Draft – Comments Welcome

Natives, the Foreign-Born and High School Equivalents: New Evidence on the Returns to the GED

Melissa A. Clark
Princeton University

David A. Jaeger
College of William and Mary
IZA

July 2001

Acknowledgements: The authors thank Ann Polivka and participants of the labor lunch at Princeton University and the economics seminar at Hunter College for helpful comments.

Address: Clark: Industrial Relations Section, Firestone Library, Princeton University, Princeton, NJ 08540; email: maclark@princeton.edu. Jaeger: Department of Economics, College of William and Mary, P.O. Box 8795, Williamsburg, VA 23187; email: djaeger@wm.edu.

Abstract

In this paper we explore the labor market returns to the General Education Development exam, or GED, using data from the Current Population Survey. We examine how the return to the GED varies between natives in the U.S. and the foreign-born who received their formal education outside of the U.S. We find that the foreign-schooled with a GED earn statistically significantly higher wages than both foreign-schooled dropouts and foreign-school high school graduates. This pattern stands in contrast to natives, where GED recipients earn less than high school graduates, but more than dropouts. These effects appear to become larger over the life cycle and, by comparison to the previous literature, do not seem to be due to cohort effects. While it is difficult to attach a purely causal interpretation to these returns, they do indicate that the GED may be more valuable in the labor market, particularly to those with formal schooling obtained outside of the U.S., than some previous research suggests.

Keywords: GED, Immigration
JEL Categories:

The labor market returns to the General Educational Development exam, or GED, have been estimated to be small, casting doubt on the usefulness of GED as a credential for high school dropouts. Using a variety of data sources, this literature has typically found that GED recipients in their twenties and early thirties earn less than traditional high school graduates and are often estimated to fare little better than high school dropouts.[1] These findings are, in general, robust to the inclusion of a variety of simple controls for ability (e.g. Armed Forces Qualifying Test scores) and human capital accumulation (e.g. completed years of schooling) and cast doubt on the equivalence in the labor market of the GED and a traditional high school diploma.

There is some evidence, however, that GED recipients with relatively weak cognitive skills receive significantly higher annual earnings than observationally similar high school dropouts. Murnane, Willett, and Tyler (1999) found that individuals who performed poorly on a standardized test administered in 10^{th} grade received a significant return to the GED credential, although individuals who had higher scores did not. Tyler, Murnane, and Willet (2000) utilized differing passing standards across states as a "natural experiment" to control for ability and other unobservables. They found that the GED played a significant and positive signaling role, increasing the earnings of low-scoring white dropouts by 10 to 19 percent, although they found that there were no significant effects for non-whites.

As a U.S.-specific credential, the GED may play a particularly important role for the foreign-born. The literature suggests that the returns to credentials acquired in a migrant's destination are generally higher than those obtained in their home country. Using the Israeli Census of Population, Friedberg (2000) finds that the returns to education received abroad are lower for most immigrant groups than for persons schooled in Israel, although the returns are

[1] Cameron and Heckman (1993) use the NLSY to examine the return to the GED for men aged 25 and 28. Cao, Stromsdorfer and Weeks (1995) also use the NLSY and replicate this result for mothers aged 22 to 33. Murnane, Willett, and Tyler (1999) find similar results for 27 year old men in High School and Beyond.

higher for those emigrating from Western countries. Schoeni (1997), using the U.S. Census, finds that, in general, the returns to education for foreign-born men who received some of their education in the U.S. are higher than for those who received all of their education outside of the U.S., although the returns for both groups are lower than those for natives. Similarly, Bratsberg and Ragan (1999) find that the returns to education, whether received in the United States or the source country, are greater for immigrants who have received at least some of their education in the United States. Their general findings are robust to the inclusion of controls for English-speaking proficiency and a proxy for ability (AFQT score) and suggest that even a small amount of U.S. schooling "upgrades or validates source-country education". The GED may induce the foreign-born to acquire U.S.-specific skills and/or signal to employers that an immigrant possesses at least enough U.S.-specific skills to pass the exam. Both the GED literature and the literature on U.S. and foreign schooling suggest that the GED may have an impact on immigrants' wages.

