The Tradeoff between Work and Higher Education: Evidence from the Introduction of Public Transportation to Arab Communities within Israel

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Abstract

The tradeoff between time allocated to work for pay and investing in higher education has long been a foundational assumption in the economics discipline. Nevertheless, empirical evidence of this tradeoff, as a result of increased access to work and/or education, is scarce if non-existent. Furthermore, the question of what is actually chosen when both become more accessible has not been investigated empirically. In fact, studies assessing policies that increase access to either work or education often disregard the interplay between the two, despite potentially important equilibrium implications. We present evidence of the tradeoff between education and work when work and education opportunities become more accessible to a disadvantaged and highly traditional population - the Arab population within Israel. We exploit the introduction of public transportation bus networks to these communities, which increased substantially their access to both work and education opportunities. Our identification relies on the randomness in timing of bus line introduction and schedule changes, due to a prolonged bureaucratic approval process for every change to bus lines in Israel. With our detailed data on bus line schedules and routes, we distinguish between buses that connected Arab towns solely to work opportunities and buses that connected Arab towns both to work opportunities and higher education institutions. We find that buses destined solely to work opportunities increased labor market outcomes among the male young adult population, with a greater effect on males from the lowest socioeconomically ranked towns. However, buses destined to both work and educational opportunities, decreased labor market outcomes and increased the probability of currently studying among this male population. For females, some of these effects are also observed, but they are concentrated among females from towns with higher socioeconomic ranking. Our results suggest that when faced with increased access to both work and education opportunities, the young adult population in our disadvantaged setting chooses investment in education even at the cost of foregoing current income from work. However, for females, it appears that it is not just physical accessibility barriers that

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are hindering their labor force participation and educational attainment but possibly also traditional and cultural barriers, which are likely stronger in the towns with lower socioeconomic ranking.

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1 Introduction

Theories of human capital formation in economics have fundamentally assumed a tradeoff between time allocated to education and time allocated to work. Whether this is due to time constraints (Becker (1965)), or foregone earnings and labor market experience when investing in education (Schultz (1960)), or both (Ben-Porath (1967)), the consideration of this tradeoff between education and work has been foundational in any economic theory explaining human capital investment and formation.

Despite this long-standing economic notion of the tradeoff between work and education, empirical research that addresses this is relatively scarce. Several studies have shown decreases in educational investment in response to higher labor demand using cyclical variation in the housing market (Charles et al. (2018)), the oil and natural gas industries (Morissette et al. (2015); Cascio and Narayan (2015)), coal and mining industries (Black et al. (2005)), agricultural output via drought shocks (Shah and Steinberg (2017)), and changing demand for exports due to international trade reforms (Atkin (2016)). In all of these studies, educational attainment is found to decrease in response to positive labor demand shocks, and as such, the analysis of the tradeoff between work and education always involves a higher cost of obtaining education through higher foregone earnings. To our knowledge, no empirical study analyzes the tradeoff between work and education when demand conditions in the labor market remain constant and all that changes is the accessibility of work and education opportunities. Furthermore, we are not familiar with studies that analyze the tradeoff between work and education one step further by asking what individuals actually choose when education and/or work opportunities increase, holding labor demand conditions constant. This latter question would be particularly relevant to disadvantaged communities that often have limited access to work or education opportunities.

This study empirically addresses the tradeoff between time allocated to work and time allocated to education by both establishing its existence, even if labor demand conditions remain constant, and by showing what is chosen by a disadvantaged population that experienced increased accessibility to both. We exploit a large reform that took place in Arab communities in Israel beginning in 2007: the introduction of public transportation bus lines. Despite the Arab population in Israel being significantly disadvantaged economically, with low vehicle ownership rates, they have been historically deprived of public transportation infrastructure in Israel. This changed in 2007, when the ministry of transportation (MOT) announced a reform intended to increase substantially public transportation services to and within Arab towns in Israel. We exploit this reform, which substantially increased Arab communities' access to work and education opportunities.

Using unique and highly-detailed data on all bus line routes and frequencies over time, we are able to separately estimate the effect of Arab towns' greater exposure to buses destined solely to locations with work opportunities but not higher education opportunities and the effect of Arab towns' greater exposure to buses destined to locations with both work opportunities and higher education opportunities. We link these to responses from 4 cross-sectional surveys conducted across the Arab population in Israel during 2004-

2014, which inquire about labor force participation outcomes and educational attainment. Our difference-in-differences (DID) framework quantifies the intensity of treatment by using concurrent bus frequencies per 1000 residents, and estimates a differential effect based on buses' destination types.

Our identification strategy relies on randomness in the timing of introducing and changing the frequency of bus lines serving Arab towns. This randomness is generated due to an often prolonged bureaucratic process required by the MOT, which bears the regulatory responsibility for all public transportation networks, for the introduction of any bus lines or even slight changes in bus line routes or frequencies. The exact length of this process, until approval is obtained by the MOT for changes to bus lines and schedules is random and we assume that it is exogenous to our outcomes of interest. Additional randomness is existent within our analytical framework based on matching each surveyed individual with the degree of public transportation penetration in their town at the exact date of their interview, which we assume is orthogonal to our outcomes of interest. We particularly note that even within towns, the time span between the earliest interviewee and the latest interviewee for a given year can be several months.

Our analysis distinguishes between male and female responses to public transportation penetration due to substantial differences between the two in terms of labor force participation within this highly traditional population. We observe work outcomes such as the probability of working last week, weekly work hours and monthly salary. For educational outcomes, we observe whether the individual is currently studying. We focus our analysis on the young adult population (males ages 18-30 and females ages 18-27), the primary population that faces the choice between higher education and work opportunities, while having relatively low access to alternative means of transport that are not public transportation.

We find that for young adult males, each additional bus line serving their community per 1000 residents that is destined solely to work opportunities (and not higher education opportunities) increases their probability of working by 3 percentage points. We do not detect a reduction in the probability of currently studying in response to these buses. When examining the effects of bus lines destined both to work opportunities and higher education institutions, we observe that young adult males choose education over work - their probability of working decreases and their probability of studying increases. These responses are mostly driven by males from the most disadvantaged towns in our sample. For females, we observe some evidence of a positive response in terms of labor market outcomes to buses destined solely to work opportunities and a negative response in terms of buses destined to both work opportunities and higher education institutions when they reside in towns from higher socioeconomic rankings (although still considered fairly disadvantaged). Overall, males from the most disadvantaged towns are choosing investment in higher education over concurrent income from work when faced with increased access to both work opportunities and higher education institutions. For females it may be barriers beyond physical accessibility to work or education opportunities that are inhibiting them from increasing labor force participation or educational attainment rates - there are likely also traditional or cultural barriers, and these may be less pronounced in Arab communities that are ranked higher socioeconomically.

