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Effects of a Two-Generation Human Capital Program on Low-Income Parents' Education, Employment, and Psychological Wellbeing

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Two-generation human capital programs for families provide education and workforce training for parents simultaneously with education for children. This study uses a quasi-experimental design to examine the effects of a model two-generation program, Career*Advance*, which recruits parents of children enrolled in Head Start into a health care workforce training program. After 1 year, Career*Advance* parents demonstrated higher rates of certification and employment in the health care sector than did matched-comparison parents whose children were also in Head Start. More important, there was no effect on parents' short-term levels of income or employment across all sectors. Career*Advance* parents also experienced psychological benefits, reporting higher levels of self-efficacy and optimism, in addition to stronger career identity compared with the matched-comparison group. Notably, even as Career*Advance* parents juggled the demands of school, family, and employment, they did not report higher levels of material hardship or stress compared with the matched-comparison group. These findings are discussed in terms of the implications of a family perspective for human capital programs.

Keywords: workforce development, education and training, two-generation programs, low-income parents

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In the United States, half of all low-income parents of young children have attained no more than a high school degree (Jiang, Granja, & Koball, 2017). The striking relation between income and education illustrates how low-income families are at a significant disadvantage to meet the demands of the 21st century global economy, which increasingly require advanced certification and

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degrees to attain family supporting wages (Haskins, Garfinkel, & McLanahan, 2014). A large body of research also documents that psychological stress and low self-efficacy accompany family economic hardship (Yeung, Linver, & Brooks-Gunn, 2002).

Two-generation human capital programs may be a promising new approach to promoting economic self-sufficiency as well as greater psychological well-being (Chase-Lansdale & Brooks-Gunn, 2014). Human capital, defined as the knowledge and abilities of individuals that make them productive (Becker, 1964; Heckman, 2000), can be increased through education. Two-generation human capital programs intentionally take a family perspective and strategically combine education and training for parents with early childhood education programs for children. The connection to early childhood education programs helps families by providing high-quality learning opportunities for children while addressing many of the barriers to educational progress that low-income parents face, including inadequate access to reliable child care and lack of social support (Gardner, Brooks-Gunn, & Chase-Lansdale, 2017).

The current study tests the effects on parents of Career*Advance*, a two-generation intervention that uses Head Start as a platform to recruit parents into a workforce development program in the health care sector. The program was designed and is delivered by the Community Action Project of Tulsa County (CAP Tulsa), a large antipoverty organization in Tulsa, OK. Career*Advance* offers a set of supportive services at no charge to parents, including stackable credentialing in health careers, coaching support, peer partner meetings, and wraparound child care on top of Head Start services to support parents with young children.

Theoretical Perspectives

Two perspectives—ecological and family systems theories—provide useful frameworks for considering how two-generation programs may first affect parents in the short-term and ultimately child and family well-being in the long-term. Ecological theory posits that families are embedded in a larger macrosystem of economic opportunities and constraints. Accordingly, improving parents' education would enable them to participate in the broader economy more effectively. The theory also highlights the significant connections within the microsystem, namely the relations among family and extrafamilial settings (Bronfenbrenner & Morris, 2006). Drawing from this perspective, two-generation programs purposefully choose the extrafamilial setting of early childhood education to engage parents into their own education and job training program.

A family systems perspective provides nuance to an ecological approach, linking multiple environments and contexts to how the family operates internally (Cox & Paley, 2003). Supplemental Figure 1 presents how two-generation programs could influence parent and child outcomes in the short- and long-term. For parents, two-generation programs explicitly target parents' certification, training, and employment. As a result, increases in education (and potentially employment) are possible in the short-term. These advances could simultaneously heighten psychological well-being, including parents' self-efficacy, optimism, and career identity. In the short-term, parents are likely to experience economic equilibrium, meaning that they likely will not see immediate gains in income as they advance their education. Over time, higher levels of education and better jobs could lead to more stable jobs, improved economic well-being (including income and perceptions of material hardship) and stronger functioning family systems. Advances in children's development should follow, including school readiness and elementary school success. The purpose of this article is to explore the short-term outcomes on parents' human capital and psychological well-being.

Empirical Evidence

This idea of supporting the human capital of parents specifically is not new in the job training world. Ambitious education and workforce training programs for young, low-income parents were launched several decades ago, but they were largely ineffective in promoting GED attainment and employment even at programs' end as evidenced by experimental evaluations (e.g., Project Redirection, New Chance, Teen Parent Demonstration, and LEAP; Granger & Cytron, 1999). Similarly, a more recent program, Enhanced Early Head Start, targeted Early Head Start parents' education through referrals to outside community agencies and revealed no human capital impacts for parents at the 18-month follow-up (Granger & Cytron, 1999; Hsueh & Farrell, 2012).

There are a number of possible reasons underlying the ineffectiveness of these past workforce development programs for parents. The first is that the actual emphasis on education and job training was primarily oriented toward basic adult education (e.g., remedial classes) and GED courses, or toward referrals for parents to education and training programs in the local communities. Second, with the exception of Enhanced Early Head Start, child care services were provided as a work support, and the quality of child care was not a priority. Third, a family perspective was not emphasized, and parents' school and work schedules and child care were not coordinated. Fourth, although many programs offered supportive services for parents, a number of them were not focused on the quality of the relationships that parents could develop with case-managers, and none of the programs focused on peer support. In addition, parents may have struggled to balance work, family, and school, especially in the face of little clear progress. Indeed, in a number of these programs, parents in the treatment groups reported increased psychological stress compared with the control group (Chase-Lansdale & Brooks-Gunn, 2014). Lastly, the majority of these programs was large-scale and may have been lacking in program intensity and fidelity.