In this paper we use new information on GED receipt from the Current Population Survey (CPS) to estimate the return to the GED for natives and for the foreign-born whose formal education was likely to have been earned outside of the U.S. We find that the relative returns to the GED are larger for the foreign-born than for natives. The foreign-born who possess a GED earn more than observationally equivalent migrants who received a traditional high school diploma outside of the U.S., who, in turn, earn more than observationally equivalent dropouts. For natives we find that white high school graduates earn statistically significantly more than GED recipients who, in turn, earn statistically significantly more than high school dropouts. For native non-Hispanic blacks and native Hispanics we find that the returns to traditional high school diplomas and GEDs are statistically indistinguishable from each other, but significantly more than high school dropouts. While it is difficult to attach a purely causal interpretation to these results, they support Tyler, Murnane, and Willett's (2000)

conclusion that the GED may play an important signaling role in the labor market. As a U.S.-specific credential, this role for the GED may be particularly important for the foreign-born whose formal education was earned outside of the U.S.

In section I, we briefly discus the theoretical motivation in examing the returns to the GED. Section II discusses the newly-available information on the GED in the CPS and our data. In Section III we present our estimates of the return to the GED, and in Section IV compare our results to those of Cameron and Heckman (1993). We find that the effect of the GED grows larger over the life cycle, and that, in comparison to Cameron and Heckman's (1999) estimates, this result does not seem to be due to cohort effects. In Section V we offer some conclusions.

I. Motivation

There are several reasons why we might expect GED holders who have completed no post-secondary education to earn higher wages than high school dropouts with the same number of years of schooling, and, in particular, why we might expect these earnings differentials to vary between U.S. natives and the foreign-born who received all their formal schooling outside the United States.

First, individuals who take the GED might acquire significant levels of human capital in preparing for the exam and consequently increase their value to employers. Most previous studies dismiss this possibility, citing the fact that the median amount of time spent preparing for the GED exam is quite low (only 30 hours in 1989). Over 24 percent of test-takers spend more than 100 hours preparing for the exam, however, and it is at least possible that they appreciably increase their skills in the process, leading to higher wages than they otherwise would have earned (Boesel, Alsalam, and Smith, 1998). It is also possible that migrants

schooled outside the United States spend significant amounts of time preparing for the exam (for example, learning English), and might, in the process, acquire meaningful levels of U.S.-relevant human capital. Depending on the degree of transferability of skills from formal education received outside the U.S., it is possible that foreign-schooled GED-holders might earn more than foreign-schooled high school graduates.

Second, the GED could operate as a signal to employers of greater productivity, allowing GED recipients to distinguish themselves from dropouts with similar years of schooling. If the GED does have a signaling effect, we might expect this effect to be more important for foreign-schooled GED-holders than for U.S. natives. As discussed earlier, there is some evidence that human capital acquired abroad is less transferable to the destination labor market than human capital acquired in the in the destination country. Additionally, while school quality is relatively similar across the United States, this quality may vary considerably from country to country, and a potential employer may be less familiar with the quality of education in other countries. For both these reasons, a recognized U.S. credential such as the GED could signal to employers that a potential employee schooled abroad does have a certain level of U.S.-relevant skill. If the GED truly serves as a signal of U.S.-specific skills, we would expect foreign-schooled GED holders to fare better in the labor market than the foreign-schooled who received a high school diploma outside the United States**.**

Ordinary least squares estimates of the returns to the GED may be biased, but direction of this bias is indeterminate. The well-known omitted variables problem (Griliches 1977, Willis 1986, among many others) may induce a correlation between wages and GED receipt that is due solely to unobserved factors like motivation or ability and not to any causal effect of the GED on earnings. The CPS lacks traditional proxies for "ability" such as test scores or parental education, and we fully acknowledge that our results may suffer from omitted variable bias. The direction of this potential bias is unclear, however. On the one hand, individuals

who obtain a GED might simply be more motivated or posses higher (unmeasured) skill than high school dropouts. On the other hand, dropouts with greater abilities might have less use for an additional credential than those who opt to take the GED. The simple inclusion of test scores in previous studies (Cameron and Heckman 1993, Cao, Stromsdorfer and Weeks 1995; and Murnane, Willett, and Tyler 1999) did not greatly alter the finding that the GED had no significant effect on earnings. On the other hand, when more sophisticated strategies to controls for ability were employed, as in Murnane, Willett, and Tyler (1999) and Tyler, Murnane, and Willett (2000), the effects of the GED on earnings were found to be positive and significant. This suggests that our inability to control for ability might bias our estimates *downward*, and that any significant evidence of returns to the GED we find might in fact understate the true returns.

II. Data

Partially in response to the GED literature, in 1997 the Current Population Survey (CPS) began to differentiate between high school graduates who received their credential via a traditional diploma and those who were certified via the GED.[2] Beginning in January 1997, individuals who reported that their highest degree received was a "high school… diploma or equivalent (GED)" were asked an additional question: whether they received this degree via graduation from high school or a "GED or other equivalent." GED recipients were also asked their highest level of education attained prior to receiving the GED. Prior to 1997, information on GED receipt was available in the CPS only from periodic supplements.