Besides the theoretical contribution to the literature on human capital formation, our results have important policy implications on the availability of public transportation and increasing accessibility to work and education opportunities, particularly among disadvantaged populations. The benefits of public transportation have been explored in terms of diminishing spatial mismatch in the labor market (Holzer et al. (2003)) or improving job search prospects (Phillips (2014); Franklin (2017)). More generally, greater accessibility to work opportunities has been show to improve labor market outcomes, in particular for disadvantaged populations that are more constrained in their commuting capabilities (Gautier and Zenou (2010); Baum (2009)). Our results highlight the importance of taking into account the interplay between time allocated to work and time allocated to education when either one or both become more accessible. This is in particular with regards to young adult populations, who usually face decisions between the two. We are not familiar with studies that assess the increased accessibility to one while also considering the equilibrium effects on the other.

Our paper proceeds as follows. We discuss public transportation in Israel and in particular within Arab communities, while highlighting the long bureaucratic process often involved with introducing bus lines or changing them, on which our identification strategy relies. We then proceed to discuss our data on public transportation in Arab towns and labor market and education outcomes among the Arab population in Israel. Section 4 discusses the empirical strategy and identification strategy, followed by results presented in Section 5. In Section 6 robustness checks are included, and concluding remarks are presented in Section 7.

2 Public Transportation in Israel and within Arab Communities

Public transportation within Israel is primarily via buses, taxis or inter-city trains. Public transportation services are not provided within a free market but are under the regulatory supervision of the Israeli Ministry of Transportation (MOT), which determines the extent of competition between operators for each region and locality, provides permits and licenses for each route, and sets the routes, stations, frequencies and prices.

The Arab population in Israel comprises roughly 20% of the entire population of the State of Israel. These are citizens of Israel, although the majority of them identify themselves as Arab or Palestinian by nationality and Israeli by citizenship. In terms of religious affiliation, most are Muslim, but there is a significant Arab Christian minority and a Druze minority. Their language is Arabic, although most are bilingual with their second language being Modern Hebrew.

The vast majority of the Arab population in Israel resides in separate towns and cities. These towns and cities are for the most part ranked low socioeconomically - Arab towns and cities comprise a very large part of the most economically disadvantaged communities in Israel, and their population is characterized by low income, low employment rates, low educational attainment and high fertility rates. Many of these

communities are traditional in their nature with barriers for women in obtaining higher education and developing careers, although this is slowly changing.[1] Despite private car ownership rates being relative low among Arabs, due to economic constraints, and many women not being able to drive due to traditional barriers, Arab communities within Israel have been significantly deprived of public transportation infrastructure until the last decade. For many communities (including cities with populations of several tens of thousands), the only option prior to the introduction of public transportation for mobility was either walking to a bus/train station outside the community (usually more than a few kilometers) or taking pirate shuttle buses that served these communities, which cost significantly more than public transportation bus services in Israel, were sporadic in their time schedules, and posed a constraint on women from these traditional communities, who could not travel in crowded vans among men.

Following many years of neglect of public transportation infrastructure in Israel's non-Jewish communities, in 2007 the minister of transportation announced a 5-year plan to invest over 200 million NIS annually[2] in public transportation infrastructure within Arab communities. At the same time, some Arab communities were already seeing greater investment in public transportation with new tenders being issued for bus line operators, and this was following local campaigns promoting the introduction of public transportation into the communities.[3] The actual investment in public transportation infrastructure ended up being substantially less than what was announced by the MOT in 2007 - in 2011, the new minister of transportation announced that over 400 million NIS were spent on infrastructure and public transportation over the last few years and that 3.5 million persons from Arab towns and communities utilize the improved public transportation network annually. Nevertheless, the gaps in public transportation between Jewish and non-Jewish communities remain substantial, as demonstrated in a 2012 report by a non-profit organization (Naali-Yosef and Cohen (2012)). The new bus networks gradually developed over the next 7 years and increased substantially residents' mobility within and between their communities and access to large Jewish cities located close to them, thus expanding work and education opportunities to these residents.

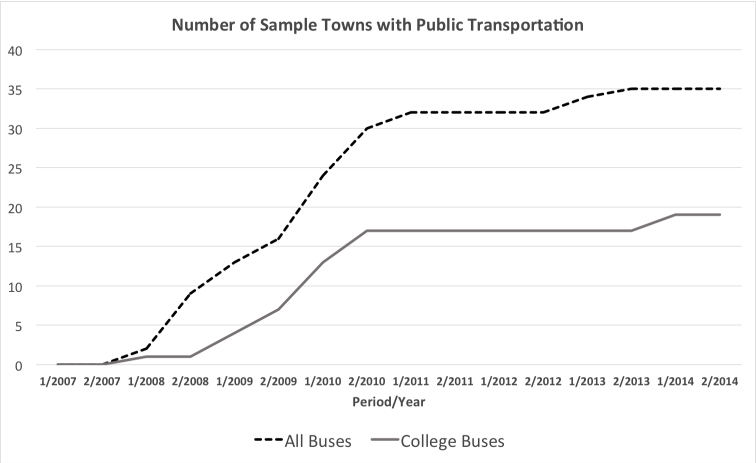
Figure 1 presents the gradual penetration of public transportation in the towns in our sample. By construction, at the end of 2007, none of our 33 sample towns were served by buses. However, by 2014, more than 20 of our 33 sample towns were served by bus lines, as demonstrated by the dashed line. The solid lines shows how many of these towns were also served by bus lines destined to higher education institutions, and how this increased from zero in 2007 to slightly less than 15 in 2010 and remained stable thereafter.

[1] Car ownership and driving licenses among females within the Arab population have become much more common in recent years. Furthermore, fertility levels for the Arab population have declined substantially over the last 10-15 years.

[2] 200 million NIS was roughly equivalent to 57 million USD in 2007.

[3] In July 2007, the MOT announced that it will operate the first public transportation network serving Beduin communities in Southern Israel in 3 towns - Rahat, Lakiya and Hura. This was shortly after the MOT's announcement of its 5-year public transportation plan in Arab communities, but it was after roughly two years of local campaigns run by the Beduin community in the South for the introduction of public transportation into their communities.

Figure 1: The Number of Sample Towns with Public Transportation Penetration



Notes: Sample towns amounts to 58 towns in total. The first period of each year is from a representative Tuesday in March, and the second period of each year is from a representative Tuesday in June (see Data Section for further details on our bus line data).

3 Data

Our data are from two separate sources. Data on all bus lines in Israel, their frequencies, and origin and final destination were provided to us by the Israeli MOT for the period 2008-2014. Data on outcomes concerning educational attainment, school attendance and labor force participation of individuals within Arab communities in Israel were extracted from a survey of the Arab minority in Israel conducted by the Galilee Society in 2004, 2007, 2010, and 2014 (Arab Survey).

Each cycle of the Arab Survey covers roughly 15,000 individuals from roughly 3,000 households in Arab communities across Israel, with the exception of the 2010 cycle which was limited to 8,500 individuals from 1,900 households. All four cycles are repeat cross-sections, and it is not possible to follow households through the years of the survey. Household members were asked about household and demographic characteristics, as well as their employment and education. We complement our data with general statistics concerning the population of each Arab community for each year available from the Israeli Central Bureau of Statistics (CBS).

