

What can we learn from longitudinal studies on the impacts of college internships?

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Introduction

Internships have been widely considered as co-curricular opportunities that benefit students with hands-on work experience, smooth transitions to the labor market, and potentially better compensation. To better prepare students for the post-graduation working environment, policymakers and many higher education institutions encourage or even require internships. Therefore, it is necessary to examine the impact of internships.

Longitudinal research can be used to measure and understand the long-term effects of internship participation for students.

Current studies on the impacts of internship participation are mostly cross-sectional. Only a few studies in the research literature employ longitudinal research methodologies. Longitudinal research can be used to measure and understand the long-term effects of internship participation for students. It also provides more robust evidence for causal interpretations of internship effects. This literature review summarizes the main findings and insights from 11 longitudinal studies on the impact of internship participation, aiming to contribute to the knowledge about the long-term benefits and causal processes of college internships.

Key Findings

- Research shows that internships improve students' academic outcomes, labor market outcomes, and career adaptability.
- There is evidence that the positive effects of internship participation are greater from voluntary internships than for mandatory internships.
- The positive effects of internship participation diminish over time. There is a differential diminishing effect between wages and employment. Five years after graduation, the positive effects still exist for employment, while there is no effect for compensation.
- There is good evidence supporting that internships facilitate labor market outcomes mainly as a signal to employers that students who took internships acquired greater knowledge, skills, and productivity.

- Future studies should examine (1) how students' outcomes may vary based on different internship program characteristics, (2) mechanisms that explain the internship effect on academic and labor market outcomes and (3) unequal internship effects among diverse segments of student populations.
- For more robust causal interpretations, future studies should also identify and include a set of stringent controls that may confound internship effects on student outcomes.

Bibliographic methods

The review is based on a synthetic analysis of 11 scholarly articles. Our literature review contains the following steps: a) identify relevant studies; b) extract and chart findings from selected studies; c) summarize results based on themes; d) identify potential paths for future studies. To select the articles, the author first used “internship” and “longitudinal study” as keywords to search on Google Scholar and Academic Search Premier, then scanned through the results and selected articles that are (1) longitudinal studies and (2) examine a variety of effects of college internships. The author also hand-searched the references cited in key papers. All the selected articles except one were published in peer-reviewed academic journals. After determining 11 scholarly articles as relevant studies, the author collated and summarized the available evidence.

Summary of Main Findings

Table 1 summarizes the key methods and findings of the 11 papers selected for this literature review.

Table 1. Key Characteristics of Included Articles

| Author(s) | Internship Effect | Outcome Measurements | Analytical Strategy | Sample |
|------------------------------|--|---|---|---|
| Labor Market Outcomes | | | | |
| Di Meglio et al. (2021) | Improved job attainment | (1) the time it takes to find the first job; (2) skills matching with the first job; (3) being employed in the medium/long term; (4) matching with the current employment; and (5) wage of the current job. | Linear probability models and probit models | 30,000 graduates from Spanish universities |
| Jung & Lee (2017) | Mandatory internships improved job satisfaction, and voluntary internships increased wages | Job search duration, wage, and job satisfaction | Pearson's chi-squared test, ANOVA, and ordinary least square regression | 961 junior college or university graduates in Korea |

| Author(s) | Internship Effect | Outcome Measurements | Analytical Strategy | Sample |
|----------------------------|--|---|---|--|
| Klein & Weiss (2011) | The mandatory internship does not have positive effects on labor market outcomes | Job search duration, employment history during the first five years after graduation, and wages five years after graduation | Propensity score matching and logistic regression | 2,594 graduates from higher education in Germany |
| Margaryan et al. (2020) | Positive effect on earnings and reduced risk of unemployment right after graduation | Gross monthly earnings, monthly employment status | Ordinary least square regression, instrumental variable (IV) regression | 6,790 graduates from German universities |
| Neyt et al. (2019) | Positive effect on labor market outcomes which decreases over time | Whether students were employed three months, one year, and five years after leaving school, whether students | Econometric model estimation via maximum likelihood | 3000 secondary education students in Belgium |
| Oswald-Egg & Renold (2021) | Work experience during vocational education and training (VET) increased wage and less job search time, but the effect disappears after five years | Wage, job search time, unemployment status, and employment position | Ordinary least square regression, instrumental variable (IV) regression | 13,899 higher education graduates in Switzerland |
| Weiss et al. (2014) | Only voluntary work experience has a positive effect on immediate labor market outcome, which diminish five years after graduation | Job search duration, working in a service class position, and wages | Propensity score matching | 2,252 German college students |

