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Job Characteristics and Early Experiences at Work Subpanels

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Introduction

BLS convened an Employment and Work Arrangements Content Panel to provide recommendations for the collection of employment data from the planned National Longitudinal Surveys of Youth 2026 cohort. Information explaining the overall mandate, structure and coordination of the Employment and Work Arrangements Content Panel can be found in the Employment Panel Overview report. This report summarizes the recommendations of the Job Characteristics and Early Experiences at Work subpanels.

The remainder of this report comprises a number of recommendations on topics to cover in the employment section of a new cohort survey. At the direction of BLS, the panel assumed that a few core topics would be included and did not discuss these: total earnings, wages at primary job, total hours working (but see the section on scheduling for additional detail on hours), industry, occupation, and union status.

This report is organized by questionnaire topic. Each topic includes recommendations for questionnaire content along with, as appropriate, information about research themes and social trends, comparable questions in previous NLSY cohorts, methodological issues, key aspects of disparity and inequality, and alternative sources of data on the topic. A few sections highlight important ties to core data outside of the employment field.

Topic-Related Recommendations for the New Cohort

Exhibit 1, which is appended to the Employment Panel Overview report, provides details about each specific recommendation, including whether the topic is included in earlier NLSY surveys, data collection method, recommended age for data collection, and so on. Each recommendation is also assigned a priority of high, medium, or low, as reflected in Exhibit 1 and also noted in the text sections below. Information about how the panel arrived at these priority recommendations is included in the Employment Panel Overview report.

Wages and Hours

As noted above, we have assumed that BLS will continue asking core questions about wages and hourly rate of pay. These questions are of obvious importance to the research community, so they have not been investigated in depth in this report. However, we briefly note here a few recommendations for consideration in the design of these questions for the NLSY26.

Recommendations for Questionnaire Content

Test ways to reduce detail on pay types within job (low priority). While it is valuable for some purposes to have detailed break outs of pay of different types (hourly wage, overtime, bonus, tips, commissions, etc.), most researchers who use NLSY pay variables aggregate across these multiple types. We would all prefer to keep the detail rather than to lose it. However, if BLS is seeking ways to simplify data collection around pay, the most-important concepts are total earnings, total hours, and straight time hourly earnings (if defined). Distinguishing between straight time earnings, overtime, commissions, sales, tips, bonuses, and the like is valuable for some purposes but not the highest priority conceptually. If BLS considers changes, cognitive testing could be done on whether one can still elicit necessary information with simplification. Possible harm in terms of comparability should also be assessed through studying the degree of agreement between data elicited the old and any possible new way.

Include all kinds of earning, stigmatized or not (high priority). Strive to ensure that all types of earning opportunities are reported, including informal and illicit activities. Consider folding questions about illegal work into the same survey section as legal work, with the idea that young people who, e.g., retail drugs are motivated by the same desire to make some money as those who scoop ice cream or mow lawns, and with the hope that doing so would improve the accuracy of responses related to illegal work. The youngest subjects may be especially vulnerable to stigmatized work and it may have long term consequences, so understanding this dimension of work is very valuable for early work.

Methodological issues. Wages for some individuals are difficult to measure by looking only at income and not accounting for costs associated with generating that income. For conventional employment relationships, these costs are negligible, as the employer covers most work-related expenses. However, for the self-employed, independent contractors, platform workers and others, these costs can be very substantial (Parrott and Reich, 2018). Measures of wage based only on income, without accounting for costs, are biased up.

Relevant alternative data sources. Linking to the LEHD would add tremendous value to survey measures of employees' earnings. Disagreement between survey and administrative measurement would help identify potential measurement error in job, employer, start and end dates, and earning between the two sources. Investigating those areas of disagreement could improve both sources and all research based on them.

Early Work Experiences

Research themes, social trends and policy changes

Experiences Related to School. Work-based learning (WBL) can be an important source of early work experiences for youths. Evidence shows that overall students have been completing more years of schooling and are taking more course credits over the past few decades. But during this period, there has generally been a decline in career and technical education (CTE) course taking. An exception is CTE courses related to engineering and technology which have had increasing enrollments (Irwin et al., 2022; A Nation's Report Card, 2023).

The *Perkins Act* is the primary funding source for Career and Technical Education (CTE) programs. The fifth reauthorization of the *Act* (*Perkins V*) in 2018 required states to implement performance reporting. At the secondary level, states were given broad leeway in choosing their performance measures for program quality, including postsecondary credit attainment, postsecondary credential attainment, and participation in WBL. This third option was among the most popular, leading to a broad expansion in high-school WBL experiences.

Despite this inclusion as a performance requirement for Federal reporting, there is very little data to describe these WBL experiences. They can range from formal apprenticeships and internships, to in-school work training, to credit received for normal jobs students hold, to simply learning about a profession in school. Two facts are important here. First, internships and apprenticeships are relatively rare in formal terms for students in high school or younger. Those that exist are largely run through high school CTE programs through their WBL component (which is funded by the Federal government through Perkins). Second, the impacts of WBL (e.g., on high school completion or later work outcomes) are of interest to both researchers and policymakers. But what constitutes WBL is not clearly defined. Schools can arrange formal apprenticeships and can also simply count a summer job as WBL.

Key Research Questions

1. How does access to work vary across place and student characteristics among students who are enrolled in school? The *type* of WBL experiences students have, and the types of opportunities schools offer are important considerations for understanding their experiences, their opportunities to learn, and emerging inequalities. The type of WBL is unobserved in existing data, which largely records if they took WBL, not what they took.
2. Why do students/respondents choose to take these WBL opportunities? Which types of communities and schools create student access to these opportunities? Given the opportunities, why do students choose to enroll or not?
3. What is the impact of WBL on later employment? Does it lead to jobs (possibly through references)? Does it impart skills? Is it a substitute for (or complement to) other work opportunities while young? And how does it influence academic progress in school, for example through the decision to graduate from high school or attend college?

Early Work Experience Outside of School. In the years since the NLSY97 cohort were teens, employment among teens has fallen overall in the US, with perhaps a reversal of that trend since COVID. This trend reflects some combination of labor markets for low-skill workers (most teens are low-skill) becoming more competitive, regulation that promotes the substitution of capital goods and higher-skill labor for low-skill labor such as state minimum wage increases which, at times, have been dramatic, and more frequent decisions by parents to focus their children's time and energy on schoolwork with an eye toward college admission decisions.

Piecework, part-time, temporary, informal, family-based, and other forms of freelance and self-employed work have long been characteristic of early work experiences among youths. The recent expansion of the gig economy and the rapid development of technology undergirding the expansion have changed the character of the work, and this should be reflected in the items the youngest respondents are asked in relation to their work experiences.

Access to broadband and to computers may be an especially important consideration for the youngest workers, who may be more likely to rely on community, family, and school resources (see section on barriers to work). As such, these early work experiences may set the stage for long run disparities in work experiences and development of skills. As researchers seek to understand early work experiences, it may be important to consider additional dimensions of the work experience related to the gig economy. Whether work is conducted in-person or remotely/online (partly or entirely) are important new dimensions to understand young workers' early work experiences.

The technological changes that facilitate new forms of gig work might have opened up more and increasingly diverse opportunities for gig work among the youngest sample members. More of the gig work available to young people today has the potential to pay well and/or build skills that are in high demand in the labor force (e.g., computer programming). Broadband access, technical knowledge and skills required for the new forms of work, flexibility of hours in relation to schoolwork, and opportunities to gain new skills are all aspects of gig work for which there is little systematic information currently.

There is greater interest in and sophistication in estimating treatment effect heterogeneity. Most of the research on these questions used data from earlier NLSY cohorts and looked at average effects. In the future, in addition to looking for the nature and sources of continuity and change across cohorts on average, future researchers need to look harder for heterogeneity in these answers. It is easy to imagine, for example, that work during the teen years would help some students remain engaged with school and disengaged from crime while for other students it might distract from school engagement.

While many young people work in what we call "formal" employment, many work in "informal" arrangements, some of which are not legal. This is of course true of adults, as well. Yet, because many young people are explicitly excluded from formal work, often by law, those who choose to or need to work to support themselves or their families often find alternative arrangements. Because lines can become blurred between informal work (e.g., babysitting for cash), illegal informal work (e.g., off the books employment in the service industry), exploitative work (youth working in dangerous occupations such as farming or factory work), and other illegal work (e.g., selling drugs), and because these may constitute a large portion of youth earnings, we believe it is crucial for the NLSY26 to explicitly ask about this type of work. We briefly note a few key points:

To date, there is very little data, if any, that accurately accounts for earnings of young people from informal work, particularly illegal work. We do not know how it varies across groups, how it responds to macroeconomic conditions, or how work experiences affect subsequent outcomes. The NLSY has a unique opportunity to provide what might be the best empirical evidence to date on these factors.

We believe placement of these topics should be in the work section. These are forms of work; recognizing them as such could lead to more accurate reporting by destigmatizing them. The NLSY already asks related questions, for example about earnings from informal employment, and in other parts of the survey (under crime) whether respondents sell drugs or illegal items. We believe that by asking about all earnings, whether legal or illegal, formal or informal, the NLSY will gain a clearer picture of overall earnings and "employment" and get a more accurate set of responses for illegal activity that leads to earnings.

Youth crime and youth (un-)employment are by no means emerging trends. Yet, understanding the causes and consequences of these factors remains a difficult task. It is also an important one. Criminal activity and often informal work increase when the economy is weak and jobs scarce (for youth and adults) (Raphael & Winter-Ebmer, 2001; Gould, Weinberg & Mustard, 2002; Machin & Meghir, 2004). Informal work is more common among young people, people from less wealthy families, youth of color, and those lacking formal documentation. Criminal activity can follow due to fewer opportunities for formal work (Lochner, 2004; Ulyssea, 2020; Light, He & Robey, 2020). Further, criminal histories can follow youth into adulthood, affecting later employment opportunities, and informal work involves few of the protections from the formal market (Freeman, 1999; Bell, Bindler & Machin, 2018).

Key Research Questions

1. The traditional questions associated with youth employment, reviewed in some detail in the topic statements on summer jobs and on school-related employment, remain very relevant. To what extent does teen employment impact achievement at school? To what extent does it affect later labor market outcomes, particularly for youth who do not go on to post-secondary education? To what extent does it affect other adult behaviors, such as civic engagement or crime?
2. Many new questions also merit study using the new cohort. Some of these flow naturally from the technological and labor market changes described above. Even basic descriptive information on the nature and extent to which younger workers have moved into working online, into gig work, and/or into working at home will have great value. Does flexible online work represent a greater distraction from school or make it easier to combine work and school effectively? More broadly, what are the reasons for decreased work activity among teens over the last two decades?
3. What is the nature of the gig work that young people currently engage in? To what extent does it pay well or build skills? Does it compete with school demands or apply knowledge learned in school, for example through computer science courses? Are there disparities among respondents based on family resources that might have the potential to reproduce (or disrupt) the transmission of intergenerational inequality into adulthood?
4. Finally, understanding the incidence of illegal and/or informal work for youth will represent a major advance in research. What activities are most common and why do people undertake illegal and/or informal activities to earn money? What are the short- and long-term effects of these decisions?

Early Work Experiences in Summer. According to Pew data, two decades ago half of American teens were in summer employment, compared to less than one third of teens in 2018 (Desilver, 2022); the Urban Institute attributes this drop in teen summer employment to the Great Recession (Spievack and Sick, 2019). Drexel's Center for Labor Market Studies suggests that the teen summer employment rate may have been at a historic low in the summer of 2020 (Fogg et al., 2021). The Bureau of Labor Statistics reported that in July 2020, only 46.7 percent of 16- to 24-year-old youths were employed, down from 56.2 percent in July of 2019 (*Bureau of Labor Statistics*, accessed 2023). The youth unemployment rate in July 2020 was about double the rate in July 2019. More recently in the summer of 2022, BLS reported 55.3 percent of young people (persons ages 16 to 24) were employed (*Bureau of Labor Statistics*, accessed 2023). This measure was up from 54.4 percent in July 2021. The July 2022 figure remains below its level of 56.2 percent in July 2019, prior to the onset of the coronavirus.

While summer youth employment rates have declined over the past several decades, summer youth employment programs (SYEP) remained a rite of passage for some American urban youth. Summer jobs programs run for five to seven weeks, enrolling young people (as early as 12 in Philadelphia, and more typically beginning at 14) and into their teens and sometimes until the age of 21 or 24 (Ross and Kazis, 2016). Although the exact age range varies by area, most youth are hired into subsidized jobs in government or nonprofits, and work between about 15 and 35 hours per week (Ross and Kazis, 2016). Most programs have some private-sector participation, including unsubsidized positions in which the employer pays the wages. Programs rely more heavily on city and private funds than Federal funds. While Federal funds, such as those provided through the Workforce Innovation and Opportunity Act, are available to pay for summer work experience, many jurisdictions prefer not using them because of related funding requirements (Ross and Kazis, 2016).

Youth receive varying levels of work-readiness training before they are placed at worksites through SYEP, ranging from several hours to several days of pre-employment workshops. Many positions and worksites do not require skills or experience, while others are more selective or competitive (Ross and Kazis, 2016). During the pandemic, some summer job programs adapted to include hybrid or remote work. A more recent trend is cities, such as DC, that are paying youth enrolled in summer school (Swaak, 2021).

Evidence has shown that providing youth with work experience opportunities reduces violence. A randomized controlled trial found that Chicago's 2012 One Summer Chicago program for at-risk youth reduced violent-crime arrests by 43 percent over 16 months (Ross and Kazis, 2016). The persistence of the impacts long after the program ended demonstrates the promise of this strategy for reducing violence and improving outcomes for youth. Some evidence suggests that early work experience, like summer youth employment, has lasting effects on employment success and job quality of young adults, persisting well into adulthood. Finally, a study showed that youth engaged in the city's summer employment program were more likely to graduate high school after years of SYEP participation (Center for Human Services Research, 2019).

Key Research Questions

1. What types of work are youths engaging in during the summer, and is it associated with a structured program?
2. Does summer employment keep young adults safe during the summer months when they might otherwise have less access to structured activities?

3. Does summer employment keep participants engaged in school? Does it increase earnings over a lifetime? Does it increase a young person's social capital? Does it result in more satisfaction in future jobs? These are some of the goals of summer work programs.
4. How does public summer youth employment program participation impact life course outcomes?

Related foundational data. Many school-related employment opportunities are designed to provide work-based learning opportunities and build skills. Furthermore, career and technical education (CTE) coursework, which often provides work experience, is designed to provide foundational experiences for young people. Although there is mixed evidence that these courses contribute to positive labor market outcomes, the nature of these early work experiences and their effects has been the focus of research using each of the previous NLSY cohorts. In the past, these experiences were in lieu of academic preparation and coursework. Some evidence from recent high school transcript studies suggests that this trend has shifted such that the same young people who have school-based work experiences also have more advanced college preparatory academic experiences. Understanding how these foundational early work experiences have changed in light of changes in the economy is vital to the NLSY cohort studies.

Details about primary and secondary schooling will be important for studying employment outcomes. Cognitive and non-cognitive test scores have a well-established relationship to employment. Information on unpaid caregiving (e.g., of elderly grandparents) within the family will also shed light on eventual employment outcomes.

Many of youth's summer employment experiences, especially among the youngest workers, are connected to government or other formal programs. These programs, their availability, and even the age of eligibility vary across states and local areas.

Measuring disparities and inequalities. States have different regulations and school districts (and schools) offer different opportunities, which may result in differential outcomes over the life course. Understanding how these vary by student socio-demographic characteristics and urbanicity is valuable. Although male and female students likely have similar opportunities as gender is not correlated with school quality, schools also vary in culture and other factors that might shape the incentives or barriers that different students face. Hence observing differences across gender in addition to other sociodemographic characteristics will be valuable.

Individual respondents will face very different labor markets along measurable dimensions. Such dimensions include whether they reside in an urban area, a suburban area, or a rural area, the strength of the local labor market, whether or not they have easy access to broadband, which matters both for job search and for undertaking remote work, whether or not their parents or other close relatives have access to networks that might yield internships or just regular jobs, and so on. Added to these are demographic subgroup variables such as race and gender.

The availability of broadband and of computers will be important for understanding the context of this work and the evolution of inequalities. Schools in economically disadvantaged areas may provide students with laptops or other electronic devices for doing schoolwork, but access to computers may be more challenging for other students. Questions like how students found the work and developed any necessary skills for the work may shed light on the sources of inequalities and/or how early economic disadvantage is mitigated through technological advances. Remote and online work may be more accessible to some workers with disabilities, including the youngest workers.

As highlighted in the BLS annual summer employment report that comes out in July/August each year, race and gender participation rate differences are significant and important. The NLSY26 could illuminate important differences in patterns between urban and non-urban populations as well. The longitudinal nature of the NLSY would allow for a deep understanding of the impact of these early work experiences over time on career and related life trajectories.

Previous NLSY content. The surveys for both the NLSY79 and the NLSY97 spend a substantial amount of time on questions related to youth employment, both during the school year (whether or not associated with the school) and during the summer.

The NLSY97 asked about vocational and technical education in high school, but comparing this with transcript data suggests that students are often unaware of opportunities, or even whether the courses or experiences they take are counted as CTE (or WBL under CTE). Comparisons will be difficult.

The work battery in the NLSY79 and NLSY97 do not ask about income or earnings from non-standard employment. Hence, we have an incomplete picture of total income and earnings. They do ask about illegal activity, which in some cases would be comparable. The proposed questions on early work will allow researchers to compare the NLSY26 to earlier cohorts, particularly the NLSY97, but will provide richer detail.