Career*Advance* was designed to test new strategies in a small-scale, intensive model to address the limitations of earlier programs (Chase-Lansdale & Brooks-Gunn, 2014; King, Glover, Smith, Coffey, & Levy, 2009). The sections below outline the key program elements of Career*Advance* and the rationale, theory, and evidence for these design components.

Early Childhood Education as a Platform

Career*Advance* was developed and launched in 2008 by the Community Action Project of Tulsa County (CAP Tulsa), an antipoverty agency and the Head Start delegate for Tulsa County, OK (King et al., 2009). By pairing Career*Advance* with Head Start for 3- and 4-year-olds, the program addresses the key barrier of finding affordable, high-quality child care and early education. CAP Tulsa's Head Start programs are of exceptional quality, and

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the effectiveness of these programs has been well-documented (Gormley, Phillips, & Gayer, 2008; Phillips, Gormley, & Anderson, 2016). In addition, the Head Start programs are full-day, providing a reliable work-support as parents go through education and job training.

Beyond its role as a work-support, Head Start is likely to be seen as a safe and trusted institution by many parents. In the 1960s, the founders of Head Start took a "community action program" perspective that fostered parents' connection and involvement with the programs, as well as parents' own skills and well-being to promote children's life success (Vinovskis, 2008). As a result, Head Start has a long and rich history of creating community and supporting parents, especially in their parenting role. Indeed, current federal guidelines provide explicit recommendations for how centers can foster parent success and family connections among peers and community through formal and informal networks (Head Start Parent, Family, and Community Engagement Framework; United States Department of Health and Human Services, 2011). In addition, participation in shared school activities, such as field trips and fundraisers, as well as in repeated daily interactions, such as informal conversations with teachers and other parents at drop-off and pick-up, can help parents form trusting networks in Head Start (Small, 2009). Additional evidence shows that Head Start does lead to improved parental involvement with their children, suggesting that the institution as a whole can be used as a platform to support parents' skill development (Gelber & Isen, 2013). The new idea behind two-generation human capital interventions is to build on the existing institution of Head Start to purposefully and intensively enhance parents' own education and workforce training (Chase-Lansdale & Brooks-Gunn, 2014).

Strengthening Parents' Social Capital

Even though Head Start is a safe and trusted institution, additional barriers confront parents. Once recruitment into the program has occurred, Career*Advance* also incorporates two design elements informed by social capital theory and cutting-edge research from the workforce development literature to address the barriers associated with lack of social connectedness and limited knowledge of career training and employment opportunities. Social capital theory suggests that the social, informational, and material resources that families receive through their networks may be critical components in helping them reach their education and employment goals (Coleman, 1988; Small, 2009). Central to Career*Advance*, parents' social capital is fostered through peer meetings with other participating parents, led by trained career coaches employed by CAP Tulsa. All parents enroll in small cohorts (30 participants on average) and take classes together which fosters social connections. In addition to the peer support, career coaches serve as important informational resources and connect parents to an array of services (Scrivener & Coghlan, 2011).

More recent workforce development programs for the broad population of low-income adults, such as Per Scholas and the Wisconsin Regional Training Partnership (WRTP), also reflect a social capital perspective and include coaching and peer supports as key components of student success (Brock & Richburg-Hayes, 2006; Hendra et al., 2016; Hsueh & Farrell, 2012). These programs typically offer other supports as well, such as transportation and job placement services, but they often do not target parents per se. Results indicate that the bundled package of services that includes coaching and peer supports in more recent workforce training programs have led to positive results among low-income adults in general, with completion rates between 73 to 78%, and certification rates from 22 to 45% (Holzer, 2009).

Supporting Parents' Psychological and Financial Well-Being

Parents face the challenge of balancing work, family, and school, resulting in burdens on time and income. Career*Advance* was designed to minimize financial and psychological distress, and to promote parents' career identity, optimism, and self-efficacy. First, the program takes the problem of coordination away from parents and intentionally offers most training and education services for parents during the Head Start centers' hours of operation. In addition, Career*Advance* pays for child care outside of the normal Head Start hours as needed for certain classes, or for younger siblings who may not be in Head Start, to help parents manage school and family demands.

Additionally, Career*Advance* offers stackable training, which allows individuals to exit (either temporarily or permanently) at multiple points along the pathway with an industry-recognized credential. For instance, it is expected that participants take approximately 4 years to complete the nursing career ladder to become a Registered Nurse. Yet, along the way participants can earn a number of stand-alone credentials, such as a Certified Nursing Assistant (that they can attain in 16 weeks), that could lead to more stable employment and higher earnings. This approach may be particularly helpful to parents because they can attain a certificate in a short amount of time, leading to a near-term return on investing their limited time and resources (Conway & Giloth, 2014; King & Prince, 2015). Moreover, parents are more likely to participate in postsecondary education in a discontinuous or slower fashion as they manage the needs of family, work, and school, and stackable training acknowledges this.

