lowest income families[4] and are relatively rare (Schott et al., 2015). Only three of the 50 states provided any paid family leave time at the time of the final wave of ELS:2002 data collection in 2012 (NCSL, 2016, 2018). Moreover, federally guaranteed leave for all 50 states is unpaid, only up to 12 weeks long, and only for employees at organizations with more than 50 employees (NCSL, 2016, 2018). Some localities or companies provide partially paid maternity leave for as long as 5–6 months, and some even provide a few weeks of paternity leave. Given the short duration of available paid and unpaid family leave, it is less likely that many US NEETs were on family leave at the time of the survey (NCSL, 2016, 2018). However, it is possible that US NEET mothers opted out of the labor force because the high cost of childcare can make working financially untenable (Glynn & Corley, 2016).

Finally, we included aggregate rates for NEET status as well as for reports of community engagement, belief in civic participation, and good health (OECD)/health and disability (United States). These variables were computed at the national level for the OECD and at the county level for the United States based on the relevant age group and education status. We used these aggregate rates to control for unobservable characteristics at the country/county level, which could be correlated with the outcome variable at the individual level. For example, higher NEET rates in a given country may reflect broader macroeconomic problems, which make it harder for individuals to find jobs (Kelly & McGuinness, 2015; Quintano et al., 2018). Similarly, higher rates of volunteering may reflect cultural norms in some countries/counties (Luria et al., 2017). In the absence of suitable external variables to include in the analysis, we settled for the approach of calculating the rates based on the sample data. We acknowledge that this approach might not be ideal; however, the alternative of not controlling for such unobservable characteristics is not necessarily better.

As to the possibility of using fixed effects, it is important to note that we are dealing with a category that is very small in absolute and relative size (i.e., relatively few NEETs are college educated). That is why we were compelled to pool the data across countries in the OECD. Including fixed effects would result in the number of variables that we add in the model relative to the number of observations on which the model is identified (i.e., those for whom the outcome variable is equal to one) being too large.

Analyses

We first used logistic regressions to explore the factors predictive of NEET status among the college educated and, separately, among those who were not college educated to address our first and second research questions. We used comparisons of the coefficients of the explanatory variables for college-educated and non-college-educated individuals to understand the moderating role of education in the relationship between the explanatory variables and NEET status. We examined several explanatory variables representing the parental background and individual characteristics for the young adults in our respective samples. To account for the broader institutional context in which individuals make decisions, we included the rate of NEETs in the same age group at the country level for the OECD data and the county level for the US data. Furthermore, in the OECD-level analysis, we also included three variables capturing aspects of national policy supportive of families with young children, such as the overall expenditure on childcare as a fraction of gross domestic product and the total length of parental leave.

Next, to address our third research question, we ran additional logistic regression models predicting the extent to which NEET status is related to health and civic and political engagement or belief in political influence at the time of each survey. These models included some of the same explanatory variables as the first set of models of factors influencing NEET status among those with and without a college degree. As we noted previously, these factors included parental background and individual characteristics, as well as country- or county-level NEET rate, as control variables and an indicator of NEET status as a predictor variable.

In both analyses, variables were added in steps, beginning with parental background variables, then individual characteristics followed by country-level NEET rate (for the analysis of OECD data drawn from the PIAAC data set) or county-level disconnection rate (for the analysis of US data drawn from the ELS:2002 data set), and then field of study in college or university.

Our choice of standard error adjustment followed the structure of the data sets. For the OECD data set, we used standard errors robust to cluster correlation at the national level, also considering the additional uncertainty implicit in the weighting (replicate weights) and the measurement of the numeracy variable (plausible values; Kirsch & Thorn, 2013). Standard errors for the US data sets were adjusted for cluster correlation at the school level and for the complex sampling design of the ELS:2002 data set.

Lastly, data were missing on 8% of cases in the PIAAC sample. This small amount of missing data was not a concern for the present analysis; moreover, it has been shown (Goodman et al., 2013) that there is no evidence of a moderate or high level of bias in the outcome statistics across the participating countries and economies, except for in the earnings data, which are not used in this paper. Missing data may be a concern for ELS:2002 models that include the field of study variables: Although the panel weight adjusts for survey nonresponse bias and most of the ELS:2002 variables used in the study are missing data for only 3–7% percent of respondents, the percentage of missing data is as high as 26% for the variables representing field of study. A comparison of ELS:2002 respondents with and without field of study data (see Table A1) revealed some demographic differences between the two groups. This means that the results of ELS:2002 models that include field of study should be interpreted with caution.

Results

Below, we present the results of our descriptive and logistic regression analyses, with results organized into one section for the OECD data and a second section for the US data. Within each section, we first present results of descriptive analyses of the study variables, including family background, individual demographic characteristics, and economic and institutional factors, for NEETs and non-NEETs with and without college degrees. Next, we present the results of logistic regressions—odds ratios—addressing Research Questions 1 and 2 on the influence of family background, individual demographic characteristics, and economic and institutional factors on the likelihood of becoming NEET among those with and without college degrees. Finally, within each section, we also present the results of logistic regressions addressing Research Question 3 on the likelihood of community engagement, belief in civic participation, and good or poor health among NEETs with and without a college degree, relative to non-NEETs.

We contrast the US findings with the combined results for the OECD to highlight how the situation for one particular nation (the United States) differs from the overall situation across the 29 OECD countries (including the United States). Implications of these results are discussed in the final sections of the report.

Table 2 Frequency of NEET Status Among OECD Young Adults Ages 2029 (2012 and 2015) With and Without a College Degree

	College degree		No degree	
Frequency	NEET	Not NEET	NEET	Not NEET
N (total = 37,721)	1,314	9,827	5,243	21,337
%	12	88	20	80

Note. NEET = not in education, employment, or training; OECD = Organisation for Economic Co-operation and Development.

OECD Results

Descriptive Analysis

A first glance at the descriptive results for the OECD revealed that the frequency of disconnection was much lower among those with a college degree, relative to those without a degree. Although only 12% of the college-educated individuals were NEET, as many as 20% of those without a college degree were NEET, a difference of 8% (see Table 2).

Although the factors associated with a higher frequency of NEET status were roughly the same for both college-educated and non-college-educated adults ages 20–29 in the OECD, it is important to note that the magnitude of the difference was usually lower in the college-educated group.

The frequencies suggested that parental education may be an important factor in the likelihood of disconnection (see Table 3), given that individuals from families that had no parents with even a secondary degree were more often NEET, regardless of their own educational attainment. At the same time, individuals from families that had at least one college-educated parent were less often NEET, and the difference between NEET and non-NEET rates was particularly large in the group without college degrees.

Among individual-level factors, gender and the presence of children appeared to play an important role, as women and individuals with children were more often NEET. Although this was true for both college-educated individuals and those with lower rates of education, the difference between NEET and non-NEET percentages was larger for the group with lower education rates. In contrast, first-generation immigrants were NEET as often as they were not, regardless of educational attainment. Second-generation immigrants were NEET as often as they were not if they were not college educated, whereas a fewer college-educated second-generation immigrants were NEET.

As expected, individuals with stronger numeracy skills, as measured by the PIAAC survey, were less often NEET, regardless of educational attainment. The descriptive results also suggested that field of study, only a factor among the college-educated group, may matter. NEET status was more common among OECD young adults who had studied teaching, humanities, languages, and arts, whereas it was less common among those who had studied the social sciences, business, law, or health and welfare.

The OECD descriptive results also indicated that, regardless of their level of education, NEETs volunteered less often and fewer believed in the value of civic participation or reported good or excellent health, relative to those who were not NEET. In the next section, we explore these relationships further via logistic regressions.