Selected topics for data collection. The National Center for Education Statistics is developing a questionnaire for the youngest Secondary Longitudinal Studies Program cohort, High School and Beyond 2022. This cohort of high school tenth graders is older than the youngest NLSY26 sample members. Although data are not yet released, the HSB2022 study may be in a position to share items by the time NLSY26 develops its questionnaire. The two studies have complementary nationally representative samples of adolescents. Harmonizing items could open possibilities for researchers to use the household-based and school-based designs to understand pathways into school and work.

Recommendations for Questionnaire Content

Summer youth employment (medium priority). Whether a job is intended to start and end within academic summer vacation. Whether the opportunity is publicly funded or associated with a structured program (often publicly funded).

School-connected work (e.g., for school credit internships) (medium priority). Whether a job was secured through a student's educational institution (school-based or CTE program), whether it earns the student credit towards their educational program, and whether it has a work-based learning component. Ask this only of students in high school.

Work outside of school (medium priority). All kinds of other work for students. It's important to recognize that early work today may be more varied than in previous cohorts, in part because more jobs can be accessed via the internet. For respondents who are still in school, ask if the work hours or demands conflict with school demands. Additionally, ask youth especially why they seek employment. Possible reasons might include money to help their family, money to spend on their own consumption (e.g., clothes, concerts, or hobbies), opportunities to hang out with friends, improving their college application (e.g., with internships and such), learning new skills, getting out

of the house and away from their parents, and so on. Additionally, they may value the opportunity to work with friends.

Methodological issues

Early Work Experience Related to School. Many students are unaware that their work experiences in schools are counted as CTE credit. There will be very wide heterogeneity in what they do. These jobs, apprenticeships, internships, and such can work in both directions, ostensibly. A student can get a job and then also have it count as a WBL for school. Alternatively, a student can have a work-based experience (e.g., an internship) through school which might or might not be paid.

Early Work Experience Outside of School. *Age restrictions on universe for employment questions in early waves*. We suggest that the NLSY26 should consider modifying the age cutoffs for employment questions to begin the employment event history at age 13. Although Federal law prohibits most regular job holding for youth ages 15 and below, there are significant changes in the technology of work with respect to self-employment opportunities. We also note that Federal summer jobs programs serve youth ages 14 and above, and even younger in some cities. We would then recommend retaining questions similar to the NLSY97 freelance jobs section for the youngest respondents. However, we note that the panel did not come to a firm consensus recommendation on exact questions at particular ages, and one panelist recommended simply asking all respondents what they do to earn money.

The design team may want to consider reviewing the literature based on more recent surveys that ask youth about work and do not impose the age and dollar amount restrictions in the NLSY97. For example, Laberge et al. (2022) use data from the Quebec Longitudinal Study of Child Development to examine the work behavior of 13-year-olds in Quebec around 2010, demonstrating effective administration of these questions to younger respondents.

Categories of jobs and their representation in the survey instrument. The NLSY97 survey instrument differentiates between what one might call regular jobs, freelance jobs, and illegal work. Information on illegal work (black rather than gray market, which is to say, not illegal in the sense of not paying taxes but in the sense that the work task itself is illegal, such as selling certain drugs) is differentiated by being collected in a separate survey section on criminal activity.

The panel discussed distinguishing between summer jobs and jobs during school, perhaps motivated by the presence of government-sponsored summer job programs for youth and by the rise of work-based learning in high schools. Incorporating such distinctions into the survey question flow seems like it would add a great deal of additional complexity to the survey for relatively low gain, given the issues discussed elsewhere associated with attempting to measure participation in either summer youth employment programs or formal government-supported work-based learning programs.

Summer Youth Employment. The panel recommends collecting information on summer youth employment between the ages of 14-21 or younger if possible. This is both objective and subjective; views of our summer jobs morph over time as respondents age into more permanent careers.

Measurement of participation in government-run Summer Youth Employment Programs (or SYEPs) is challenging but important. We know from a broad literature that traditional surveys do not do very well at picking up participation in government programs, both transfer programs like SNAP and active labor market programs like WIOA. This is particularly true in the case of programs like SYEPs, which have

different names in different jurisdictions and where the program design and implementation may not highlight the fact of government funding (e.g., because it contracted out to a community group). The survey should pick up the employment itself, even if it fails to link it to the SYEP.

Given accurate measurement, one could do useful and policy-relevant research on the determinants and equity of program take-up as well as attempting to estimate the treatment effect of program participation, possibly using geographic variation in the extent if SYEP variability or eligibility rules. The programs seem large enough that reasonable numbers of participants would appear even in a dataset the size of the NLSY26. At the same time, linkage to administrative data to measure program participation seems infeasible here, given the relatively decentralized (i.e., municipal rather than Federal) operation of the programs. A second-best solution could at least try to tailor the survey question to the respondent's location by using the local SYEP program name. This was done in the surveys associated with the National Job Training Partnership Act (JTPA) Study, which NORC designed long ago and which featured distinctive local names.

Youth Employment of All Kinds. Broadly, social scientists view many activities that the NLSY and other surveys currently consider "crime" to in fact be "work". While they might be both, there is a case to be made for some questions to be in the employment section, in particular for youth. The framing of criminal activity affects response rates. Reframing questions concerning criminal activity as questions about how respondents earn money could increase responses and accuracy. Self-reporting of illegal activity is a unique strength of the NLSY surveys; this is an opportunity to broaden that.

Framing illegal work as employment rather than crime would facilitate related questions about how much respondents earn from these activities, and potentially whether they are responsive to the labor market. Current questions about earnings from illegal work are far different from those for legal work. If the focus of the employment section is to ask about how people (including youth) earn money, then these activities belong here and not in a section on criminal activity. This dovetails into questions related to (illegal) work and persistence in school, in addition to questions related to the effect of (local) labor market conditions on employment and crime. This approach would also facilitate a smooth transition of this line of questions to measures of illegal activity in adult years. For example, how did youth crime affect adult employment?

A more extensive definition of work to include illegal work would be new. Above, we recommended asking a unified set of questions across all ages and jobs as much as possible and ensuring that the questions are always framed with the intention of applying to all work, legal or not. Here are some alternative wordings to consider that might be more inclusive than the current ones:

- When did this work start? When did you start earning money in this way?
- Do you have a "supervisor" or someone you report or give money to?
- How many hours do you typically spend on this activity?
- How much do you typically earn in this activity (each day, e.g., week, etc.)?
- How are you paid?
- How did you start doing this work?
- Why do you do this work, etc.

This distinction might be made in the survey by asking, at the end of the youth employment section (after asking about all jobs, paid and unpaid) – "Are there other ways in which you earn money, for example by

selling illegal substances or goods, selling items and earning unreported cash, etc.…" Since the jobs will not have normal salaries or hours, it is worth considering how to make these comparable to the other questions in the earnings battery.

Questions should also recognize that youth especially may have work and obligations in family settings (e.g., a family business, paid or unpaid work such as child or elder care) that may have implications for other activities, including paid or unpaid work outside of the family.

Relevant alternative data sources. Information about youths' experiences in school-related employment could be drastically improved with the collection and proper coding of school transcripts. Coding transcripts to the School Codes for the Exchange of Data (SCED) codes would enable researchers to characterize the experiences relative to the population of students in all U.S. schools. Students' high school transcripts can reveal whether the student took a work-based learning (WBL) experience as part of CTE.

Linking to other students' transcripts at the same school via administrative data would enable measurement of what courses and WBL were available at the student's school, which would help with interpreting their observed course choices.

Volunteering

Research themes, social trends and policy changes. Volunteerism is defined as freely giving time and labor for community service. It can simply be helping neighbors by doing favors (e.g., watching a neighbor's children), or more formal efforts. Almost 63 million Americans volunteered 7.7 billion hours, for an estimated value of $173 billion (AmeriCorps, 2023). An estimated 23.2 percent of Americans or 60.7 million people formally volunteered with organizations between September 2020 and 2021. In total, these volunteers served an estimated 4.1 billion hours with an economic value of $122.9 billion. During the COVID-19 pandemic, volunteering often took the form of supporting testing and vaccination, conducting wellness checks on isolated seniors, supporting food banks, assisting other public health efforts, and helping students stay on track in school.

For many young people, volunteering provides an opportunity to identify their own vision and priorities for developing their educational and career interests. Volunteerism can also provide that initial civic engagement experience. Basically, scholars and advocates of volunteer experiences for youths have hypothesized that giving one's time and talent can help young people become lifelong learners, independent thinkers, and responsible citizens. Many volunteers are young people. Their primary motivation is altruistic and an interest in helping those around them. Only a small fraction of students pursues volunteering to fulfill an educational requirement. A quarter of college students (3 million) volunteered 286 million hours of service, worth $6.7 billion. In addition, just over 25% of teenagers (4.3 million) volunteered 345 million hours of service, worth $8.1 billion (Youth.gov)

Young people derive benefits from volunteering. Volunteering can strengthen feelings of community connection, improves school performance and college enrollment, lowers odds of engaging in risky behavior, and contributes to volunteering when the youths become adults. Youth tend to volunteer if their entire family volunteers, helping to strengthen familial relationships.

Key Research Questions

1. How do volunteering experiences vary across student (parental background, school, and community) characteristics?
2. Is volunteering a substitute or complement to traditional paid youth employment?
3. Does volunteering affect course of study and major in school?

Measuring disparities and inequalities. Volunteering amounts and types may differ by race, gender, ethnicity, and class. Do these differences play roles in a variety of early young adult selection processes (e.g., scholarships, high school, and college admissions)?

Previous NLSY content. The NLSY79 and NLSY97 both contain a great deal of information on volunteering. At least one contains information on each of these topics: type of volunteering; amounts of donations to various types of nonprofit organizations; involvement of the respondent's paid employer in facilitating volunteer time and donations, philanthropy, time spent on philanthropic volunteer activities; volunteer work organized through work; use of childcare while volunteering; and employer matched donations. We recommend using similar questions, which will allow for cross-cohort comparisons.

Recommendations for Questionnaire Content

Volunteering and Internships (low priority). The questions in the earlier NLSY cohorts should be continued in the NLSY26.

Methodological issues. Questions should differ as the young person ages. Start in the first round and ask every other year. The design team could consider using the lead question framing from the American Time Use Survey. Instead of asking about work, schooling, and volunteering, consider asking "how do you spend time?" Let respondents identify areas of participation and the time spent in these activities, and then allocate time to the various categories. However, the actual NLSY79 and 97 volunteering questions are better than the ATUS questions and should be continued. We note that the downside of this potential change is that altering the lead-in question may affect comparability with the earlier cohorts.

Work Schedule

Research themes, social trends and policy changes. Work time or work schedules, whether our own, those of our partners, parents, or family, are at the core of working life and of daily life for nearly all Americans. Yet, our understanding of work schedules — in the popular imagination, in law and regulation, and in our most important survey data sets — is out of date. Some workers do continue to work a regular day shift and many others structure their lives around what are recognized as "non-standard" night or weekend shifts (Presser, 1999). But this vision of work schedules falls far short of capturing the complex and stratified reality of work time in America.

Many white-collar and professional workers contend with long work hours and limited schedule control (i.e., Galinsky, 2011; Schieman et al., 2009), dimensions of working conditions that are distinct from wages and that exert independent and negative effects on worker productivity, wellbeing, and work-life conflict (Moen et al., 2016; Kelly et al., 2011; Moen et al., 2011). These scheduling constraints exacerbate well-documented gender inequalities in work-life conflict.

Many workers, especially hourly workers in food service, retail, warehousing, healthcare, transportation, and logistics, contend with work schedules that are unstable and unpredictable, varying from day-to-day and week-to-week in both the number of hours assigned and the timing of shifts (Henly et al., 2006; Lambert, 2008; Lambert et al., 2014; Gerstel and Clawson, 2018; Schneider and Harknett, 2019). These variable schedules are often assigned with limited advance notice and little worker input (Halpin, 2015; Wood, 2020). Further, they are subject to change at managerial discretion, resulting in on-call shifts, last minute timing changes, and cancellation (Clawson and Gerstel, 2014; Wood, 2018; Schneider and Harknett, 2019). These practices appear to be part of a general labor-management approach that also deploys involuntary part-time work (Golden, 2015).

While large-scale social science surveys generally lack detailed measures of work scheduling, a growing body of research has used novel data sources, including qualitative evidence (Halpin, 2015; Petrucci et al., 2022; Wood, 2018), managerial interviews (Lambert and Haley, 2021), text-based surveys (Ananat et al., 2022), administrative time-clock records (Bergman et al., 2022), and web-based surveys (Schneider and Harknett, 2022) to document the incidence, stratification, and consequences of these scheduling practices. The emerging consensus is that exposure to unstable and unpredictable work schedules is associated with reduced productivity (Kesavan et al., 2022; Lu et al., 2022; Hashemian et al., 2020) increased turnover (Bergman et al., 2022), downward career mobility (Choper et al., 2022), economic insecurity (Finnigan and Hale, 2018; Schneider and Harknett, 2020; Amorin and Schneider, 2022), and diminished health and wellbeing (Williams et al., 2022, Schneider and Harknett, 2019; Harknett et al., 2020; Ananat and Gassman-Pines, 2021). These types of schedules are further associated with undesirable consequences for work-life conflict (Luhr et al., 2022), the stability of childcare arrangements (Carillo et al., 2017; Harknett et al., 2022), and child wellbeing (Schneider and Harknett, 2022). While much of this work is associational, several studies have used causal methods to try to identify the effects of unstable schedules (Williams et al., 2022; Harknett et al., 2021; Ananat et al., 2022). Work schedules can be a key source of stress and a barrier to adequate sleep and the ability to engage in other important life activities, such as parenting. Teens working long hours have been found to have poorer school performance (Staff et al., 2010).

The impacts of shift work, irregular schedules, and long hours on sleep and health have been an important subject of NIOSH research for many years. NIOSH has included questions in several surveys on all major dimensions of work schedules, including total weekly hours, shift length, schedule predictability and variability (including mandatory overtime), schedule flexibility, shift, and access to paid leave (Alterman et al., 2013).

While early work creates a strong scientific premise for the importance of work scheduling in shaping career trajectories as well as the economic security and wellbeing of workers in America, important research questions remain unanswered. The inclusion of a robust set of work scheduling items on the NLSY26 would significantly advance our understanding of these dynamics.

Key Research Questions

1. First, the NLSY97 provides a baseline of work scheduling conditions in rounds 15-17. However, the ecology of work scheduling continues to change. Labor standards are increasingly catching up with modern scheduling practices as seen in Fair Workweek laws implemented around the country. The rise of remote work in the years since the COVID-19 pandemic has reshaped work time. Emerging technologies are changing how shifts are assigned, swapped, declined, and

picked-up. These aspects of work scheduling interact with both overwork and insufficient hours, punitive attendance systems, access to paid sick leave, and at-will employment in significant ways. The inclusion of work scheduling items on the NLSY26 would allow researchers to make cross-cohort comparisons of change in scheduling and examine disparities in change by group.

2. Additionally, more comprehensive measures of work scheduling would permit researchers to use the longitudinal NLSY26 data to address a set of important unanswered questions. First, while there is a strong scientific premise for the hypothesis that work scheduling conditions might shape educational and training attainment, little research has examined this question. Second, there is a similarly strong scientific premise for the hypothesis that work scheduling conditions might shape intra-generational mobility in terms of processes of occupational, income, or job quality attainment. However, most work on this question either uses administrative data to examine turnover narrowly defined (leaving an existing job) or uses very short-run longitudinal data (i.e., Choper et al., 2022). For both topics, the long-run nature of the NLSY26 would be invaluable.
3. Finally, many states and localities have passed "secure scheduling" as well as paid sick leave laws. By merging information on these laws at the city-month-year and state-month-year levels with restricted versions of the NLSY26, scholars may be able to estimate the effects of these ordinances on working conditions and worker outcomes.

Measuring disparities and inequalities. Work schedules are also stratified, with women and workers of color both concentrated in the sub-sectors with the most unstable and unpredictable scheduling practices and the most likely to experience these practices even within sector (Storer et al., 2021).

Measures in the NLSY26 that capture the presence and frequency of last-minute schedule changes and work hours insufficiency, in addition to the other dimensions above, are expected to show evidence of gender and racial/ethnic inequality.

Previous NLSY content. The NLSY97 included an innovative set of measures of work scheduling in rounds 15-17 as well as some more limited measures in other rounds. These measures are described below and should be revised in light of the considerations raised above.

Selected topics for data collection. Work scheduling has several key dimensions that lend themselves well to survey-based measurement but not to other modes of measurement.

Recommendations for Questionnaire Content

1. *Work schedule control (high priority).* Measure workers' reported degree of control or input into days of week, start times, stop times, number of hours, place of work. Measure flexibility: Ability to swap shifts, alter schedule once published, take a few hours off during the workday.
2. *Work schedule instability and unpredictability (high priority).* Measure the amount of advance notice workers typically get of their work schedule; relative frequency of worker being on-call for a shift (note the shift in consideration of on-call work from work arrangements to job quality attribute), employer cancellation of scheduled shift, adding a shift with little notice, changing timing of scheduled shift with little notice.
3. *Work schedule timing (medium priority).* Collect a full week of retrospective time-diary data on work hours that registers start and stop times of each session of work on each day of the reference week. Alternatively, measure typical frequency of work within times of day and days of the week. Measure usual hours, variability, and desire for more/fewer hours.

Methodological issues. We recommend scheduling questions be asked in each wave about each job.

Many of the constructs described above are likely most interpretable and best suited to workers who are paid hourly and who receive work schedules from their employer. Careful consideration must be given to design questions that are also applicable to salaried workers.

Work Schedule Control/Flexibility: Especially for hourly workers, but also of relevance to salaried workers, is the distinction between how much control/input workers have into what their schedule will be before it is posted/published and then how much flexibility workers have in changing their schedule once it is posted.