Numerous theories have also highlighted that economic disadvantage is a risk factor to healthy functioning, coping, and learning (Conger & Donnellan, 2007; Yeung et al., 2002). Career*Advance* is purposefully structured to reduce potential financial burden of returning to school by offering financial support, sectoral training, and stackable programs so that parents can quickly enter the labor market. To help parents make ends meet, Career*Advance* offers free tuition, books, and materials (such as white coats and stethoscopes). In addition, parents are eligible to receive financial incentives for reaching certain milestones (e.g., $300 each time they receive a certificate or become employed), meeting certain grade and credit requirements (e.g., completing at least six credit hours and maintaining a 3.0 grade point average), or attending partner meetings or courses each month (in total up to $3,000 per year).

Another defining feature of Career*Advance* is sectoral career pathway training, which offers credentialing in growing sectors of the local economy. This approach builds upon empirical evidence that sectoral-based training results in a greater likelihood of employment for students as opposed to the approach of offering a variety of other education opportunities that may not map on to local labor market needs (Conway & Giloth, 2014; Maguire, Freely, Clymer, Conway, & Schwartz, 2010; Smith & King, 2011).

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Following this evidence, labor force economists Glover and King conducted a labor market analysis of Tulsa and found that credentials in nursing and health information technology would likely lead to family supporting employment, good fringe benefits, job stability, and opportunities for career advancement and wage growth (Glover & King, 2010; King et al., 2009). Additional benefits could be that parents begin developing their career identity and expertise as they advance in the same field (McArdle, Waters, Briscoe, & Hall, 2007).

Current Study

Overall, we hypothesize that Career*Advance* enrollment would promote higher levels of persistence, credentialing, and employment among parents than in the matched-comparison group (as illustrated in Supplemental Figure 1). As parents meet their education goals, we expected that their psychological well-being, including self-efficacy, optimism, and career identity, would correspondingly be higher than that of the matched-comparison group. Career*Advance* participation may not lead to higher levels of income over the course of the year because parents may not be able to work full-time as they juggle family, school, and employment. However, incentives were explicitly designed to offset the potential loss of income. As a result, we hypothesize that Career*Advance* parents may experience economic equilibrium, where they will not have increases or decreases in household income, and may see no differences in their perceptions of material hardship (e.g., not being able to pay bills or make ends meet) in the short-term as compared with the matched-comparison group.

Method

Participants

The CAP Family Life Study was launched in 2011 to study Career*Advance* enrollees and a set of matched-comparison parents over time. The study protocol and procedures were approved by Northwestern University's Institutional Review Board (Career*Advance* Program's Effects on Children and Families: CAP Family Life Study, STU00044261). The Career*Advance* program recruitment process involved the distribution of flyers across all CAP Head Start programs, promotion through Head Start family support staff, and program information sessions held by career coaches at CAP Head Start programs across Tulsa. Based on this recruitment process, 317 parents applied to the program, 221 were accepted, and 162 parents enrolled in the program and consented to participate in the CAP Family Life Study (see Supplemental Table 1 for differences across groups). Parents were eligible for Career*Advance* if their children attended CAP Tulsa's Head Start services. Additional eligibility criteria included: an interview led by Career*Advance* coaches, background checks, health status, drug testing, absence of financial or academic hold at the local community college, and English proficiency.

We could not conduct a randomized control trial to test the effect of Career*Advance* because the program was still in its early stages at time of study and not oversubscribed. Only a small number of parents enrolled in each cohort (around 20–30 parents in each of our seven cohorts), and there was not over demand for those slots. Instead, matched-comparison parents were selected for each enrollee as each cohort was recruited for Career*Advance* from 2011–2014. To form the matched-comparison group, we selected parents from the full pool of CAP Tulsa Head Start parents (n = 4,985) drawing on administrative Head Start data (i.e., ChildPlus). Parents were chosen based on their observed similarity to Career*Advance* parents, including neighborhood of residence, parent race, parent gender, relationship to child, household income, English proficiency, parent age, parent education, single parent status, and foster parent status. We also selected a few extra matched-comparison parents because of concerns about attrition over time. Thus, all parents (in both the Career*Advance* and matched-comparison groups) were recruited from CAP Tulsa's Head Start programs. The difference is that the Career*Advance* group enrolled in an education and workforce training program in addition to Head Start services whereas parents in the matched-comparison group had children enrolled in Head Start only. This led to a sample of 338 parents (162 Career*Advance* enrollees; 176 matched-comparison group).

Because of eligibility requirements for Career*Advance* (e.g., parents had to be English proficient) and the fact that matched-comparison parents were selected based on observable similarity to Career*Advance* parents, we do see differences between parents in our sample (n = 338) and the broader CAP adult population who had a child enrolled in Head Start during the study period (n = 4,985). In general, our sample was less likely to be Hispanic (9 vs. 33%) and more likely to be White (32 vs. 24%) or African American (43 vs. 29%). In addition, our sample had higher levels of education compared with the broader CAP Tulsa population. Thirty-two percent of parents in our sample had less than a high school degree versus 42% in the broader CAP adult population. Conversely, 25% of parents in our sample had a certificate or Associate's degree versus 15%. Other demographics, such as employment at baseline and number of children, were similar between the two groups.

