Notes and Commentary

No Time to Be Young: The Economic Prospects for Large Cohorts in the United States

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Anyone familiar with vital statistics is aware of two general phenomena. One is that there are large year-by-year variations in numbers of births. The other is that if the number of births in any one year is unusually high, numbers for adjacent years are probably also unusually high. This means that the age composition of the US population is itself subject to fairly dramatic swings over time.

Although American history offers other episodes, the postwar baby boom and the ensuing baby bust aptly illustrate how sharp these swings can be. This postwar demographic cycle, with the crowded classrooms it produced in the late 1950s and 1960s and its implications for size and age structure of the labor force as the baby-boom children transit from school to work, has spawned interest in the economic plight of unusually large cohorts. Although our historic data are not sufficient for precise forecasts, the recent period has generated enough data of its own to permit some general observations. We now know that as members of the baby-boom crest hit the job market, their incomes fell in comparison to mature workers. Newspapers of the early 1970s were filled with stories of new college graduates being unemployed or taking stop-gap jobs for which they were overqualified. Although high school graduates who did not go on to college received less attention, their plight was similar.

This paper concentrates on the economic experiences of the baby-boom cohorts. We first document their early career experience and demonstrate that indeed this was no time to be young. We then offer reasons why cohort size may be important and note which people, within a cohort, are most likely to be adversely affected. We estimate the magnitude of cohort size effects on earnings potential throughout the work career. These estimates enable us to evaluate whether the hardships of the early career should be diagnosed as symptoms of long-run ulcers or short-run indigestion. In a nutshell, our research suggests that job markets glutted with large numbers of new entrants are much

more affected in the short run than in the long.[1] This paper concludes by examining the common perception that the highly educated baby-boom cohorts significantly reduced the economic benefits of a college education. Our research suggests that the large cohort burden has been shared by those at all educational levels and has not been unique to college graduates. Evidently attending college continues to be a lucrative investment.

The demographic and labor market experience of the baby-boom cohorts

The demographic forces that have shaped our current labor market are well-known. Fertility rates had declined for generations, but starting in 1921 American women quickened the process, reducing their fertility by more than one-third during the next twelve years. Birth rates reached historic lows during the 1930s depression, rose slightly during World War II, jumped sharply at the War's end, and continued to rise until 1957. Then, the trend reversed, and numbers of births fell until the early 1970s, when they leveled at magnitudes similar to those of the early 1940s.

The baby-boom cohorts were unique not only for their numbers but also for their higher-than-average education levels. Thus, their job-market arrival signaled both a younger and a more educated work force. To document this process, Table 1 presents simple summary measures of the age and educational distribution of the male labor force at five–year intervals starting in 1947.[2]

Although the labor force has continually experienced realignments in age structure, it has never been subjected to such an acute shift as occurred when the baby-boom cohort began looking for work. Between 1967 and 1977, the aggregate work force grew 27 percent, but the 20–24–year-old part of that force grew by 56 percent. This "infusion of youth" caused a spectacular drop in the ratio of older to younger workers. There were nine male workers over 34 for every one under 25 at the post World War II peak in 1954. By 1977, the ratio was less than four to one.

The baby-boom cohort's effect on educational makeup of the work force was equally dramatic. While the labor force grew, the numbers of workers with only an elementary school education dropped by 40 percent. In contrast, the number of high school graduates under age 35 increased almost 50 percent—and the number of college graduates in that age group shot up 120 percent. But the statistical wonder-of-it-all may well be cold comfort for the individuals captured therein. The huge size of this cohort has made youth and education dubious blessings for its members as they entered the labor market.

To get a sense of how quickly the demographic forces have operated, allow one of the 23–year-old male college graduates entering the 1977 job market to take a Wellsian time capsule journey back to 1947 and then to move forward, stopping every decade. In 1947, he would have represented a select group. With his college degree, he would have been outnumbered four to one by workers with only elementary schooling, and for every worker in his 20–24 age group, he would have found more than five workers over 34. By the time