[2] Public-use data on the GED are available beginning in 1998.

One major advantage of the new data from CPS is the large sample size — our sample is more than 20 times the size of those analyzed in most previous studies.[3] In addition, the CPS began collecting information on the country of birth and citizenship status of respondents in 1994. Combined with the new information on the GED, the CPS is the only data set that we know if that permits an examination of the effects of the GED for the foreign-born. The CPS also permits the examination of a wider age range than in previous studies. We will utilize this feature of the data, combined with results from Cameron and Heckman (1993), to examine changes over the life cycle in the returns to the GED.

The primary disadvantage of the CPS relative to the data sets previously analyzed in the GED literature is that there are no data on test scores or family background, and hence no way to include controls for ability as many of the previous studies have done. As discussed above, however, the simple inclusion of test scores as a control for ability had virtually no effect on the results of previous studies. In addition, the CPS only distinguishes between traditional high school graduates and GED recipients if this degree was the highest degree attained. Among individuals who have completed some college or more, we are unable to differentiate between those who received a high school diploma and those who received a GED. While this does not bias our results, it does prevent us from exploring a separate set of interesting questions regarding the returns to the GED for individuals who go on to complete some post-secondary education.[4]

Our data are drawn from the CPS Outgoing Rotation Groups from January 1998 through May 2001.[5] Our sample comprises 67,349 individuals with positive earnings between

[3] Tyler, Murnane, and Willett (2000) is a notable exception, although their primary source of data does not include information on traditional high school graduates.

[4] See Boesel, Alsalam, and Smith (1998) for an overview of the literature on post-secondary outcomes of GED recipients.

[5] To avoid having individuals in the sample twice, we use only individuals who are in their fourth month of the survey, except for the first year, when we take individuals who were in both their fourth and eighth months.

the ages of 25 and 65 *who received a high school degree (either traditional or GED) or less*. It includes both U.S. natives and the foreign-born, and we restrict the sample of foreign born to those who entered the United States after the age of 20. This restriction allows us to examine the returns to the GED for persons who most likely completed all their formal schooling outside the U.S, a group we term the "foreign-schooled."[6]

Since 1992 the educational attainment question in the CPS has asked respondents for the highest level of school completed or degree received. For levels below 9th grade, the categories represent a range of grades. In order to obtain a linear measure of educational attainment (for use in calculating potential labor market experience and in portions of our analysis), we use the procedure outlined in Jaeger (1997), which amounts to using the midpoint of the range for each education category below 9th grade. We assign 12th grade completion to individuals who received a traditional high school degree.

Table 1 presents the distribution of high school dropouts, GED recipients, and traditional high school graduates in our data (these categories are defined to be mutually exclusive). Statistics for U.S. native men and women are displayed in the top panel, and for foreign-schooled men and women in the bottom panel. Among both native men and women, Hispanics are more likely than other groups to have dropped out of school prior to receiving a traditional high school diploma. This is even more pronounced for the foreign-schooled, among whom less than 30 percent of Hispanics have a traditional high school diploma. Among natives who drop out, however, whites are the most likely to have received a GED.[7]

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[6] We also exclude American Indians, Aleuts, and Eskimos, Alaskans and Hawaiians, individuals who completed more that a high school education, individuals whose wages were less than $1 or greater than $200 an hour, and individuals who reported they were either self-employed or worked without pay in their main job.

[7] The number of Asian native dropouts and GED recipients in our sample (26 men and 33 women) is too small on which to base any reliable conclusions.

The GED accounts for a somewhat larger portion of high school credentials among native Hispanics than among other groups.

GED receipt is much less prevalent among the foreign-schooled than among natives. Overall less than four percent of the foreign-schooled male and female dropouts posses a GED, compared to 26 to 28 percent for natives. There is some variation across race/ethnicity groups, however, with black, non-Hispanic dropouts being most likely to go on to receive a GED. Foreign-born Hispanic dropouts are substantially less likely than other race/ethnicity groups to earn a GED.

These differences across race/ethnicity groups in the likelihood of receiving a GED are reflected in the distribution of educational attainment by region of national origin shown in Table 2.[8] Africans have a higher overall level of educational attainment than other groups, and are more likely to have received a GED. Mexicans have by far the lowest level of education among regional groups, and Mexican dropouts are the least likely to earn a GED in the U.S. Mexicans with a high school credential, however, are as or more likely than most other groups to have earned that credential via the GED. While migrants to the U.S. are more likely to speak English than their non-migrating country-folk, foreign-born dropouts who come from countries where English is the primary language spoken or where English is one of the official languages are substantially more likely to have received a GED than migrants from other areas.[9] Those born in English-speaking countries are also more likely to have received their high school credential in the form of a GED.