Data were collected among the Career*Advance* and matched-comparison families at Wave 1 (baseline) and Wave 2 (approximately 1 year later). Fifty parents were missing a Wave 2 survey, and one parent was missing data on the matching variables (15%), reducing our sample to 287. In general, parents who attrited by Wave 2 (or had missing data) were largely similar to those who had Wave 2 survey data (see online supplementary materials for more detail). This led to a final sample of 287, with 150 parents in the Career*Advance* group and 137 parents in the matched-comparison group.

Data

The study uses data from five sources: (a) Head Start administrative data from ChildPlus, part of the federal program's management information system; (b) a questionnaire for all Head Start parents regarding their interest in educational and career advancement in the health care sector (i.e., motivation questionnaire); (c) in-person parent surveys; (d) Oklahoma Employment Security Commission earnings data; and (e) administrative data from Career*Advance* on parents' progress in the program. Head Start administrative data from ChildPlus were collected by CAP Tulsa Head Start from all new applicants to CAP Tulsa's Head Start programs at the time of Head Start enrollment. These data are a requirement from the Administration for Children and Families

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and include parents' reports of family demographic characteristics. The motivation questionnaire was administered to all CAP Tulsa parents by family support workers at Head Start in the fall of each year.

Once parents consented to the study, they were interviewed at baseline (Wave 1) and 1 year later at Wave 2 by master's- and doctoral-level research assistants. The interviews lasted approximately 75–90 min. These structured surveys took place in Head Start centers or in the home, depending upon parents' preference. On average, Wave 1 surveys were administered 1.98 months after the first partner meeting ($SD = 1.57$). The Wave 1 surveys took place either in the fall or the winter of the year because of the staggered approach of enrollment (where odd cohorts begin in September and even cohorts begin in January). The Wave 2 survey was administered an average of 443 days after the first partner meeting ($SD = 66.65$; see Table 1) and took 81.48 min to complete on average ($SD = 21.45$).

Measures

Educational attainment and persistence. Information about parents' educational advancement came from Wave 2 parent surveys and was supplemented by Career*Advance* administrative data on parents' progress in the program. Career*Advance* offered a sequence of education programs in three tracks: Nursing, Health Information Technology (HIT), and Medical Assisting (further information on the tracks is available upon request). All program enrollees had the opportunity to attain at least one certificate through Career*Advance* within 1 year (i.e., by Wave 2). At Wave 2, we also asked matched-comparison parents if they had received a new certificate since the time of completing the Wave 1 survey. Among all parents, we then created an indicator of whether the participant received a new certificate from Wave 1 to Wave 2 (yes/no). We also measured the number of years of education at Wave 2 (e.g., GED or High School = 12 years; Associate's degree or certificate = 14 years; Bachelor's degree = 16 years; Masters' degree = 18 years of education). Parents' persistence (for both Career*Advance* and matched-comparison groups) was measured by whether or not the parent was enrolled in an educational or job training program (including Career*Advance* or any other education/job training program) at Wave 2 (yes/no).

Table 1
Baseline Demographic Characteristics of Parents (n = 287)

Characteristic	*M* (*SD*)/%
Female	.98
Age (years)	29.03 (5.94)
Single parent	.32
Race	
Black	.40
White	.28
Hispanic	.09
Other	.23
English is primary language	.90
Education	
Less than a high school degree	.07
High school degree or GED	.44
Certificate or Associate's degree	.44
Bachelor's degree or higher	.05
Annual household income at Wave 1	15189.74 (12686.80)
Household size	4.30 (1.42)
Number of children	2.46 (1.18)
Motivation score for additional schooling and employment in the healthcare sector	4.04 (.68)
Time to Wave 2 parent survey (days)	444.58 (65.42)

Note. All data presented in this table come from the Wave 1 parent survey. The only exceptions are "annual household income" that come from Head Start administrative data (i.e., ChildPlus) and the "motivation for additional schooling and employment in the healthcare sector" come from Head Start Family Support questionnaires.

Employment. Employment 1 year after program or study entry was measured by parents' responses to the Wave 2 survey. We examined whether parents were employed (yes/no) in general or employed in the health care sector at Wave 2. In addition, we examined whether they were employed full-time (1 = employed full-time, 0 = not employed or employed part-time) or if they were employed part-time (1 = employed part-time, 0 = not employed or employed full-time) at Wave 2. Indicators for working nonstandard hours (i.e., nights and/or weekends; yes/no) or irregular hours (i.e., shifts and/or schedules that change week to week; yes/no) also were measured as outcomes of interest.

Earnings and economic well-being. Administrative data from the Oklahoma Employment Security Commission were used to assess parents' cumulative earnings from baseline to 1 year later. If parents had any administrative data across the four quarters, earnings were assumed to be $0 during quarters in which they were not observed in the data, although parents could have earned income that was not recorded through the UI system (e.g., unreported work, self-employment).

The Wave 2 survey provided information about parents' hourly wages (valued at $0 for individuals who were not employed at Wave 2). We also used data from the Wave 2 survey for a measure of perceived material hardship. This 8-item scale was adapted from the New Hope Project and was based on items from the Survey on Income and Program Participation (Yoshikawa, Godfrey, & Rivera, 2008). Parents were asked whether they or their families had experienced any of eight events indicating material hardship in the last 6 months (e.g., being without telephone service after not being able to pay a bill; needed to go to the doctor, but could not get there because of financial reasons; and could not pay for car repairs). The eight items were averaged to create a score ranging from 0 to 1, with higher scores indicating greater material hardship, and the average score was then standardized within the analytic sample to represent *SD* units.