| Author(s) | Internship Effect | Outcome Measurements | Analytical Strategy | Sample |
|---|--|--|---|---|
| Academic and Collegiate Outcomes | | | | |
| Binder et al. (2015) | Positive effects on subsequent academic achievements for both students with different backgrounds | Final achievement and degree class | Multiple regression with stringent controls | 15,732 UK college students |
| Kilgo et al. (2015) | Has positive but narrowly focused impacts on student learning. | Critical thinking, moral reasoning, the tendency to engage in effortful cognitive activities, intercultural effectiveness, and socially responsible leadership | Ordinary least square regression | 2,212 students from 17 US colleges and universities |
| Routon & Walker (2015) | Positive effects on a wide range of collegiate outcomes, including higher grades, increase intention to work full-time or graduate school attendance after graduation | Senior year GAP, intention to get a graduate degree, intention to get a full-time job after graduation, intention to be financially well off | Propensity score matching | 94,345 US college students from 463 institutions |
| Career Adaptability | | | | |
| Ocampo et al. (2020) | All career adaptability dimensions increased linearly over time after internship participation. In contrast, there was no growth in career adaptability except for the concern dimension among those who did not participate in internships. | Five career adaptability dimensions: concern, control, curiosity, and confidence | Growth mixture modeling | 173 undergraduate hotel and restaurant management students in China |

Academic and Collegiate Outcomes

One of the critical internship effects examined in the literature is GPA and other academic outcomes, where general positive effects were found. Binder et al. (2015) found that internships had stable academic benefits, such as final year GPA and degree classes (e.g., whether students got an honors degree, first-class degree, second-class degree, etc.). These positive effects hold regardless of students' demographic background (e.g., gender, ethnicity, and comparing students at varying levels of academic aptitude). Examining the impacts of internships on a broad range of collegiate outcomes, Routon and Walker (2015) showed that college internships significantly increase students' desire to work full-time or attend graduate school right after graduation.

Former interns reported a much higher intention to work full time or to seek a graduate degree.

Other positive outcomes that are small in effect size include a better senior year GPA and increased ambition to pursue administrative work. In addition, former interns reported a much higher intention to work full time, less likely to work part-time, and more likely to seek a graduate degree. One possible explanation for these positive academic outcomes include that it is possible that participating in internships increases students' confidence and motivation to start their professional careers. It may also increase students' desire for better performance in school to optimize labor market outcomes. Finally, former interns also reported slightly greater increases in interpersonal skills, general knowledge, and the ability to think critically. According to Kilgo et al. (2015), participating in an internship was a significant and positive predictor for the inclination to inquire and for lifelong learning, measured by the tendency to engage in demanding cognitive activities. It also positively affects students' participation in socially responsible leadership, and increases students' willingness to engage with diverse individuals, values, and ideas. However, there was indeed an adverse effect of internships, which was to increase students' feelings of being overwhelmed in their senior year course work.

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Labor Market Outcomes

Labor market outcomes are another effect of internship participation examined in the longitudinal studies, including post-graduation wages, job search duration, employment position, and perceived risk of unemployment. Mixed results were found across the seven studies we reviewed.

Wages and Employment Status. First, in terms of wages, most studies (Jung & Lee, 2017; Margaryan et al., 2020; Oswald-Egg & Renold, 2021; Weiss et al., 2014) found an effect of internship participation. Using instrumental variable regression, Margaryan et al. (2020) found that internship participation significantly increases compensation by about 6%. This benefit is more significant for students who studied in areas with a stronger labor market orientation, such as health care professions and architecture. Oswald-Egg & Renold's (2021) results suggest that work experience gained during vocational education and training (VET) leads to pronounced higher wages of 7% to 19% one year after graduation. When it comes to employment outcomes, most studies found that internships led to a smoother transition to the labor market, such as a lower risk of unemployment during the first year of their careers (Margaryan et al., 2020; Neyt et al., 2019) and less job search time (about two months) for first employment (Oswald-Egg & Renold, 2021).

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Positive Effects Diminishes Over Time. Although most studies agree that internships help students realize a smoother integration into the labor market, three studies found that positive effects do not persist in the long term. The internship experience is not linked to higher chances for entering a favorable social class position or to higher wages in the long run (Weiss et al., 2014). In particular, three studies traced participants' labor market outcomes till five years after graduation and found that these positive effects are no longer robustly significant for wages, unemployment, or employment position (Neyt et al., 2019; Oswald-Egg & Renold, 2021; Weiss et al., 2014). On the other hand, although these positive effects diminished over time, there is no evidence for a null or negative effect. In contrast with students who did not participate in an internship, students who interned were more likely to be remain employed five years after graduation (Neyt et al., 2019; Di Meglio et al. (2021); however, there were no internship effect on wages by five years after graduation.