[8] Because of the relatively small number of foreign-born GED recipients in our sample, we are not able use a finer level of geographical detail.

[9] Note that unlike the decennial Census, the CPS does not ask respondents about the language spoken in their home. Categories of the country of origin variable in the CPS that where English is the primary or official language are where English is the primary or official language are American Samoa, Australia, the Bahamas, Belize, Bermuda, the Caribbean, Dominica, Fiji, Ghana, Great Britain, England, Guyana, India, Ireland/Eire, Jamaica, New Zealand, Nigeria, Northern Ireland, Pakistan, the Philippines, Puerto Rico, Scotland, South Africa, Trinidad and Tobago, and the U.S. Virgin Islands. Individuals born in Canada are excluded from the analysis because Canada also offers the GED.

As shown in Table 3, recent migrants are less likely to possess a traditional high school degree. They are also somewhat less likely to have received a GED. Part of this effect is likely because earlier foreign-born cohorts have had a longer time in the U.S. to earn a GED, although the share of the foreign-born that earned their high school credential via the GED is not monotonically increasing with time in the U.S. Rising skill premia and returns to educational credentials during the 1980s may have induced the cohort that entered during the 1970s to earn a GED. Unfortunately, the CPS does not include information about when respondents earned their degrees.

While the GED is recognized as a high school equivalent, the amount of formal schooling that GED recipients have is usually somewhat less than the usual twelve years that it takes to complete a traditional high school degree. In Table 4 we present the distribution of formal educational attainment for GED recipients and dropouts for natives and the foreign-schooled. The table shows that for all groups, GED recipients complete, on average, about ten years of schooling.[10] Compared to natives, however, the foreign-schooled report much more often having completed 12th grade without earning a diploma, and are less likely to report completing 10th or 11th grade. It is possible, therefore, that some immigrants who possess a traditional high school degree earned outside of the U.S. may acquire the GED. We do not model the GED acquisition decision directly and acknowledge that immigrants who receive the GED may differ from those who do not in unobserved ways.

[10] Years of schooling are inputed to the categorical primary CPS education question using the scheme proposed to Jaeger (1997).

IV. Returns to the GED

We turn now to our estimates of the wage returns to the GED. In Table 5 we present results of regressions of log hourly wages on schooling, estimated separately for natives and for the foreign- schooled.[11] Because dropping out, receiving a GED, or receiving a traditional high school diploma is very likely to be correlated with a variety of background characteristics that also affect earnings, we include a broad set of control variables in the regressions. For all individuals, we include quadratic in potential labor market experience (defined as age - imputed years of schooling - 6), and dummy variables for central city residence, 8 geographic regions, dummy variables for each of the month × year of survey response, black, Hispanic, Asian, and parents' region of origin (the U.S. is the ommited category). Regressions for the foreign-schooled also include dummy variables for U.S. citizenship, having been born in an English-speaking country, world region of birth, entry cohort and a quadratic in years since arrival in the U.S.[12]

The top panel presents results of a regression of log wages on a dummy variable indicating GED receipt, a dummy variable representing high school graduation. The coefficients therefore represent the conditional mean of log wages of GED and traditional high school relative to high school dropouts. Native men with a GED earn approximately 7.5 percent less than those with a high school diploma, and native women with a GED earn approximately 8.9 percent less than their counterparts with a traditional high school diploma. [13] This difference varies across race groups, and is substantially larger for Hispanics than for

[11] Individuals in the outgoing rotation data can give their earnings or wages in a variety of ways. To calculate hourly wages, we follow the algorithm outlined in Appendix B of Polivka (1997).

[12] For confidentiality reasons, entry cohorts are identified in the CPS with bracketed ranges. We calculate years since arrival in the U.S. are calculated as year of survey – (midpoint of bracket of date of arrival).

[13] Marginal percentage changes are calculated as exp(b)-1, where b is the estimated coefficient.

either whites or blacks.[14] The conditional mean earnings of blacks with a GED, while smaller, are not statistically significantly different than those with a traditional high school diploma.

For immigrants, the pattern of relative returns to the GED and a traditional high school diploma is reversed: wages of the foreign-schooled with a GED are statistically significantly larger than those with a traditional high school diploma earned outside of the U.S. Remarkably, the magnitudes of the effects are also essentially reversed as well, i.e. the relative return to the GED for the foreign schooled is roughly the same as for a traditional high school diploma for natives, and vice versa. The relative premium ranges from six percent for women to twelve percent for men, although it is only statistically significantly different from zero for men. This suggests that the U.S. labor market rewards the GED at least as much as a high school diploma earned elsewhere.