Logistic Regression Results: Determinants of NEET Status among College Graduates in the OECD

Results of the logistic regressions of NEET status on the included covariates (see Table 4) are shown in Models 1, 2, 3, and 5, which were run on the sample of college-educated individuals, and Model 4, which was run on the sample of non-college-educated individuals to provide insights into the extent to which the associations we found for the college-educated group were moderated by education. Model 5 was run only on the college-educated part of the sample, as it included field of study, to provide an understanding of the role of study discipline in the probability of NEET status.

To facilitate interpretation of the results, coefficients have been exponentiated. This means that their values can be interpreted as odds ratios.[5] In logistic regression, odds ratios higher than 1 indicate a positive relationship between covariates and the outcome variable, whereas odds ratios lower than 1 indicate that the relationship is negative.

The results suggested that, for the OECD as a whole, status as a first- or second-generation immigrant is not related to the probability of being NEET. This finding applied to both college-educated and non-college-educated individuals. What seemed to matter substantially was the educational background of parents, as individuals from families in which

Table 3 Frequencies of Study Outcome and Explanatory Variables for OECD Young Adults Ages 20–29 in 2012 and 2015 by Educational Attainment and NEET Status

	College		No college	
	NEET %/mean	Not NEET %/mean	NEET %/mean	Not NEET %/mean
Parent educational attainment				
At least one parent with a college degree	43	55	18	35
No parent with upper secondary/high school diploma	23	9	44	21
Immigration status				
First-generation immigrants	8	8	9	9
Second-generation immigrants	3	6	5	5
Mean age (in years)	25.7	25.7	24.5	24.0
Female	60	54	64	42
Respondent has children	24	16	49	23
Female with children	22	10	42	11
Numeracy proficiency[a]	59	67	18	41
Field of study				
General programs	6	7		
Teacher training and education	14	9		
Humanities, languages, and arts	14	12		
Social sciences, business, and law	25	28		
Science, mathematics, and computing	12	12		
Engineering	13	13		
Agriculture and veterinary	2	2		
Health and welfare	9	12		
Services[b]	6	5		
Social engagement and health				
Volunteering (1 = yes)	28	46	21	35
Belief in civic participation (1 = yes)	62	66	46	56
Reported good health (1 = yes)	88	92	83	90

Note. NEET = Not in education, employment, or training; OECD = Organisation for Economic Co-operation and Development. Frequencies and means run on weighted data from the PIAAC survey sample representative of the population of 20- to 29-year-olds in 2012 (Australia, Austria, Canada, Czech Republic, Denmark, England, Estonia, Finland, Flanders, France, Germany, Ireland, Italy, Japan, Netherlands, Northern Ireland, Norway, Poland, Slovakia, South Korea, Spain, Sweden, the United States) or 2015 (Chile, Greece, Israel, New Zealand, Slovenia, Turkey). [a] Represents proficiency at Level 3 or above on the PIAAC numeracy assessment (NCES, n.d.). [b] Note that "services" include personal services, transport services, environmental protection, and security services (UNESCO Institute of Statistics, 2015).

neither of the parents completed high school were more vulnerable to experiencing NEET status, regardless of whether they themselves had attended college. Yet, it is important to note that the coefficient of this variable decreased between Models 1 and 2, in which we added controls for institutional-level variables, indicating factors such as family leave and childcare subsidy policies moderated some of the effect of low parental education. Interestingly, adding additional controls relating to the presence of children did not further change the coefficient.

Practical numeracy skills, as measured in the PIAAC survey, did not appear to be a predictor of NEET status for the college educated. However, for those without a college-level degree, stronger mathematical abilities correlated with a decreased probability of experiencing NEET status.

At the institutional level, we found that two of the three national-level variables were significant across all models and their coefficients pointed in the same direction. Variables representing duration of paid parental leave and public social expenditure on families were included in the model after we noticed that gender and the presence of children were consistently significant predictors of NEET status. In general, longer parental leave was associated with a higher probability of NEET status, whereas higher public expenditure on families, in particular on childcare, suggested a lower probability of NEET status, although the coefficient was not statistically significant.

The coefficients of the variables representing the presence of children, gender, and the interaction among them (see Table 5) are presented as the odds ratios for men and women with and without children as calculated from the odds ratios shown in Table 4. For both levels of education, women had higher odds than men of being NEET. Once being a

Table 4 Logistic Regressions of Likelihood of NEET Status Among OECD Young Adults Ages 20–29 (2012 and 2015) With and Without a College Degree

Status	College Model 1 $N = 10,263$	College Model 2 $N = 9,901$	College Model 3 $N = 9,899$	No college Model 4 $N = 22,521$	College Model 5 $N = 9,873$
Parent educational attainment					
At least one parent with tertiary education	0.79	1.05	1.1	0.83	1.07
No parent with upper secondary/high school diploma	2.77***	1.86**	1.86**	1.44**	1.91**
Immigration status					
First-generation immigrants	1.05	1.64	1.63	0.71	1.80
Second-generation immigrants	0.49	1.07	1.15	1.3	1.21
Female	1.51**	1.63**	1.07	1.08	0.98
Age	1.02	1.06	1.03	0.99	1.03
Average national rate of NEET among 20- to 29-year-olds		1.08***	1.09***	1.05***	1.09***
Public expenditure on families, % of GDP		0.85	0.84	0.87	0.87
Maximum length of parental leave, mother and father combined		1.01***	1.01***	1.00**	1.01***
Numeracy assessment score			0.99	0.99***	0.99
Respondent has children			0.26***	0.98	0.26***
Female with children			11.80***	4.40***	12.15***
Field of study (ref: social sciences, business, and law)					
Teacher training and education science					1.36
Humanities, languages, and arts					1.74*
Science, mathematics, and computing					0.92
Engineering, manufacturing, and construction					0.73
Health and welfare					0.71
General programs, agriculture and veterinary, services[a]					1.15
Constant	0.05***	0.00***	0.01***	0.53	0.01***

Note. NEET = not in education, employment, or training; OECD = Organisation for Economic Co-operation and Development; GDP = gross domestic product. [a] Note that "services" include personal services, transport services, environmental protection, and security services (UNESCO Institute of Statistics, 2015). * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5 Relative Odds of Being NEET Among OECD Young Adults Ages 20–29 (2012 and 2015) With and Without a College Degree, by Gender and Presence of Children, Based on Models 3 and 4 Presented in Table 4

	College		No college	
Status	Male	Female	Male	Female
No children	1	1.07	1	1.08
Children	0.26	3.28	0.98	4.66

Note. NEET = not in education, employment, or training; OECD = Organisation for Economic Co-operation and Development.

parent was accounted for, women were even more likely to be NEET and men less likely. Regardless of education level, women with children had the highest odds of being NEET, whereas men with children had the lowest. Notably, relative to childless women with college degrees, college-educated women with children had three times higher odds of being NEET; among those without a college education, the difference was more than fourfold. This finding suggested that college education was a positive factor for the employment continuity of both male and female parents. Yet, an important issue with the employment of mothers remained, as chances for career interruptions were high for mothers regardless of their educational level.