The NLSY97 included an item asking whether the respondent or employer was generally in control of deciding the work schedule (YEMP-WS4D). However, work schedule control and flexibility is a complex construct with many important sub-dimensions.

The former (control/input), includes issues such as:

- Can workers limit their hour availability? Update this availability?
- Is availability "respected" in scheduling?
- Do workers have control over/input into their schedules in terms of the days of the week, number of hours, and start-and-stop times that they work?

The latter (flexibility), includes issues such as:

- Can workers change the timing of their schedules once schedules are "posted"?
- Can respondents swap shifts with co-workers?
- Do respondents have access to PSL, PTO, or other forms of paid leave? Is any such leave/paid time off actually accessible to respondents?
- Are there negative consequences for workers (managerial retaliation, punitive attendance "points") for using paid time off or for calling out?

This is an area of significant interest and an opportunity for considered survey design to augment the past approach to measuring these important constructs.

Timing of Work Shifts: A long-standing question in the literature on work scheduling is the timing of work shifts. This has been understood in earlier work to be a distinction between standard and non-standard shifts. But current research shows that many workers contend with shift timing that is far more erratic.

The 1997 round of the NLSY97 asked about usual start and end times of shifts (questions YEMP-81500, YEMP-81600, YEMP-81700). This is precise but does not capture the variability in work time that many workers experience. In addition, the NLSY97 includes an item (YEMP-81300) about the timing of work shifts generally (wording has varied somewhat across rounds).

There are at least three approaches to collecting this information. One is a set of mutually exclusive options (regular day, regular night, rotating, variable, etc., as in the NLSY97 variable) that asks respondents to pick the best fit. Another is a list of times of day (early morning, day, afternoon, evening, night, overnight) and days of the week that allows respondents to select all that apply or to select the

relative frequency with which they work each. A third option, which can be a complement to either of the first two, is to collect a full week of retrospective time-diary data on work hours that registers start and stop times of work on each day of the reference week. This would be a very valuable data source.

However, none of these measures is ideally suited to capturing the variability that many workers appear to experience in the timing of their shifts. There would be significant value in both including a "check all that apply" option for shift timing and a weekly work shift time-diary.

Amount of Work Hours: Beyond control over when they will work and the timing of work shifts, the amount and regularity of work hours is a crucial issue for workers.

The NLSY97 collects detailed information on usual work hours and also included two questions designed to gauge work hour volatility at rounds 15-17. These questions (YEMP-WS1A and YEMP-WS2A) ask about the greatest and fewest number of hours worked in a week in the last month. These remain valuable items. However, additional detail that gauges the sources of such volatility as well as work hour preferences/subjective assessments would be very valuable.

- Sources of volatility in work hours week-to-week (respondent vs. employer driven volatility)
- Desire for additional work hours or fewer work hours

Advance Notice of Schedule: Especially for workers who experience schedule volatility, the amount of advance notice they have of their schedule (time period between schedule posting and the reference shift) is of crucial importance. There is a standard question that asks about notice that breaks down the number of days/weeks of advance notice that workers receive. The NLSY97 included this question (YEMP-WS3A_REV) and this remains a good approach.

Changes to Work Schedule: However, prior research shows that work schedules, even once published, are subject to change by managers. Recent research has surfaced a number of such sources of instability:

- Workers are scheduled to be "on call." Note: this is not the same thing as being an "on call" worker as the NLSY has previously used the term. These are regular W2 employees who are scheduled to be "on call" for some, but not all of their shifts. These workers may then be called in for such shifts or may not be.
- Workers have scheduled shifts cancelled. This may be well in advance of the shift, or quite close to the shift's scheduled occurrence.
- Workers have shifts added to the schedule. This may be in advance of the shift, or quite close to the new shift's scheduled occurrence.
- Workers have the timing of their shifts changed. A scheduled shift's start time may be changed (earlier or later) in advance of beginning the shift. A scheduled shift's end time may be changed (earlier or later) either in advance of beginning the shift or once the shift has begun.

The NLSY97 includes two relevant items (YEMP-9890G and YEMP-9890P), which ask if the respondent is an on-call worker and if the respondent is exclusively on call or also works scheduled shifts. However, it would be valuable to collect a more comprehensive set of measures. One approach asks if the respondent has experienced each of these practices in the recall period. Another approach asks about the relative frequency with which the respondent has experienced each of these practices in the recall period (never, rarely, sometimes, often). A third approach asks about the number of times the respondent has

experienced these practices in the recall period. However, this last approach requires a number of shifts denominator to be most useful and, even then, each shift may be at risk of more than one of the practices (on call and then shortened, for instance) and it is difficult to know how respondents count cancelled shifts in any denominator. The relative frequency approach may be the best option.

Additional detail could also be collected on the amount of advance notice of any shift cancellation, addition, or timing change as well as if the respondent received any additional compensation for such changes. This degree of detail is likely not the highest value to research.

Relevant alternative data sources. Administrative data is not a viable substitute. At best, governmental records contain reports of quarterly earnings and at times work hours. This data falls far short of capturing the important dimensions of work schedule control/flexibility, hours volatility, schedule notice, schedule timing, and schedule instability described above.

Leaves from Work

Research themes, social trends and policy changes. Research finds positive impacts of paid family and sick leave on the economy (Olivetti and Petrongolo, 2017) and on children's outcomes (Carneiro et al., 2015; Stearns, 2015; Van Niel et al., 2020; Pihl and Basso, 2019), and maternal health (Bullinger, 2019). Some evidence from Europe finds quite long-term effects, with associations between access to maternity leave at the time of birth and reduced depressive symptoms at age 50 and older (Avendanoet al., 2015).

Studies of family leave policies in other countries suggest that paid leaves improve job continuity, increase employment rates for women (Rossin-Slater, 2018; Ruhm, 1998), and help reduce gender inequality. Leave policies in Norway, for example, significantly reduced the motherhood wage penalty (referring to the pay gap between similarly situated women who are mothers and those who are not) (Petersen et al., 2014). Additionally, cross-national research finds that workers with less education and those in "lower-skill" jobs benefit more from public leave laws, especially in high-inequality contexts (Hook and Paek, 2020; Olivetti and Petrongolo, 2017). Some of these studies find no long-term effects of leaves on earnings (Lalive and Zweimüller, 2009; Dahl-Jørgensen and Saksvik, 2005), while others find that longer leaves (e.g., 2-3 years) may have a lasting negative effect on labor-force attachment and earnings (Schönberg and Ludsteck, 2014; Gangl and Ziefle, 2009). However, we lack basic evidence from the U.S.

In the U.S., higher-wage workers are much more likely to have employer-provided paid family leaves (Gault et al., 2014) and paid sick leaves (bls.gov). Additionally, workers of color are less likely to be covered by the Family and Medical Leave Act, which provides job-protected, unpaid leaves (Armenia and Gerstel, 2006). Using NLSY97 data that captures primarily employer-provided leave policies, research finds that both men and women workers who take more parental leave, particularly a paid leave, have slower wage growth and that women's propensity to take longer leaves contributes to the gender pay gap (Kramer et al., 2022).

There has been a notable increase in state paid family and medical leave laws, with newer laws providing higher wage replacement rates intended to support lower-income workers. California's leave law nearly doubled access to pay during a leave, increasing benefits for low-income and less-educated workers in particular, as well as for men who had not been covered by previous laws covering short-term maternity leave (Rossin-Slater et al., 2013). Research in U.S. states with paid leave policies finds increased

employment of women with significant care responsibilities for spouses, older children, etc. (reviewed in Bartel et al., 2023). Studies of state paid leave laws in the U.S. generally find that no adverse impact on employers' reported productivity or other challenges, although some European studies using better administrative data do find shifts in hiring and wage costs with more generous policy changes (reviewed in Bartel et al., 2023).

Employers take leave use as a signal affecting their subtle evaluations of commitment, expected productivity, and "potential" (e.g., Kramer et al., 2022; Manchester et al., 2013; Rudman and Mescher, 2013). Leave laws shift norms and likely shift employers' interpretation of leave-takers. For example, one experimental study found that evaluators offered mothers higher salaries, more promotional opportunities, and viewed these candidates more favorably after mentions of the FMLA (which, of course, only requires unpaid leave) as compared to a control condition with no reminder of the legal context (Albiston et al., 2021). These findings suggest it is important to update our understanding of the long-term implications of leaves (and parenthood and family obligations triggering leaves) as the policy context shifts.

Key Research Questions

1. More research is needed in contemporary U.S. cohorts to understand implications of family leaves for job exits, wage growth, promotions and other indicators of career advancement, labor force participation and hours, gender inequality within households and more broadly, time use, and physical and mental health. Beyond leaves near the time of a birth (or adoption), we need to capture leaves for older children, adult care, and one's own medical condition. It is critical to include good questions on leaves on panels, given the possible dynamic impacts of leave (or a lack of leave when one is needed) for later economic attainment, mobility, and health. While important for understanding leaves in past cohorts, the measures from the NLSY97 would need to change for the NLSY26 to investigate recent changes in state and local leave laws, potential changes in men's leave utilization with more access to paid leave and shifting gender norms across cohorts, and to capture leaves for own illness and for family caregiving beyond infant care.
2. It is plausible that public paid family and medical leave policies could support the economic security of U.S. workers as well as reducing racial and gender inequality, but more research using longer-length U.S. panels such as the NLSY26 is needed. Studies using older data indicate clear racial gaps in access to paid parental leave (e.g., Bartel et al., 2019). State leave laws should reduce these disparities, but it is important to investigate whether they do so (e.g., how coverage rules affect different workers) and whether and how the implications of leave use vary by race, ethnicity, and gender.
3. In particular, more research is needed on men's use of family leaves in the U.S. Correlational research in the U.S. and Europe finds positive associations between fathers' use of leave and child wellbeing, maternal health, and relationships between parents, as well as some suggestive evidence for men's own health (reviewed in Bartel et al., 2023). We know that men's use of available family leave depends not only on pay provisions, but also on social norms and the specific organizational context (e.g., Thébaud & Pedulla, 2016; Petts et al., 2002). We are in a period of shifts in public policies and social norms – perhaps particularly given pandemic experiences of increased paternal care (though continued or increased gender gaps in care) (e.g., Lyttleton et al., 2022). More nuanced analyses of men's use of family and medical leaves are needed for understanding current cohorts' work and family decisions and the implications of leaves for later economic and health outcomes.

Measuring disparities and inequalities. See above – there are well established racial disparities in access to and use of leaves, though partially explained by job type, industry, etc.

Previous NLSY content. Several suggestions for updating NLSY97 questions are discussed below.

Selected topics for data collection. Rather than NLSY's current primary focus on access to leaves, we recommend focusing on workers' met and unmet need for leave.

The history of leaves in U.S. mean there are many different terms and paths to getting paid or unpaid leave (e.g., FMLA, state paid leave law, temporary disability insurance), and workers are likely unaware of the specific employer and public policies undergirding their leaves. Employers routinely violate leave law requirements, even for unpaid FMLA (e.g., Armenia et al., 2014; Kelly, 2010; Albiston and O'Connor, 2016). In practice, access to leaves and use of leaves without retaliation reflects a social process, a negotiation between workers and employers that reflects the workers' status and leverage in the larger labor market. We may not be able to capture that process, but we should consider how workers' responses to leave questions reflect their legal rights, their coverage by formal HR benefits, and their own understanding of what they can realistically expect and receive given power dynamics in those negotiations. Getting details on use of leaves therefore seems more important than reported access to leaves.

It would also be useful to ask about times when leave was needed but not taken, which may have important consequences for economic security and later health, due to job exits and/or health strains. The Department of Labor–commissioned FMLA reports from 1995, 2000, 2012, and 2018 have questions about "unmet need," with racial disparities such that Black women and Latina women were more likely have unmet needs (Brown et al., 2020; Vohra-Gupta et al., 2021).

Recommendations for Questionnaire Content

1. *Unmet need for leave (high priority)*. Collect data on times that leave was needed but not taken, which may have important consequences to economic security and later health, due to job exits and/or health strains. This could include reason(s) leave was requested and why leave was not taken.
2. *Use of leave and its nature (medium priority)*. Ask directly about use of leave since last wave for family caregiving and for own illness. Ask this of respondents of all genders and ages, since leave for own illness and for family caregiving (not only leave for pregnancy or only infant bonding/care) may affect economic attainment, mobility, labor market decisions, and health. Ask length of time away from work and whether this was fully or partially paid leave or unpaid leave. Follow-up questions should be tested to see if respondents can estimate the percentage of their regular pay received (probably in broad categories) and whether they can identify paid leave as tied to state leave law, tied to company policy, a mix of both, or don't know.

Methodological issues. NLSY97 Question YEMP-100300 asks about paid and unpaid leaves as a benefit "which employers sometimes make available to their employees." This phrasing may not capture workers' awareness of leaves provided by law. Also, awareness of leave policies likely varies by actual use, expected use, as well as union status and formalization of HR practices at workplace (tied to size and sector). (e.g., Kramer, 2008, using NLS data; Park et al., 2019; Budd and Brey, 2003).

Pay during leave is critical to understand but question YEMP-2100 assumes pay comes from employer, ignoring workers' potential use of paid family and medical leave laws. New questions could follow the flow of asking 1) whether on leave, 2) whether paid in part or full during leave, 3) whether paid by employer, through state family medical leave insurance, or both (with an option to say don't know source), and 4) perhaps rough estimate of percentage of regular pay received. These questions could be asked broadly with multiple reasons for leave noted as well (see below on potentially missing many family leaves as well as medical leaves).

Many men take short leaves of 3-4 days around the birth of a child. These questions such as YEMP-101500 and YEMP-106200 do not allow for that to be captured – although this may be fine given that length of paid leave is key for understanding later wage growth (Kramer et al., 2022).

A bigger concern is that paid or unpaid leaves to care for other relatives – older children, spouse, other family member – as well as leaves tied to foster care or adoption are not captured. "Childcare problems" are not the same as needing to care for family members facing a health crisis or chronic conditions.

Relevant alternative data sources. Given variation in state and local paid leave policies, providing geographic identifiers at the municipal level would facilitate matching to policy data.

Discrimination and Fairness

Research themes, social trends and policy changes. Discrimination and harassment at work cuts against the widely held American value of equal opportunity for all and its illegality is encoded in Title VII of the 1964 Civil Rights Act. There is growing evidence that discrimination and harassment may be antecedents to persistence of health disparities, gaps in occupational and economic attainment, and violence against marginalized communities. A rich interdisciplinary research literature addresses these questions, but there is a clear need for further research using longitudinal panels to trace both the risk factors and the longer-term implications of discrimination and harassment at work.

The relationship between perceived racial discrimination and health has been documented in a wide range of studies. Racial discrimination is linked to a range of health consequences such as inferior medical care, mental health deterioration, and poor physical health outcomes, to name a few (Williams et al., 2019; Goldman et al., 2006). For instance, perceptions of discrimination are associated with women's short-term emotional health and longer-term physical health in the form of chronic conditions like arthritis, heart disease, and muscular skeletal problems (Pavalko et al., 2003). Another recent study found that perceived discrimination based on race or ethnicity and on gender in early adulthood (ages 21-26) predicted depressed mood later in life, while later experiences of discrimination predicted worse mental health in the near term but with less evidence of a long-term impact (Han et al., 2022; see also Yang et al., 2019 on long-term effects). Similarly, experiences of harassment have documented harmful effects on long term mental and physical health (Hoobler et al., 2010; Houle et al., 2011). Scholars have also documented that perceived discrimination on the basis of age is positively associated with psychological distress and negatively related to mental health (Yuan, 2007), with financial strain partially mediating that relationship (Shippee et al., 2019). While this literature is extensive, some of it is based on cross-sectional evidence, and studies that make use of longitudinal data used of data that is not population representative or is now dated.

In the workplace, cross-sectional studies show perceived discrimination to be associated with lower job satisfaction and organizational commitment (Ensher et al., 2001; Volpone and Avery, 2013) which may in turn lead to turnover intentions (Goldman et al., 2008). The negative effect of harassment on subjective well-being also extends beyond impact on the victim. A study of public university employees found that observing hostility towards women predicted lower well-being and job satisfaction in both male and female workers. This decline in well-being and job satisfaction were related to lower physical well-being, higher burnout, and higher turnover intentions (Miner-Rubino and Cortina, 2007).

Because supervisors have the power to shape workers' jobs, the demographic match between worker and supervisor tends to influence hiring processes and promotion opportunities. White, Black and Hispanic managers are significantly more likely to hire workers of their own race (Benson et al., 2022; Benson and LePage, 2023). Supervisor demographics can help researchers interpret workers' experiences.

The changing racial composition of the U.S. and particular locations and changes in cultural recognition of and legal protections for LGBTQ communities may condition the relationship between perceived discrimination and key outcomes (health, job exits, labor force participation). To at least some extent, cultural understandings of the social categories of gender have shifted, and our surveys and research should reflect this. The NLSY26 provides an opportunity to track the experiences of non-binary and transgender individuals whose experiences are not extensively reported in research, even though the little we do know indicates that non-binary and trans people are often targets of discrimination and harassment (Davidson, 2016).