Voluntary vs. Mandatory Internships. There is evidence that voluntary internship benefit students more than required internships. Based on the literature review, only voluntary internships positively affected labor market outcomes, especially field-related voluntary work experiences. Mandatory internships were found to have a null effect. Weiss et al. (2014) indicated that tertiary graduates do not profit from work experience unrelated to their field of study or were a mandatory part of the study program. Klein & Weiss (2011) examined internship effects on labor market entry, measured with search duration until the first significant job, employment history complexity, and wages five years after graduation as outcomes. Their results show that mandatory internship programs neither have a positive effect on labor market outcomes in general nor are particularly beneficial for graduates from lower educational backgrounds. When aggregating mandatory and voluntary internships into one category, Jung and Lee (2017) found that taking an internship does not affect labor market outcomes. However, compared with no internship participation, mandatory internships enhanced job satisfaction, while voluntary internship increased wages.

Channels from Internships to Labor Market Benefits. Why does internship participation lead to such labor market outcomes? Several hypotheses were proposed and examined among the reviewed articles. The human capital approach (Becker, 1962) implies that students accumulate skills, knowledge, or productivity through internships. Therefore, interns should be rewarded in the labor market. Signaling theory (Spence, 1973) suggests that employers view internship experience as signals for productivity and general abilities similar to education credentials, thus are likely to hire people with internship experience. Furthermore, social network theory (Granovetter, 1973) suggests that internships help build a personal network by interacting with their managers and co-workers, who may help interns find a job later on. The reasoning of screening is related to signaling. Since future employers cannot observe employees' productivity directly, they use the internship as a screening device to filter the productive employees (Stiglitz, 1975).

The two studies that examined these mechanisms agree that internship leads to better employment status and wages through screening and signaling (Oswald-Egg & Renold, 2021; Weiss et al., 2014). Their findings did not support the hypothesis that internships widen the social network, while inconsistent results were found on whether the internship effects operate by facilitating human capital.

Career Adaptability

In addition to the tangible labor market outcomes, how does internship participation facilitate students' ability to navigate the work environment? Among the studies reviewed, one study focused on internship effects on career adaptability, which is defined as the "readiness to cope with the predictable tasks of preparing for and participating in the work role and with the unpredictable adjustments prompted by changes in work and working conditions" (Savickas, 1997, p. 254). Career adaptability is composed of four resources (i.e., concern, control, curiosity, and confidence) that are needed for individuals to overcome challenges, capture opportunities, and better transition to work. Ocampo et al. (2020) found that after taking part in an internship, all dimensions of the career adaptability increased linearly. In contrast, students who did not participate in an internship only had an increase in the concern dimension, but no growth for the other three career adaptability dimensions. Evidently, internship participation is associated with increased and enduring psychological resources for managing career changes; and a lack of internship participation is associated only with a progressively increasing concern over ones' future career.

Directions for Future Studies

Internship Program Characteristics

Why do mandatory internship programs have a null impact on students' labor market outcomes in contrast with voluntary internships? More generally, what kind of internship program characteristics may bring positive benefits to students? It will be interesting to examine further why some internships led to positive benefits, and some did not. Future research may examine whether the internship outcomes vary by internship characteristics—such as supervision, linkage with coursework, working conditions, and firm characteristics (such as the size, sector, and reputation of the firm or institution (Margaryan et al., 2020; Jung & Lee, 2017).

Internship Duration

When examining the effects of internships, most studies did not specify the length of the internship program. While Binder et al. (2015) revealed that the internship program they examined typically lasts for 44 weeks, they suggested that it remains a question whether shorter internships would be equally effective and, more generally, what constitutes an optimal duration?

Further Examination on Institutional Settings

Klein & Weiss (2011) stressed that students' field of study might be a confounding factor for the internship effect on student outcomes. Hence, future studies may evaluate internship effects by different disciplines and examine other institutional factors, such as whether an academic or career advisor helps students locate and apply for appropriate internship opportunities. In addition, institutional settings, cultural differences, and academic traditions vary considerably between countries. An international comparison may be needed to examine the contextual factors that influence the effects of internship participation on students' transition to the workforce.

Mediators that Channel the Internship Effects on Labor Market Outcomes

Several studies examined the mechanisms (e.g., increased social network, human capital, signal higher productivity) through which internship leads to higher wages and employment. Beyond these mechanisms, three other mediators are also worth to be examined.