As shown in Table 4, there is substantial variation across groups in the amount of formal schooling obtained by dropouts and GED recipients prior to receiving the GED. Because foreign-schooled dropouts have substantially less education than those who receive a GED, part of the difference in conditional mean wages between these groups may simply be due to differences in formal schooling levels. The bottom panel of Table 5 presents to the log wage regressions from the top panel, with the addition of dummy variables for years of schooling completed.[15] This specification is similar to that of Jaeger and Page (1996), where the coefficients on the indicators for GED receipt and high school diploma receipt can be interpreted as "sheepskin" effects.

[14] There are too few native Asians to estimate a separate regression for them. Asians are included in the "all native" columns.

[15] We include dummy variables for all levels in the CPS education question (0, 1–4, 5–8, 9, 10, and 11), but report only the results for grades 9, 10, and 11 in the table. The full results of the estimation are available from the authors by request. Traditional high school degree recipients are assumed to have 12 years of schooling. The reference category is individuals who reported completing 12 years of schooling without receiving a diploma.

For natives, controlling for formal schooling still yields positive and statistically significant effects of receiving both the GED and a traditional high school diploma, although the magnitudes are somewhat smaller than in the top panel. When we pool all race groups, the traditional high school diploma-GED difference falls by more than half, to around three percent, and is statistically not significantly different from zero for women. The difference is negative for blacks, although not significantly different from zero, while controlling for formal schooling increases the relative return a traditional high school degree for Hispanic women by forty percent (four percentage points). The return to the GED and a traditional high school diploma declines less for the foreign-schooled than for natives when we control for formal schooling. Moreover, the traditional high school degree – GED difference increases by one to two percentage points, and remains statistically significantly different from zero for foreign-schooled men.

Taken as a whole, these results suggest that wages of GED recipients are closer to those of traditional high school recipients than to dropouts. They stand in contrast to Cameron and Heckman (1993) and Cao, Stromsdorfer, and Weeks (1997), who find no statistically significant sheepskin effects of the GED for men or women, respectively. Our results are closer to the findings of Tyler, Murnane, and Willet (2000) and Murnane, Willet, and Tyler (1999), who found positive and significant effects of the GED of roughly the same magnitude in log annual earnings regressions after controlling for ability differences.

While the results, particularly for the foreign-schooled, are suggestive that earning a GED may be a path towards higher earnings, there are also a variety of reasons to be cautious in our conclusions. As is usually the case with estimating the returns to education via OLS, omitted variables and/or measurement error may bias our estimates. This may be particularly true for the foreign schooled, where there are a variety of unmeasured characteristics (in particular English language ability) that may be (positively) correlated both with earnings and

with the propensity to receive a GED.[16] As noted by Kane and Rouse (1999) and Kane, Rouse, and Staiger (1999), if completed years of schooling are measured with more error than degree completion, OLS estimates of "sheepskin" effects will overstate the true value of degree completion. It is also possible that, given global differences in educational systems, traditional high school completion may be measured with more error than GED receipt for the foreign-born, which could induce the "inversion" we observed in the estimated relative returns.

IV. Reconciling Our Findings with Previous OLS Results

Our finding of a positive and significant sheepskin effect of the GED is at odds with other OLS estimates in the literature (e.g. Cameron and Heckman 1993, henceforth CH, and Cao, Stromsdorfter and Weeks 1997, henceforth CSW), and more similar to those of Tyler, Murnane, and Willett (2000) who were able to more fully control for unobserved ability than we are. *Ex ante*, we would have expected our results to be closer to CH and CSW than to Tyler, Murnane, and Willett (1997).

There are several possible explanations of why our results are so different from those of CH and CSW. First, our sample consists of individuals aged 25 to 65, while those of the previous studies consisted of individuals under the age of 28. If we think that the effects of the GED might grow in significance over the life cycle, then our results, which reflect the average effect of the GED for individuals between the ages of 25 and 64, should exceed the results of previous studies. Second, the low returns to the GED observed by CH and CSW may have been specific to the cohort that they examined.

[16] Of course, the highest-ability migrants might find it unnecessary to earn a GED or might already possess a traditional high school diploma, which would bias our estimates of the relative return to the GED downward.