Research on discrimination has resurged in recent years and social scientists are investing a lot in this area. New theory is being developed, ripe for testing (Lang and Spritzer, 2020; Chelwa, Hamilton, and Stewart, 2022; Bohren, Hull, and Imas, 2023). Economic theory assumes workers can and do move in response to perceived discrimination and harassment, and empirical findings about job withdrawal and intentions to leave work point to more quits for individuals who were targets of discrimination. However, many workers face discrimination in hiring on the basis of race (Bertrand and Mullinathan, 2004; Neumark, 2012; Kline, Rose, and Walters 2022) and disparities on the basis of criminal justice record (Pager 2003; Uggen et al., 2014). However, little research empirically tracks the relationship between perceived discrimination and labor market outcomes such as job-finding rates, job exits, wage growth, and economic mobility. Perceived discrimination may also affect productivity, as suggested by smaller scale studies, linking it to reduced workforce commitment and withdrawal. Interacting with more biased managers (as measured by implicit association tests) leads racial minorities to perform worse in their roles than they do on days they report to less biased managers (Glover et al., 2016). This, too, suggests a toll on workers' productivity and engagement with economic consequences. There is a slightly clearer picture regarding the effects of harassment on economic attainment, but the research base is still thin. Research to date cannot speak to how workers may react differently to harassment in the wake of #MeToo, other scandals, and a shifting understandings of gender identity beyond the gender binary. That work does find that the gender and race of a person predicts exposure to uncivil treatment, which in turn affects intent to leave a job (Cortina et al., 2013). Victims of harassment report significantly higher levels of financial stress than non-victims, at least partially because of job changes, indicating that some individuals are willing to take pay cuts to avoid harassment (McLaughlin et al., 2017).

Many studies used earlier NLS cohorts to examine the impact of perceived discrimination on health, but discrimination at work was not thoroughly investigated in NLSY97. This gap needs to be filled. We would hope that the risk factors for and prevalence of perceived discrimination have shifted in recent

years, but we do not know whether that is the case. In fact, recent analysis of the General Social Survey (GSS), finds lower race, age, and gender discrimination in 2014 as compared to the reference year of 2000 but no difference in 2018 vs. 2000 (Roscigno, 2019).

Given changes in explicitly stated attitudes and demographics, younger cohorts could conceivably be more affected by perceived discrimination that violates their expectations of fair treatment or less affected by perceived discrimination because they seek and find social support when others condemn those actions. These are open questions, to the best of our knowledge. Social movements and American's cultural understandings of race, ethnicity, sexual orientation, and perhaps especially gender identities are shifting quickly, with polarization and "culture wars" raising the stakes further. It is critical to capture perceived discrimination and harassment of young people in new surveys that can consider immediate and longer-term impacts.

Survey questions related to injustice are included in NIOSH surveys. This research addresses perceived injustice that may be suffered by any worker due to managerial decisions and the way they are made. Key decisions include those related to hiring, evaluation, task assignment, pay, work schedules, and promotions. General unfairness at work is partly addressed in the ERI work stress model. NIOSH has supported significant research on these issues, most notably among healthcare workers, but in a few other worker populations such as retail as well. Questions on whether a worker has experienced harassment and bullying have been included in cross-sectional NIOSH surveys, including NHIS occupational health supplements (Alterman et al., 2013). It has been difficult to obtain U.S. data capable of linking bullying and violent incidents to health and economic consequences. However, studies using foreign data have shown workplace bullying and violence can have large impacts on job trajectories and mental health, especially for women (Rosander and Blomberg, 2022; Adams-Prassl et al., 2022; Goodman-Bacon and Chickhale, 2023).

Most of the current research on discrimination and health is limited to focusing on singular identities of study participants even as understanding of discrimination suggests that simultaneous consideration of multiple identities would provide a more accurate picture of the link between discrimination and health/other outcomes (Williams et al., 2019). Our theoretical understanding of intersectionality is strong; however, an intersectional lens is often missing from analyses of perceived discrimination and harassment.

Research linking perceived discrimination and work withdrawal seems to imply that there would be a negative impact on economic attainment resulting from this withdrawal, however there is limited research looking specifically at the link. Longitudinal data tracking the perceived discrimination and occupational/economic attainment over time would help fill this gap.

Key Research Questions

Future research will focus on self-reported or perceived discrimination and harassment at work (although it will not necessarily be limited to experiences that are named or labelled as discrimination and harassment). Such work would (1) provide important updates on perceived discrimination and harassment that (2) complement contemporary audit or correspondence studies of hiring discrimination (e.g., Quillian et al., 2017; Kline et al., 2021; Lippens et al., 2023) and recent work investigating how structural racism and sexism affect attainment, inequality, and health (e.g., Baker, 2022; Derenoncourt et al., 2022; Bailey et al., 2017; A. C. Homan, 2019; P. Homan et al., 2021;

Krieger, 2021). In short, there have been important advances in our conceptualization of racism and sexism – but these need to be accompanied by new data on how workers experience discrimination, harassment, and unfair or harsh treatment at work to fully understand experiences on the job and the impact of those experiences for workers' decisions (e.g., whether to quit or stay, seek a promotion or withdraw effort) and well-being. There is also a broader concept of organizational justice and a body of research linking injustice to mental and physical health and other outcomes (Virtanen, 2018; Cachon-Alonzo, 2022).

Measuring disparities and inequalities. There may be important disparities by work arrangement, given that employees have recourse to different legal protections than those in other arrangements. As we are recommending asking these questions for all work arrangements, this information will be available for investigation.

Previous NLSY content. Below we recommend measuring perceived discrimination in job finding by repeating a specific question from the NLSY79 asked in 1979 and 1982. Including this question on discrimination in getting a job would allow for cross-cohort analysis.

Similarly, we recommend measures of respondent experiences of unfair treatment, including questions similar to a set in the NLSY79 Child and Young Adult survey about being treated unfairly at work, school, and in everyday situations. Again, using these questions would allow for cross-cohort comparisons, and similar questions are available in other surveys as well (as noted above).

Selected topics for data collection. The NLSY26 presents an opportunity to sharpen our understanding of perceived discrimination and its long-term effects, incorporating some of what we have learned about how to measure perceived discrimination from other questionnaires and surveys. This is an active area of research. In trying to identify experiences of discrimination, harassment and related problematic behavior, the language used is important.

There are different perspectives about asking directly about discrimination and harassment or asking about unfair and problematic behaviors on the job. The NLSY79 introduced questions about major instances of discrimination as well as day-to-day discrimination.

Recent research analyzing measures of respect and recognition that women perceive at work reveals the gendered character of inequalities in degree of workplace dignity (Roscigno et al., 2021). Similarly, Cortina's theory of selective incivility posits that uncivil behavior represents a modern manifestation of bias that disproportionately affects women and people of color in the workplace (Cortina et al., 2013). This theory argues that modern uncivil conduct often contains a characteristic ambiguity which makes it possible for people to rationalize a condescending tone or an interruption as unbiased and potentially due to factors that have nothing to do with race or gender.

We recommend measures of respondent perceptions along the following lines. First, measure exposure to perceived discrimination based on group identity using a repeated, time-bound question. For instance, "In the last 12 months, did you feel in any way discriminated against on your job because of your race or ethnic origin, gender, age?". Second, use a similar strategy to measure perceived harassment. For instance, "In the last 12 months, were you sexually harassed by anyone while you were on your job?" Third, measure perceived discrimination in job finding by repeating the specific question from the NLSY79 asked in 1979 and 1982 on discrimination in getting a job to allow for cross-cohort analysis.

In designing questions on perceptions of discrimination, it is worth considering the nuances between dignity and job satisfaction as well as discrimination, harassment, and incivility. We recommend measures of respondent experiences along the following lines. First, ask about experiences of unfair treatment with a reason attributed. For instance, the 2012-2018 datasets from the NLSY79 Child and Young Adult survey include questions about being treated unfairly at work, school, and in everyday situations. Similar to the Everyday Discrimination Questionnaire (EDS), these questions ask about an experience of perceived unfairness and then immediately follow up with a question prompting the main reason for this experience. This approach captures unfairness that may not be labeled as discrimination or harassment but may affect job exits, attainment, and mental health. Recent research suggests a need to allow multiple reasons (i.e., respondents can mark gender and age or race and gender if they choose, not just one). Second, ask about experiences of unwanted sexual attention. Because not everyone will label unwanted sexualized experiences as harassment, it is valuable to ask directly about unwanted sexual attention periodically. Example from Youth Development Survey (that may be too long but demonstrates asking about experiences without attribution): (1) unwanted touching; (2) offensive jokes, remarks, or gossip directed at you; (3) offensive jokes, remarks, or gossip about others; (4) direct questioning about your private life; (5) staring or invasion of your personal space; (6) staring or leering at you in a way that made you uncomfortable; and (7) pictures, posters, or other materials that you found offensive. When asking questions about harassment, bullying, and violence, we recommend probing whether it is coming from supervisors, coworkers, customers, and/or vendors in the supply chain.

It would also be helpful to consider positive experiences such as feelings of respect, fairness, and belonging, since we'd expect there to be long-term benefits for health and career building. On the positive side, the survey can ask about respectful, fair, and supportive treatment from supervisors, coworkers, customers, and/or vendors in the supply chain as well. The General Social Survey, American Working Conditions Survey and NIOSH WellBQ all have relevant items.

Recommendations for Questionnaire Content

Perception of workplace discrimination & harassment (high priority). Time-bound, repeated questions about perceived discrimination. ("In the last 12 months, did you feel in any way discriminated against on your job because of your race or ethnic origin, gender, age?") and harassment. Reuse NLSY79 question about discrimination in getting a job that allows for cross-cohort analysis.

Experiences of respectful and unfair treatment, harassment, bullying, violence (medium priority). On the positive side, measure respectful, fair, supportive treatment. On the negative side, ask about experiences of perceived unfairness and then immediately follow up with a question prompting the main reason for this experience. This captures unfairness that may not be labeled as discrimination or harassment but may affect job exits, attainment, and mental health. Ask directly about job-related unwanted sexual attention, bullying, and violence periodically. All can come from supervisors, coworkers, customers, and supply chain.

Methodological issues. Recent studies of how respondents understand survey questions indicate that questions about experiences that do not explicitly mention discrimination may lead respondents to think they are being questioned about general experiences of mistreatment rather than differential treatment (Harnois, 2022). One possibility for the NLSY26 is to retain the previous cohort questions about discrimination while periodically asking about experiences of incivility and harassment as well as general

questions about feelings of respect, fairness, and belonging. For example, the GSS asks participants every other year how much they agree with the following statement, "At the place where I work, I am treated with respect." The NOISH Worker Well-Being Questionnaire similarly uses the statement "At my organization, I am treated with respect."

Harassment often goes unreported for fear of disbelief, blame, or social retaliation, and so self-reports from survey data can provide more accurate estimates of prevalence – but again there is a question of whether to focus on behaviors or on labeled or named harassment. The General Social Survey includes questions about discrimination and harassment, which researchers have harnessed to study how these play out in the workplace (Roscigno, 2019). Two such questions are "Do you feel in any way discriminated against on your job because of your race or ethnic origin/gender/age" and "In the last 12 months, were you sexually harassed by anyone while you were on the job?" One in four women report being harassed when asked if they have experienced "sexual harassment" without the term being defined in the survey. When asked whether they have experienced one or more sexually based behaviors such as unwanted sexual attention or sexual coercion, the rate of reported harassment rises significantly (EEOC, 2016). These findings indicate that many individuals do not always label unwanted sexual behavior has sexual harassment, even when they view those behaviors as offensive. These distinctions are important, because whether or not women label unwanted experiences as sexual harassment, these incidents appear to lead to similar psychological and health consequences. Notably, race and ethnicity-based harassment are significantly understudied, even though available research indicates that it is relatively common (Schneider et al., 2000).

Questions should allow for multiple types of discrimination. The Everyday Discrimination Scale (EDS), GSS and other surveys ask respondents to choose a single "main reason for these experiences" from a list. Follow-up work on this second question has found it to be a potential source of frustration for respondents who experience multiple discrimination, making it difficult to select a single reason for the discrimination event. Additionally, respondents may struggle with the notion of identifying discrimination in "everyday life", since the contextual differences across discrimination events may vary widely (Harnois et al., 2022). Harnois and colleagues recommend allowing respondents to select multiple reasons for mistreatment. They also suggest that questions should include a specific time frame since mistreatment may vary significantly across contexts. One way to handle this is to specify a context discrimination, as is done in the 2016 GSS: "Over the past five years, have you been discriminated against with regard to work, for instance when applying for a job, or when being considered for a pay increase or promotion?"

Other considerations include mode of administration and potential interviewer effects (BSC, NCHS, 2022). Mode of survey administration can impact reporting of sensitive topics, including discrimination measures. Generally, self-administered modes reduce social desirability effects and thus are preferred for sensitive questions. Furthermore, in interview-administered modes, the race of interviewer can impact reports of discrimination (Krysan and Couper, 2003).

Relevant alternative data sources. As described above, linking to EEOC enforcement data on illegal, identity-based discrimination and harassment at the employer level would provide valuable context for interpreting individual workers' own perceptions and experiences at the employer.

Restrictive Covenants

Research themes, social trends and policy changes. Legal scholars and policy makers express growing concern about restrictive covenants in work contracts, but quantitative research has struggled due to a lack of measurement (Loebel, 2019; Hoffman and Lampmann, 2019; Flanagan and Gerstein, 2020). The five most prominent types of restrictive covenants include noncompete, nondisclosure, nonsolicitation of former customers, nonrecruitment of former coworkers, and mandatory arbitration clauses. These clauses exist in private employment contracts and in contracts with independent contractors and the self-employed. There are no administrative registries recording these and only scant evidence in official surveys. A recent module of the NLSY97 found 18% of the cohort reported being bound by a noncompete clause. Academic researchers attempting a nationally representative survey found 62% of American workers bound by at least one of the first four types of contract restriction (Balasubramanian et al., 2021). The most common type is nondisclosure (60% of American workers report), while noncompete is actually the least common type (24%). The mandated use of private arbitration to resolve employment disputes and requiring employees to forego access to public, official enforcement agencies or courts, also suffers from a lack of measurement (Colvin, 2019). Though research in these areas, particularly beyond non-competes, is emerging (Johnson and Lipsitz 2022; Sockin, Sojourner and Starr 2022; Hiraiwa, Lipsitz, and Starr 2023), we have much more to learn about why firms insist on these terms, why workers accept them and what impact they have on labor market outcomes.

Based on the small but growing evidence base, policy makers have taken an increasing interest in the incidence, impacts, and regulatory options of restrictive covenants. Since 2014, more than 70 new state or Federal policies have been proposed to regulate or limit noncompete clauses in private employment contracts. Most recently, the U.S. Federal Trade Commission proposed a national blanket ban on noncompete language. On nondisclosure and nondisparagement clauses, the U.S. passed the Speak Out Act in late 2022, that limits the ability of employers to hush workers from sharing information about sexual harassment and assault at work following the lead of some states (National Women's Law Center, 2022). The National Labor Relations Board has also acted to narrow the legality of nondisclosure and nondisparagement covenants, recognizing that they risk infringing on American employees' rights to organize guaranteed under Section 7 of the National Labor Relations Act. In 2022, the U.S. Department of Defense also limited contractors from using nondisclosure clauses in an effort to ensure contract compliance. Even in states where noncompetes are unenforceable, many workers still report being bound by noncompetes and so they may still exert effects. So, even if the FTC bars their enforceability, measuring their prevalence will still have value.

Key Research Questions

1. What is the prevalence and correlates of different types of restrictive covenants? For how long do they bind?
2. What considerations (wage, benefit, promotion, training….), if any, are exchanged with workers in return for accepting these restrictions?
3. How does their presence affect individual and market compensation, job satisfaction, mobility and employer market power?
4. How have policy changes regulating restrictive covenants changed who reports being bound and what are impacts in the labor market and on careers?
5. How do these differ between the NLSY97 and NLSY26 cohorts?

Measuring disparities and inequalities. Similarly, these should be investigated by work arrangement, given that employers have different legal responsibilities towards workers in different arrangements and different abilities to sanction employee behavior.

Previous NLSY content. BLS recognized the importance of noncompete clauses in employment contracts by recently piloting a module in the NLSY97, building off surveys developed in prior research. This pilot module on noncompetes is the only time BLS measured any kind of restrictive covenant. BLS plans to measure whether workers are bound by nondisclosure agreements in an upcoming NLSY97 wave. Otherwise, this has been a blind spot. The presence of mandatory arbitration restrictions has not been measured but would be valuable and the 2026 cohort should do this.

Selected topics for data collection. Over the last decade, labor economists relying on policy changes and private surveys have produced evidence on the effects of noncompete clauses on wages, training, labor mobility, and innovation (Starr, 2019; FTC, 2023). However, we remain more ignorant about other kinds of restrictive covenants, such as nondisclosure and nondisparagement (Sockin et al., 2022). Lack of systematic measurement has absolutely hamstrung empirical research.

Whether an individual is bound to a particular type of restrictive covenant can change over time and within job, and restrictions usually persist beyond the work relationship. The questions could be asked at the job-time level (are you bound in this job), new job (are you bound in this new job), or person-time (are you bound now from each or any current or past job) levels. One strategy would be to focus on capturing clauses that are required as a condition of employment, rather than those put in effect later post-hire. This would simplify data collection so that it only has to be asked about the start of a job rather than in each wave. Clauses put in effect as part of a promotion are less problematic than those put in as a condition of employment. To capture the temporal length of the restriction, one could ask at the start of the job how long past employment the restriction will endure or one could ask later, after the end of the job, whether the restriction persists. The former seems less burdensome.

We recommend focusing questions on the worker at the time of the survey with regard to all current and past jobs, foregoing attempts to specify the particular timing of the clauses or the particular jobs. If additional space were available, it would be useful to have information about a particular job so that researchers could characterize prevalence of these clauses across jobs and employer types, not just across worker types. In this case, it makes sense to focus on the primary current job.

These clauses can bind independent contractors and the self-employed as well. Posing the questions to the sample broadly is valuable.

It is important to repeatedly measure whether each subject is bound by each type of restrictive covenant at a point in time. Our sense is that the three most important types of covenants to capture would be noncompetes (which are often buttressed by nonsolicitation of clients and nonrecruitment of colleagues), nondisclosure (which is often buttressed with nondisparagement), and mandatory arbitration of disputes (Balasubramanian et al., 2021). A national survey on noncompete agreements included questions on respondents' awareness and understanding of these agreements as applied to their jobs (Balasubramanian et al., 2021; Starr et al., 2021; Prescott et al., 2016).