In Model 5, we explored the relationship between NEET status and field of study for the college-educated sample. The inclusion of this variable did not lead to any substantial changes in the other coefficients in the model. The results

Table 6 Logistic Regressions of Likelihood of Community Engagement, Belief in Civic Participation, and Good Health Among NEET OECD Young Adults Ages 20–29 (2012 and 2015) With and Without a College Degree, Relative to Non-NEETs

	Volunteering		Say in politics		Health	
Status	College $N = 10{,}255$	No college $N = 23{,}309$	College $N = 10{,}217$	No college $N = 23{,}159$	College $N = 10{,}258$	No college $N = 23{,}311$
NEET	0.62*	0.73**	1.07	0.79*	0.80	0.65**
Parent educational attainment						
At least one parent with tertiary education	1.03	1.33***	1.10	1.17	1.09	1.10
No parent with upper secondary education	0.89	0.73**	0.89	0.98	1.02	0.65*
Immigration status						
First-generation immigrants	0.71	0.67**	1.05	1.22	1.34	1.93*
Second-generation immigrants	1.28	0.94	1.24	1.35	0.61	1.34
Female	0.98	1.11	1.39**	1.23*	1.15	0.73*
Age	0.97	0.99	1.00	0.96**	1.00	0.98
Average national rate of NEET among 20- to 29-year-olds	1.01	1.02***	1.00	1.02***	1.00	1.02***
National average of the dependent variable among 20- to 29-year-olds	1.06***	1.05***	1.05***	1.05***	1.10***	1.08***
Numeracy assessment score	1.00	1.01***	1.00	1.01***	1.00	1.00**
Respondent has children	0.94	1.18	0.86	0.82	1.39	0.70*
Female with children	0.78	0.74	1.03	1.35	0.53	1.41
Constant	0.13**	0.01***	0.04***	0.02***	0.00***	0.01***

Note. NEET = not in education, employment, or training; OECD = Organisation for Economic Co-operation and Development. * $p < .05$. ** $p < .01$. *** $p < .001$.

indicated that graduates in the fields of humanities and general programs had higher odds of becoming NEET relative to the reference group, which studied the social sciences, business, or law.

Logistic Regression Results: NEET Status, Community Engagement, and Health Among College-Educated Adults in the OECD

Table 6 summarizes the results of the analysis of the relationship between NEET status, community engagement, belief in civic participation, and health within college- and non-college-educated groups across the OECD. The results suggested that, regardless of education level, NEETs were less engaged in their communities, as they were only about two thirds as likely to volunteer relative to non-NEETs. Interestingly, however, only NEETs without college-level education had lower odds of reporting that they believed in civic participation and were in good health. In the group with college-level education, we found no significant differences between NEETs and non-NEETs for these outcome variables. Although the cross-sectional nature of the study did not allow us to draw direct causal interpretations, the results suggested a protective role of education. In this case, education may allow individuals to have a positive perspective on their political influence and to remain in good health despite being temporarily disconnected from the labor market.

US Results: ELS:2002 Data

Descriptive Analysis

Like the results for the OECD-wide data, the descriptive results obtained using nationally representative, longitudinal US data from the ELS:2002 data set suggested that the NEET rate was lower among the college educated (7%) than among those without a college degree (15%; see Table 7). In fact, over twice as many individuals without college degrees were NEET, relative to those with a degree.

However, whereas the OECD analysis showed larger differences in the study variables between NEETs and non-NEETs among those without college degrees, the ELS:2002 data did not reveal such a difference for the US-specific analysis (see Table 8). Differences between NEETs and non-NEETs were larger for those without college degrees on measures of parent education, respondent gender, and poor health or disability. In contrast, differences between NEETs and non-NEETs were

Table 7 Frequency of NEET Status Among US 2002 High School Sophomores at Age 26 (2012) With and Without a College Degree

	College degree		No college degree	
N (total = 9,825)	NEET	Not NEET	NEET	Not NEET
n	343	4,666	714	4,102
%	7	93	15	85

Note. NEET = not in education, employment, or training.

Table 8 Percentages and Means of Study Outcome and Explanatory Variables for US 2002 High School Sophomores at Age 26 (2012) by Educational Attainment and NEET Status

	College degree		No college degree	
Educational attainment and status	NEET %/mean	Not NEET %/mean	NEET %/mean	Not NEET %/mean
Parent educational attainment				
At least one parent with college education	74	74	44	53
No parent with upper secondary/high school education	4	2	12	8
Immigration status				
First-generation immigrant	9	7	9	8
Second-generation immigrant	13	10	9	9
Female	71	55	64	47
Mean age in 2002 (in years)	16.1	16.0	16.3	16.2
Average county-level rate of NEET among 26-year-olds[a]	15.7	11.2	17.8	12.6
Respondent has children	40	15	51	41
Female with children	36	10	41	21
Field of study				
Education	9	10		
Arts and languages	10	8		
Science, mathematics, and computing	5	10		
Engineering	5	7		
Health	12	13		
Liberal/General studies, agriculture	5	3		
Social engagement and health				
Volunteered (1 = yes)	51	51	27	31
Belief in civic participation	74	86	62	73
Reported poor health or disability	11	6	17	9

Note. NEET = not in education, employment, or training. Descriptions and frequencies run on weighted data from the ELS:2002 longitudinal sample representative of the population of 2002 US sophomores with at least a 2-year college degree by 2012. Numeracy score excluded because it was standardized to $M = 0$ and $SD = 1$. [a] 412 US counties are represented in this variable.

larger among those with college degrees for immigrant status, having children, and being a female with children. Like the OECD logistic regression analysis, the US logistic regression analysis is intended to clarify the extent to which college education (a) influences the likelihood of becoming NEET and (b) mitigates risk factors.

As with the OECD results, the US results suggested the influence of parental educational attainment. Individuals with parents who did not complete high school were more often NEET, regardless of whether or not they themselves had a college degree. However, parental completion of a college degree did not appear to be related to the likelihood of becoming NEET among those with college degrees, whereas it seemed to be a possible protective factor among those without college degrees. More first-generation immigrants were NEET within both the group with college degrees and the group without degrees, with the difference being slightly larger among those with a college degree. Second-generation immigrant status did not appear related to NEET status among US adults without college degrees; however, among those with college degrees, more immigrants were NEET at the time of the survey. Moreover, more second-generation than first-generation immigrants were NEET among those with college degrees.

As in the OECD, more US women than US men were NEET, regardless of college degree attainment. The number of college-educated women who were NEET was slightly more than non-college-educated women, perhaps indicating their

Table 9 Logistic Regressions of Likelihood of NEET Status Among US 2002 High School Sophomores at Age 26 (2012) With and Without a College Degree (Odds Ratios)

Status	College Model 1 $N = 4{,}990$	College Model 2 $N = 4{,}990$	College Model 3 $N = 4{,}720$	No college Model 4 $N = 4{,}225$	College Model 5 $N = 3{,}519$
Parent educational attainment					
At least one parent with college education	1.173	1.317	1.636**	0.779*	1.805**
No parent with upper secondary/high school education	1.871	1.669	1.464	1.004	1.574
Immigration status					
First-generation immigrants	1.377	1.381	1.391	0.958	1.63
Second-generation immigrants	1.351	1.375	1.276	0.891	1.393
Female	2.118***	2.125***	1.236	1.289	1.364
Age	1.223	1.309	1.126	1.067	0.884
Average county-level rate of NEET among 26-year-olds[a]		1.072***	1.075***	1.070***	1.075***
Numeracy proficiency score[b]			0.818*	0.791***	0.862
Respondent has children			0.562	0.558**	0.609
Female with children			7.435**	3.255***	8.752*
Field of study					
Education					0.581
Arts and languages					0.953
Science, mathematics, and computing					0.545
Engineering					1.234
Health					0.641
Liberal/General studies, agriculture					1.524
Constant	0.001*	0.000**	0.002	0.019**	0.065

Note. NEET = not in education, employment, or training. Table presents odds-ratios; outcome variables are indicators of disconnection in 2012; logistic regressions conducted on weighted data from the ELS:2002 longitudinal sample representative of the population of 2002 US sophomores with at least a 2-year college degree by 2012 (~age 26). [a] 412 US counties are represented in this variable; these are the counties in which ELS:2002 respondents resided at the time of the survey. [b] Continuous measure of score on ELS:2002 10th grade mathematics exam. * $p < .05$. ** $p < .01$. *** $p < .001$.

financial ability to opt out of the labor market to raise children. As was the case using OECD data, the magnitude of the difference was larger for the less-educated group.