To explore these issues, in Table 6 we present estimates from models similar to CH of the estimated effects of the GED and high school diploma receipt. In the top panel we include dummy variables for race/Hispanic origin and the year in which the survey was fielded; in the bottom panel we add dummy variables for years of education completed. The first two columns present results for men who were twenty-five years old at the time of the survey (1998–2001 for our results in the CPS, and 1982–87 for CH's results). The second two columns present results for men who were 28 years old at the time of the survey. While our samples are smaller, the results are similar for both age groups, particular the 28 year olds. As shown in the top panel, when there are no controls for years of education, both studies find the high school diploma receipt gives a statistically significant return of 12 to 19 percent over dropouts. Both studies find that the GED yields a return that is never statistically significantly different from zero.

The last two columns of Table 6 show estimates of the same model for the birth cohorts that CH examined, i.e. men who were 25 or 28 years old in 1982–87. For both groups, we find substantially higher returns to the GED and high school diploma receipt than CH, with the returns to the GED recipients falling more than halfway between those for dropouts and high school graduates. As displayed in the bottom panel, these findings hold as well for the sheepskin effects for both degrees. Taken together, these results suggest that there may be substantial effects of holding a GED that are not manifest early in the life cycle.

Another possible explanation for the differences between our findings and CH is simply the fact that our data are from a different time period than previous studies. It is well known that the returns to skill, and education in particular, have increased since the early 1980s. While this trend has apparently slowed somewhat during the 1990s (Murphy and Welch 1999), differences in the returns to skill could partially explain differences between studies.

V. Conclusion

We conclude from these results that, for U.S. natives, while the GED may not yield wages that are equivalent to those of traditional high school graduates, GED recipients do appear to earn more than observationally similar dropouts. For individuals who received their formal schooling outside the United States, holding a U.S. credential (the GED) seems to lead to substantially higher wages than even a traditional high school diploma earned outside the U.S. These results are robust to controlling for years of schooling as well, indicating that a fair portion of the return to the GED and a traditional high school diploma may be due to "sheepskin" effects. While Tyler, Murnane, and Willett (2000), exploiting a natural experiment that allows them to control for unobserved differences between dropouts and GED recipients, present findings that are similar to ours, we are cautious about attaching a purely causal interpretation to our results.

We also find that the returns to the GED appear to increase with age. When examining the same cohorts as Cameron and Heckman (1993) (who found little evidence for significant returns to the GED) 11 to 19 years after the data used in their study, we find large and statistically significant returns to the GED. While GED recipients' wages are not "equivalent" to traditional high school degree recipients later in life, neither are their wages the same as high school dropouts. We find that this is true even when we control for years of schooling.

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Table 1
Educational Attainment of Individuals with High School Diploma or Less

	Men					Women				
Education Group	**All**	**White Non-Hispanic**	**Black Non-Hispanic**	**Hispanic**	**Asian**	**All**	**White Non-Hispanic**	**Black Non-Hispanic**	**Hispanic**	**Asian**
					Natives					
Dropouts	.231	.210	.293	.368	.127	.214	.180	.313	.390	.206
GED recipients	.088	.091	.067	.101	.074	.074	.076	.061	.096	.030
High school graduates	.681	.698	.640	.531	.798	.712	.743	.626	.514	.765
GED Share of Dropouts+GED	.275	.302	.186	.215	.369	.258	.297	.162	.198	.126
GED Share of HS+GED	.114	.115	.095	.160	.085	.095	.093	.088	.157	.037
Share of Natives	.485	.383	.076	.025	.001	.515	.399	.088	.027	.001
Sample size	61,173	50,549	7,857	2,636	131	66,797	53,626	10,026	3,005	140
					Foreign-Born, Schooled Outside U.S.					
Dropouts	.567	.310	.388	.715	.381	.556	.301	.378	.724	.423
GED recipients	.020	.028	.050	.015	.014	.019	.025	.048	.012	.022
High school graduates	.413	.662	.563	.270	.606	.425	.673	.573	.264	.556
GED Share of Dropouts+GED	.034	.082	.114	.021	.035	.033	.078	.113	.016	.048
GED Share of HS+GED	.046	.040	.081	.053	.022	.043	.036	.078	.042	.037
Share of Foreign-Born	.465	.071	.040	.274	.080	.535	.086	.045	.279	.125
Sample size	6,176	1,091	530	3,462	1,093	7,373	1,340	643	3,683	1,707

Source: Calculations using weighted CPS Outgoing Rotation Groups from January 1998-May 2001.
Note: Foreign-born exclude those who entered the U.S. before the age of 20.