Psychological well-being. We examined parents' career identity using a shortened, 10-item version of the 27-item Work Role Salience Questionnaire (Cronbach's $\alpha = .81$; Greenhaus & Sklarew, 1981). Respondents were asked to indicate their level of agreement with statements about the importance of work and career (e.g., "Planning for and succeeding in a career is my primary concern"). Items were rated on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*) and averaged. We measured parents' levels of self-efficacy in the parent survey using the State Hope Scale ($\alpha = .82$; Snyder et al., 1996). The scale assesses hope about achieving goals by asking survey respondents to indicate their level of agreement with six statements concerning how they may be currently feeling about their lives (e.g., "At this time I am meeting the goals I set for myself"; "There are lots of ways around any problems I am facing now") on a 4-point scale. We measured parents' optimism using the Revised Life Orientation

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Test (LOT-R; α = .78; Scheier, Carver, & Bridges, 1994). Parents rated their levels of agreement on a 5-point scale (0 = *strongly disagree*, 4 = *strongly agree*) with 10 statements designed to assess differences in generalized optimism versus pessimism (e.g., "In uncertain times, I usually expect the best"; "If something can go wrong for me, it will").

We measured stress using two scales. The 10-item Perceived Stress Scale (α = .78; Cohen & Williamson, 1988) was used to understand the degree to which parents appraise situations in their lives as stressful and how unpredictable, uncontrollable, and overloaded respondents find their lives (e.g., "In the last month, how often have you been upset because of something that happened unexpectedly?"; scale from 0 = *never* to 4 = *very often*). Psychological distress was measured using the 6-item Kessler 6 scale (α = .89; Kessler et al., 2002), which asks respondents to report on the frequency with which they experienced symptoms of nonspecific psychological distress during the past 30 days (e.g., "how often during the past 30 days have you felt nervous") from 0 = *none of the time* to 4 = *all of the time*.

Analytic Approach

The current study sought to explore the effect of Career*Advance* on parents' education, employment, income, and psychological well-being 1 year after the program began. Matching strategies attempt to address selection problems by comparing parents who participated in Career*Advance* to other parents who have the same (or similar) observable characteristics but did not participate in the program. The limitation of this approach is that it does not account for systematic differences in unobservable characteristics between the two groups (Murnane & Willett, 2010; Rubin, 2001). Notably, because we selected and recruited the matched-comparison group based on a set of observable characteristics from CAP Tulsa's administrative data, we had a sample that was unusually well-balanced at baseline (see standardized difference scores in Supplemental Table 1; n = 388). However, there were some imbalances between the two groups. In particular, the Career*Advance* enrollees had higher levels of education compared with the matched-comparison group based on Wave 1 parent survey data.

To strengthen our design, we used inverse propensity score weighting (IPSW), drawing upon Wave 1 parent survey data for matching, which was not available at the time of sample recruitment and included more recent data compared with Head Start administrative data (n = 287; Murnane & Willett, 2010). We used the following matching variables: motivation score, gender, English spoken in the home, single parent, age, race (White, Black, Hispanic, and other), number of adults in the household, number of children in the household, education (less than high school, high school diploma or GED, or higher), neighborhood (one of four in the Tulsa area), fall or spring semester program/study entry, year of program/study entry, household income, and elapsed time between program/study entry and the Wave 2 survey. All data for matching came from the Wave 1 parent survey, with the exception of neighborhood and household income where we used data from Head Start ChildPlus because of the concern that parents may have temporarily stopped working to participate in Career*Advance*. In this case, parents' reported income from the Wave 1 survey (that occurred after program acceptance) would be endogenous to program participation.

We also addressed possible differences in the motivation between the Career*Advance* group and the matched-comparison group. Given the availability of data on the motivation for Career*Advance* parents from their interview score, we created a comparable score based on a short motivation questionnaire administered to all other Head Start parents. The measures were equivalent and each used a 5-point Likert scale. We used the motivation score in our inverse propensity score weights (as well as to select the parents for the matched-comparison group). As demonstrated in Supplemental Table 1, the inverse propensity score weighting led to a balanced sample between the Career*Advance* and matched-comparison groups based on observable baseline characteristics from the Wave 1 parent survey. We also conducted several sensitivity tests, such as removing baseline employment status from the matching variables, which we describe in the online supplementary materials.

Sample

Table 1 presents the characteristics of our analytic sample (n = 287). All families in the study were low-income because of Head Start requirements. The average household income was $15,189.74 ($SD$ = 12,686). Ninety-eight percent of parents were women and had a mean age of 29 years at baseline (SD = 5.94). The sample was racially and ethnically diverse, with the largest group being African American (40%), followed by White (28%) and parents of another non-Hispanic race (23%). Few Hispanic parents participated in the program due in large part to language proficiency requirements, and as a result, correspondingly small numbers of Hispanics were selected as part of the comparison group (9% across Career*Advance* and comparison parents). Nearly one third of enrollees (32%) were single parents with two children on average (SD = 1.18) and had an average household size of four individuals (SD = 1.4). Approximately one half of parents had no postsecondary education experience at baseline (51%), while 44% had completed some college. Only 5% of all parents held a bachelor's degree or higher. On average, parents in Career*Advance* and the matched-comparison group were highly motivated to attain additional schooling and employment in the health care sector evidenced by their motivation scores (average score 4 out 5; SD = 0.68).