Among the college-educated group, NEET status was slightly more common among those that had studied the arts, languages, liberal/general studies, or agriculture. There were fewer NEETs among those with degrees in science, mathematics, computing, or engineering.

The descriptive results also revealed that, regardless of their level of education, relative to non-NEETs, NEETs were less likely to be registered to vote and more likely to have become ill or disabled between ages 24 and 26; the latter was even more common among NEETs without a college degree. Whereas there was no difference in volunteering rates among those with college degrees, perhaps indicating the positive influence of education, among those without a college degree fewer NEETs than non-NEETs volunteered between the ages of 24 and 26.

As we did previously for the OECD data, in the next section we explore these relationships further and disentangle the influences of field of study, numeracy skills, and gender on NEET status via logistic regressions.

Logistic Regression Results: Predictors of NEET Status Among College-Educated Adults in the United States

The logistic regressions of NEET status on the included covariates included Models 1, 2, 3, and 5, which were run on the sample of college-educated individuals, and Model 4, which was run on the sample of non-college-educated individuals, to provide insights into the extent to which the associations we found for the college-educated group were moderated by education (see Table 9). Model 5 was run only on the college-educated part of the sample, as it included field of study, to provide an understanding of the role of study discipline in the probability of NEET status. Results are presented as odds ratios to enable a discussion of the likelihood of the NEET outcome for each explanatory variable in our models.

Table 10 Relative Odds of Being NEET Among US 2002 High School Sophomores at Age 26 (2012) With and Without a College Degree by Gender and Presence of Children Based on Models 3 and 4 Presented in Table 9

	College		No college	
Status	Male	Female	Male	Female
No children	1	1.24	1	1.29
Children	0.56	5.16	0.56	2.34

Note. NEET = not in education, employment, or training.

After controlling for gender, the presence of children, and an interaction between them, models revealed that the county-level NEET rate increased the odds of disconnection among US college-educated young adults, but only by about 8% (see Table 9). After controlling for numeracy skills, the presence of children, gender, and an interaction between the presence of children and gender, having a college-educated parent predicted 64% higher odds of being NEET; after accounting for college fields of study, having a college-educated parent predicted 81% higher odds of being NEET among those with at least a 2-year college degree. Numeracy skills predicted a 28% lower likelihood of NEET status ($p < .05$) until fields of study were added to the model, after which point they predicted a 22% lower likelihood of NEET status ($p < .05$).

In the US-specific data, fields of study themselves were not significantly associated with the probability of being NEET at age 26 after accounting for all other factors included in the models. Although the descriptive results showed differences in NEET rates by field of study, the logistic regression results clarified that field of study was not influential after accounting for the other explanatory variables and the control variables in our models. This result differed from that found for the OECD overall, in which the final model indicated that individuals who studied humanities, languages, or the arts were more likely to be NEET after accounting for other factors.

Thus, it seemed that individual characteristics, skill levels, and college field of study were not associated with NEET status in the final models, whereas parental attainment of a college degree, county-level NEET rate, and being a mother were all significant factors predictive of becoming NEET. Unlike for the college educated, mathematics skills, in particular at the outset of high school, remained an important predictor of NEET status among those without a college degree, with a 1 *SD* increase in numeracy skills predicting 21% lower odds of being NEET ($p < .001$).

As we did for the PIAAC data on the OECD countries, we used the odds ratios for the interactions between parenthood and gender and the odds ratios for the separate parenthood and gender variables to calculate the odds of being NEET among men and women with and without children in the US-specific data set (see Table 10). These calculations revealed that the strongest predictor of disconnection was being a mother. As the results for the OECD overall did, the within-US results indicated that mothers had far higher odds of being NEET at approximately age 26 than fathers and women without children. Children influenced NEET status in opposite directions for men and women in the United States, as they did in the OECD more broadly. Regardless of education levels, women with children had the highest odds of being NEET, whereas men with children had the lowest. In contrast to results for the OECD, which suggested that mothers without college degrees were more likely to be NEET, the opposite was true in the United States, where college-educated mothers were more likely than non-college-educated mothers to be NEET.

The odds of being NEET also varied between mothers and fathers. Being a mother at the time of the survey made NEET status over 2.5 times as likely among college-educated mothers as among college-educated fathers ($p < .05$). In contrast, the odds of mothers without a college degree being NEET were about four times as high as fathers without a college degree. Furthermore, fathers were 44% less likely to be NEET, relative to those who were not fathers, regardless of their education level. In contrast, within the OECD more broadly, college-educated fathers were 74% less likely to be NEET than college-educated men without children, whereas non-college-educated fathers were just as likely to be NEET as non-college-educated men without children.

Logistic Regression Results: NEET Status, Community Engagement, and Health or Disability Among College Graduates in the United States

Next, we explored the extent to which NEETs in the United States were likely to engage in their communities by volunteering, to indicate belief in civic participation, and to report poor health or disability, relative to non-NEETs. In these models, we also explored how these relationships varyied between those with and without college degrees (see Table 11).

Table 11 Logistic Regressions of Likelihood of Community Engagement, Belief in Civic Participation, and Poor Health or Disability Among NEET US 2002 High School Sophomores at Age 26 (2012) With and Without a College Degree, Relative to Non-NEETs

	Community engagement		Belief in civic participation		Poor health or disability	
Status	College $N = 4{,}715$	No college $N = 4{,}157$	College $N = 2{,}704$	No college $N = 3{,}519$	College $N = 3{,}519$	No college $N = 3{,}519$
NEET Age 26	1.028	0.847	0.571**	0.582***	2.041*	2.099***
Parent educational attainment						
At least one parent with college education	1.404***	1.211*	1.116	1.408***	1.158	1.106
No parent with upper secondary/high school education	0.925	0.755	1.296	0.677*	0.764	0.504*
Immigration status						
First-generation	1.088	0.937	0.209***	0.286***	0.735	0.793
Second-generation	0.959	0.737*	0.624**	1.082	1.287	0.708
Female	1.615***	1.333**	1.269*	1.154	1.592*	0.938
Respondent has children	1.192	1.125	1.220	0.790	0.644	0.778
Female with children	0.642*	0.949	0.750	1.643**	1.804	1.151
Age	1.153	0.997	1.189	0.985	1.005	0.928
Average county-level rate of NEET among 26-year-olds[a]	1.000	0.997	0.983*	0.997	1.007	1.010
Numeracy proficiency score[b]	1.190***	1.274***	1.093	1.089	0.928	1.076
Constant	0.059***	−0.859	0.451	1.233	0.032	−1.107

Note. NEET = not in education, employment, or training. Table presents odds-ratios; outcome variables are indicators of disconnection in 2006; logistic regressions conducted on weighted data from the ELS:2002 longitudinal sample representative of the population of 2002 US sophomores with at least a 2-year college degree by 2012. [a] 412 US counties are represented in this variable; these are the counties in which ELS:2002 respondents resided at the time of the survey. [b] Continuous measure of score on ELS:2002 10th grade mathematics exam. * $p < .05$. ** $p < .01$. *** $p < .001$.