The MOT data on bus lines details every bus line in Israel, its frequency, along with other details for three representative Tuesdays - at the end of March, June and December - each year between 2008 and 2014.[4] Bus line data could not be obtained from prior to 2008. As such, if a town was served by bus lines as of early 2008, we could not know when these bus lines were introduced.[5] We thus could not determine what the treatment variable values should be for these towns prior to 2008. As a result, we excluded 17 towns from

[4]Note that the end of December is a normal work week in Israel. The dates selected - at the end of March, June and December - were determined by the MOT based on its capabilities in terms of extracting data from its system.

[5]MOT data for bus lines begin only in 2008 because prior to that all documentation of bus lines in Israel were not digitized by the MOT and no data was found available (we further contacted bus companies for this purpose and they could not assist as well with data prior to 2008).

our sample that were served by bus lines as of early 2008.[6] Overall, the analysis covers 58 towns, out of which 35 experienced bus line penetration during the sample period (between 2008 and 2014). A list of the towns in our analysis and the years each of these towns is covered in the Arab Survey is in Table 5 in the Appendix.

In order to construct our variables of interest concerning public transportation penetration, we examined the route for each bus line that serves Arab towns in Israel. While documenting bus lines' routes, we defined two important route characteristic. First, we defined a town as being served by public transportation only if that town had a bus line enter and stop inside the town. If the town was only served by bus lines that stopped outside the town, then this town was not considered as being served by public transportation. Second, we distinguished between two types of bus lines: those serving at least one destination with a higher education institution and those not serving destinations with higher education institutions. In order to define higher education destinations, we examined in the Arab Survey for the years 2007, 2010 and 2014 the institutions from which the adult population (ages 30-45) reported receiving a higher education certificate. Any bus line that served a destination with a higher education institution that more than 3% of Arab higher education certificate holders reported attending (for either Northern or Souther Israel) was considered a destination serving a higher education institution.[7] Based on this, we then aggregated for each town and each of the three annual dates for which bus services are observed the overall frequency of buses serving the town. We did this while distinguishing between bus lines connecting to higher education institutions and bus lines not serving higher education destinations. All bus frequencies were then standardized by the relevant population for that town reported for that year by the Israeli CBS.

This bus line data was then merged with individual-level data from the Arab Survey for the years 2004, 2007, 2010 and 2014. For each year, we know the exact date the individual was interviewed,[8] and as such, we are able to assign the relevant frequency of each type of bus line - those serving destinations with higher education institutions and those not serving destinations with higher education institutions - at the precise date that individual was interviewed, relative to the three representative Tuesdays for which we have bus data for each year.[9]

Because our analysis focuses on the choice between work and educational attainment, the sample for regressions is limited to the young adult population - males ages 18-30 and females ages 18-27. Different age ranges that can still be representative of the young adult population for each gender resulted in similar estimates, although less precise at times. The young adult population should also be more responsive to

[6] A total of 26 Arab towns were served by bus lines as of early 2008, according to our data. Out of these, 19 towns are covered in the Arab Survey, but two are from Southern Israel, and we were able to verify for these two towns that public transportation was indeed only introduced to them in January 2008, so we were able to keep them in the sample.

[7] Our higher education institutions were the following: Achva Academic College, Ariel University, Beit Berl College, Ben-Gurion University of the Negev, Haifa University, Hebrew University of Jerusalem, Mar Elias Educational Institutions, Sakhnin College, Sapir College, Tel Aviv University.

[8] In some cases, the interview date was not provided. When this occurred, we derived the interview date from the median date for that town and year.

[9] For each interview date, we assign the bus line penetration values that are observed at one of the three dates for which we have data that is closest to the interview date.

public transportation, as car ownership is more relevant among the older population in Arab communities. Given the significant traditional differences between men and women within the Arab population in Israel, all results are separate by gender. For analyzing work and education outcomes, our dependent variables are: whether the individual reported working last week, number of hours worked last week, monthly salary, and whether the individuals is currently studying in an education institution.

After excluding the towns that had public transportation services at the end of 2007 and limiting the age range for our regression analysis, our male sample is roughly 2,700 observations and our female sample is roughly 2,000 observations - the number of observations for each regression varies due to missing values for some of the dependent variables.

In addition to our main regression specifications, we also present results with differential effects based on the Arab towns' socioeconomic ranking according to Israel's Central Bureau of Statistics. Towns' socioeconomic rankings are based on demographic variables, such as the mean age, dependency ratio, the share of families with 4 or more children, educational attainment, employment and retirement and living standards (mean income, vehicle ownership and travel abroad). The ranking is in integers ranging from 1 - the lowest - to 10 - the highest. The index is updated every 2-3 years, with the exception of a break in updates between 2008 and 2013. Arab towns in Israel are ranked low in this index - in our sample of 58 towns, more than half are ranked 1 or 2. A socioeconomic ranking of 1 (2) in 2013 implied only 9 (11) years of schooling for those aged 25-54, in comparison to the national Israeli mean of 13.5 years of schooling. Mean per capita monthly income in towns with a socioeconomic ranking of 1(2) was 1,181 (1,994) NIS, equivalent at the time to $325 ($549), in comparison to the national Israeli mean of 4,057 NIS, equivalent at the time to $1,118. The Arab towns that are not ranked 1 or 2 according to the socioeconomic index are also not very highly ranked socioeconomically, with the vast majority ranked at 3 or 4. For a socioeconomic ranking of 4, the mean years of schooling for the population aged 25-54 in 2013 was 12.7 and the mean per capita monthly income was 3,183 NIS ($877).

4 Empirical Strategy

Our detailed bus line data enable us to assign for each individual a measure for the intensity of bus lines serving their community at the time of the interview. We are further able to distinguish between the intensity of bus lines serving destinations with higher education institutions and bus lines not serving destinations with higher education institutions. Thus, when estimating the effect of public transportation within a town on various outcomes, our specification takes the following form:

$$Outcome_{ity} = \alpha_0 + \alpha_1 AllBusIntensity_{ity} + \alpha_2 HighEducBusIntensity_{ity} + \eta X_{ity} + \gamma_t + \delta_y + \varepsilon_{ity} \quad (1)$$

We evaluate outcomes related to labor force participation and educational attainment for individual i in

town t surveyed in year y. Two main coefficient estimates are of most interest to us: α_1 and α_2. α_1 tells us how our dependent variable changes when an additional bus per day per 1000 residents serves the town. However, this represents the effect of bus lines serving solely work opportunities (without higher education destinations). α_2 tells us what is the differential effect of an additional bus per day per 1000 residents that reaches a destination with a higher education institution. Thus, the full effect of one additional bus per day per 1000 residents that serves a higher education institution is $\alpha_1 + \alpha_2$.

We control for individual-level and town-level demographic characteristics in equation (1) (X_{ity}) - quadratic function of age, a series of indicators for the individual's relation to household head, the number of household members, and the town's socioeconomic ranking. Town-level fixed effects (γ_t) control for non-time-varying town-level characteristics that may be correlated with the outcomes of interest. Year fixed effects (δ_y) control for annual shocks in the outcomes of interest for towns in the sample. All standard errors are clustered at the town level, to account for the possibility of within-town correlation of the error term, ε_{ity} (Bertrand et al. (2004)).