TABLE 1 Age and educational mix of the male civilian labor force

Year	Ratio of number of workers			
	By age		By education	
	35+/ 20–24	35+/ 25–34	College/ elementary	High school/ elementary
1947	5.48	2.48	0.24	0.31
1952	7.98	2.52	0.42	0.63
1957	7.88	2.70	0.52	0.79
1962	6.92	2.99	0.80	1.06
1967	5.97	2.45	1.15	1.53
1972	4.47	2.45	1.88	2.31
1977	3.77	1.99	3.32	3.42

he touched down again in 1957, the labor force would have grown even older—reflecting the declining birth rate of the 1920s and 30s. He would have found himself outnumbered eight to one by workers over 34 but only two to one by workers who had only completed elementary school. In his 1967 visit, he would have found a younger and even better schooled work force than in 1957. There would still be almost six workers over age 34 for every one in his group, but in education, he would find himself statistically matched by those who had attended only elementary school. By the time he arrived in his own time, college graduates would outnumber elementary school workers by more than three to one, and for every member of his age group, there would be fewer than four workers over 34. Our graduate and his less-educated peers might have anticipated that they would have a more difficult time finding employment and would have to settle for lower wages than their historical counterparts. And, of course, their initial experiences have borne out these fears.

The example above describes how negatively the shift in age and education distribution affected young college graduates. However, high school graduates also felt the cutting edge of the shift, more keenly than many analysts realize. To document their initial labor market experience, in Table 2 we focus on white male high school and college graduates between 1967 and 1977.[3]

For openers, we contrast the earnings of what we call peak earners with those of new entrants. On average, new entrants will have the lowest incomes, and income will increase as attention shifts to older workers to a point that corresponds roughly to 25 years of work experience. It is this group that we label "peak earners." Table 2 reports weekly and annual earnings of the peak group relative to new market entrants.[4]

Judged by weekly wages or annual earnings, the wages of newly entering high school and college graduates decline significantly, relative to the wages of peak earners.[5] In 1967, peak earner high school graduates received 55 percent more each week than new entrants. The annual income discrepancy was 58 percent. By 1977 the weekly difference had increased to 76 percent, and the annual differential had grown to 94 percent. The panel for college graduates tells a similar story. And while the 25 percentage point drop in the weekly wages of high school graduates is less sharp than the 38 percentage

TABLE 2 Ratios of peak earners' to new entrants' weekly wages and annual earnings (sample includes only white males)

Group	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
High school graduates											
Weekly wages	1.55	1.57	1.59	1.66	1.70	1.72	1.80	1.79	1.75	1.75	1.76
Annual earnings	1.58	1.63	1.66	1.78	1.85	1.87	1.92	1.92	1.95	1.92	1.94
College graduates											
Weekly wages	1.60	1.55	1.59	1.64	1.73	1.80	1.73	1.88	1.89	1.90	1.92
Annual earnings	1.61	1.57	1.62	1.67	1.80	1.85	1.80	1.93	1.94	1.97	2.00

point plunge of college graduates, high school graduates felt the decline in annual earnings almost as keenly as the college group.

The divergence between weekly wages and annual earnings reflects how many weeks a worker was actually employed. Thus, the increasing divergence between these ratios shows that high school graduates were hit particularly hard not only in wage reductions, but in longer and more frequent spells of unemployment, and, as we shall see below, by being pushed into part-time work. Unemployment rates of new high school graduates doubled over this period, reaching a peak of almost 20 percent during the 1975 recession. In that recession, the wages of both groups of new entrants, college and high school graduates, declined sharply, compared to peak earners. Clearly, members of large cohorts were particularly hard-pressed during severe economic recession.

These statistics suggest, but they cannot prove, that cohort size played the major role in determining these trends. Nor can they tell us what the economic future holds for these people. To resolve these issues, we need to understand exactly why cohort size matters.

How does cohort size affect economic status?

Members of large cohorts must cope as best they can with two types of forces that may affect their lives. Although not mutually exclusive, these forces rely on different theories about the underlying causal relationship between cohort size and economic status. They also, at least inferentially, suggest different long-term prospects for the baby-boom cohort. The first approach focuses on "environmental" changes created by larger cohorts, which may affect its members' ability to earn before they take on their first jobs. The second focuses on the adjustments required as the labor market seeks to accommodate large numbers. Although the first has dominated popular discussions of why cohort size matters, we believe the second has, at present, greater credibility.