US NEETs were not more or less likely to have engaged in volunteer work ($p > .05$), regardless of college degree attainment. We found that US NEETs were less likely than non-NEETs to believe in civic participation, as indicated by being registered to vote, both before and after controlling for relevant background factors. NEET college-educated individuals and those without college degrees were 57% and 58% as likely to have registered to vote, respectively; thus, college education does not seem to moderate this relationship. The relationship between NEET status and reported poor health or disability also did not differ for those with and without a college degree; NEET individuals in both groups were approximately twice as likely to have developed an illness or disability between ages 20 and 26 ($p < .05$ and $p < .001$, respectively). Given the timing of the measure, it is also possible that having an illness or disability may increase the odds of being NEET.

Overall, educational attainment did not seem to moderate the relationship between NEET status and community engagement, belief in civic participation, and health among US young adults as it did among young adults in the broader OECD. In contrast to the results of the US models, models of OECD data revealed that NEETs without college degrees were less likely to believe in civic participation or to report being in good health, whereas college-educated NEETs were not significantly more or less likely to do either. OECD-wide, college-educated NEETs were slightly less likely to have volunteered than non-college-educated NEETs, whereas US NEETs were not more or less likely to have volunteered, regardless of educational attainment. Within the US in particular, mathematics skills were associated with increased odds of having recently volunteered, regardless of educational attainment.

Limitations

This study has several potential limitations. First, as we are only measuring NEET status at one point in time, we do not know the eventual outcomes of most individuals. However, prior research has shown that current disconnection predicts future disconnection (Millett & Kevelson, 2018). Second, as we noted previously, the data sets provided slightly different measures of some constructs, in particular age of respondents, and we were unable to include any measures of US family policies to compare results with those for the OECD. Third, our analyses of NEETs did not distinguish between those who voluntarily opted out of the workforce and those still seeking employment. This is particularly important as far

as the findings on gender are concerned, as we know from previous literature that women's decisions on labor market participation are highly complex and involve a number of factors, such as the presence of partners and their earnings, number and ages of the children, and so on (for example, see Davia and Legazpe (2014) and Herrarte et al. (2012)). Fourth, we must note that the OECD and US data sets represent different populations. Finally, the lack of an experimental design limits the extent to which results can be linked to causal relationships. Even so, the study provides evidence on the factors related to disconnection among adults with at least a 2-year college degree.

Discussion

We designed our study to explore factors associated with NEET status among college-educated young adults based on an assumption that they should have more employment opportunities than their peers without at least a 2-year college degree. We did find that, indeed, substantially fewer college-educated individuals are NEET within the OECD overall and within the United States specifically. The NEET rate is lower in the US among both the college educated and those without college degrees, which may have much to do with the relative strength of the US economy in contrast to the economies of some OECD nations. Given this, it is interesting that many of the same factors influence the likelihood of disconnection within the United States and within the OECD more broadly. We discuss these factors, and the reasons they may matter, in the following sections.

Parental Educational Attainment: Low Attainment Has Far-Reaching Consequences

Our findings indicate that college-educated children of parents who have not completed secondary school may struggle to overcome the disadvantages related to their background. Our analyses of both the OECD- and US-specific data sets revealed that such individuals are more often NEET; however, the logistic regression results are significant only for the OECD-wide data. This finding suggests that even college-educated young adults may need additional supports to establish themselves in the world of work if they come from families with low educational attainment. This important result highlights one potential way to improve outcomes for those from disadvantaged backgrounds and thus level the playing field. At the same time, the fact that other factors are more important than low parent educational attainment for US individuals in particular signals that, at least within the United States, having a parent without a high school degree may not matter as much as academic abilities, place of residence, gender or presence of children in the household.

Moreover, unlike in the OECD broadly, having at least one college-educated parent decreases the odds of disconnection for US young adults without college degrees themselves but increases the odds of disconnection among young adults who have earned a college degree. Thus, having college-educated parents may be protective for young adults without college degrees above and beyond other factors such as geographic differences, gender, parenthood, and numeracy skills. The lack of protectiveness of higher parental education for the US college-educated population indicates that factors other than those accounted for in our models are at play. It is possible that racism or other cultural factors are influencing the employment rates of young college graduates (Williams & Wilson, 2019).

Parenthood and Gender: Mothers Are More Often NEET and Family-Leave Policies Matter

Our findings on gender are not surprising, given that women are still far more likely than men to leave the labor force to raise children (Chamie, 2018). Throughout the OECD countries, including in the United States, mothers are more likely to be NEET than fathers. In fact, even women without children are more likely to be NEET than men without children. Our results also highlight that men with children are less likely to be NEET than men without children, in line with literature establishing that fathers' life trajectories are usually characterized by continuous employment (Zhelyazkova & Ritschard, 2017).

Our finding that longer parental leave is associated with a higher probability of NEET status is on par with some recent findings from social policy research. In line with Esping-Andersen's theory (Esping-Andersen et al., 2002), countries where longer parental leaves are favored, as opposed to public provision of childcare, tend to implicitly encourage the so-called traditional division of labor, in which women assume larger shares of caring responsibilities and remain outside the labor market for longer periods of time. While this aligns with other research on family leave policies in Europe (Morgan & Zippel, 2003), research conducted in the United States has shown that paid childbirth leave may, in

fact, encourage mothers to return to work sooner; the caveat is that longer paid leaves lead to longer interruptions of work (Joesch, 1997). Interestingly, the research conducted in Europe, where longer paid family leave policies are common, supports the provision of government-sponsored childcare, whereas the research conducted in the United States, where paid family leaves are uncommon and relatively short, may better support provision of paid family leave.

At the same time, access to high-quality childcare remains an important issue in all OECD countries, including the United States. We found that mothers without college degrees are more likely to be NEET in the OECD countries overall, whereas in the United States college-educated mothers are more likely than non-college-educated mothers to be NEET. This result may speak to the unique policy situation in the United States, where the high cost of quality childcare is only subsidized by the government for families living in poverty; in many other OECD nations, childcare subsidies are not means-tested (Glynn & Corley, 2016). As even college-educated US women cannot be assured that their salary will exceed the cost of childcare, many may choose to leave the labor force entirely. The choice to work or not may be viewed as a luxury afforded to women with a high enough household income to choose to stay at home or pay for quality childcare while they work. Women without college degrees may be forced to work, and only some are fortunate enough to obtain subsidized childcare (Schott et al., 2015).

Of course, we should also acknowledge that cultural factors and norms are at play in decisions around who cares for young children (Bornstein, 2012), and many women may prefer to take a break from paid work while their children are young. Cultural norms may also lead to a more negative view of public benefit receipt within the United States, which could lead some young mothers to forgo subsidized child care even if they qualify for it (Rank, 1994).

College Field of Study or Major Matters across the OECD but Not in the United States

Our findings on the influence of field of study are mixed. Although our results do not show evidence of field of study influencing disconnection among US college-educated 26-year-olds, our findings on the broader range of OECD countries in the study sample show that graduates in the humanities, languages, arts, general programs, agriculture and veterinary sciences, and services/hospitality are more likely to be NEET than graduates in the social sciences, business, and law. In the United States it seems that demographic factors and economic conditions, as indicated by geographic differences, may play a greater role than field of study in the employment prospects of graduates. In fact, given that geographic location is determined in part by socioeconomic status within the United States, the study findings may indicate that family background and socioeconomic status are more associated with disconnection than college field of study.

Numeracy and Mathematics Skills Matter Less Than Other Factors

The weak association between adult numeracy skills (across the OECD countries) or high school mathematics skills (in the United States) and being NEET could be due to the selective nature of the sample for the models restricted to college-educated individuals. College graduates tend to have good foundational skills in general (OECD, 2016a), and above that level, numeracy may not be a differentiating factor. Moreover, in the US sample, mathematics skills cease to be significant once college field of study is added to the models, presumably because variations in high school mathematics skills are reflected in variations in field of study choices. In addition, mathematics skills continue to be linked to the odds of being NEET among those without college degrees, further highlighting that there may simply be less variation in mathematics skills among college graduates. Interestingly, within the United States, higher mathematics skills are associated with increased odds of having recently volunteered, regardless of educational attainment.