Recommendations for Questionnaire Content

Restrictive Covenants (high priority). Measure prevalence of individuals being bound by each of three types of covenants: 1) noncompetes, 2) nondisclosure, and 3) mandatory arbitration. Such covenants persist after jobs end. Repeatedly capture whether the individual is bound by each type at the time of the wave. Though it would be great to understand this at the worker-job-time level, it would be a big step forward to understand it at least at the worker-time level.

Methodological issues. Questions about whether an individual is bound by various types of restrictive covenants are best asked in an individual survey, like the NLSY. There is not a good alternative source for this information, other than perhaps matched employer surveys. Rather than a survey question, one could ask individuals to share a copy of a job's employee handbook or employment contract, but compliance might be quite low and these would vary greatly in form.

Worker surveys will definitely include measurement error. Workers do not fully understand all the fine print in their employment contracts or employee handbooks, nor applicable laws governing enforceability (Eigen 2008; Prescott and Starr, 2022). However, worker surveys may still be the "least bad" way to measure this important set of job attributes. Whether an individual is bound to a particular type of restrictive covenant can change over time and within job, and restrictions usually persist beyond the work relationship. The questions could be asked at the job-time level (are you bound in this job), new job (are you bound in this new job), or person-time (are you bound now from each or any current or past job) levels. One strategy would be to focus on capturing clauses that are required as a condition of employment, rather than those put in effect later post-hire. This would simplify data collection so that it only has to be asked about the start of a job rather than in each wave. Clauses put in effect as part of a promotion are less problematic than those put in as a condition of employment. To capture the temporal length of the restriction, one could ask at the start of the job how long past employment the restriction will endure or one could ask later, after the end of the job, whether the restriction persists. The former seems less burdensome.

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These clauses can bind independent contractors and the self-employed as well. Posing the questions to the sample broadly is valuable.

Relevant alternative data sources. We do not know of alternative sources. Evan Starr and co-authors have done the most measurement. Inclusion of similar measures in a future CPS module would enable comparison beyond the NLSY cohorts. This might also be a good way to benefit from the cost of developing measurement structures.

Technology and Tasks

Research themes, social trends and policy changes. Theories of changing job skill requirements invariably implicate technology (Acemoglu and Autor, 2011), but measuring technology at work remains

challenging. Consider two broad pathways by which new technology may alter the nature of work, between- and within-occupation changes. Information technology (IT) is not the only important workplace technology. Technology associated with blue-collar jobs such as robots, sensors, heavy machinery and industrial equipment has received even less attention than computers in worker surveys.

Between-occupation effects. New technology may alter the occupational composition of employment by substituting for some kinds of jobs and/or stimulating demand for other sorts of jobs. These between-occupation shifts in the composition of employment are captured most reliably using repeated, large-sample labor force surveys, such as the Current Population Survey (CPS), American Community Survey (ACS), or decennial census, which give the best estimates of the changing occupational structure over many years or decades.

Within-occupation effects. In addition to effects on occupational composition, new technology may also alter the task content and skill requirements of jobs. Worker surveys focusing specifically on job content are the best method of measuring these kinds of within-occupation changes. This kind of information is much less readily available than basic information on worker's occupation and would add new information to our understanding of the nature of work. For example, despite frequent movements to expand teaching of computer languages, the most recent being "coding for all," there has rarely been any information collected on the number of jobs that require programming or, more generally, the complexity of computer skills required by jobs.

Innovation is always generating impacts on jobs and the economy. Policymakers strive to stimulate innovation to reap economic and social benefits, while mitigating harms to those most negatively impacted, particularly workers who suffer falling demand for their skills and the tasks in which they specialize (Executive Office of the President, 2016). Interest in these questions is perennial and have a large empirical component. While theoretical models can guide study, understanding where impacts actually occur in ways that can guide resource allocations requires measurement. The impacts of technology vary in ways that are intimately bound up with the specifics of the work process (Litwin et al., 2022). Recent, rapid innovation in artificial intelligence through large language models has heightened interest in how knowledge work will be affected (Eloundou et al., 2023).

Key Research Questions

1. Research questions about the relationship between skills and pay are far from new, but as salient as ever. Are (public investments in) schools preparing students for the labor market? Are they doing so in an equitable manner? Does on the job training fill in skill gaps for mid- and late-career workers? What happens to workers whose skills are substituted by capital investments or technological advancements?
2. Understanding the role of technology might require information on the value of capital investment in IT at the industry or firm level, while worker-level data might not provide key contextual information that drives changes in staffing patterns. For example, asking whether a worker is part of an automated process or works with artificial intelligence (AI) may be worthwhile but raises problems as a source of information on the prevalence or employment effects of such systems given that one of their purposes is to reduce the number workers involved in the production process.
3. Measuring respondents' occupation and industry and looking at the averages within those categories over skill, tool, and task variables gathered in outside samples such as the O*NET will

provide some insight. However, measuring individuals' use of technology in tasks will prove extremely useful in relating to their individual compensation dynamics, job (in)security and transitions, and other job characteristics, particularly in combination with knowledge of individuals' skills (Lise and Postel-Vinay, 2020; Roys and Taber, 2022).

Selected topics for data collection. Because task "complexity" is relative and may be interpreted differently by different respondents, an unanchored Likert scale is unlikely to be the most effective approach to measure these concepts. We recommend investing in testing richer measurement to assess these concepts.

Asking whether a worker is part of an automated process or works with artificial intelligence (AI) may underrepresent the prevalence or employment effects of such systems given that one of their purposes is to reduce the number workers involved in the production process. One way to partly address this gap in a survey of workers is to ask whether they have lost a job within a given time window (e.g., past 12 months) and, if so, whether it was because they were replaced by a machine or computer, among other possible reasons of interest (e.g., outsourcing). A 2017 Pew survey asked this question and the BLS Monthly Layoff Statistics program collected information on automation-related job losses from establishments for 1995-2013 (Smith and Anderson, 2017). This approach captures some of the workers who have experienced job loss due to technological substitution, which may be an important component of overall trends, but does not capture other components of occupational decline, such as jobs that were never created because new establishments opened with new technologies requiring less labor, which requires more macro-level, occupation- and industry-level approaches. Nevertheless, understanding how many people have directly experienced technological displacement in recent years and their background characteristics (e.g., occupation, education, gender, race/ethnicity, region) would be a significant empirical contribution to the discussion on automation and AI.

New measures of mechanical and cognitive task complexity are being developed from job-posting data (Adrianito et al., 2023) and NLSY survey-based measures would enable validation and enrichment between these sources.

Recommendations for Questionnaire Content

Computer and mechanical task complexity required (high priority). Measure the complexity of interactions with digital tools and mechanical tools required to perform the worker's job tasks. Measure the worker's assessment of whether technological change primarily drove any separation, as recommended under Job Search below.

Methodological issues. There are at least four approaches to measuring computer task complexity. First, using an inventory of 10-20 of the most common or important software applications one can construct a count variable. Second, one can target items to higher-level computer tasks (e.g., scientific/engineering calculations) and higher-level tasks of common software applications (e.g., using macros and other mathematical functions in spreadsheets) to identify more demanding tasks. Third, length of computer learning times is a natural metric for skill level. While respondents will likely not be able to recall time required for learning general computer skills, they can be asked whether they use job-specific software not included in the inventory of common applications and whether they learned new programs in the previous three years. Following affirmative answers to either question, respondents can be asked how long they needed to learn the most complex such program using banded intervals (e.g., less than a month,

1-3 months, etc.). Fourth, overall computer task complexity can be measured using a subjective rating scale varying from 'very basic' (0) to 'very complex' (10), with labelled end points.

To measure possible computer skill deficits, one can ask respondents if they have all the computer skills needed for their current job and whether lack of computer skills has affected their chances of employment, promotion, or pay raise.

Technology associated with blue-collar jobs such as heavy machinery and industrial equipment has received even less attention than computers in worker surveys. More broadly, various tests of mechanical and other technology skills help define this domain, such as ACT's WorkKeys' Applied Technology sub-test, which covers basic physical forces, mechanical systems, electricity, plumbing, hydraulics, pneumatics, and heating and refrigeration systems (ACT, 2002). This is a good map of the content of this domain, but it is stronger on traditional craft skills than newer technical skills, omits deskilled technologies, and is more detailed than possible in a brief, general-purpose survey.

It is possible to ask questions on the use of heavy machinery other than vehicles that address sociologists' concerns with deskilling (e.g., machine tending, assembly line work), traditional craft skills (e.g., machine set-up, maintenance, repair), and newer, high-technology skills (e.g., programmable automation, robots). Those using new equipment introduced in the past three years can also be asked the time needed to learn the most complex such equipment, providing numerical estimates of both the skill requirements of new technology and the rate of technological change in blue-collar jobs. Respondents can rate the level of mechanical knowledge needed for their jobs (0-10 scale) and whether their job requires a good knowledge of electronics (1=yes).

Work Location

Research themes, social trends and policy changes. The location of work has always been an important job characteristic, but the pandemic forced widespread adoption of organizational practices enabling remote work and drove unprecedentedly rapid change in locational flexibility in many jobs. The share of workdays performed "at home" (really at location of worker's choice rather than employer's choice) among workers aged 20-64 rose from 5% in 2019 to 61% in May 2020 before stabilizing at about 30% more recently (Davis, 2022). Data from the National Compensation survey suggests that in 2019, access to remote work varied by a workers' position in the income distribution. For workers in the bottom quartile only 1% of workers had access to remote work while 25% of workers in the top decile had access to remote work. It is also unclear whether the fraction of workers working remotely has stabilized at 30% or not in the long run. Using the Remote Life Survey, Brynjolfsson et al. 2022 reports that a substantial number of workers working remote in October 2022 were doing so temporarily. The share of U.S. job openings saying that workers can work remotely at least one day a week tripled from 2019 to early 2023 (Hansen et al., 2023). However, many employers want to rein in remote work. This job characteristic will remain dynamic and contested, especially as technologies of production and monitoring change (Capelli, 2021).

Key Research Questions

1. What is the prevalence of employer versus worker control over location of work?

2. How does it vary across subgroups, such as by job's computerized and mechanical task complexity, occupation, industry, firm size, worker age and firm tenure, race and ethnicity, gender, and urbanicity and rurality?
3. To what extent are there compensating differentials for locational flexibility?
4. How does it affect productivity for different types of jobs and workers?
5. Do employers assert more control in slacker labor markets or those where they face less competition?

Related foundational data. The expansion of online and remote work means that some youths will have interactions within their communities as part of their gig work, as has been the case for previous cohorts, but others may occupy a workspace that is not tied to place. The latter arrangement raises the possibility that the relationships formed are neither place-based nor, in some cases, homogeneous with respect to age of other workers. Furthermore, opportunities to learn about the world outside of the youths' local area are expanded. These possibilities have not really been studied but could prove very interesting.

Selected topics for data collection. There are two main priorities for understanding work location. First, to what extent does the worker versus the employer control the location? Second, what is the location, especially when the employer dictates it? This could be phrased in terms of share of days or share of hours.

Recommendations for Questionnaire Content

Share of time at location of employer choice vs flexible (high priority). Measure the share of work time in which the employer dictates the location versus in which the worker can choose the location. Further, within the time at locations the employer dictates, divide between the share of time spent at worksites the employer provides (office, factory, store...) or on the road at the employer's direction (transporting goods, visiting clients or suppliers...).

Methodological issues. A robust rural sample, as is planned for the NLSY26, is important because access to remote work may be especially important in these areas.

Occupational Health and Safety Risks

Research themes, social trends and policy changes. Occupational safety and health represent core, consequential job characteristics and basic legal rights of American workers. Health and safety risks constitute prototypical disamenities in the compensating differentials literature. Exposures to such risks can have huge consequences on employees' future productivity at work and home, including death and disability. The longitudinal nature of risk exposure, health impact, and economic, fiscal, and human consequence makes the NLSY a uniquely powerful tool for learning in this domain. Studies commonly proxy individual risk with occupation or industry average level risk, but this can mask true relationships because of a lot of measurement error (Black and Kneisner, 2003). The NLSY could assist in addressing the most important weaknesses in estimating prevalence of health effects, their economic burdens, and the forms and patterns of these health effects and burdens.

Though many occupational health risks and outcomes are concentrated in a relatively small subset of the working population and are not amenable to study in the NLSY, some are relevant to much larger shares of working Americans. Four broad categories of work risk exposures pose large national burdens but lack

longitudinal information from a general population survey: psychosocial, work arrangements, ergonomic, and respiratory risk exposures.

Psychosocial exposures include 1) work stress, 2) quality of relationships with coworkers, supervisors, customers, and suppliers, 3) harassment, bullying and violence, 4) injustice, discrimination, and unfairness, 5) work schedules, 6) participation in decision about own job design and organizational design, 7) workplace surveillance and monitoring. The National Institute of Occupational Safety and Health (NIOSH) research has tried to understand these for several decades and they are now central concerns of the NIOSH Healthy Work Design program. Many of these are covered in more detail in other sections of the report, but they are mentioned here to reinforce the value data collection has as an aspect of occupational safety and health and driver of workers' lifelong health outcomes.

Leading models of work stress are the Karasek and Effort-Reward Imbalance (ERI) models, both of which have contributed to evidence that work stress affects health, including cardiovascular disease and musculoskeletal and psychological disorders. The Karasek model focuses on job demands and the decision latitude that workers have in meeting those demands (job control). The quality of relationships at work is considered a stress-reducing factor (Karasek et al., 1998). The ERI model focuses on the rewards of work, both financial and non-financial, in relation to work effort (Siegrist et al., 2014). Survey items to capture the elements of these models are well developed and many researchers globally have used them (Karasek et al., 1998). NIOSH used subsets of these questions in population surveys such as the Quality of Work Life Survey, the 2015 Occupational Health Supplement to the National Health Interview Survey, and the REGARDS study on risk factors for stroke (NIOSH webpages; MacDonald et al., 2014). Prevalence of some elements of work stress found in the 2015 Occupational Health Supplement is reported on the following website: 2015 NHIS-OHS data from WHC. The Karasek and ERI models and the questions designed for each can complement each other, together creating a stress measure that better predicts health outcomes (Yu et al., 2013; Jachens and Houdmont, 2019).

Work stress is an exposure that exists in all industries and occupations and that is highly variable across employers, supervisors, details of the work process, staffing levels, and a host of circumstances and seems to have many of its effects over long periods of time. While not part of the standard work stress models, discrimination, harassment and bullying are clearly extreme stressors. The quality of relationships with supervisors, coworkers, and customers and clients can also affect stress levels significantly. These relationships can be conflictual or friendly. Comradery and having friends at work often appears as a factor in discussions of turnover and decisions about quitting or staying. Interacting with customers, as the pandemic has highlighted, can also be a particularly stressful form of work, though it may be rewarding for others.

Work arrangements also have occupational health implications, adding force to the case for doing a careful job measuring work arrangements and promising extra scientific value to those questions. Most NIOSH programs focusing on particular industry sectors now include research on the association of work arrangement with safety and health as a priority topic. Fatality rates are over four times higher among the U.S. self-employed than the employed (BLS CFOI), with similar evidence from Spain (Amuedo-Dorantes, 2002). Replacing employees with the services of a contractor is a perennial business decision but these practices have grown more common (Weil, 2014). The consequent fissuring of legal responsibilities between entities sharing a workplace and a work process may increase health and safety risks for workers. Many studies find a higher incidence of workplace injuries among contract workers, including temporary staffing workers (Rebitzer, 1995; Morris, 1999; Smith et al., 2010; Muzaffar et al.,

2013; Foley et al., 2014; Boden et al., 2016; Foley, 2017, Al-Tarawneh et al., 2019). This may stem in part from divided and unclear responsibilities for safety and training. Across employing entities, safety decisions might not be coordinated, and responsibilities may be unclear. The panel makes specific recommendations about measuring work arrangements later in the report.

Three general categories of injury account for a large majority of all work injuries: musculoskeletal disorders (MSDs); contact with objects; and slips, trips, and falls (STF). The rate of injury resulting in one or more days away from work (DAFW) was 0.9 per 100 FTEs in 2019. Of this total rate, MSDs accounted for 0.26 injuries (BLSb Table MSD1 for 2019), contact with objects accounted for 0.22 injuries, and STF for accounted for 0.24 per 100 FTEs (BLSc Table R75 for 2019). Median days away from work for all DAFW injuries was 8, but it was 13 for MSDs and STFs (BLSb) and just 5 for contact with objects (BLSd, Table 70 for 2019). An estimate of total workers' compensation costs for major categories of injury indicated that musculoskeletal injuries accounted for the largest share of total costs (Marucci-Wellman, 2015). More than half of Social Security disability payment recipients between the ages of 51 and 61 who report being disabled at work have reported MSDs (Reville and Schoeni, 2003). Better understanding the development of these disabilities requires information on the history of exposure, not just the industry and occupation of the worker at time of filing for a workers' compensation or disability claim.

In eight years spanning an 11-year period, 27.6% of workers were injured at work, and 20.3% had a DAFW injury (Pergamit and Krishnamurty, 2006). Similar data is not available for recent years, but since the injury rate of DAFW injuries has declined by about two thirds since the 1990s, these rates may also have declined by that amount, suggesting that perhaps 9% of workers may be injured over an 8-year period and 7% injured severely enough to miss work. Injury rates would be considerably higher over 30 years.