Results

Preliminary Analyses: Career*Advance* Progress

Before addressing our main research question on the effect of Career*Advance* on parent outcomes, we explored parents' progress in Career*Advance* (among Career*Advance* enrollees, n = 150). At Wave 2, 96 (64%) of participants were still enrolled in the program. The average number of days enrolled for parents who exited the program, meaning they left before the Wave 2 survey, was 250.35 (SD = 118.55). Only one person exited within 1 month, and 16 (11%) exited within 6 months. A few parents did reenter after they exited (n = 8; 5%). By Wave 2, 47% of parents still had children enrolled in Head Start. Parents may have left because their child aged out of Head Start or because they moved. On average, parents received $1,811 in incentives over the course of the year (SD = 959); parents who were still enrolled at Wave 2 received

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$2,117 in incentives, and those who exited by Wave 2 received $1,265 on average. In addition, parents attended 15 partner meetings over the course of the year (SD = 6.97), with slight differences between parents enrolled in Career*Advance* at Wave 2 (16 partner meetings on average) and those who had exited by Wave 2 (12 partner meetings).

Effect of Career*Advance* on Educational Attainment and Persistence, Employment, and Economic Well-Being

Table 2 presents the effect of Career*Advance* enrollment on parents' educational attainment, persistence in an educational or job training program, employment, and economic well-being after employing inverse propensity score weighting. In terms of educational attainment, Career*Advance* enrollees' rates of certification over 1 year were 58 percentage points higher (ES = .58, SE = .04) compared with the matched-comparison group (see Table 2). Sixty-one percent of Career*Advance* parents attained at least one new certificate over the course of the year compared with 4% in the matched-comparison group (based on regression adjusted means). In addition, Career*Advance* enrollees had .83 more years of education (SE = .11) than the matched-comparison group. In terms of persistence in education training, we do find differences in the proportion of Career*Advance* enrollees and the matched-comparison at end of year 1 (ES = .29, SE = .06). More specifically, 66% of Career*Advance* enrollees were enrolled in an education and training program versus 37% in the matched-comparison group.

Table 2
Effect of CareerAdvance on Parents' Educational Attainment and Persistence, Employment, and Economic Well-Being 1 Year After Program Entry (n = 287)

Outcome	Inverse propensity score weighting		
	n	β	*SE*
Educational attainment and persistence			
Certification (y/n)	287	.58***	.04
Years of education	287	.83***	.11
Enrolled in an educational or job training program (y/n)	284	.29***	.06
Employment			
Employed (y/n)	286	.04	.06
Employed full-time (y/n)	286	−.06	.06
Employed part-time (y/n)	286	.11**	.05
Employed in the healthcare sector (y/n)	286	.23***	.06
Works nonstandard hours (y/n)	287	.11*	.06
Works irregular hours (y/n)	286	.11**	.05
Economic well-being			
Year 1 earnings ($)	275	−1273.70	1151.08
Hourly earnings ($)	284	.66	1.11
Material hardship	262	−.04	.12

Note. For all analyses, the sample is restricted to parents who had Wave 1 and Wave 2 parent surveys. All values can be interpreted as effect sizes as outcomes were standardized. Inverse propensity score weights were based on a set of demographic controls from the Wave 1 parent survey: education and training motivation score, gender, English spoken in the home, single parent, age, race (white, black, Hispanic, and other), number of adults in the household, number of children in the household, education (less than high school, high school diploma or GED, some college, and bachelor's degree or higher), neighborhood, fall or spring semester program/study entry, year of program/study entry, household income and elapsed time between program/study entry and the Wave 2 survey.
* $p < .10$. ** $p < .05$. *** $p < .01$.

An interesting pattern emerged in terms of the effect of Career*Advance* on parental employment. Overall, there was no difference in the percentage of parents who were employed at Wave 2 between Career*Advance* and matched-comparison parents. However, the rates of employment in the health care sector were 23 percentage points higher (ES = .23, SE = .06) among Career*Advance* parents versus the matched-comparison group (51% of parents in Career*Advance* were employed in the health care sector compared with 27% in the matched-comparison group). Moreover, there was no statistically significant difference in full-time employment between the two groups, with 35% working full time in Career*Advance* versus 40% of parents working full time in the matched-comparison group. Yet, parents in Career*Advance* were more likely to be working part-time at end of year 1 (ES = .11, SE = .05), with 31% of Career*Advance* parents working part-time versus 21% of matched-comparison parents. Career*Advance* parents also worked more irregular hours compared with the matched-comparison group (ES = .11, SE = .05). In addition, parents worked more nonstandard hours in Career*Advance* versus the comparison group (ES = .11, SE = .06).

In terms of economic well-being, parents in the Career*Advance* group and in the matched-comparison group did not differ significantly in their earnings after 1 year. More specifically, Career*Advance* parents had $1,274 in lower earnings over the course of the year compared with the matched-comparison group (SE = 1,151.08); however, this was not statistically significant. We also did not find a significant effect of the program on hourly earnings by Wave 2 (ES = 0.66, SE = 1.11). Parents in the Career*Advance* group did not exhibit higher levels of self-reported material hardship (ES = −.04, SE = .12). Collectively, the lack of effect on income may be because financial incentives offered by the Career*Advance* program helped offset the income loss ($1,811 per participant).