Social Engagement and Health May Be Better Among College-Educated NEETs in the OECD, but Not Among Those in the United States

As was the case for field of study, our findings on the moderating effect of higher education on belief in civic participation and health vary between the United States and the other OECD nations. Whereas having a college degree appears to increase the likelihood of belief in civic participation and good health among NEETs in the OECD, it does not have the same influence in the United States. In fact, in the United States NEETs are less likely to believe in civic participation or to report good health regardless of their educational attainment. We theorize that this distinction is influenced by differences in social policies for the unemployed in the United States relative to the broader OECD, in which direct government

transfers to unemployed individuals may be larger and last longer and government-sponsored healthcare, not tied to a specific job, is more prevalent.

Conclusions and Implications

In this study, we used OECD data from the PIAAC study to explore and provide a comparison of factors that influence NEET status among college-educated young adults in 29 OECD countries, including the United States. We also used US data from the ELS:2002 study to explore the same comparisons within the United States, an OECD nation with a relatively healthy economy and social policies that tend to be somewhat unique among developed nations. The juxtaposition of findings from two large data sources enabled us to highlight some factors related to the heretofore under researched issue of the NEET phenomenon among college-educated individuals, exploring the extent to which a college degree matters for NEETs and the extent to which college-educated NEETs are more or less likely to be socially engaged and report good health.

We conclude with a brief summary of the key findings of this study. First, having parents that have not finished high school puts even college-educated individuals at greater risk of disconnection. Second, a 2-year college degree may increase the likelihood of belief in civic participation and good health among NEETs across the 29 OECD countries in the study, including the United States; however, this does not seem to be the case within the United States itself. Third, women with children are most likely to be NEET, and men with children are least likely, regardless of education, across the OECD and within the United States. However, unlike in the United States, in which mothers with college degrees are more likely to be NEET, across the 29 countries of the OECD, mothers without degrees are more likely to be NEET. Finally, whereas field of study influences disconnection across OECD countries, in the United States specifically it does not matter as much as family background and the economic conditions that exist where one lives.

The implications of these findings are important to consider. Beyond confirming that a college degree does reduce the likelihood of disconnection from the labor market and education, the study results highlight that college-educated NEETs are at least more likely than NEETs without college degrees to remain civically engaged and in good health. Perhaps the most disheartening finding of the study is that low parent educational attainment can remain influential even for those with a college degree, clarifying how persistent the effects of socioeconomic disadvantage can be. This finding highlights the need for policies and programs to provide additional supports for college students from families with low education levels, to help them successfully make the transition from college to career.

The study results also suggest that family policies matter when it comes to mothers choosing to stay home or return to the workforce (Hegewisch & Gornick, 2011), indicating a need for a closer look at such policies as well as supports for mothers who want to return to the workforce. Greater access to subsidized childcare and paid family leave may benefit children and families and make childbearing less financially straining; it may also increase the amount of choice involved in the decision to opt out of the labor force to care for children or ill family members.

Finally, given that we set out to conduct one of the first studies of college-educated NEETs, the study findings highlight the need for further research on the needs of different types of NEETs and NEETs in different locations. As we noted above, the definition of NEETs used in this study is quite broad and groups together people with different reasons for being NEET, such as a disability or staying home to care for children. Future research could focus specifically on the needs of chronic NEETs; for example, if sufficient data were available, researchers and policymakers could learn more about factors influencing their outcomes and potential supports for their reconnection to the labor force.

Acknowledgments

We would like to acknowledge the critical work of Lisa Ankrah and Colleen McBride during the preparation of this report. We would also like to thank Deborah Ackerman, Juliette Lyons-Thomas, Jonathan Rochkind, Anita Sands, Stephanie Saunders, Anjali Srivastava, and Carly Slutzky for their helpful reviews. The opinions expressed and arguments employed herein are solely those of the author and do not necessarily reflect the official views of the OECD or its member countries.

Notes

1 We define "college educated" as individuals in possession of a 2-year or higher degree, based on the ISCED. Note that OECD data on educational attainment of NEETs are not available only for our focal age group of 20-something young adults, given that studies of NEETs tend to focus on ages 15–29.
2 Note that our prior work on this subject (Millett & Kevelson, 2018) separately explores factors predictive of disconnection among those that opted out of the labor force ("inactive NEETs") and those who continued to seek employment or educational opportunities ("active NEETs") within the United States.
3 Note that the PIAAC and ELS datasets we utilize for this study do not include data on the eventual labor market outcomes of those who were NEET at the time of the study; thus, we opted to focus on investigating the co-occurring social and health outcomes of NEETs.
4 In 2012, the federal guideline for childcare subsidies was 150% of the poverty line, which was roughly $27,700 (about $2,300 when measured monthly) for families with one adult and two children. Only 15–25% of eligible families received subsidies, and they tended to have the lowest incomes (Chien, 2015).
5 An odds ratio (OR) is a measure of association between a predictor and an outcome. The OR represents the odds that an outcome will occur given a particular value of the predictor, compared to the odds of the outcome occurring for the opposing value of the predictor (Szumilas, 2010).

References

Alfieri, S., Rosina, A., Sironi, E., Marta, E., & Marzana, D. (2015). Who are Italian "Neets"? Trust in institutions, political engagement, willingness to be activated and attitudes toward the future in a group at risk for social exclusion. *Rivista Internazionale di Scienze Sociali*, *3*, 285–306.

Alfieri, S., Sironi, E., Marta, E., Rosina, A., & Marzana, D. (2015). Young Italian NEETs (not in employment, education, or training) and the influence of their family background. *Europe's Journal of Psychology*, *11*, 311–322. http://doi.org/10.5964/ejop.v11i2.901

Atkinson, A. B., & Hills, J. (1998). *Exclusion, employment and opportunity*. The London School of Economics and Political Science.

Bardak, U., Maseda, M. R., & Rosso, F. (2015). *Young people not in employment, education or training (NEET): An overview in ETF partner countries*. European Training Foundation. https://www.etf.europa.eu/en/publications-and-resources/publications/young-people-not-employment-education-or-training-neet

Belfield, C. R., Levin, H. M., & Rosen, R. (2012). *The economic value of opportunity youth* (ED528650). ERIC. https://files.eric.ed.gov/fulltext/ED528650.pdf.

Berloffa, G., Matteazzi, E., & Villa, P. (2019). *Workless parents, workless children?* Style Handbook. https://style-handbook.eu/contents-list/family-matters/workless-parents-workless-children/

Bornstein, M. H. (2012). Cultural approaches to parenting. *Parenting: Science and Practice*, *12*(2–3), 212–221. https://doi.org/10.1080/15295192.2012.683359

Budig, M. J., & England, P. (2001). The wage penalty for motherhood. *American Sociological Review*, *66*(2), 204–225.