First of all, the positive effect of internship participation on academic outcomes suggests that it is also possible to examine indirect effects of internships on labor market outcomes through potentially altered schooling outcomes (e.g., GPA, degree class, desire to work full time and acquire graduate degrees).

Secondly, the continued increase in career adaptability after taking an internship implies that career adaptability, or more broadly, students' assessment of acquired competencies through an internship, may also function as a channel for the effect of internship on labor market outcomes.

Finally, future studies can examine the underlying psychological processes that drive internship effects, in other words, linking the academic outcomes of internships to motivational constructs. The absence of an effect of mandatory internships may indicate that the positive impact of voluntary ones or other field-specific work experience on later career outcomes may appear due to unobserved heterogeneity in ability, motivation, or effort of students. In particular, the formation of overarching career goals feeding back into academic studies and a shift towards intrinsic motivation are promising candidates.

Unequal Internship Effect Among Segments of Student Population

Although Binder et al. (2015) found that taking an internship has academic benefits for students regardless of whether they are disadvantaged students, other studies did not examine the heterogeneous internship effects, especially those studies on labor market outcomes. A critical finding from Weiss (2014) is that only field-related voluntary work experience positively affected labor market outcomes. This result may lead to future research on the unequal internship effects due to social class differences. Working-class students rely more on their work to finance higher education, which pushes them into non-field-related jobs. If non-field-related work experience eased labor market integration, this could counterbalance other disadvantages for working-class students. But since non-field-related work has less positive benefits on labor market outcomes, working-class students may be further left out. Therefore, it is worthwhile to explore the heterogeneous internship effects based on social-class and demographic differences.

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Similarly, although Ocampo et al. (2020) examined the extent that conscientiousness facilitates further career adaptability development, they did not find significant results. Future studies may examine other traits or dispositions that may amplify an internship's effect on career adaptability.

Changes of Effect Over Longer Period

Studies have shown that internship effects may diminish over a more extended period, such as five years after graduation, but the results are not consistent and are different between wage and employment outcomes. Future research could trace students' professional careers over a longer period to examine the impact of internship experience over time.

Notes on Causal Interpretation of Longitudinal Internship Effects

One big challenge for interpreting the results of the longitudinal studies as causal is students' self-selection to participate in internships, meaning that students with stronger motivation for learning and desire for job market outcomes may be more likely to participate in the internship in the first place. The studies reviewed have several advantages such as stringent controls, longitudinal datasets, and instrumental variables. In general, the confounders for employment indicators can be 1) the overall quality of education, 2) training, 3) career counseling, and 4) parental education attainment—distinguished between high and low education backgrounds (Klein & Weiss, 2011; Margaryan et al., 2020). Among the studies that used stringent controls, the set of pre-existing covariates appeared to be quite comprehensive. However, unobserved heterogeneity may never be entirely ruled out. Therefore, we should be cautious when interpreting these results causally.

For example, many studies did not measure students' intelligence and motivation before enrolling in colleges or universities. However, these omitted variables may be significant predictors for labor market outcomes, and adding them may change the effect of internship on labor market outcomes. Therefore, future studies should include a comprehensive list of controls to rule out confounders in the study.

Recommendation for Practitioners

Internships Should not be Mandated

The null effects of mandatory internships on labor market outcomes call into question the practice of mandating internships. There are several hypothesized explanations for why mandatory internships may benefit students less than voluntary internships. For example, forcing students to take an internship may diminish students' motivation. In addition, mandatory internships may not function as a meaningful signal on the labor market (in contrast with voluntary internships); or mandatory internships may fail to provide the resources that facilitates the students' transition to the labor market since the duration of the internship is set by the department (Klein & Weiss, 2011). Before more research confirms why mandatory internship may not bring positive benefits, policymakers and higher education institutions should not force students to partake in internships.

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Advocate for Voluntary Internships

Apart from the null effects of mandatory internship on employment, the longitudinal results also showed consistent positive benefits of voluntary internships both academically and nonacademically. Although the benefit of internship experience diminishes over time, some studies showed that the positive effect of internship experience on employment outcomes remains significant even five years after graduation. Therefore, institutions should encourage students to participate in voluntary internships but not mandate participation.

Higher education professionals should coordinate with employers and companies to help students find appropriate placements, establish criteria for high-quality learning experiences (such as duration of the internship, clear expectations of the task and learning goals, proper mentoring, guidance, and direction), and make sure that the work is related to students' field of study.