Table 2
Educational Distribution of Foreign-Schooled with a High School Diploma or Less
by Region of National Origin

Region of national origin	Dropouts	GED recipients	High school graduates	GED share of dropouts + GED	GED share of high school+GED	Region as share of foreign-born HS and under population	*Sample size*
Africa	.178	.055	.768	.237	.067	.017	224
Europe	.282	.031	.688	.098	.043	.108	1,663
Oceania	.391	.028	.581	.066	.046	.028	394
Central America	.582	.026	.392	.043	.062	.230	3,103
South America	.339	.023	.638	.065	.035	.065	884
Asia	.406	.016	.579	.037	.026	.218	3,024
Mexico	.814	.011	.175	.013	.060	.335	4,257
English-speaking country	.303	.040	.658	.116	.057	.110	1,509
Non-English-speaking country	.593	.017	.390	.028	.042	.890	12,040
Sample size	7,468	268	5,813	7,736	6,081	13,549	13,549

Source: Calculations using weighted CPS Outgoing Rotation Groups from January 1998-May 2001.
Note: Foreign-schooled are foreign-born who entered the U.S. after the age of 20. English-speaking countries include American Samoa, Australia, Bahamas, Belize, Bermuda, Caribbean, Dominica, Fiji, Ghana, Great Britain, England, Guyana, India, Ireland/Eire, Jamaica, New Zealand, Nigeria, Northern Ireland, Pakistan, Philipines, Puerto Rico, Scotland, South Africa, Trinidad & Tobago, and the U.S. Virgin Islands (immigrants from Canada are excluded from this analysis).

Table 3
Educational Distribution of Foreign-Schooled with a High School Diploma or Less
by Cohort of Entry to US

Cohort of entry	Dropouts	GED recipients	High school graduates	GED share of dropouts + GED	GED share of high school+GED	Cohort as share of foreign-born HS and under population	*Sample size*
pre-1970	.522	.025	.453	.046	.053	.058	806
1970-1979	.607	.029	.365	.046	.074	.148	2041
1980-1989	.579	.018	.403	.030	.043	.363	4852
1990-2001	.536	.017	.448	.030	.036	.431	5850
Sample size	7,468	268	5,813	7,736	6,081	13,549	13,549

Source: Calculations using weighted CPS Outgoing Rotation Groups from January 1998-May 2001.
Note: Foreign-schooled are foreign-born who entered the U.S. after the age of 20.

Table 4

Highest Grade Completed by High School Dropouts and GED Recipients

Education level	Men		Women	
	Dropout	GED	Dropout	GED
		Natives		
Less than 1st grade	.014	.017	.012	.015
1st-4th grade	.023	.001	.018	.001
5th-6th grade	.044	.006	.035	.005
7th-8th grade	.158	.058	.146	.065
9th grade	.146	.113	.142	.129
10th grade	.237	.273	.253	.307
11th grade	.274	.379	.297	.360
12th grade, no diploma	.103	.154	.098	.119
Mean years of schooling	9.4	10.2	9.6	10.1
Sample size	13,791	5,410	13,790	5,017
		Foreign-Born, Schooled Outside U.S.		
Less than 1st grade	.070	.042	.072	.006
1st-4th grade	.154	.007	.166	.017
5th-6th grade	.303	.018	.316	.037
7th-8th grade	.151	.071	.148	.078
9th grade	.125	.065	.116	.092
10th grade	.076	.145	.068	.139
11th grade	.055	.169	.048	.179
12th grade, no diploma	.066	.483	.066	.451
Mean years of schooling	6.5	10.3	6.3	10.4
Sample size	3,450	123	4,018	145

Source: Calculations using weighted CPS Outgoing Rotation Groups from January 1998-May 2001.

Notes:

1. Mean years of schooling are imputed following Jaeger (1997).
2. Foreign-born exclude those who entered the U.S. before the age of 20.

Table 5
Ordinary Least Squares Regressions for Log-Wages
(Heteroskedasticity-consistent standard errors in parentheses)