Burd-Sharps, S., & Lewis, K. (2017). *Promising gains, persistent gaps: Youth disconnection in America*. Measure of America. http://www.measureofamerica.org/youth-disconnection-2017/

Carcillo, S., Fernández, R., Königs, S., & Minea, A. (2015). *NEET youth in the aftermath of the crisis: Challenges and policies* (OECD Social, Employment, and Migration Working Papers, No. 164). OECD Publishing. https://doi.org/10.1787/5js6363503f6-en

Carcillo, S., Fron, P., Hyee, R., Keane, C., Königs, S., & Ladaique, M. (2016). *Society at a glance 2016: OECD social indicators: A spotlight on youth*. Organisation for Economic Co-operation and Development. https://www.oecd-ilibrary.org/social-issues-migration-health/society-at-a-glance-2016_9789264261488-en

Chamie, J. (2018). *More women stay at home than men*. Yale Global Online. https://yaleglobal.yale.edu/content/more-women-stay-home-men

Chien, N. (2015). *Estimates of child care eligibility and receipt for fiscal year 2012* [ASPE Issue Brief]. U.S. Department of Health and Human Services. https://aspe.hhs.gov/pdf-report/estimates-child-care-eligibility-and-receipt-fiscal-year-2012

Crawford, C., Gregg, P., Macmillan, L., Vignoles, A., & Wyness, G. (2016). Higher education, career opportunities, and intergenerational inequality. *Oxford Review of Economic Policy*, *32*(4), 553–575. https://doi.org/10.1093/oxrep/grw030

Davia, M. A., & Legazpe, N. (2014). Female employment and fertility trajectories in Spain: An optimal matching analysis. *Work, Employment and Society*, *28*(4), 633-650.

Elder, S. (2015). *What does NEETs mean and why is the concept so easily misinterpreted?* (Technical Brief No.1). International Labour Office. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/publication/wcms_343153.pdf

Esping-Andersen, G., Gallie, D., Hemerijck, A., & Myles, J. (2002). *Why we need a new welfare state*. Oxford University Press. https://doi.org/10.1093/0199256438.001.0001

Eurofound. (2012). *Young people and "NEETs" infographic*. https://www.eurofound.europa.eu/emcc/labourmarket/youthinfographic

Eurofound. (2016). *Exploring the diversity of NEETs* (Report No. 9289714662). Publications Office of the European Union, Luxembourg. https://www.eurofound.europa.eu/publications/report/2016/labour-market-social-policies/exploring-the-diversity-of-neets

Eurostat. (2019, January 15). *Young people neither in employment nor in education and training (NEET)*. https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Young_people_neither_in_employment_nor_in_education_and_training_(NEET)

Fernandes-Alcantara, A. L. (2015). *Disconnected youth: A look at 16 to 24 year olds who are not working or in school* (Report No. R40535). Federation of American Scientists. https://fas.org/sgp/crs/misc/R40535.pdf

Froy, F., & Pyne, L. (2011). *Ensuring labour market success for ethnic minority and immigrant youth* (OECD Local Economic and Employment Development Papers, No. 2011/09). OECD iLibrary. https://www.oecd-ilibrary.org/industry-and-services/ensuring-labour-market-success-for-ethnic-minority-and-immigrant-youth_5kg8g2l0547b-en

Givens, M., Gennuso, K., Jovaag, A., & Willems Van Dijk, J. (2017). *2017 county health rankings: Key findings report*. University of Wisconsin Population Health Institute. https://www.countyhealthrankings.org/resources/2017-county-health-rankings-key-findings-report

Glynn, S. J., & Corley, D. (2016). *The cost of work-family policy inaction: Quantifying the costs families currently face as a result of lacking U.S. work-family policies*. Center for American Progress. https://cdn.americanprogress.org/wp-content/uploads/2016/09/22060013/CostOfWorkFamilyPolicyInaction-report.pdf

Goodman, M., Finnegan, R., Mohadjer, L., Krenzke, T., & Hogan, J. (2013). *Literacy, numeracy, and problem solving in technology-rich environments among U.S. adults: Results from the Program for the International Assessment of Adult Competencies 2012. First look* (ED544452). ERIC. https://files.eric.ed.gov/fulltext/ED544452.pdf.

Green, C. (2015). Internationalization, deregulation and the expansion of higher education in Korea: An historical overview. *International Journal of Higher Education*, *4*(3), 1–13. https://doi.org/10.5430/ijhe.v4n3p1

Hair, E. C., Moore, K. A., Ling, T. J., McPhee-Baker, C., & Brown, B. V. (2009). *Youth who are "disconnected" and those who then reconnect: Assessing the influence of family, programs, peers and communities*. Child Trends. https://www.childtrends.org/publications/youth-who-are-disconnected-and-those-who-then-reconnect-assessing-the-influence-of-family-programs-peers-and-communities-3

Hegewisch, A., & Gornick, J. C. (2011). The impact of work-family policies on women's employment: A review of research from OECD countries. *Community, Work & Family*, *14*(2), 119–138. https://doi.org/10.1080/13668803.2011.571395

Herrarte, A., Moral-Carcedo, J., & Sáez, F. (2012). The impact of childbirth on Spanish women's decisions to leave the labor market. *Review of Economics of the Household*, *10*(3), 441-468.

Ingels, S. J., Pratt, D. J., Rogers, J. E., Siegel, P. H., & Stutts, E. S. (2005). *Education Longitudinal Study of 2002: Base-year to first follow-up data file documentation* (Report No. 2006-344). National Center for Education Statistics. https://nces.ed.gov/pubs2006/2006344_1.pdf

Joesch, J. M. (1997). Paid leave and the timing of women's employment before and after birth. *Journal of Marriage and Family 59*(4), 1008–1021.

Julian, T., & Kominski, R. (2011). *Education and synthetic work-life earnings estimates* (Report No. ACS-14). United States Census Bureau. https://www.census.gov/library/publications/2011/acs/acs-14.html

Kelly, E., & McGuinness, S. (2015). Impact of the Great Recession on unemployed and NEET individuals' labour market transitions in Ireland. *Economic Systems*, *39*(1), 59–71. https://doi.org/10.1016/j.ecosys.2014.06.004

Kirsch, I., & Thorn, W. (Eds.). (2013). *Technical report of the Survey of Adult Skills (PIAAC)*. OECD Publishing.

Lalive, R., & Zweimüller, J. (2009). How does parental leave affect fertility and return to work? Evidence from two natural experiments. *The Quarterly Journal of Economics*, *124*(3), 1363–1402. https://doi.org/10.1162/qjec.2009.124.3.1363

Lauff, E., Ingels, S. J., & Christopher, E. M. (2014). *Education longitudinal study of 2002 (ELS:2002): A first look at 2002 high school sophomores 10 years later*. National Center for Education Statistics. https://nces.ed.gov/pubs2014/2014363.pdf

Lindemann, K., & Gangl, M. (2019). The intergenerational effects of unemployment: How parental unemployment affects educational transitions in Germany. *Research in Social Stratification and Mobility*, *62*(1–12), 100410. https://doi.org/10.1016/j.rssm.2019.100410

Luria, G., Cnaan, R. A., & Boehm, A. (2017). Religious attendance and volunteering: Testing national culture as a boundary condition. *Journal for the Scientific Study of Religion*, *56*(3), 577–599. https://doi.org/10.1111/jssr.12360

Millett, C. M., & Kevelson, M. J. C. (2018). *Doesn't get better with age: Predicting millennials' disconnection* (Research Report Series No. RR-18-42). Educational Testing Service. https://doi.org/10.1002/ets2.12219

Morgan, K. J., Zippel, K. (2003). Paid to care: The origins and effects of care leave policies in Western Europe. *Social Politics: International Studies in Gender, State, & Society 10*(1), 49–85.