Equation (1) is very much like a standard difference-in-differences (DID) specification, only the main variable of interest is an intensity of treatment measure, rather than just an indicator variable, and it is split into two - the intensity of treatment in terms of all buses and the differential intensity of treatment for buses reaching higher education institutions. Treated individuals are those residing in towns that received public transportation penetration during our sample period, and the post-treatment period varies between towns, based on the timing that bus lines began to serve them.

In order to evaluate whether the findings from equation (1) depend on socioeconomic levels, we reconstruct equation (1) such that a differential effect is possible based on the town's socioeconomic ranking. We construct an indicator variable equal to 1 if the town was ranked socioeonomically at level 3 or higher and zero otherwise. We then estimate the following specification:

$$\begin{aligned} Outcome_{ity} &= \beta_0 + \beta_1 AllBusIntensity_{ity} + \beta_2 HighEducBusIntensity_{ity} + \beta_3 AllBusIntensity * HighSocio_{ity} && (2) \\ &\quad + \beta_4 HighEducBusIntensity * HighSocio_{ity} + \eta X_{ity} + \gamma_t + \delta_y + \varepsilon_{ity} && (3) \end{aligned}$$

In equation (2), β_1 and β_2 are estimates of the effect of one additional bus in general and the differential effect of higher education buses, respectively, for the population in towns with the lowest socioeconomic ranking. β_3 and β_4 are estimates of the differential effects for the population in towns with higher socioeconomic ranking. All other variables in equation (2) are as defined in equation (1).

4.1 Identification

Our empirical analysis addresses two research questions. The first concerns the tradeoff between time allocated to work and time allocated to investment in higher education. The second research question asks

what disadvantaged young adults choose if both work and education become more accessible. Answering both questions more broadly assesses the implications of introducing public transportation to disadvantaged communities.

As part of our first research question, we wish to present evidence of the tradeoff between time allocated to work and time allocated to investment in higher education. This requires exogenous variation in the time allocated either to work or to education and assessing how this affects time allocated to the other. Exploiting the introduction of public transportation to Arab communities in Israel provides variation in the time allocated to work, as some bus lines did not connect to education institutions but they nevertheless still connected the Arab population with greater work opportunities. This allows us to assess how time allocated to education changes in responses to greater access to work opportunities. We do not assess the tradeoff between time allocated to work and time allocated to education in the opposite direction (i.e. when education becomes more accessible), as all bus lines destined to education institutions also connected the Arab communities to work opportunities, and thus we do not have a source for generating variation solely in the time allocated to education.

The second question we address asks what would be chosen between work and education if both are made more accessible to the young adult population in a disadvantaged setting. Answering this question requires exogenous variation in access to both work and education. We argue that we obtain this at least to some extent by exploiting the introduction of bus lines that are destined to higher education institutions. All these bus lines also connected the Arab communities with towns/cities that have greater work opportunities.

Regression results from equations (1) and (2) can provide answers to our two research agendas, under the assumption that the introduction of bus lines - destined either to work opportunities or to work opportunities along with higher education opportunities - was exogenous and not correlated with other individual or town characteristics that may determine work or education outcomes. However, it seems quite reasonable that the destination of bus lines is not randomly assigned to towns and is in fact correlated with town or individual characteristics that may also be determinants of education and/or work outcomes.

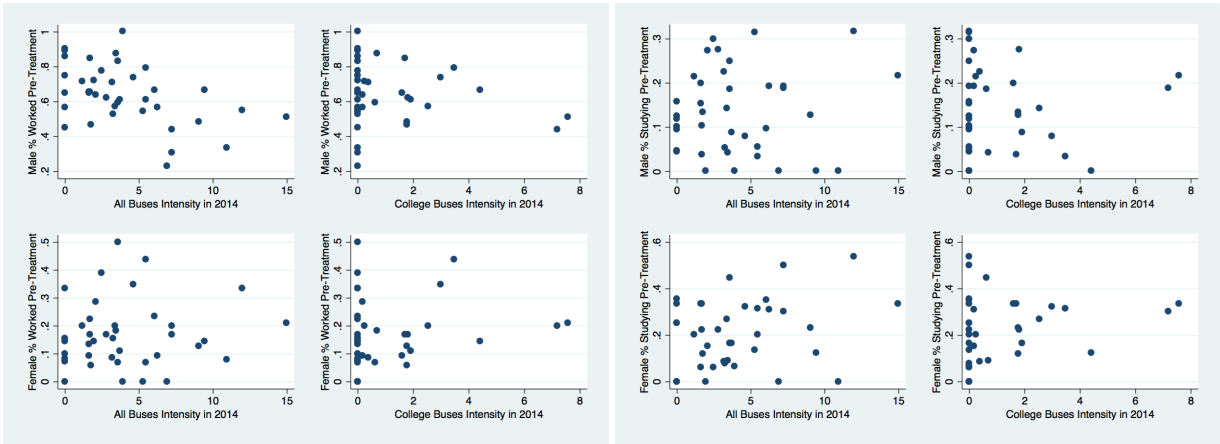
We examine this in Figure 2, which presents plots of the relationship between the percent of the young adult population who reported working last week (Figure 2a) or reported currently studying (Figure 2b) in the 2007 Arab Survey, prior to the introduction of public transportation to towns in our sample, and the bus intensity as of 2014. Figure 2a does not exhibit a correlation between the percent of males aged 18-30 who reported reported working and both bus intensity variables or the percent of women aged 18-27 who reported working and the college bus intensity. According to Figure 2b, the share of females who were studying in 2007 is not correlated with both 2014 bus intensity variables, and the share of males studying in 2007 is not correlated with the intensity of all buses as of 2014.

Despite the reassuring evidence presented in Figure 2 of no observed correlation between town characteristics in 2007 and bus intensity as of 2014, our main identification assumption does not rely on assuming

Figure 2: Relationship between Work/Study 2007 Outcomes and 2014 Bus Intensity

(a) Fraction that Worked Last Week in 2007 Survey

(b) Fraction that is Currently Studying in 2007 Survey



Notes: The sample of towns is limited to those in our sample and observed in the 2007 Arab Survey. Fractions reported are for the population of 18-30 year old males and 18-27 year old females. All bus intensity measures are the frequency of daily bus lines serving the town divided by the town population in thousands.

random assignment of bus line routes or destinations. Rather, our identification relies on the randomness of the *timing* that we observe individuals and the degree of bus penetration that they are are exposed to at this exact time. This exploits two random factors: first, the randomness of the exact timing bus lines are introduced or their frequency is altered in Israel; second, the randomness of the exact interview date of the individuals in our sample.