	Men					Women				
		Natives			Foreign-born, schooled		Natives			Foreign-born, schooled
	All	White Non-Hispanic	Black Non-Hispanic	Hispanic	outside U.S.	All	White Non-Hispanic	Black Non-Hispanic	Hispanic	outside U.S.
					Model 1					
					(Reference group is high school dropouts)					
GED	.160	.154	.208	.156	.275	.163	.153	.201	.197	.238
	(.010)	(.012)	(.030)	(.037)	(.057)	(.010)	(.012)	(.026)	(.037)	(.056)
High school diploma	.232	.227	.233	.290	.160	.248	.244	.239	.300	.177
	(.007)	(.008)	(.017)	(.026)	(.016)	(.007)	(.008)	(.014)	(.024)	(.017)
High school diploma - GED	.072	.073	.025	.134	-.115	.085	.091	.038	.103	-.061
	(.009)	(.010)	(.028)	(.035)	(.056)	(.009)	(.010)	(.024)	(.035)	(.056)
R^2	.13	.10	.10	.18	.22	.11	.09	.14	.21	.18
					Model 2					
					(Ref. group is high school dropouts who completed 12 years of school)					
9th grade	-.085	-.072	-.085	-.219	-.013	-.109	-.107	-.138	.011	-.027
	(.019)	(.021)	(.047)	(.069)	(.042)	(.019)	(.023)	(.042)	(.069)	(.043)
10th grade	-.053	-.032	-.109	-.163	-.060	-.064	-.064	-.093	.033	-.002
	(.016)	(.019)	(.039)	(.060)	(.046)	(.017)	(.021)	(.037)	(.065)	(.044)
11th grade	-.025	-.003	-.057	-.161	-.007	-.043	-.042	-.073	.057	.001
	(.015)	(.018)	(.036)	(.056)	(.048)	(.017)	(.021)	(.031)	(.066)	(.046)
Marginal effect over no diploma										
GED	.151	.144	.207	.125	.257	.161	.150	.202	.185	.213
	(.011)	(.012)	(.030)	(.039)	(.058)	(.010)	(.012)	(.026)	(.036)	(.056)
High school diploma	.183	.194	.164	.122	.124	.188	.183	.164	.327	.142
	(.014)	(.017)	(.031)	(.053)	(.037)	(.016)	(.019)	(.030)	(.062)	(.033)
High school diploma - GED	.032	.050	-.043	-.003	-.133	.027	.033	-.038	.142	-.071
	(.015)	(.017)	(.039)	(.051)	(.061)	(.016)	(.020)	(.035)	(.061)	(.060)
R^2	.13	.10	.10	.19	.22	.11	.09	.14	.21	.19
Sample size	40,284	33,566	4,749	1,879	4,573	37,931	30,558	5,599	1,691	3,492

Source: Calculations using weighted CPS Outgoing Rotation Groups from January 1998-May 2001.
Notes:
1. Both models include separate experience and experience squared terms for each group, as well as dummy variables for MSA/central city status, geographic region, month/year of survey, and parental origin. Regressions for all natives and foreign-schooled include dummies for race, and Hispanic origin. Regressions for foreign-born include dummy variables for entry cohort, region of national origin, U.S. citizenship, origin in English-speaking country, and a quadratic in years in the United States.
2. Model 2 includes dummy variables for CPS categories of years of completed education (0, 1-4, 5-8, 9, 10, and 11).
3. Foreign-born exclude those who entered the U.S. before the age of 20.

Table 6

Ordinary Least Squares Regressions for Log-Wages:
Comparison of Clark & Jaeger with Cameron & Heckman Estimates
(Heteroskedasticity-consistent standard errors in parentheses)

	25-year-old men		28-year-old men		Clark & Jaeger estimates for Cameron & Heckman cohorts	
	Clark & Jaeger (1998-2001)	Cameron & Heckman (1982-1987)	Clark & Jaeger (1998-2001)	Cameron & Heckman (1982-1987)	Men who were 25 in 1982-1987	Men who were 28 in 1982-1987
	Model 1: No control for years of schooling (Reference group is high school dropouts)					
GED	.110	.060	.035	.062	.178	.220
	(.070)	(.040)	(.052)	(.062)	(.019)	(.020)
High school diploma	.118	.144	.161	.174	.258	.285
	(.043)	(.022)	(.040)	(.037)	(.011)	(.012)
High school diploma - GED	.008	.084	.126	.112	.080	.065
	(.060)	(.036)	(.041)	(.054)	(.017)	(.017)
	Model 2: Control for years of schooling (Reference group is high school dropouts)					
Years of school	.019	.057	.015	.034	.026	.025
	(.023)	(.011)	(.020)	(.014)	(.004)	(.004)
Marginal effect over no diploma						
GED	.115	-.016	.032	.015	.163	.200
	(.070)	(.023)	(.053)	(.038)	(.019)	(.020)
High school diploma	.088	-.009	.136	.080	.199	.225
	(.062)	(.030)	(.056)	(.057)	(.014)	(.016)
High school diploma - GED	-.027	.007	.104	.065	.036	.025
	(.077)	(.011)	(.047)	(.052)	(.018)	(.018)
Sample size	1,012	2,308	1,088	1,016	13,749	13,011

Sources: Clark and Jaeger: Calculations using weighted CPS Outgoing Rotation Groups from January 1998-May 2001.
Cameron and Heckman: Calculations from National Longitudinal Survey of Youth, 1982-87.

Notes:
1. All models include dummy variables for race, Hispanic origin, and year of survey.