National Center for Education Statistics. (n.d.). *PIAAC proficiency levels for numeracy*. https://www.nces.ed.gov/surveys/piaac/numproficiencylevel.asp

National Conference of State Legislatures. (2016, July 19). *State family and medical leave laws*. http://www.ncsl.org/research/labor-and-employment/state-family-and-medical-leave-laws.aspx

National Conference of State Legislatures. (2018, January 10). *Paid family leave resources*. http://www.ncsl.org/research/labor-and-employment/paid-family-leave-resources.aspx

Nunez, I., & Livanos, I. (2010). Higher education and unemployment in Europe: An analysis of the academic subject and national effects. *Higher Education*, *59*(4), 475–487. https://doi.org/10.1007/s10734-009-9260-7

Ondrich, J., Spiess, C. K., & Yang, Q. (1996). Barefoot and in a German kitchen: Federal parental leave and benefit policy and the return to work after childbirth in Germany. *Journal of Population Economics*, *9*(3), 247–266. https://doi.org/10.1007/BF00176687

Organisation for Economic Co-operation and Development. (2013). *The survey of adult skills: Reader's companion*. OECD Publishing.

Organisation for Economic Co-operation and Development. (2016a). *Society at a glance: OECD social indicators*. https://www.oecd-ilibrary.org/sites/9789264261488-en/index.html?itemId=/content/publication/9789264261488-en

Organisation for Economic Co-operation and Development. (2016b). *Trends shaping education spotlight 9: Country roads: Education and rural life*. http://www.oecd.org/education/ceri/spotlight9-CountryRoads.pdf

Organisation for Economic Co-operation and Development. (2017). *Education at a glance 2017: OECD indicators*. OECD Publishing.

Organisation for Economic Co-operation and Development. (2018a). OECD Education Statistics [Database]. http://stats.oecd.org/

Organisation for Economic Co-operation and Development. (2018b). *Education at a glance 2018: OECD indicators*. https://www.oecd-ilibrary.org/education/education-at-a-glance-2018_eag-2018-en

Organisation for Economic Co-operation and Development. (2019a). *Education at a glance 2019: OECD indicators*. https://www.oecd-ilibrary.org/education/education-at-a-glance-2019_f8d7880d-en;jsessionid=1EzsnXCkHKOCa45WbshiAQJ3.ip-10-240-5-84

Organisation for Economic Co-operation and Development. (2019b). Family indicators. *OECD Social and Welfare Statistics* [Data set]. https://doi.org/10.1787/efd30a09-en

Organisation for Economic Co-operation and Development. (2020). *Regional labour: Labour indicators by rural/urban typology, country level* [Data set]. https://stats.oecd.org/index.aspx?queryid=95904

Organisation for Economic Co-operation and Development. (n.d.). *Unemployment rate*. https://data.oecd.org/unemp/unemployment-rate.htm

Pilz, M., Schmidt-Altmann, K., & Eswein, M. (2015). Problematic transitions from school to employment: Freeters and NEETs in Japan and Germany. *Compare: A Journal of Comparative and International Education*, *45*(1), 70–93. https://doi.org/10.1080/03057925.2013.835193

Pronzato, C. D. (2009). Return to work after childbirth: Does parental leave matter in Europe? *Review of Economics of the Household*, *7*(4), 341–360. https://doi.org/10.1007/s11150-009-9059-4

Quintano, C., Mazzocchi, P., & Rocca, A. (2018). The determinants of Italian NEETs and the effects of the economic crisis. *Genus*, *74*(1), Article 5. https://doi.org/10.1186/s41118-018-0031-0

Radford, A. W., Fritch, L. B., Leu, K., Duprey, M., & Christopher, E. M. (2018). *High school longitudinal study of 2009 (HSLS:09) second follow-up: A first look at Fall 2009 ninth-graders in 2016* (NCES 2018-139). National Center for Education Statistics. https://nces.ed.gov/pubs2018/2018139.pdf

Rank, M. R. (1994). A view from inside out: Recipients perceptions of welfare. *The Journal of Sociology & Social Welfare 21*(2), 27–47

Ross, M., & Svajlenka, N. P. (2016). *Employment and disconnection among teens and young adults: The role of place, race, and education*. Brookings Institution. https://www.brookings.edu/research/employment-and-disconnection-among-teens-and-young-adults-the-role-of-place-race-and-education/

Samoilenko, A., & Carter, K. (2015). *Economic outcomes of youth not in education, employment or training (NEET)*. New Zealand Treasury. https://treasury.govt.nz/publications/wp/economic-outcomes-youth-not-education-employment-or-training-neet-wp-15-01

Schott, L., Pavetti, L., & Floyd, I. (2015). *How states use federal and state funds under the TANF block grant*. Center on Budget and Policy Priorities. https://www.cbpp.org/research/family-income-support/how-states-use-federal-and-state-funds-under-the-tanf-block-grant

Szumilas, M. (2010). Exploring odds ratios. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, *19*(3), 227–229.

UNESCO Institute of Statistics. (2015). *ISCED 2011 operational manual: Guidelines for classifying national education programmes and related qualifications*. http://uis.unesco.org/en/topic/international-standard-classification-education-isced

Vilorio, D. (2016). *Data on display: Education matters*. U.S. Bureau of Labor Statistics. https://www.bls.gov/careeroutlook/2016/data-on-display/education-matters.htm

Williams, J. & Wilson, V. (2019). *Black workers endure persistent racial disparities in employment outcomes*. Economic Policy Institute. https://files.epi.org/pdf/173265.pdf

Wu, C. C. (2011). High graduate unemployment rate and Taiwanese undergraduate education. *International Journal of Educational Development*, *31*(3), 303–310. https://doi.org/10.1016/j.ijedudev.2010.06.010

Zhelyazkova, N. & Ritschard, G. (2017). Parental leave within the broader employment trajectory: What can we learn from administrative records? *Equality, Diversity and Inclusion: An International Journal*, *36*(2), 607–627. http://doi.org/10.1108/EDI-05-2017-0109

Appendix

Table A1 Means and Frequencies of Demographic Characteristics for College- Educated ELS:2002 Longitudinal Sample Members With and Without Data on College Field of Study Questionnaire Items

Status	Has field of study data $N = 4{,}002$	Missing field of study data $N = 1{,}409$
Parent educational attainment		
At least one parent with college education	78.8%	72.7%
No parent with upper secondary/high school education	1.9%	4.4%
Immigration status		
First-generation immigrant	9.2%	10.2%
Second-generation immigrant	12.4%	14.9%
NEET	5.9%	9.4%
Average county-level rate of NEET among 26-year-olds[a]	11.2%	12.0%
Female	57.5%	55.3%
Respondent has children	14.0%	19.2%
Female with children	9.6%	12.8%
Volunteered	53.6%	50.7%
Voted	85.5%	82.5%
Became Ill or Disabled	5.7%	6.8%
Mean family SES (scale = −2.7 to 2.5)	0.56	0.35
Mean mathematics score (scale = −0.3 to 3.2)	0.60	0.39
Race/Ethnicity		
Black	8.3%	7.6%
Hispanic	8.5%	11.7%
White	68.2%	62.2%
Asian	10.9%	13.3%
Other race	4.1%	5.3%

Note. NEET = not in education, employment, or training. Descriptives and frequencies run on weighted data from the ELS:2002 longitudinal sample representative of the population of 2002 US sophomores with at least a 2-year college degree by 2012, with and without data on the field of study variables. [a]A total of 412 US counties are represented in this variable.

Suggested citation:

Kevelson, M. J. C., Marconi, G., Millett, C. M., & Zhelyazkova, N. (2020). *College-educated yet disconnected: Exploring disconnection from education and employment in OECD countries with a comparative focus on the U.S.* (Research Report No. RR-20-21). Educational Testing Service. https://doi.org/10.1002/ets2.12305

Action Editor: Donald Powers

Reviewers: Juliette Lyons-Thomas, Anita Sands, and Anjali Srivastava