Ergonomic hazards exposure over time causes many illnesses and injuries. Most work injuries and some illnesses stem from a single, point-in-time cause event that can be identified and investigated, such as a fall or exposure to a virus. However, many other injuries and illnesses are due to cumulative exposure to physical hazards. Most injuries in this category are soft-tissue musculoskeletal injuries arising from overuse and overexertion, including forceful exertions (such as heavy lifting), prolonged static or awkward postures, and repetitive movements, that is ergonomic hazards. Injuries that result from ergonomic hazards often are due at least in part to exposure over long periods of time, though they can be triggered by a single event or within short periods of time. When musculoskeletal injuries are recorded, the immediate activities that led to them may be apparent, but prior activities that contributed are not generally recorded.

Basic ergonomic exposures may be ascertained through a limited set of questions focusing on sustained or repetitive awkward work postures, repetitive forceful exertions, and heavy lifting, pushing, pulling or carrying. These kinds of questions have been used, for example in the NIOSH Quality of Work Life supplement to the General Social Survey, the new NIOSH Well-Being Questionnaire (WellBQ) and in NIOSH Occupational Health Supplements to the National Health Interview Survey. For example, the 2015 Occupational Health Supplement data indicated that the prevalence of frequent exposure to repeated lifting, pushing, pulling, or bending at work was 42% (Shockey et al., 2018) and that 5.6% of workers reported low back pain that was attributed to work by a health professional (Luckhaupt et al., 2019).

Degrees of exposure to ergonomic hazards can vary significantly from job to job within occupation and over time within the same occupation due to changing work processes and task assignments. Thus, collecting information on ergonomic hazards at the worker level and relatively frequently is quite useful.

Measuring individuals' cumulative work-related exposures to respiratory hazards, rather than their contemporaneous exposure, would improve our understanding of respiratory diseases, careers and health. Accounting for work-related exposures is critical for studying respiratory disease, both to understand the magnitude of their impact on disease, disability, death, and related costs, and also to control for their considerable effects while studying other potential risk factors. The two most common work-related respiratory diseases are chronic obstructive pulmonary disease (COPD) and asthma. The population prevalence of asthma among U.S. adults was estimated at 7.9% using 2008-2016 NHIS data (Pate et al., 2021). Overall prevalence of COPD was estimated at 5% (Biener et al., 2019). The authoritative resource on the impact of occupation on nonmalignant respiratory health estimated the percentage of cases attributable to occupational exposures at 16% for asthma and 14% for COPD (ATS and ERS 2019), although for COPD (Boschetta et al., 2006; Syamlal et al., 2022).

These respiratory diseases appear to reduce Americans' ability to work and earn, increase disability claiming, and affect their sorting to jobs. The effects of either removing patients from occupational exposures or reducing those exposures can best be understood by longitudinal studies, though a lot of current evidence comes from weaker evidence. Asthma is estimated to reduce employment of adults with asthma by 9%, approximately equivalent to an additional 6% of asthmatics employed (Sullivan et al., 2011). A quarter of adults who had worked since developing asthma had changed jobs or duties due to asthma (Blanc et al., 2003). Eliminating or reducing occupational exposures benefits individuals with work-related asthma (Henneberger et al., 2019). Nationally, adults with COPD were almost 5 times more likely to report being unable to work compared to those without COPD (Wheaton et al., 2015). Adults aged 40-70 with COPD were more likely to be unable to work, retired, or out of work for at least a year (Fitzsimmons et al., 2020). Costs estimates for asthma and COPD vary by source and time period but include both direct health costs (hospital, physician, medication) and indirect costs such as work absence, lost earnings due to early death, retirement, or disability exit, lost workplace productivity, lost home productivity, decreased employment, presenteeism, cost of job change due to illness, and economic impacts of care by family members.

In population studies, participants are most commonly asked about exposures to "vapors, gases, dusts, and fumes" (VGDF). A positive answer is considered to reflect a respiratory exposure, although some studies include exposure frequency. In 2010 National Health Interview Survey data, 25.0% of workers reported that they were regularly exposed to VGDF at work twice a week or more (Calvert et al., 2014). A 2018 EU population survey with 20-year follow-up (Lytras et al., 2018) found that COPD incidence was higher among the exposed than the unexposed for biological dust (RR 1.6, 95% CI 1.1 to 2.3); gases and fumes (RR 1.5, 95% CI 1.0 to 2.2), and pesticides (RR 2.2, 95% CI 1.1 to 3.8).

A vapors, gas, dust, and fumes (VGDF) question has the advantage of being a low-resource metric for assessing exposure to respiratory hazards. The response to this question can be combined with the respondent's industry and occupation to determine probable specific exposure, using an available job exposure matrix that maps industry and occupation to specific exposures. A job-exposure matrix (JEM) can be linked to a worker's historical and current industry and occupation to provide assessment of exposures to VGDF *in toto* and at a more granular level, and also evaluate exposures to other agents.

JEMs have been developed for COPD (Sunyer et al., 1998; Lystras et al., 2018; Doney, 2019) and asthma (Le Moual et al., 2018; Hennenberger et al., 2020).

Workplace exposures faced by employed youth can have immediate impacts and can also affect adult employment and health. Young workers are exposed to a range of physical (biological, chemical, ergonomic, safety, noise) and psychosocial hazards at work. Chemical and physical exposures that present reproductive risks, as well as ergonomic exposures (e.g., lifting) that present increased risks in pregnancy, are also of concern for teens. In the U.S., young workers (ages 15-24) have higher nonfatal injury rates than workers aged 25-44 (Guerin et al., 2020) and these injuries are associated with increased healthcare costs (Kooerhorn et al., 2008). Limited work experience and lack of training about occupational safety and health are thought to be responsible for some of this increased risk. A nationally representative cross-sectional survey of adolescent workers in the retail and service sector found that two-thirds of respondents were exposed to continuous, very loud noise, 55% to thermal hazards and 54% to chemical hazards (Runyan et al., 2008). Young workers in Canada are disproportionately likely to be occupationally exposed to carcinogens (Sweet et al., 2022). Pesticides and disinfectants are the respiratory hazards most likely to be experienced by young workers (Laberge and Ledoux, 2011). Psychosocial aspects of working conditions are also key for young workers, who have less experience navigating working relationships. A longitudinal study of Australians between age 15 and 30 (average age 20 at first interview) found declines in mental health for young workers holding jobs with at least two psychosocial adversities (low control, high demands, low security, and unfair pay) compared to young people who were not working; in contrast, young people employed in high psychosocial quality work had modest improvements in mental health (Milner et al., 2017).

Especially given recent reporting on the rising incidence of illegal child labor in hazardous industries, including meat packing and construction, and Federal and state policy debates states about legal boundaries for child employment (Dreier and Broadwater, 2023; Department of Labor, 2023; Bogage, 2023), new evidence about the extent of and consequences of youths' occupational health and safety hazards would be of great interest to researchers and policymakers.

A large proportion of occupational safety and health studies rely on limited cross-sectional survey data that typically provides information only on current health behaviors, previous diagnosis with a list of health conditions, employment status, and current occupation. These studies usually have little to no information about work history or time of diagnosis. Occupational cohort or case-control studies can assess temporal relationships between hazard exposures and health outcomes, but these are limited to particular workforces (cohort studies) or people with specific diseases (case-control studies) and require reconstruction or long-term recall of pertinent information. They are also limited in representativeness.

Longitudinal data is necessary to assess disparities in exposure to cumulative hazards. Though cross-sectional evidence suggests that exposures are higher for certain types of workers, the degree to which exposure is persistently focused among a narrower group of individuals within type versus episodic over a larger group is unknown. Collecting baseline and long-run health data would add great value to data on occupational safety and health exposures.

Key Research Questions

Population-based, longitudinal data could open up the chance to assess temporal relations between common workplace hazards and their potential health effects and economic consequences.

Longitudinal population surveys offer the best opportunity to: 1) measure cumulative exposure to hazards by observing the type and level of workplace hazards through time as workers change tasks and jobs, 2) account for changes in non-occupational domains that may confound relations between work hazards and outcomes, such as uptake or cessation of cigarette smoking, and 3) with the availability of longer follow-up periods than are normally possible, to observe and estimate the long-term economic effects of work hazards and work-related injury and illness.

Measuring disparities and inequalities. Injury rates differ substantially by gender, education, and wage level, as well as by industry and occupation.

Previous NLSY content. The NLSY79 asked about work injuries in 9 years between 1988 and 2000. Our recommended questions and administrative data linkages would allow for comparative work with the NLSY79 set but would extend research opportunities far beyond what is available in the older NLSYs or other datasets.

Selected topics for data collection. We recommend focusing on several topics where the NLSY26 can provide longitudinal data to advance key research agendas. Potential sources of questions are included in the discussion in the research topics section above.

Recommendations for Questionnaire Content

Exposure to physical occupational safety and health risks (high priority). Measure occupational exposure to ergonomic and respiratory risks and well as incidence of related illnesses and injuries for that worker and co-workers.

Exposure to psychosocial risks (medium priority). Measure quality of relationships with supervisors, coworkers, and customers and clients.

Work stress (medium priority). Measure expected pace of work versus worker's capacity.

Methodological issues. Some workplace risk factors vary a lot and should be measured relatively frequently in order to compile an accurate record of exposure. One example is work stress. In the well-known Nurse's Health Study, 49% of women reporting high job strain in 1992 did not do so in 1996 (Lee et al., 2002). Most respondents did not change jobs during that period. Other aspects of psychosocial experience may likewise change even if the job or the occupation does not. It may be impractical to ask questions about psychosocial exposures in every survey round, but a more limited series of repeated measures over many years would provide a much sounder basis for classifying workers by work stress level than is generally now possible.

Some health conditions are also more variable over time than others. Good examples are mental health and musculoskeletal conditions. Even if all the ups and downs cannot be recorded, a series of repeated questions will better represent health status before, during and after exposure to workplace risks than the many current studies that rely on data collection at a single point in time.

Relevant alternative data sources. As described above, linking employers to their OSHA administrative and enforcement data and U.S. Environmental Protection Agency records of hazardous materials would provide valuable context for interpreting individual workers' experiences.

Employer Monitoring and Surveillance

Research themes, social trends and policy changes. Employers want to understand the actions of their workers and invest in gathering information about them. In contrast, many workers prefer privacy and autonomy. Ideally, all employers would be able to observe each worker's productivity, meaning their effectiveness in creating value for the employer. Employers could offer jobs to workers commensurate with the value the worker would contribute to each employer. However, it can be difficult for employers to separate worker productivity from other influences on what they produce, such as weather, client demands, supply chain snarls, team dynamics, etc. A large economics literature, especially in personnel economics, focuses on how employers can deal with unobservable employee productivity using pay-for-performance, promotion tournaments, efficiency wages, and other strategies (Akerlof and Yellen, 1986; Lazear, 2000; Oyer and Shaefer, 2011). A direct, alternative strategy is to invest in technologies that convert worker productivity from unobservable to observable, which can reduce the need to pay efficiency wages (Skott and Guy, 2007). An employer's investments in private employee monitoring also adds informational advantage over competitors (Schönberg, 2007). Finally, employers may learn about workers' outside options, not just their productivity, via monitoring. Among equally productive workers, employers may then be able to pay less to workers with worse outside options (Rapheal and Riker, 1999; Hotchkiss and Quispe-Agnoli, 2010; Dubal, 2023). In a different vein, employers' ability to monitor workers remotely increases their willingness to delegate workers' control over work location in some cases, a rapidly changing and hotly contested issue.

With costs of information gathering, communication, and processing falling rapidly, employers and their suppliers have developed a panoply of new monitoring technologies. More than 500 service providers sell employers ways to monitor and surveil their workers through computers, phones, cameras, wearable biosensors, and other means (Coworker, 2021). These complement older technologies such as manufacturing line speed, input wastage, checkout scanner volume, and innumerable others. New monitoring technologies can affect the distribution of productivity, earnings, design of jobs, workers' privacy and ability to exercise their rights to organize, and many other aspects of lives and work (Zickuhr, 2021).

Key Research Questions

1. What is the prevalence of employee monitoring and surveillance? How does monitoring and surveillance prevalence vary by occupation and work arrangement?
2. Is exposure to monitoring and surveillance stratified by race, ethnicity, nativity, disability, or gender? What is the role of human capital differences, occupational segregation, and other factors in shaping any such inequalities?
3. How is exposure to surveillance and monitoring associated with other dimensions of job quality? Are workers who are subject to surveillance and monitoring able to claim greater autonomy with respect to location and timing of work?
4. How is exposure to surveillance and monitoring associated with workers' wellbeing? With job transitions?
5. Are any associations between exposure to surveillance and monitoring and employee outcomes variable across the life-course? By ascriptive characteristics?

Recommendations for Questionnaire Content

Employer monitoring and surveillance of worker (high priority). Measure what types of worker behavior or processes are monitored and with what consequence.

Methodological issues. There is not much evidence about how to measure this at the worker level. Research points to the importance of the issue but lacks survey evidence (Rosenblat et al., 2014; MacParland and Connolly, 2020; Zickuhr, 2021). The Harvard SHIFT Project is working to develop items. It would be good to see validation studies for how to ask this question to elicit an accurate/useful response.

Job Search and Beliefs

Research themes, social trends and policy changes. Economic research has focused on transitions between unemployment and employment and how this is shaped by demographics or institutional factors such as unemployment insurance benefits. Research has increasingly focused on search intensity, on-the-job search, and worker beliefs. This section addresses job search generally while the next section addresses job search and other labor market factors specific to disadvantaged groups.

Job search technology changed tremendously between the NLSY97 and prospective NLSY26 cohorts. Online job search has taken off in the interim, though it remains unclear whether or not the efficiency gains in job matching forecast by many in its early days have come to pass.

The NLSY's attention to longitudinal transitions and detailed job information makes it a uniquely important resource for understanding careers and transition dynamics (Keane and Wolpin, 1997). For instance, in cross-sectional data where we see the shares of individuals employed, unemployed, or out of labor force over time, no one can tell whether the same individuals are persistently employed and unemployed over time versus whether different sets of people transition through these states over time. Separating these stories is critical for understanding Americans' labor market experiences and devising sensible policies.

The field is working to understand more about the search process and outcomes for currently employed workers—so-called on-the-job search. Job-to-job transitions account for one-third to one-half of all hiring (Fallick and Fleischman, 2004) and are an important driver of reallocation, wage growth, and productivity growth (Faberman and Justiniano, 2015; Moscarini and Postel-Vinay, 2017; Haltiwanger et al., 2018). Cross-sectional comparisons of search behavior and outcomes between employed and unemployed workers may suffer from composition bias due to unobserved differences between job seekers with different labor force status. The NLSY is well positioned to answer this important question as it tracks individuals over their life and collects detailed employment histories between interviews.

Do we need to focus long-term investments on a subset of individuals stuck out of the labor market or on systems that serve a rotating cast of individuals over short term transitions? The over-the-year longitudinal link in the Current Population Survey provides some leverage to understand this (Hall and Kudlyak, 2020). Longer term tracking enables deeper insights. Some of this can be done with the Linked Employer-Household Dynamics (LEHD) data (Gregory et al., 2021) but it lacks rich information about individuals. The NLSY can offer important additional insights within and across cohorts (Morchio, 2019; Molloy et al., 2016).

Longitudinal information would provide important information on whether job seekers learn from past experiences (Conlon et al.,2018; Jager et al., 2021). Researchers could compare realized probabilities versus the expected probabilities for various worker and job subgroups to measure variation in (mis)match between workers' expectations and experiences. This could guide investments in where improved information – delivered through America's Job Centers or other means – could improve matching.

Despite the importance of job-to-job transitions for understanding labor market dynamics and the key role it takes in macroeconomic models of the labor market (e.g., Bagger and Lentz, 2019), evidence on its extent and nature remains scant, with a few exceptions (Blau and Robins, 1990; Faberman et al., 2022). The main reason is that current labor force surveys generally do not ask any questions about job search activities to all those employed. This seems a clear omission. Faberman et al. (2022) document in data from the New York Federal Reserve's Survey of Consumer Expectations (SCE) that about 20 percent of the employed engage in job search activities each month and that job search activities strongly correlated with job offers, job-to-job transitions, and wages on new jobs. Moreover, employed job seekers appear to be much more efficient in their job search in terms of the number of offers per application. Finally, an important distinction of on-the-job search that emerges from the same study is that about a third of those who search on the job look for an additional job whereas the remaining two thirds search for a new job that aims at replacing the existing job (Faberman et al., 2022).

Going beyond the search or no-search distinction to understand the causes and consequences of variation in the intensity of workers' search activity has been active area of research in economics (Caliendo et al., 2015; Mukoyama et al., 2018; Bagger and Lentz, 2019; Faberman and Kudlyak, 2019), industrial-organization psychology (Wanberg et al., 2017; da Motta Viega and Turban, 2018), and sociology (Pager and Pedulla, 2015). How search behavior including search intensity, whether measured in terms of minutes spent or number of applications completed, changes as young people age into adulthood is largely uncharted, but potentially quite valuable, research territory, as are differences across groups in these developments.

Workers have incomplete information about the distribution of wage offers and layoff risks they face (Kosar and van der Klaauw, 2023). They update their beliefs based on information revealed through experience and the search process (Conlon et al., 2018; Jager et al., 2021). Match quality between a worker and prospective firm appears to be an experience good, with complex job attributes that workers can understand well only through on-the-job experience, rather than prospectively from the outside (Menzio and Shi, 2011). Workers struggle to understand prospective job characteristics and value information about jobs with prospective employers, especially negative information which can be hard to come by due to concerns about employer retaliation risks (Sockin and Sojourner, 2022; Sockin, Sojourner, and Starr 2022; Boudreau et al., 2023).