All bus lines in Israel need to be approved by the MOT public transportation planning office, after which follows a long process for issuing tenders for operators and finally getting the bus lines to run. Even if a license has already been granted for the operation of a specific bus line, changes in bus line frequencies or routes - whether initiated by the operator, the local authority, the MOT itself, or anyone else - also require approval by the MOT. This relatively prolonged bureaucratic process generates randomness in the timing of the bus line introductions and their changes in frequencies.[10]

Our Arab Survey data include the exact interview date for most individuals. For the majority of towns in the sample, the interview dates for each year span over several months, sometimes even over most of the year.[11] We assume that the timing of the interview is not correlated with our outcomes of interest or anything related to our outcomes of interest. Table 5 in the Appendix lists for each town-year observation the number of days that span between the first interview in the sample and the last interview in the sample.[12] As can be seen, this time span is often quite large.

[10]One example is the introduction of bus lines to Beduin communities in Southern Israel. The MOT announced its plan to introduce public transportation networks to three Beduin communities in Southern Israel in July 2007 - Rahat, Laqiye and Hura. In practice, Hura was introduced its first bus line in the beginning of 2008, Rahat in the middle of 2009, and Laqiye at the end of 2010.

[11]For 56 town-year combinations - out of 138 - the interview dates spanned more than 90 days.

[12]The time span provided is for male and female sample combined, although regressions are run separately by gender.

5 Results

5.1 Summary Statistics

We begin by presenting summary statistics of our data. Our regressions are limited to males aged 18-30 and females aged 18-27 in the Arab Survey.

Table 1 shows that there are significant differences between the men and women in our sample. Women participate much less in the labor market, are much more likely to be married, though they are hardly household heads. Women, however, are more likely to be studying in higher education institutions than men, and this is consistent with evidence on gender gaps in favor of females in educational attainment among disadvantaged populations (Autor et al. (2019)) and even among the Israeli Arab population, although primarily in STEM fields (Friedman-Sokuler and Justman (2019)).

In terms of differences based on treatment status, this is also very apparent in Table 1. Individuals from treated towns are less likely to be from the lowest socioeconomically ranked towns. Probably due to this, they are less likely to be married, the males are less likely to be household heads, and they are more likely to be in larger households because they are still residing with their parents. We assume that the town fixed effects in our regression analysis will alleviate much of the concern due to these substantial differences between treatment and control groups. As detailed in Section 4.1, our regression results stem primarily from differences within towns, as their public transportation penetration rates vary over time.

5.2 Regression Results

We present results for our main specification - equation (1) - which differentiates between the effect of buses that are destined to higher education institutions and buses that are not destined to higher education institutions in Table 2.

The top panel of Table 2 suggests that the young adult male population increases its labor force participation measures - probability of working and monthly salary - in response to buses that do not connect with higher education institutions. However, when assessing the effect of buses that do connect to higher education institutions, the probability of working and the usual weekly work hours decrease and the monthly salary no longer increases. In terms of the probability of studying, while we do not observe a decrease in this in response to buses that do not connect to higher education institutions, we do observe a marginally statistically significant increase in the probability of studying in response to buses that do connect to a higher education institutions (p-value is 0.15).

In contrast to the male young adult population, for the females no statistically significant responses are observed as a result of additional buses - whether connecting to higher education institutions or not.

Table 1: Summary Statistics

Variable	Treated - Public Transportation Penetration		Not Treated - No Public Transportation Penetration		Male P-Value for Difference based on Treatment	Female P-Value for Difference based on Treatment
	Males	Females	Males	Females		
Observations	2239	1705	511	349		
Worked Last Week	0.612	0.217	0.694	0.108	0.001	0.000
	(0.487)	(0.413)	(0.461)	(0.310)		
Currently Studying	0.160	0.265	0.077	0.144	0.000	0.000
	(0.367)	(0.442)	(0.267)	(0.352)		
Usual Work Hours	23.83	6.70	28.31	3.17	0.000	0.000
	(23.80)	(14.85)	(24.62)	(10.77)		
Usual Work Hours	45.20	34.57	47.40	35.68	0.001	0.654
Conditional on Non-Zero	(10.41)	(13.20)	(10.40)	(12.15)		
Monthly Salary	2014.5	616.4	2358.6	295.9	0.013	0.000
	(2871.5)	(1492.7)	(2605.7)	(1093.2)		
Monthly Salary	4366.3	3194.3	4398.7	3442.2	0.855	0.475
Conditional on Non-Zero	(2757.3)	(1820.9)	(1917.6)	(1771.4)		
All Bus Intensity	1.412	1.405	0.000	0.000	N/A	N/A
	(2.794)	(2.879)				
All Bus Intensity	3.972	4.263	0.000	0.000	N/A	N/A
Conditional on Non-Zero	(3.434)	(3.602)				
College Bus Intensity	0.445	0.450	N/A	N/A	N/A	N/A
	(1.153)	(1.214)				
College Bus Intensity	2.091	2.172	N/A	N/A	N/A	N/A
Conditional on Non-Zero	(1.674)	(1.839)				
Age	23.217	21.958	23.906	22.539	0.000	0.001
	(3.709)	(2.864)	(3.697)	(2.888)		
Married	0.200	0.352	0.356	0.544	0.000	0.000
	(0.400)	(0.478)	(0.479)	(0.499)		
Household Head	0.197	0.005	0.346	0.006	0.000	0.800
	(0.398)	(0.068)	(0.476)	(0.076)		
Son/Daughter of HH Head	0.791	0.634	0.648	0.433	0.000	0.000
	(0.407)	(0.482)	(0.478)	(0.496)		
Num of HH Members	3.342	3.317	3.012	3.163	0.000	0.088
	(1.669)	(1.451)	(1.933)	(1.855)		
Lowest Socioeconomic	0.524	0.550	0.661	0.673	0.000	0.000
Rank	(0.500)	(0.498)	(0.474)	(0.470)		
Interview Month	6.723	6.952	6.250	5.905	0.000	0.000
	(2.771)	(2.763)	(2.590)	(2.535)		

Notes: The sample is males aged 18-30 and females aged 18-27. Standard deviations are in parenthesis. All bus intensity and college bus intensity refers to the weekday frequency of buses serving the town for each 1000 town residents. The last two columns are p-values for t-tests of the difference within the male or female population based on treatment status with treatment being defined as penetration of any buses during the sample period (by the end of 2014). The sample for the summary statistics is from the regression with monthly salary as the dependent variable - the regressions with the largest number of observations.

This may suggest that the barriers for females to increase their labor force participation or attain higher education are not just in terms of physical accessibility, but rather also possibly to a large extent cultural.

Quantitatively, for the male population, there is an increase of 3 percentage points in the probability of working for each bus serving the town per 1000 residents. The mean bus intensity among treated towns is 3.97 (see Table 1) - thus we observe a mean increase of a little less than 12 percentage points in response to bus penetration, which is slightly less than 20 percent of the mean. In response to buses destined to higher education institutions, males decrease the probability of working by 5.76 percentage points for each bus serving their town per 1000 residents. The mean college bus intensity among treated towns with college buses is 2.09, so the mean increase is a little over 12 percentage points, roughly 20 percent of the mean. At the intensive margin, hours work do not appear to change significantly in response to non-college buses, but in response to each college bus per 1000 residents there is a decrease of 5.23 weekly hours, which implies a mean increase that is 44 percent of the mean. Males' monthly salaries increase by 164.3 NIS in response to each non-college bus per 1000 residents, so the mean increase is 31 percent of the mean monthly salary. Lastly, the probability of studying increases by an imprecise 4.5 percentage points for each college bus per 1000 residents, which implies a mean increase of 62 percent increase from the mean probability of studying - however, the high imprecision of this estimate may have caused it to be inflated.