Ensure Support for Internship Programs

Colleges and universities should provide substantial support to ensure a high-quality internship experience. The structure and format of internships are essential to ensure that internships benefit students regardless of their backgrounds. Although there are inconclusive results of whether internships ease workforce transition through human capital accumulation (i.e., knowledge and skills gained from internships). This implies that internship

programs need a better structure to ensure students receive substantial workplace learning and sufficient human capital. Higher education professionals should coordinate with employers and companies to help the student find appropriate placements, establish criteria for high-quality learning experiences (such as duration of the internship, clear expectations of the task and learning goals, proper mentoring, guidance, and direction), and make sure that the work is related to students' field of study.

Conclusion

Based on the systematic review of existing longitudinal studies of internship effects, this review concludes that internships, especially voluntary internship, have a consistent impact on students' career adaptability, academic and labor market outcomes. In contrast, the mandatory internship does not affect labor market outcomes, although it increases job satisfaction. The positive internship effects are most pronounced within one year after graduation and diminish over time. Finally, internships benefit students' transition to the workforce mainly by providing signals of students' productivity and employability to employers, rather than widening students' social networks. Future studies should further examine the differential internship effects based on different characteristics, duration, and support of internship programs. These internship program characteristics are likely to affect the quality of internships and ultimately affect students' outcomes. In addition, future studies should also examine the underlying mechanisms of why internship participation led to positive labor market outcomes and pay particular attention to the unequal internship effects on disadvantaged students and students of different fields of study.

References

- Becker, G. S. (1962). Investment in human capital: A theoretical analysis. *The Journal of Political Economy*, 70(5), 9-49.
- Binder, J. F., Baguley, T., Crook, C., & Miller, F. (2015). The academic value of internships: Benefits across disciplines and student backgrounds. *Contemporary Educational Psychology*, 41, 73-82.
- Di Meglio, G., Barge-Gil, A., Camiña, E., & Moreno, L. (2021). Knocking on employment's door: internships and job attainment. *Higher Education*, 1-25.
- Granovetter, M. S. (1973). The Strength of Weak Ties. *American Journal of Sociology*, 78(6), 1360-1380.
- Jung, J., & Lee, S. J. (2017). Impact of internship on job performance among university graduates in South Korea. *International Journal of Chinese Education*, 5(2), 250-284.
- Kilgo, C. A., Sheets, J. K. E., & Pascarella, E. T. (2015). The link between high-impact practices and student learning: Some longitudinal evidence. *Higher Education*, 69(4), 509-525.
- Klein, M., & Weiss, F. (2011). Is forcing them worth the effort? Benefits of mandatory internships for graduates from diverse family backgrounds at labor market entry. *Studies in Higher Education*, 36(8), 969-987.

- Margaryan, S., Saniter, N., Schumann, M., & Siedler, T. (2020). Do internships pay off? The effects of student internships on earnings. *Journal of Human Resources*, 0418-9460R2.
- Neyt, B., Verhaest, D., & Baert, S. (2019). *The Impact of Internship Experience during Secondary Education on Schooling and Labour Market Outcomes* (No. 12778). Institute of Labor Economics (IZA). <http://dx.doi.org/10.2139/ssrn.3492181>
- Ocampo, A. C. G., Reyes, M. L., Chen, Y., Restubog, S. L. D., Chih, Y. Y., Chua-Garcia, L., & Guan, P. (2020). The role of internship participation and conscientiousness in developing career adaptability: A five-wave growth mixture model analysis. *Journal of Vocational Behavior*, 120, 103426.
- Oswald-Egg, M. E., & Renold, U. (2021). No experience, no employment: The effect of vocational education and training work experience on labor market outcomes after higher education. *Economics of Education Review*, 80, 102065.
- Routon, P. W., & Walker, J. K. (2015). A smart break? College tenure interruption and graduating student outcomes. *Education Finance and Policy*, 10(2), 244-276.
- Savickas, M. L. (1997). Career adaptability: An integrative construct for life-span, life-space theory. *The Career Development Quarterly*, 45(3), 247-259.
- Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics*, 87(3), 355-374.
- Stiglitz, J. E. (1975). The theory of screening, education, and the distribution of income. *The American Economic Review*, 65(3), 283-300.
- Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., & Straus, S. E. (2018). PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. *Annals of Internal Medicine*, 169(7), 467-473.
- Weiss, F., Klein, M., & Grauenhorst, T. (2014). The effects of work experience during higher education on labour market entry: learning by doing or an entry ticket? *Work, Employment and Society*, 28(5), 788-807.

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