Effect of Career*Advance* on Parents' Psychological Well-Being

Table 3 presents the effect of Career*Advance* on parents' psychological well-being 1 year after program entry with inverse propensity score weights. All psychological measures were standardized. By the end of year 1, Career*Advance* parents reported approximately one fifth of a SD higher levels of commitment to work and career compared with the matched-comparison group (ES = .21, SE = .11). Career*Advance* parents also reported greater levels of self-efficacy 1 year after program entry (ES = .29, SE = .12) and higher levels of optimism (ES = .30, SE = .12). We did not find an increase in perceived stress (ES = −0.02, SE = .12) or psychological distress (ES = −0.18, SE = .12).

Discussion

This quasi-experimental study examined the effects on low-income parents of Career*Advance*, a two-generation program that adds intensive adult education and workforce training to Head Start family services. After 1 year, Career*Advance* parents dem-

Table 3
Effect of CareerAdvance on Parents' Psychological Well-Being 1 Year After Program Entry (n = 287)

	Inverse propensity score weighting		
Outcome	*n*	β	*SE*
Career identity	286	.21*	.11
Self-efficacy	286	.29**	.12
Optimism	286	.30**	.12
Perceived stress	287	−.02	.12
Psychological distress	286	−.18	.12

Note. For all analyses, the sample is restricted to parents who had Wave 1 and Wave 2 parent surveys. All values can be interpreted as effect sizes as outcomes were standardized. Inverse propensity score weights were based on a set of demographic controls from the Wave 1 parent survey: education and training motivation score, gender, English spoken in the home, single parent, age, race (white, black, Hispanic, and other), number of adults in the household, number of children in the household, education (less than high school, high school diploma or GED, some college, and bachelor's degree or higher), neighborhood, fall or spring semester program/study entry, year of program/study entry, household income, and elapsed time between program/study entry and the Wave 2 survey.
* $p < .10$. ** $p < .05$.

onstrated higher rates of certification as well as employment in the health care sector (but not employment in general) than did matched-comparison parents whose children were also in Head Start. Parents in Career*Advance* also reported higher levels of optimism, self-efficacy, and career identity in contrast to the matched-comparison group. The study did not find effects on parents' income or average employment across all sectors in the short-term.

Educational Gains in the Short-Term: Implications for the Long-Term?

In terms of educational gains, we found that a significant proportion of Career*Advance* enrollees (61%) achieved health care-applicable certification within 1 year (compared with 4% in the matched-comparison group). While on the one hand certification is an obvious outcome of a certification program, we note that these rates are higher than those found in the literature. For instance, in national studies of adults enrolled in community colleges, only 53% attained a certificate or degree after 6 years (Nelson, Froehner, & Gault, 2013). In terms of comparisons with parent populations, it is challenging to find an appropriate statistic. We do not have certification data from the original workforce development programs from the 1980s targeting parents because they were focused mainly on GED attainment.

For example, the Wisconsin Regional Training Partnership (WRTP) develops and runs sectoral-based training and certification in construction and health care for low-income community residents. A randomized experimental evaluation found that the program led to an increase in certification in the construction sector (60% of those in the experimental group vs. 12% in the control group) as well as in the health care sector (45% became Certified Nursing Assistants vs. 11%). Even among this targeted intervention with proximal outcomes (e.g., health care certification), the effect sizes ranged from .12 to .34. The education gains in Career*Advance* show an effect size of .58 for certification, a notable outcome for a sample of low-income parents who face more barriers to success that do low-income adults in general.

The question remains whether these educational advances related to Career*Advance* will translate to increases in employment on average in addition to economic stability. In some sense, the lack of effects on employment and income is in contradiction to ecological systems theory, which posits that advances in education would lead parents to succeed in the broader economy. More important, these findings occur only after 1 year of the intervention and at that time, two thirds of Career*Advance* participants remained enrolled. Thus, parents may not have been ready to be employed because they were still in school. In addition, they likely did not have enough experience in the labor market to secure higher wages.

Family systems theory would posit that as parents' education increases, we would also see increases in employment and income over the long term (Cox & Paley, 2003; Yeung et al., 2002). Indeed, past work suggests that sectoral job training does translate to labor market gains. In particular, Maguire and colleagues (2010) found that three large-scale sectoral training programs (WRTP, Jewish Vocational Service-Boston, and Per Scholas) led to an increase in certification that translated after 24 months to higher levels of employment (70 vs. 60%) and earnings for the experimental groups (an increase of $4,000) as compared with the control groups.

Several additional studies also provide evidence that certification in the health care sector leads to employment and earnings gains over the long term (Hendra et al., 2016; Maguire et al., 2010; Michaelides, Mueser, & Mbwana, 2015). For instance, Project QUEST, based in San Antonio, TX, randomized adults into sectoral training for health care jobs. After 1 and 2 years, no discernable differences in earnings emerged between the treatment and control groups. However, over time income increased significantly, such that by the fifth and sixth year, adults in the treatment group made over $5,000 more compared with the control group (Elliott & Roder, 2017). It is an open question whether entry into low-level jobs in the health care sector because of Career*Advance* will translate into more secure, higher-paying jobs among our sample, a question that will be explored in several years.

Notably, we did not find that the Career*Advance* was associated with loss of income or perceptions of increases in material hardship, suggesting economic equilibrium, albeit at a very low level (i.e., $15,000). This is not a surprise given that Career*Advance* parents received $1,811 on average in financial incentives, potentially offsetting the loss in income. The financial incentives may have ensured that families did not experience major shifts in their day-to-day economic hardship (e.g., being able to pay bills on time; could not pay for needed car repair).