We next proceed to examine whether the effects observed in Table 2 for males differs based on the individual's town socioeconomic ranking and whether behind the null effects for females in Table 2 there are significant effects for individuals from higher or lower socioeconomically ranked towns. Table 3 presents results from equation (2) for our four dependent variables. At the bottom of each panel, p-values for tests of significant effects of non-college or college buses on individuals from lower or higher socioeconomically ranked towns are presented.

For males, Table 3 shows us that the effects found in Table 2 are primarily driven by individuals from the lowest socioeconomic rank. The three work variable regressions produce almost entirely statistically significant increases in response to non-college buses and statistically significant decreases in response to college buses. For studying, a large and statistically significant increase in the probability of studying is observed for individuals from the lowest socioeconomically ranked towns. In contrast to this, the p-values for the effects of both non-college buses and college buses for individuals from the higher socioeconomically ranked towns are all not statistically significant, with the exception of a statistically significant increase in salaries in response to non-college buses.

Table 3 shows statistically significant responses to college and non-college buses among females from higher socioeconomically ranked towns. The probability of working in response to each non-college bus per 1000 residents increases by 8.9 percentage points but decreases by 13.1 percentage points in response to each college bus per 1000 residents. At the intensive margin (hours worked) no significant effect is found but for monthly salaries for females from higher socioeconomically ranked towns. Females in higher socioeconomically ranked towns are also earning more in response to non-college buses and less in response

Table 2: Public Transportation Penetration - Differential Effect for Buses destined to Higher Education Institutions

Dependent Variable	Worked Last Week		Usual Weekly Hours Worked		Monthly Salary		Currently Studying	
				Males - Ages 18-30				
All Bus Intensity	0.0334***	0.0301**	0.466	0.814	194.0***	164.3**	-0.0116	-0.00515
	(0.0112)	(0.0126)	(0.701)	(0.823)	(66.32)	(73.95)	(0.0105)	(0.0154)
College Bus Intensity	-0.0818**	-0.0877***	-5.006**	-6.047***	-378.3	-374.8	0.0492	0.0452
	(0.0332)	(0.0302)	(2.231)	(2.148)	(239.3)	(237.5)	(0.0356)	(0.0363)
Number of Observations	2,710	2,710	2,723	2,723	2,750	2,750	2,729	2,729
R^2	0.099	0.211	0.176	0.277	0.097	0.175	0.083	0.135
Mean Dependent Variable	0.627	0.627	24.66	24.66	2078	2078	0.145	0.145
P-Value for Overall College Bus Effect	0.0495	0.00437	0.0121	0.00106	0.379	0.260	0.224	0.150
				Females - Ages 18-27				
All Bus Intensity	0.0221	0.0124	0.629	0.419	29.04	3.710	0.0166	0.0148
	(0.0174)	(0.0194)	(0.455)	(0.499)	(87.33)	(81.98)	(0.0135)	(0.0128)
College Bus Intensity	-0.0494	-0.0276	-2.144	-1.642	38.94	106.9	-0.0185	-0.0150
	(0.0430)	(0.0510)	(1.333)	(1.396)	(154.2)	(172.6)	(0.0403)	(0.0325)
Number of Observations	2,028	2,028	2,051	2,051	2,054	2,054	2,043	2,043
R^2	0.111	0.184	0.105	0.157	0.124	0.203	0.108	0.196
Mean Dependent Variable	0.199	0.199	6.102	6.102	561.9	561.9	0.245	0.245
P-Value for Overall College Bus Effect	0.393	0.680	0.141	0.244	0.527	0.362	0.953	0.995
Town, Year Fixed Effects	✓	✓	✓	✓	✓	✓	✓	✓
Linear Time Trends	✓	✓	✓	✓	✓	✓	✓	✓
Individual Controls		✓		✓		✓		✓

Notes: Each column in each panel (males vs. females) presents the coefficient estimate for α_1 and α_2 from equation (1). Control variables are the following: indicators for each marital status, quadratic function of age, indicators for relation to household head, indicators for month of interview, number of household members. P-Value for Overall College Bus Effect represents the two-sided test p-value for the sum of the two coefficient estimates presented - $\alpha_1 + \alpha_2$ from equation (1). Standard errors clustered at the town level are in parenthesis. *** p<0.01, ** p<0.05, * p<0.1

Table 3: Public Transportation Penetration - Differential Effect based on Bus Destination and Town's Socioeconomic Ranking

	Males				Females			
Dependent Variable	Worked Last Week	Usual Hours Worked	Monthly Salary	Currently Studying	Worked Last Week	Usual Hours Worked	Monthly Salary	Currently Studying
All Bus Intensity	0.0277**	1.634**	137.1	0.00175	-0.00392	0.496	-94.30*	0.0202**
	(0.0130)	(0.753)	(92.23)	(0.0142)	(0.0143)	(0.587)	(48.28)	(0.00962)
College Bus Intensity	-0.0899***	-8.600***	-455.3*	0.0668**	0.00484	-2.202	219.8	-0.0230
	(0.0293)	(1.786)	(258.2)	(0.0280)	(0.0474)	(1.591)	(158.8)	(0.0257)
All Bus Intensity*Higher Socio	0.00732	-3.153*	73.51	-0.0182	0.0928***	-0.503	545.6***	-0.0298
	(0.0278)	(1.804)	(136.3)	(0.0228)	(0.0341)	(0.999)	(87.83)	(0.0381)
College Bus Intensity*Higher Socio	0.00862	10.75**	330.0	-0.0907	-0.225**	2.701	-1,024***	0.0628
	(0.0702)	(5.025)	(440.7)	(0.0594)	(0.0896)	(2.775)	(245.6)	(0.126)
Number of Observations	2,710	2,723	2,750	2,729	2,028	2,051	2,054	2,043
R^2	0.211	0.279	0.176	0.140	0.188	0.158	0.213	0.196
Mean Dependent Variable	0.627	24.66	2078	0.145	0.199	6.102	561.9	0.245
P-Value for College Bus Effect - Lowest Socio	0.00205	5.50e-07	0.115	0.000280	0.980	0.143	0.321	0.888
P-Value for All Bus Effect - Higher Socio	0.202	0.355	0.0928	0.448	0.00642	0.992	3.12e-07	0.806
P-Value for College Bus Effect - Higher Socio	0.285	0.850	0.782	0.283	0.0146	0.794	0.00439	0.738
Town, Year Fixed Effects	✓	✓	✓	✓	✓	✓	✓	✓
Linear Time Trends	✓	✓	✓	✓	✓	✓	✓	✓
Individual Controls	✓	✓	✓	✓	✓	✓	✓	✓