Economists increasingly recognize the role of workers' information and beliefs about prospective job characteristics in their choices about how much to search and which offers to accept. To understand how employed and not-employed workers decide whether to search and whether to accept a particular offer, a better sense of their satisfaction with current job characteristics and beliefs about prospective job characteristics would be extremely useful. Economists model worker search, quit, labor force exit, and job offer acceptance decisions as functions of a worker's expected value of continuing the current job, continuing search, and accepting a prospective position. Complementing data on worker assessment of

characteristics in the current job with richer data on satisfaction with those characteristics and beliefs about the characteristics of prospective jobs would greatly improve our ability to model these processes.

The elicited reservation wage has been shown to have strong predictive power for job acceptance and job finding (Krueger and Mueller, 2016). Differences in reservation wages and commuting distance also have been shown to be an important determinant of the gender wage gap (Le Barbanchon et al., 2020). Moreover, tracking search activity over the spell of unemployment has allowed researchers to describe how search activity relates to the expiration of UI benefits (DellaVigna et al., 2022; Marinescu and Skandalis, 2022). Furthermore, the scope of job search has been shown to be an important determinant of search outcomes (Belot et al., 2019).

Elicited perceptions among job seekers about their own employment prospects appear to be biased optimistically (Mueller et al., 2021), which calls for moving away from models assuming workers have rational expectations and towards those based on eliciting data on their beliefs. Job seekers have been shown to be over-optimistic about their job search prospects (see recent survey by Mueller and Spinnewijn, 2022). This may have important consequences for their job search behavior, as they engage in too little search effort and find themselves unexpectedly as long-term unemployed or stuck in a bad job. While the optimistic bias has been documented widely, its sources and the relationship to job search behavior are poorly understood. Eliciting job seekers' expectations about their chances of finding a job in conjunction with basic measures of search effort and reservation wage behavior could shed important light.

Another important question for which more evidence is needed is the importance of preferences over non-wage characteristics of jobs for job search and job acceptance behavior. This can shed new light on the sources of wage differentials between different socio-economic groups. LeBarbanchon et al. (2021) shows that preferences over commuting distance of a job are an important determinant of the gender wage gap. Understanding how job characteristics over which one collects information (e.g., flexible hours, jobs that require relocation and remote work) relate to job search is a key area of concern in labor and macroeconomics.

It remains unclear whether or not the efficiency gains in job matching from online job search that was forecast by many in its early days have come to pass. Instead, are employers deluged with applications because the cost to potential workers of applying is so low, and from workers who attempt to game the matching algorithms?

A key research question concerns whether job matching for younger workers has changed as much, and in the same ways, as job matching for older workers, both older youth and adults. A leading job matching website, monster.com, will accept searchers as young as 13 years old (though parents must participate in the process through age 17), but that does not mean that large numbers of younger people actually use online job search, as opposed to relying on their peer and parental networks, or on their school, as discussed in the topic statement on work-based learning.

Understanding the role of summer youth employment programs in youths' job search activities, especially in light of the new online opportunities, would shed light on similarities and differences between the NLSY26 cohort compared to earlier cohorts.

Key Research Questions

1. To what extent should we focus investments long term on a subset of individuals stuck out of the labor market or in systems that serve a rotating cast of individuals over short term transitions?
2. How does search behavior including search intensity change as young people age into adulthood? How does this change job finding?
3. How do realized job characteristics and job length relate to intensity of the preceding job search?
4. When do employed and not-employed workers decide whether to search more intensively and whether to accept a particular offer? What role is played by satisfaction with the worker's current job's characteristics and their beliefs about prospective jobs' characteristics and the probabilities of being offered such jobs?
5. How do job seekers' expectations about their chances of finding a job relate to their search effort and choice of reservation wage?
6. To what extent do these beliefs prove (in)accurate? What types of workers in what types of markets are more or less accurate? What roles do overconfidence and risk aversion play?
7. How has the mode of job search changed over time? How has the rise of online search affected the efficiency of the matching process?
8. To what extent do young Americans have access to and make use of different search modes and how does this change with age?
9. What role do summer youth employment programs play in youths' job search activities?

Finally, we note that the "Methodological issues" section below includes discussion of the significant contributions that could be made through the use of open-ended questions on this topic.

Related foundational data. The ability to integrate analysis of individuals' employment transitions with measures of individuals' intertemporal discount rate and degree of risk aversion would be of great interest to labor and macroeconomists (Kimball et al., 2009). Measuring individual's decision-making "biases" such as exponential-growth bias (Stango and Zinman, 2009; Levy and Tasoff, 2016; Goda et al., 2019) or present bias (Carillo, 2020; Laibson et al., 2021) would also be of great interest, as these lead people to over-weight immediate gratification over delayed payoffs with possible implications for human capital accumulation, investment in job search, retirement savings, health-promoting behaviors, and other areas.

Measuring disparities and inequalities. Workers of different races, ethnicities, genders, ages, and regions tend to have different preferences, beliefs, and constraints about job search. Understanding preferences over non-wage characteristics may be important for the study of the gender wage gap as well as wage gaps between other socio-demographic groups. Broadband access clearly matters for the use of online job search tools, suggesting the value of examination of broadband access by subgroups, such as family income. There are potential differences across relevant population groups (e.g., by family income, or urban / suburban / rural residence, or race / ethnicity) in the quantity and mode of job search. To what extent are those differences accounted for by local labor market characteristics, such as differences in the industry and occupation mix, the local unemployment rate, or in access to public transit for travel to work?

Previous NLSY content. The NLSY97 includes questions about job search both at the time of the interview as well as for each job between interviews. A number of improvements could be made.

One such improvement would be to standardize the job search question to 4 weeks for both the employed and unemployed. While this seems preferable from a point of view of comparability between employed and unemployed, it will introduce some problems of comparability between cohorts, as currently this question is asked for a 3-month reference period for the employed in the NLSY97. One way to harmonize this across cohorts would be to introduce the 3-month question and 4-weeks question simultaneously in the NLSY26 and then phase out the 3-month question after a few interviews.

Selected topics for data collection. We recommend paying careful attention to the following aspects of job search in the development of this section. First, we suggest that the NLSY26 should use consistent measures for everyone regardless of current employment status. In NLSY97, the question about job search was asked to the employed for the last 3 months, but 1 month for the unemployed. For the purpose of comparability, asking the same frequency seems preferable, e.g., this would allow for running a panel regression with individual fixed effects and labor force status on the right-hand side and job search over last 4 weeks on the left-hand side.

A related issue is that the question about on-the-job search is only asked to individuals who have had a job for 6 months or more. It would be of great value to ask this to all employed individuals as well. Job search in temporary and short-term jobs is an important phenomenon and thus an important omission that should be corrected in the NLSY26. For employed job seekers, it would be valuable to distinguish between job search for an additional job and job search aiming for a new job at replacing the current job. Employed job seekers may look for a job for different reasons.

Related to the topic of on-the-job search are the reasons for leaving a job, which is currently asked in the NLSY97 (question name: YEMP-58400). This question seems valuable as it allows users to distinguish job-to-job transitions based on layoff vs. quit. This is an important distinction in models of on-the-job search, as workers who quit generally receive a wage or non-wage amenity increase whereas workers who transition to a new job due to layoff usually experience a decrease. To add insights around technology, when someone reports losing a job, the reasons for leaving should include because they were replaced by a machine or computer, among other possible reasons of interest (e.g., outsourcing...).

It would be valuable to collect information on whether job seekers look for a new job because the current job is ending (due to layoff, discharge, mass layoff, temporary job ending) or because the job seeker is dissatisfied with the current job (due to wage/salary, benefits, hours, hours flexibility, commute, promotion prospects, accumulation of experience…). This is closely related to the topic of preferences over non-wage characteristics below.

A measure of job search that also captures the intensive margin of job search effort would add a lot of value, as it allows researchers to study the yield to job search (probability of being hired given search effort). Studies show that “number of applications over last 4 weeks” and “number of hours job search over last week” are highly correlated, and either one would be a great addition.

On the topic of preferences over wage and non-wage characteristics of jobs, it would be of great value to collect information on reservation thresholds for the wage (the standard reservation wage question) as well as reservation wage thresholds for non-wage characteristics. For example, for both employed and unemployed job seekers, the NLSY26 could ask questions about their reservation wage, their desired work hours, the maximum distance they are willing to commute, whether they are willing to relocate,

whether they consider primarily jobs that allow for remote work (part of the week or entirely), and whether they are willing to accept jobs with little or no hours flexibility.

Another related issue is expectations about the job search process and about future job prospects; these could be collected in a way that enables study of how beliefs evolve and how they match or do not match realized outcomes. Mueller and Spinnewijn (2022) survey the recent literature on this topic and show that a simple question about the chances of finding a job over the next 3 months not only has high predictive power for actual job finding but also shows an important optimistic bias relative to actual outcomes. Adding one such question to the NLSY26 would be of great value for the literature and would allow researchers to answer questions about biases and how they evolve over the life cycle. Moreover, adding the same question for employed job seekers would allow research to shed new light on behavioral biases of employed job search, which we know nothing about. Further, questions about how workers' pre-start expectation of satisfaction with a new job overall and with particular aspects matched their post-hire experiences would create new insight into the uncertainty workers face about job quality in job search.

To measure (mis)match between workers' expectations before accepting a new job offer and their experience in the job, one could ask a retrospective question about new jobs, "Compared to what you expected right before you started job [X], overall did job [X] turn out to be: much better than expected, somewhat better than expected, about as expected, somewhat worse than expected, much worse than expected?" This question could also be asked with respect to specific job characteristics. Another approach would be to ask, "At the time you accepted this job offer, what did you believe was the percent chance that you would stay at least 1 year?"

Finally, we note that additional useful sources of survey questions on job search include the Survey of Unemployed Workers in New Jersey (Krueger and Mueller, 2011) and the British Labor Force Survey (https://www.hse.gov.uk/statistics/lfs/about.htm).

Recommendations for Questionnaire Content

1. *Job search: consistent measure for everyone (high priority)*. Ask employed and unemployed job seekers a question about job search at the same 4-week frequency. Ask all employed respondents the same questions regardless of job tenure. Ask employed respondents whether they are searching for an additional job or a new job. Collect reasons for leaving a job and for searching for a new job.
2. *Job search intensity (medium priority)*. Ask either number of applications over last 4 weeks or number of hours job search over last week.
3. *Subjective job quality including most important determinant for how respondents value jobs (medium priority)*. Ask preferences over wage and non-wage characteristics of jobs, including the standard reservation wage question and questions about commute distance, relocation, remote work preferences, and required hours flexibility.
4. *Mismatch between new job conditions and pre-hire expectations (medium priority)*. Ask about perceived chances of finding a job over the next 3 months for both unemployed and employed job seekers. Ask about how workers' pre-start expectation of satisfaction with a new job overall and with particular aspects matched their post-hire experiences.
5. *Expectations about job transition outcomes (low priority)*. Measure beliefs about the likelihood of leaving current positions and of job offers arriving and their characteristics in a given time period.

Methodological issues. While there are many cross-sectional ad-hoc surveys on job search behavior, the highest added value would be for the NLSY26 to add a few questions on the four topics of interests: 1) on-the-job search, 2) search intensity, 3) preferences over non-wage characteristics, and 4) expectations. Further, it's important to have data collected in a consistent manner over the entire panel of the NLSY26.

An important issue is the comparability of the job search question between the unemployed and employed. It is important not only to harmonize the frequency, but also the question wording and skip structure. The NLSY97 question YEMP-107600-A asks about on the job search but adds "Please don't include any job search activities you've already told me about". Since this is not the case for the standard CPS question asked for the unemployed, harmonizing would facilitate benchmarking.

Consider collecting some qualitative, open-ended responses in this nationally representative sample. For instance, to add value to conventional Likert-scale job satisfaction, the NLSY could ask open-ended questions giving workers a chance to freely describe the pros and cons about a job. While closed-ended questions are the traditional mainstay of quantitative research, advances in machine learning have opened up many tools to extract quantified meaning from text. Open-ended questions have a lot of value. First, they give respondents more flexibility to describe what's meaningful to them and do not require designers to anticipate precisely what the most important kind of responses will be. Respondents may care about characteristics of jobs or jobs may differ along characteristics that survey-question designers did not anticipate. Response burden may be lower because it is conversational. Second, in recent years for the first time, a lot of free-response text data from workers describing what they like and don't like about their jobs has proliferated on sites like Glassdoor, Indeed, Reddit, Facebook, and other sites. However, none of this outside, free-response data is normed. Collecting similar data from a representative sample would facilitate interpretation of the outside data and enable benchmarking. Third, the correlation of NLSY text responses describing particular job characteristics with the same individual's responses on closed-ended questions would allow benchmarking of text to more standardized measures of job characteristics. For instance, how do closed-ended measures of respiratory risk exposures correlate with text description of the pros and cons of working at a job. This would provide a bridge for interpreting the outside, free-response data in terms of a standardized measure of respiratory risk exposure. A team of primarily sociologists and ethnographers is currently working to collect rich qualitative data on many aspects of Americans' lives from a representative sample through the American Voices Project and they may have ideas for useful ways to proceed. A downside is that open-ended questions may require additional measures to protect privacy.

The topic statement on job search for older youth suggests measuring the characteristics of the desired job as a set of binary indicators (e.g., willing to relocate or not, wants to work remotely or not) or thresholds (e.g., the "reservation wage"). Most workers are not at corners on many characteristics. They would relocate if the price is right, or the job content is right. They would work in person rather than remotely if the price is right, or the job content is right, and so on.

This suggests one of three possible alternative approaches to the format of the related questions. One format would ask the worker to rank a set of potential job characteristics by their importance to them. A second format would offer a five-point Likert scale of importance for each of a set of characteristics. A third format would present the worker with job vignettes from which preferences could be inferred (Maestes et al., 2018; Mookerjee and Rory, 2022).

Relevant alternative data sources. The Survey of Consumer Expectations (SCE) contains many of the suggested additions. The panel structure of the SCE, however, is that survey participants are interviewed at most in 12 consecutive months and most questions on job search behavior are only asked once (the Job Search Supplement runs in October of each year).

Barriers to Work

Research themes, social trends and policy changes. Americans' outcomes in the labor market depend on the sets of constraints they face. There is enormous variation between individuals and between groups in constraints, contributing to disparities in opportunities, information, incentives, and bargaining power and in observed job finding, work arrangements, and job characteristics. Barriers are part of the job search process and the work experience.

Workers who are members of demographic groups that have employment-population ratios below the national average or below their peers, and whose employment outcomes are more sensitive to changes in macroeconomic conditions, can be classified as "vulnerable" workers. Based on this definition, the Institute for Economic Equity identifies the following groups as being vulnerable: Teenagers (ages 16-19), all adults with no more than a high school diploma (age 25 and older), women of all races/ethnicities, Black men, Latino men, and people with a disability (age 16 and older). Other groups and communities also face systemic and structural hurdles. They include LGBTQ+ (Badgett et al., 2021), out-of-school youths (Federal Reserve Bank of St. Louis, 2023), American Indians and Alaska Natives (Bureau of Labor Statistics, 2020).

Vulnerable groups face a variety of barriers to work. A recent study showed that although the Beveridge curves (a measure of the relationship between unemployment rates and job opening rates and generally used to measure labor market tightness) of some vulnerable groups who faced structural barriers to labor force participation before the COVID-19 pandemic have shifted back toward their pre-pandemic positions, others have not (Rodgers and Kassens, 2022). These include the Beveridge curves for young adults, Black men, Latino men, Black young adults, people with no more than a high school diploma, non-enrolled young adults, women with children, and people with a disability. For a given vacancy rate, their unemployment rates are higher, placing them on a different Beveridge curve, which means that structural labor supply, labor demand and institutional features of the economy contribute to their lower labor force attachment (e.g., higher unemployment rates and lower labor force participation rates). A well-developed literature seeks to explain why a large portion of the unemployment among vulnerable groups is structural. For example, a growing body of research shows how a lack of access to affordable childcare reduces job matching efficiency for mothers (Boesch et al., 2021).

Considering youths and young adults' barriers to work in particular, those not enrolled in school and with no more than a high school diploma have persistently high unemployment rates, especially among those who are Black or Latino. The relative role of personal characteristics or structural impediments in driving this lower participation is debated. Characteristics cited for inhibiting labor participation include a lack of education, hard and soft skills, job networks, and information. Common structural barriers are childcare, employer and societal attitudes regarding race, ethnicity, gender, and age, as well as one's mental health, ex-offender, and disability status. All of these reduce job matching efficiency.

Further, it is reasonable to think that structural barriers erode during "tight" labor markets, such as just prior to the pandemic and the last few years. Employers' need for workers offsets the costs of the

impediments. Increased compensation raises the costs of remaining unemployed or out of the labor force. The period from July 2021 to July 2022 provides an excellent opportunity to assess this assertion because it is a period of record labor market tightness. An Institute for Economic Equity (IEE) report that studies this period found that Black men and Black women in particular face structural barriers, with their Beveridge curves considerably higher than the general adult population. This evidence is more consistent with research emphasizing the role that structural hurdles play in explaining inefficiencies in the job matching process (Rodgers, 2019) and, thus, the higher unemployment rates faced by these groups.

Discrimination is particularly relevant and important for early work experiences. When judging younger workers who lack a long individual work history, managers rely more heavily on signals tied to group membership. Discrimination is an economic factor that permeates through many of the above broad categories and creates structural barriers in different forms to every stage of work, from job search to layoffs or promotions.

The digital divide is a structural barrier that has become much more relevant for all workers since the NLSY97 was fielded, including the early worker. Numerous research has documented the existence of a digital divide (e.g., broadband) that is impacting young people of color's ability to learn, to gain information about opportunities, and to work remotely. This is especially true for rural communities, such as the Mississippi Delta. Restricted access to high-speed broadband takes two forms: (1) some communities lack broadband, and even within communities some areas and some households lack access and (2) some households lack adequate devices for young people to access the internet. Some schools supply students with a tablet or laptop in an effort to mitigate the negative impact of the lack of these resources, but this is only helpful if the area has broadband.