Why Do We Find Educational Advances Among Parents?

Regarding connections between microsystems as highlighted in both family systems and ecological theories, it appears that recruiting parents from Head Start into job and workforce training could be a new strategy to foster parent education and psychological well-being. Although these two theoretical perspectives informed the design of the Career*Advance*, this intervention was packaged as a bundled program, so it is challenging to test (either quantitatively

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or qualitatively) which of the specific elements drives the gains in parent education. We have several hypotheses about why our program was associated with gains in education whereas past workforce development programs for parents were less effective (e.g., Project Redirection, New Chance, Teen Parent Demonstration, and LEAP; Granger & Cytron, 1999).

To begin, the parents in past programs were highly economically disadvantaged and most were teenagers. For example, Project Direction (launched by MDRC in the 1980s) required that parents were 17 years of age or younger, pregnant or parenting, and without a GED or high school degree. As a comparison, the average age of Career*Advance* parents was higher (29 years old) and only 7% had less than high school degree at baseline. Thus, although both populations were low-income parents, Career*Advance* parents were somewhat more demographically advantaged, and most had previously tried in different ways to advance their education and training (49% had a postsecondary degree).

In addition, past programs were much larger-scale compared with Career*Advance*, which was a small-scale intensive intervention, where there was much more control regarding program implementation and fidelity to the program model. Lastly, and perhaps most importantly, the types of workforce training in prior programs varied considerably and did not take a family perspective. For example, most programs viewed child care as a work support, and the quality of children's experiences in those programs was not emphasized. Having high quality early childhood education is important to foster children's outcomes, but also to establish a sense of trust and connectedness for parents. Moreover, schedules were not coordinated across parents' work and school schedules and children's settings, and social connectivity was not prioritized (Chase-Lansdale & Brooks-Gunn, 2014).

Based on the family systems perspective, we have three main hypotheses about why Career*Advance* may have fostered parents' educational gains. First, Career*Advance* explicitly chose a trusted early childhood education institution, namely Head Start, as a platform to recruit and support parents into education and job training programs. For instance, Small's (2009) qualitative work found that mothers perceived Head Start as "the hubs of the community" where mothers were found to form close networks of support with other parents, staff, and teachers at the Head Start programs. Career*Advance* built on this existing trust and sense of connectedness to provide informational resources and to foster parents' own education.

Second, Career*Advance* was designed to promote parents' social capital and had an intentional relational focus. The family support staff at the Head Start centers, in conjunction with career coaches, sought to provide individualized career guidance for developing practical solutions, combined with setting high expectations and a sense of accountability. A peer cohort model further provided intensive opportunities for social capital development as parents took classes together (Scrivener & Coghlan, 2011). As a result, it may be the case that fostering social capital among parents' micro- and mesosystems helped to promote their access to resources, emotional support, and ultimately their certification. Third, Career*Advance* fostered parents' psychological well-being. Parents in Career*Advance* did not report higher levels of psychological stress than the matched-comparison group. Moreover, as parents were achieving educational goals, their self-efficacy and optimism increased, and they demonstrated a stronger career identity. Thus, taking a psychological perspective for supporting parents' human capital development may be a promising avenue for future programs.

Limitations and Future Work

There are several important limitations to our study. We did not conduct a randomized control trial and, thus, differences in unobserved characteristics between our intervention and comparison groups may have biased our estimates. For instance, parents who are more motivated on some unobservable characteristic may be more likely to enroll in Career*Advance* compared with those who did not enroll; thus, leading to an upward estimate of our results. As a result, results should not be interpreted as causal, and an important future direction for this work is conduct a randomized control trial of the effects of Career*Advance*. In addition, it is not clear why matched-comparison parents did not enroll in Career*Advance*. Our hypothesis is that it may be because of how CAP Tulsa communicated the availability of the program to parents (and because of the fact that the program was relatively new at the time) and because some matched-comparison parents had their own plans to advance their education (indeed, 24% were in an education program at baseline).

In addition, the study may have limited generalizability. Because the study involves selected Head Start parents in both groups (who have higher levels of education on average compared with the broader CAP Tulsa population), the findings may not generalize to low-income parents who did not enroll their children in Head Start or parents across a range of education levels. Moreover, Career*Advance* is a relatively expensive program, which includes community college tuition, career exploration supports (including career coaches), and financial incentives, as well as the provision of free Head Start early childhood education for children. This is typical of model programs, but underscores the need for research on scaled-up two-generation programs that take a family perspective.

In summary, this study examines short-term educational, employment, and psychological outcomes of a newly designed two-generation human capital program. Further research is necessary, including long-term studies of parents' income and employment, family systems, and child outcomes. Understanding both the short and long-term effects of Career*Advance* is critical to warrant larger-scale implementation and adoption of the model and, thus, the program is very much still under study. Career*Advance* represents only one model for newer two-generation programs that address the gaps in prior large-scale programs in the 1980s and 1990s. The current wave of two-generation human capital interventions is in its infancy, and the field needs additional model programs to study. Given the findings of the present quasi-experimental evaluation of a program that takes a family perspective, Career*Advance* may be seen as a preliminary step toward innovation in promoting parent human capital and psychological wellbeing.

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