Notes: Each column in each panel (males vs. females) presents the coefficient estimate for β_1, β_2, β_3 and β_4 from equation (2). Control variables are the following: indicators for each marital status, quadratic function of age, indicators for relation to household head, indicators for month of interview, number of household members. P-Value for College Bus Effect - Lowest Socio represents the two-sided test p-value for the sum of the two coefficient estimates presented - $\beta_1 + \beta_2$ from equation (2). P-Value for All Bus Effect - Higher Socio represents the two-sided test p-value for the sum $\beta_1 + \beta_3$ from equation (2). P-Value for College Bus Effect - Higher Socio represents the two-sided test p-value for the sum $\beta_1 + \beta_{2+}\beta_3 + \beta_4$ from equation (2). Standard errors clustered at the town level are in parenthesis. *** p<0.01, ** p<0.05, * p<0.1

to college buses. Despite these results, which are consistent with the tradeoff between work and education in response to greater access to work and/or education opportunities, we still do not observe any statistically significant responses among females in terms of the probability of currently studying - not even for females from higher socioeconomically ranked towns. For females from the lowest socioeconomically ranked towns we have two results that are not consistent with the tradeoff between work and investing in education - they appear to be earning less and studying more in response to non-college buses.

6 Robustness Checks

6.1 Older Adult Population

Evidence of the tradeoff between work and educational attainment should only be relevant for the young adult population and not for the older adult population. We therefore ran the same regressions in equations (1) and (2) on all individuals aged 35-50 from our sample of 58 towns. Our dependent variables were the same work-related dependent variables as in the main analysis - whether the individual worked last week, usual weekly hours worked, and monthly salary. We also ran regressions with years of schooling as the dependent variable, which allows us to examine whether public transportation penetration is correlated with pre-determined town characteristics.

The results of these regressions are presented in Table 4. Increases in the work-related dependent variables in response to public transportation measures make sense, considering that public transportation penetration can also increase labor force participation among the older adult population, in addition to its effect on the younger adult population. However, decreases in labor force participation in response to public transportation measures would be difficult to explain, as this population should not face a tradeoff between work and investing in higher education. Indeed, most of the effects of public transportation penetration that are observed in Table 4 are either null or positive. The differential effect for college buses on male salaries in higher socioeconomically ranked towns is negative but this is only offsetting a positive effect of non-college buses and the overall effect of college buses on salaries for males from higher socioeconomically ranked towns is not statistically significant. The only negative effects observed are decreases in weekly hours worked for males from the lowest socioeconomically ranked towns in response to college buses and for low socioeconomically ranked females' probability of working last week in response to non-college buses. While ideally, our robustness check would have no negative effects, it is still plausible that these results are by chance out of 36 effects observed among the work dependent variables.

For the years schooling dependent variable in Table 4, it appears that there is a correlation between some of the public transportation measures and the older adult population years schooling. College bus line in the lowest socioeconomically ranked towns are correlated with males having more years of schooling and non-college bus lines in the higher socioeconomically ranked towns are positively correlated with males' years of schooling. For females the correlations are positive for the lowest socioeconomically ranked towns and college bus lines and for higher socioeconomically ranked towns and non-college bus lines, but negative for the higher socioeconomically ranked towns and the college bus lines. These correlations confirm what was already discussed in Section 4.1 concerning the identification strategy - it seems rather plausible that bus lines are not randomly assigned. Given that our identification relies more heavily on the randomness of the timing of interviews and the randomness of the introduction of bus lines and changes in their schedule, the results of the last column of Table 4 are worth noting but should not pose a threat to the identification strategy.

7 Conclusions

This study presents empirical evidence of the tradeoff between time allocated to work and time allocated to higher education for an economically and socioeconomically disadvantaged young adult population. Our empirical strategy exploits the introduction of bus lines that connect residents of Arab towns in Israel to work opportunities but do not provide access to higher education institutions and the introduction of bus lines that connect Arab towns to both work opportunities and higher education institutions.

We show that when work opportunities become more accessible without increased access to higher education, the male young adult population positively responds in terms of labor market outcomes. When

Table 4: Public Transportation Penetration and the Older Adult Population

Dependent Variable	Worked Last Week		Usual Weekly Hours Worked		Monthly Salary		Years Schooling	
				Males				
All Bus Intensity	0.0161	0.0194	1.384	2.841	198.5	-1.281	0.181	0.0635
	(0.0300)	(0.0399)	(1.726)	(2.311)	(248.6)	(208.9)	(0.124)	(0.136)
College Bus Intensity	0.0110	-0.0223	-4.608	-9.602**	-191.7	116.2	0.199	0.455
	(0.0608)	(0.0860)	(4.199)	(4.326)	(455.1)	(441.7)	(0.425)	(0.418)
All Bus Intensity*		-0.0135		-5.624		775.1***		0.449
Higher Socio		(0.0491)		(3.385)		(256.0)		(0.313)
College Bus Intensity*		0.116		19.37**		-1,445*		-1.086
Higher Socio		(0.102)		(9.199)		(798.8)		(0.847)
Number of Observations	1,835	1,835	1,804	1,804	1,841	1,841	1,783	1,783
R^2	0.158	0.159	0.241	0.247	0.162	0.166	0.216	0.218
Mean Dependent Variable	0.773	0.773	31.31	31.31	2930	2930	11.11	11.11
P-Value for College Bus Effect (Lowest Socio)	0.498	0.963	0.294	0.0147	0.983	0.728	0.275	0.113
P-Value for All Bus Effect · Higher Socio		0.786		0.198		0.000925		0.0992
P-Value for College Bus Effect -Higher Socio		0.00418		0.270		0.300		0.836
				Females				
All Bus Intensity	-0.0245	-0.0333**	-0.793	-0.627	-20.03	-105.7	0.170	-0.0351
	(0.0188)	(0.0162)	(0.799)	(0.860)	(100.6)	(69.87)	(0.138)	(0.162)
College Bus Intensity	0.0860**	0.0939**	1.079	0.641	283.4	365.8**	-0.0330	0.446
	(0.0363)	(0.0376)	(1.643)	(1.564)	(196.7)	(173.9)	(0.341)	(0.282)
All Bus Intensity*		0.0302		-0.630		300.7		0.744**
Higher Socio		(0.0329)		(1.597)		(196.7)		(0.286)
College Bus Intensity*		-0.0377		1.892		-400.5		-2.055***
Higher Socio		(0.0854)		(4.332)		(577.3)		(0.646)
Number of Observations	1,915	1,915	1,924	1,924	1,926	1,926	1,829	1,829
R^2	0.172	0.173	0.135	0.135	0.173	0.176	0.318	0.322
Mean Dependent Variable	0.240	0.240	6.751	6.751	778.2	778.2	9.703	9.703
P-Value for College Bus Effect (Lowest Socio)	0.00695	0.0259	0.769	0.987	0.0949	0.0570	0.597	0.0163
P-Value for All Bus Effect · Higher Socio		0.930		0.408		0.320		0.0115
P-Value for College Bus Effect -Higher Socio		0.310		0.660		0.690		0.0392
Town, Year Fixed Effects	✓	✓	✓	✓	✓	✓	✓	✓
Linear Time Trends	✓	✓	✓	✓	✓	✓	✓	✓
Individual Controls	✓	✓	✓	✓	✓	✓	✓	✓