Finally, as mentioned above, people with a disability face major barriers to work. Most disabilities are invisible, so this can lead to a narrow definition of disabilities to focus on physical disabilities. Omitting other important factors such as mental health and neurodiversity limits the ability to make accommodations. For example, mask requirements disadvantage those who need to see the mouth to communicate, although with the ending of mask mandates, this issue may not be as significant. While accessibility efforts may focus on the physical workspace, the inaccessibility of an employer's website may inhibit applicants at the outset of the talent pipeline. Relief and recovery packages at the Federal level provided few employment-related resources to reduce the pre-pandemic barriers to work.

These challenges derive from structural barriers, not just personal characteristics. The same IEE report suggests that the weaker labor market outcomes of Black men, noncollege-educated adults, and non-enrolled young adults are due to structural barriers to the job matching process. Even after controlling for personal characteristics like educational attainment and age, the Beveridge curves of these groups indicate that their higher unemployment rates have less to do with such characteristics and more to do with structural impediments, for example, access to transportation, and job information and networks, employer and societal attitudes concerning race, ethnicity, gender and age, and also mental health, ex-offender, and disability status.

Many barriers are not about individual characteristics or job characteristics alone, but rather about interactions between an individual's characteristics and a job's characteristics. A job characteristic can be a barrier for one worker but an advantage for others. First, for instance, spatial mismatch between worker residence and job location can be a barrier to work. Many young people of color either have difficulty commuting to locations where jobs might be available or are unable to move to neighborhoods that are in

closer proximity to the potential jobs. Second, family background is closely associated with the networks and relationships that individuals possess. What matters is the interaction between the individual's network and the social network in which the job is embedded. Finally, the dual Beveridge curve may be another potential barrier (Cheremukhin and Restrepo-Echavarria, 2023). If most job vacancies are filled through a matching process geared for job-to-job transitions, those looking to move from unemployment to employment face the added challenge of inaccessible jobs. This will increase the challenge for youth and people of color because they have persistently higher jobless rates.

Key Research Questions

The topic of barriers to work calls attention to structural aspects of the economy that have the potential to create inequality in the labor force. Young people, who mostly live with parents and attend school, may be especially vulnerable to some of these barriers, especially those that are place-based. Early work experiences that are shaped by these structural barriers to work may produce long-term effects on labor force outcomes.

1. What is the nature of the barriers to work that the youngest respondents face?
2. What are the effects of these barriers on school and labor force outcomes such as job search, job transitions and earnings?
3. Why do Black Americans have persistently higher unemployment rates than white Americans? To what extent is this due to difference in baseline characteristics (education, age...), employer discrimination, intensity of search, differences in worker beliefs about job offer arrival and prospective job quality, and willingness to persist in unsuccessful job search? How are these related to structural factors in the economy?

Understanding the answers to these questions may shed light on the mechanisms that reproduce or disrupt inequalities, including those across generations.

Previous NLSY content. In terms of measuring the digital divide, in survey year 2000, respondents were asked if they had access to a computer at home running specified operating systems, whether they could access the web using a browser and whether they could access the internet through a modem or other connection. These questions were also asked in the 2002-2012 survey rounds but only if the respondent had not reported internet access at a previous interview. In 2014, all respondents answered a short, updated question series about internet use. They were asked if they had an electronic device they could use to access the internet and, if so, which devices they used most often: laptop, tablet, cell phone, etc. The suggested NLSY26 questions on barriers to work include comparable (but significantly more detailed) information on the digital divide but capture additional information about other types of barriers.

Recommendations for Questionnaire Content

Barriers to work (high priority). Collecting information about barriers to work -- such as criminal justice involvement, parents' social and economic networks, child support (monthly obligations and arrears), mental health (own or someone else), digital divide, family care responsibilities, and disability (including long COVID) -- is part of understanding the job search process.

Training and Development

Research themes, social trends and policy changes. The literature on firm training, which enjoyed a heyday in the 1980s and 1990s in part due to the data on firm training from the NLSY79, which was relatively unique in its time, has simmered on the back burner since that time. This lessened interest has occurred not because researchers no longer think it important, but instead because of concerns with measurement issues when using surveys combined with an understandable but lamentable absence of administrative data from firms on the how, when, and how much they train their workers.

Since the late 1990s, the literature on government sponsored training for adults has flourished, particularly in Europe but also in the United States. McCall, Smith and Wunsch (2016) survey this vast literature. At the same time, U.S. government funding for training via programs such as those provided under the Workforce Innovation and Opportunity Act (WIOA) remains low enough that a sample the size of that anticipated for the NLSY26 will have too few participants to use for any sort of narrowly defined program evaluation exercise. The same point applies even more strongly to the smaller "sectoral" training programs that have generated much of the excitement in this literature in the last decade or so (Barnow et al., 2021).

One big change regarding training is the rise of recorded, asynchronous, remote training resources. No one in the early years of the NLSY97 cohort learned job skills on YouTube or similar platforms. Now this is quite common, both in the context of workers learning on their own time and in the context of employers paying their workers to learn. This affects the costs of training.

Microcredentials have generated a great deal of excitement in the worlds of education and active labor market programs. They relate to both competency-based models of education, wherein microcredentials serve to document the obtaining of particular competencies, and to the notion of "stackable" skills, where students or workers accumulate skills in coherent sequences. This movement also relates to the growth of online courses offered by universities and others, where credentials indicate completion of a particular course, perhaps with additional information about the excellence (or not) of the student's work.

Microcredentials also relate to older concerns about the design and operation of systems of widely recognized credentials. John Bishop's work covered some of this ground, as did various British reformers in the late 20th century who made over that country's system of educational and training credentials. Industry groups sometimes advocate in this space as well, as with the NIST-MEP report on manufacturing credentials (Workcred, 2018). While many see great promise in microcredentials, the current state of practice, policy, and knowledge is chaotic (D'Agostino, 2023).

Key Research Questions

1. What share of employer financed job training is delivered via synchronous versus asynchronous modes? How does this differ across job and worker characteristics?
2. Measuring jobs' opportunities for skill development is important for understanding how the expansion of gig work opportunities impacts young people's development as they prepare for post-secondary study and/or work.
3. There are many questions of interest related to microcredentialing. At the level of the individual student or worker, interest centers on the choice to obtain any credential, the choice among the vast number of possible credentials, the completion of credentials once started, and the labor market (or other) effects of credential completion. At a more macro level, effective systems of

credentials should result in short unemployment spells due to reduced search costs and longer-lasting job matches.

Measuring disparities and inequalities. Various factors will affect the ability and willingness of individuals to obtain microcredentials. Examples include broadband access, prior education and skills, income (to pay fees when required), family obligations (via the time budget constraint) and so on. This variability will impact research on disparities.

Previous NLSY content. Both NLSY79 and NLSY97 collected information on certificates associated with specific spells of reported training. Our suggested questions are more detailed, particularly adding information on training mode and synchronicity, but may still allow for cross-cohort work.

Selected topics for data collection. Job-related training still accounts for quite a large fraction of the total amount stock of human capital in the economy, which argues for persisting with asking about it while trying to improve response quality rather than simply dropping it from the survey. Measuring delivery mode and synchrony could be useful.

Recommendations for Questionnaire Content

1. *Training & development opportunities (high priority)*. Measure modes of training provision: in person versus online and remote, synchronous versus asynchronous.
2. *Prospects for promotion (low priority)*. Measure beliefs about the likelihood of a promotion within the same employer would be offered in a given time period.

Methodological issues. Section 3 of Black, Skipper and Smith (2023) covers the literature on training measurement, discussing the wide variety of survey measures of training available in the literature as well as reviewing the too small set of studies that compare survey measures to administrative measures. Those comparisons suggest substantial undercounting of training in survey measures that varies in predictable ways with respondent characteristics and with features of the training spell such as its duration and whether, in the case of firm-sponsored training, it occurs at the worksite or elsewhere.

In reviewing the suite of training questions from the NLSY97 for updating and reforming for the NLSY26, the literature suggests a focus on two important issues. The first concerns technical change in modes of training provision: in person versus online and remote, synchronous versus asynchronous. The second concerns institutional arrangements. Much job-related training looks like secondary education because it occurs at two-year colleges. Some vocational training at community colleges will be paid for by programs like WIOA, some longer courses by Pell grants, some out of the pocket (taking note of the huge subsidy implicit on public community college tuition) of the trainee, and some by firms who contract for their workers to take particular courses. Respondents may struggle to differentiate this sort of "training" from college. This institutional feature of the U.S. environment militates against pressing respondents to differentiate between college versus this type of training.

An additional training question that the NLSY26 could consider adding comes from the PSID. Its 1993 version reads, "Suppose someone had the experience and education needed to start working at a job like yours. From that point, how long would it take them to become fully trained and qualified (to do a job like yours)?" This question does not ask about the respondent but rather about someone taking a job like the one the respondent has. It can also serve as an indirect measure of job complexity, complementing

measures used in the literature that build on O*Net and other similar information about types of jobs or occupations and the skills and tasks they utilize. This differs substantially from the spell-based questions already present in the NLSY97.

Another potential avenue would attempt to differentiate among firm training spells associated with acquiring new skills, re-certifying old skills, and acquiring skills useful on the job but not related to the primary job task (e.g., team building).

Regarding microcredentialing, there are two main methodological issues to consider: measurement and value. The first methodological issue concerns measurement error, with the main issue being under-reporting of microcredentials. We know of no validation study of certificate receipt after training or of microcredentials more generally. The literature does contain, however, discussions of training measurement. See in particular the extensive discussion and references in Section 3 of Black, Skipper and Smith (2023). A related measurement issue concerns useable reporting of the names of particular microcredentials conditional on reporting something. Some way of recognizing possibly different reported names for the same underlying credential is important to making use of any data collected on credentials. We are unaware of any research on this. LinkedIn has a large database on individuals' microcredentials and uses them to try to match to openings.

There exist more than one million distinct credentials. The existence of such a large number of possible credentials suggests that in a sample of the size planned for NLSY26, at most a handful of specific credentials will have enough sample members who hold them to allow any sort of analysis of either determinants of receipt or of effects on labor market outcomes. Given that, the problem becomes one of reasonable aggregation. Given the heterogeneity, studying the determinants of having "any credential", or the effect of having "any credential" on outcomes has little meaning. The applied econometric literature (and parallel literatures in other fields) has started to grapple with this very real problem (Kreisman et al., 2021), which applies in the broader training literature too (Black et al., 2023).

We recommend the design team consider (and possibly test) three possible reactions to the measurement and value concerns:

1. Retain the question placement and wording from the NLSY97. This would focus attention on credentials associated with relatively formal training spells reported in the section on training. It would also imply comparability of a certain sort with the earlier cohorts, though given the change in the training environment, including but not limited to the proliferation of microcredentials, this nominal comparability might be substantively misleading.

2. Ask about microcredentials, record the verbatim responses, and then leave it to outside researchers (or perhaps researchers hired by the BLS) to come up with ways to use textual analysis to categorize/aggregate the responses in useful ways.

3. From external sources, obtain a reasonable list of the most common and/or most valued credentials, things like certification in various bits of Microsoft Office and so on. Then ask only about those via a list where the respondent can check the ones acquired since the previous interview. This approach reduces the cognitive burden on the respondent and may increase reporting of the credentials on the list by reminding the respondent about them, but of course this

would omit the vast majority of all existing credentials. This approach also removes the problem of respondents offering different names for the same underlying credential.

Some research is needed as to the efficacy of these three approaches. If such research suggests that the measurement issues and the number of credentials imply the failure of a cost-benefit test given the amount of survey "real estate" questions about microcredentials would consume, then skip the topic on the grounds that it fails to produce enough scientific value to be justified.

Voice at Work

Research themes, social trends and policy changes. In general, workers and managers each prefer to control the work process. Employers have authority but must delegate some of it to workers to execute. Negotiations over how much is delegated versus dictated and what changes get made over time are at the heart of questions of worker voice. Workers often join together to try to influence job and organizational design because they commonly share interests in these issues and can exert more power in coalition. Autonomy, job control, and organizational influence affect workers' mental health (MIT Worker Wellbeing Initiative, 2023).

New forms of worker voice and collective activism have emerged with the rise of social media and mobile communications reducing workers' costs to communicate with coworkers, customers, and their communities. The conventional form of collective action, the one captured by the NLSY, is union membership; its rate was 37% higher in 1997 than in 2021. As an alternative to, a precursor to, or alongside formal union representation, workers engage in many forms of voice and collective action to try to shape working conditions, such as the Fight for $15 movement, along with the use of sites like Coworker.org to build internal consensus and call public attention to issues and Glassdoor.org to aid other workers and create accountability on employers (Council of Economic Advisers 2015; Kochan et al., 2019; Benson et al., 2020; Sockin and Sojourner, 2022). The evolving communications landscape has challenged the National Labor Relations Board to update its regulatory doctrine with social media playing a central role (NLRB, 2023).

An exclusive focus on union membership can miss a lot of what workers are doing, because management resistance to unionization creates a large wedge between worker efforts to act collectively to improve working conditions and union membership (McNichols et al., 2019; Wang and Young, 2022). Dissatisfaction with the current Federal, private-sector labor relation regulatory regime under the National Labor Relations Act has led to calls for Federal legislative reform, through vehicles as the PRO Act, and to local and state level regulatory changes.

Key Research Questions

Scholars and policymakers are interested in in the extent to which workers have social networks they rely on and in which they act (Shepard, 2021). Further, they are interested in forms of worker voice that are in place and forms that workers or managers demand (Hertel-Fernandez et al., 2020; Diaz-Linhart et al., 2022). This pushes for more attention in the NLSY to workers' social connections at work, actions they take in addition to union membership to influence job characteristics, and the risks of employer retaliation they perceive if taking such actions.

Previous NLSY content. One aspect of voice that has been measured consistently and is very valuable is whether the worker is a union member and is covered under a collective bargaining agreement in each job. As stated above, we have assumed that BLS would continue to ask about union status/collective bargaining. We have made additional recommendations to support research into narrow and broad job content control, which is more complicated than a simple union membership question.

Selected topics for data collection. We recommend that the NLSY26 supplement a traditional focus on union membership with concepts capturing additional aspects of worker voice: control, behavior, efficacy, and safety. Jobs vary in the degree of control workers have over narrow and broad content. Worker control over narrow content means delegated control or autonomy over the nature and execution of one's own responsibilities, versus micromanagement. Worker control over broader content involves influence over and inclusion in decisions about the work process and organization beyond one's own immediate job tasks. This can involve coordination within teams at the boundaries between individual workers' jobs or involve voice in more expansive organizational issues beyond one's team. The Health and Retirement Survey (HRS), General Social Survey (GSS), RAND American Working Conditions Survey, and NIOSH WellBQ have questions measuring worker control. These are all somewhat interesting, though there will be more variation in voice over narrow content and mostly low levels of voice over broader content. Responses to the GSS job control question correlate highly with measures of job quality and many other aspects of control (Diaz-Linhart et al., 2022). Jobs differ in voice behavior, the extent to which management procedures and practices lead workers to use their voices individually and collectively to try to influence management's decisions. Jobs also differ in voice safety, the extent to which management procedures and practices make workers feel confident that they can share their ideas and concerns at work without getting into trouble. Finally, jobs differ in voice efficacy, the extent to which management procedures and practices make workers feel confident that sharing ideas and concerns at work will bring about desired change.

Recommendations for Questionnaire Content

Control over job tasks, team and organization (medium priority). For each job, measure worker's degree of control over their job as well as over their team and broader organization.

Voice behaviors, safety and efficacy (medium priority). For each job, ask about voice behaviors seeking individually and collectively to get management to change their job, how safe or risky management makes it for them to seek change (voice safety), and how effective their efforts tend to or are likely to be (voice efficacy).

Relevant alternative data sources. Linking employers to their National Labor Relations Board enforcement data at the employer level on unfair labor practice charges and judgments, as well as worker attempts to unionize, would provide valuable context for interpreting individual workers' experiences.

Fringe Benefits

Research themes, social trends and policy changes. It is widely accepted that fringe benefits in the U.S. comprise between 20 and 30 percent of total compensation of U.S. workers. The NLSY has a rich history of collecting information on these. Since fringe benefits are an important part of compensation, the panel did not dedicate a large amount of time to decide what might not be collected but focused on a small number of fringe benefits that might be added because they have become of research interest.

While there has been some change in the composition of fringe benefits over time, much has been stable. Leaves from work is one area of benefits that has changed dramatically, and we analyze that topic separately above. The National Compensation Survey suggests that employer-linked childcare benefits and tuition or student loan reimbursement benefit remain quite limited in extent at this time. Adding these to the list of benefits asked about in the survey would be a desirable but a low priority.

Selected topics for data collection. The current list of fringe benefit indicators includes one on "Flexible Work Schedule." Assuming that work schedule and schedule control is measured more carefully consistent with our recommendations above, then this question could be removed.

Some types of non-wage compensation may be particularly prevalent among young workers, such as free or reduced-price meals at restaurants and employee discounts at retail stores. In the early rounds of the NLSY26, some thought should be given to asking explicitly about such benefits, though their importance will likely fade as the cohort ages.

Recommendations for Questionnaire Content

Update list of fringe benefits, drop flexible scheduling (low priority). An updated list of benefits could include free meals/discounts, tuition or student loan reimbursement, and employer-provided or subsidized childcare. Flexible scheduling is better covered by the recommended scheduling questions discussed above.

Relevant alternative data sources. Employers and individuals could be linked via IRS data to records of employer-based health insurance, disability insurance, retirement benefits, and other forms of insurance. While worker surveys reliably deliver only binary measures, these records would have dollar values reported for each job and benefit, delivering a much better view into their generosity and costs.

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