Notes: Each column in each panel (males vs. females) presents the coefficient estimates for α_1 and α_2 from equation (1), followed by the estimates for β_1, β_2, β_3 and β_4 from equation (2) in the next column (for each dependent variable). Control variables are the following: indicators for each marital status, quadratic function of age, indicators for relation to household head, indicators for month of interview, number of household members. P-Value for College Bus Effect (Lowest Socio) represents the two-sided test p-value for the sum $\alpha_1 + \alpha_2$ from equation (1) in the first column of each dependent variable, followed by the two-sided t-test p-value for the sum $\beta_1 + \beta_2$ from equation (2) in the next column. P-Value for All Bus Effect - Higher Socio represents the two-sided test p-value for the sum $\beta_1 + \beta_3$ from equation (2). P-Value for College Bus Effect - Higher Socio represents the two-sided test p-value for the sum $\beta_1 + \beta_{2+}\beta_3 + \beta_4$ from equation (2). Standard errors clustered at the town level are in parenthesis. *** p<0.01, ** p<0.05, * p<0.1

higher education opportunities become more accessible along with work opportunities, the male young adult population decreases labor force participation and increases the probability of studying, and this is particularly for males from the most disadvantaged towns. Thus, young adult males from towns with the lowest socioeconomic ranks are choosing investment in higher education over working when both become more accessible. For the female young adult population, evidence of the tradeoff is only found for those from towns with a higher socioeconomic ranking. This may be due to traditional and cultural barriers still inhibiting the marginal females' labor force participation or educational attainment, possibly more so at the most socioeconomically disadvantaged towns.

Our study has numerous policy implications. First, we observe - at least among male young adults from highly disadvantaged communities and partially for the young adult female population - a preference to invest in higher education and forego concurrent income and earnings in the hopes of increasing lifetime earnings through investment in education. Second, our study shows that better transportation infrastructure - and in particular public transportation infrastructure - can serve as a means for decreasing disparities in education and labor outcomes between disadvantaged and more advantaged communities. However, the interplay between work and education is important to factor in when assessing programs intended to increase access to either one or both of them. Our results highlight the possibility of equilibrium implications when increasing access to either work or education opportunities to a young adult population. In particular, increased access to education opportunities can decrease labor force participation in the short-run. While our results do not present evidence that increased access to work opportunities decreases educational attainment, this should also be considered when planning greater access to work opportunities.

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Appendix

A List of Towns in the Sample

Table 5: Town List

		2004		2007		2010		2014	
Town Name	District	Days	Interviewees	Days	Interviewees	Days	Interviewees	Days	Interviewees
Abu Ghosh	Jerusalem	-	-	153	26	-	-	35	16
Iksal	North	91	27	3	48	184	16	0	27
Beit Jann	North	303	41	192	32	-	-	6	28
Julis	North	-	-	-	-	7	30	-	-
Jish(Gush Halav)	North	-	-	-	-	-	-	31	29
Daliyat Al-Karmel	Haifa	338	66	213	61	183	61	24	32
Tayibe(Baemeq)	North	-	-	-	-	-	-	33	17
Yirka	North	267	33	11	32	234	29	33	34
Kabul	North	-	-	34	29	200	41	-	-
Ein Rafa	Jerusalem	-	-	108	33	-	-	1	14
Majd Al-Kurum	North	-	-	303	12	243	62	0	15
Nahef	North	304	47	-	-	270	58	0	16
Na'Ura	North	153	34	184	36	113	24	17	27
Sajur	North	250	44	-	-	-	-	4	23
I'Billin	North	-	-	273	33	37	36	23	18
Fassuta	North	-	-	-	-	61	28	-	-
Peqi'In (Buqei'A)	North	-	-	9	33	-	-	15	22
Sha'Ab	North	93	35	275	38	49	34	-	-
Jisr Az-Zarqa	Haifa	30	40	175	28	6	11	1	24
Ein Al-Asad	North	-	-	147	35	-	-	9	28
Jaljulye	Center	351	30	-	-	1	9	11	18
Kafar Bara	Center	7	18	60	33	174	18	-	-
Kafar Qasem	Center	291	21	242	57	1	28	5	8
Muqeible	North	266	33	-	-	-	-	51	12
Ar'Ara	Haifa	182	46	212	25	64	40	-	-
Qalansawe	Center	21	20	242	45	4	46	6	20
Meiser	Haifa	-	-	-	-	141	12	6	15
Kafar Qara	Haifa	19	36	183	19	212	40	-	-
Sheikh Dannun	North	-	-	-	-	61	42	-	-
Tuba-Zangariyye	North	-	-	214	27	-	-	14	30
Ras Ali	Haifa	-	-	-	-	43	19	-	-
Tel Sheva	South	65	34	60	32	115	29	-	-
Kuseife	South	-	-	31	46	30	32	13	21
Laqye	South	-	-	24	56	-	-	93	22
Rahat	South	244	79	334	138	183	109	79	51
Ar'Ara-Banegev	South	58	47	90	54	69	29	0	21
Zemer	Center	-	-	5	25	123	26	-	-
Judeide-Maker	North	231	36	274	42	216	26	58	25
Kisra-Sumei	North	-	-	183	23	9	39	-	-
Hura	South	-	-	38	41	49	27	2	35
Demeide	North	-	-	-	-	-	-	16	17
Ein Hod	Haifa	-	-	-	-	-	-	92	34
Ma'Ale Iron	Haifa	-	-	-	-	2	19	2	20
Kamane	North	183	45	-	-	118	13	-	-
Umm Al-Fahm	Haifa	341	109	244	145	3	14	0	11
Tire	Center	308	78	273	128	5	32	23	38
Tayibe	Center	249	80	12	47	251	41	50	37
Albatil Karkur	South	-	-	-	-	1	32	-	-
Alhmira	South	-	-	-	-	-	-	2	29
Altwail	South	-	-	-	-	0	26	-	-
Algarrah	South	-	-	-	-	-	-	2	30
Almtahar	South	-	-	-	-	1	27	32	25
Beer Almshash	South	-	-	-	-	-	-	1	23
Tal Almalah	South	5	30	-	-	30	23	-	-
Rahma	South	-	-	-	-	-	-	1	27
Ateer	South	-	-	-	-	0	20	-	-
Kuhla	South	-	-	-	-	-	-	2	19
Wadi Alni'Am	South	1	27	-	-	-	-	0	3

Notes: List of towns in the sample. Days is the number of days between the first and last interview for that year in the sample. Interviewees is the number of males ages 18-30 and females ages 18-27 interviewed from that town in that year.