According to those who take the first approach,[6] the size of the baby-boom cohort impinged on its members' earning potential long before they entered the labor market. Their numbers created an environment from which they emerged less able than people in smaller cohorts. Spending their childhood years in relatively large families, they had to compete with siblings for limited family resources. Not only was family income spread over more children, but

parents' time and care devoted to each child was reduced. Then, they attended crowded elementary and secondary schools, where higher than normal pupil-teacher ratios and limited sessions with smaller daily hours were common, especially in the lower elementary grades. They may also have found their pathway to better education obstructed because the available "slots" in prestigious schools and colleges reflected the demand of the smaller cohorts that preceded them. Such an environment might well limit the future market ability, and thus diminish the lifetime economic potential, of the workers who came out of it.

However, to establish this link between diminished ability and economic consequences requires more knowledge than we can legitimately claim. First, we must know how great the effect was on the average ability of the cohort. Second, we must be able to translate any change in ability into market earnings. On both scores, the available evidence recommends more caution than has marked many discussions of the issue.

During the baby-boom cohort's two decades of increased enrollments, the broad trend in pupil-teacher ratio at the elementary and secondary school levels continued downward, as it has throughout this century. It is true that the rate of decline was almost twice as large during the period of falling enrollment after 1967. Schools were no doubt pressed by the postwar cohorts, but research attempting to establish a link between school characteristics and quality of the educational environment has been so inconclusive that one cannot be confident about the magnitude of the effect.

It may be argued that declining aptitude test scores bear witness that such things as pupil-teacher ratios and limited sessions did make this cohort less able. But despite the dramatic decline of Scholastic Aptitude Test scores beginning in the mid–1960s, research efforts to single out a convincing explanation for the decline have, to date, proved inconclusive. Much of the decline may actually reflect changes in the composition of the tested group.[7] The proportion of students taking the examination has grown tremendously in recent decades. The evidence indicates that the additional students who are now taking these tests are below average in test performance and are therefore lowering the average scores for recent generations of students.

Considerable evidence does exist linking large family size with lower scores on intelligence tests.[8] However, until we know a great deal more about how this association works, it would be risky to blame the cohort's aggregate size. For example, if lower scores reflect genetic traits, uniform increases in family size across the population would not alter the average ability of a cohort. On the other hand, if the negative correlation between test scores and family size reflects behavioral tradeoffs between the quantity and the quality of children, aggregate size could possibly affect a cohort's average ability.

Nevertheless, even if we possessed solid evidence linking cohort size to lower average intelligence, we would still have to pass the decline in ability through the filter of market earnings. A large number of studies have assessed the ties between test-measured ability and income or market-tested ability.[9] These studies show clearly that, on average, people who receive higher examination scores also earn more, but this statistical correlation is weak. The

majority of these studies suggest that as test scores increase sufficiently for a full 25 to 35 percentile improvement in ranking, income increases only 1 to 5 percent. Almost none of these studies would support notions of an income increase as large as 10 percent. Since no one has argued that the baby-boom scholastic performance eroded by anything approaching a full standard deviation in relative scales (about 30 percentile points), the income–test-score comparison studies suggest that ability, at least the ability that scholastic tests measure, has not been an important source of the observed baby-boom income decline.

The second approach we mentioned looks at the question from a different perspective, one for which more solid evidence exists. Independent of quality, a cohort's productivity may still be inverse to its size. A large cohort necessarily alters the number of workers in different productive activities. If all workers, regardless of education and work experience, were interchangeable, cohort size would not affect the structure of wages. But if they are not, when the size of a cohort alters the proportion of workers at different educational levels and years of experience, wages will be affected. This relation—often called the "law" of diminishing returns—can be illustrated by highlighting the distinctions across the phases of a worker's career.

Careers probably have a number of distinct phases, but the essence of our argument is best illustrated by thinking of a career as having two parts: an apprenticeship followed by full professional status. Although apprentices are partly learners and partly workers, apprenticeship is a learning-intensive phase, with considerable investment in the acquisition of skill. In contrast, the worker or professional phase concentrates on earning, even though workers also assist in training apprentices. While these phases are distinct, they are also linked, since the productivity of members of one stage depends on the number and productivity of members of the other. As a large new cohort enters, the ratio of apprentices to workers increases. This ratio reduces the value of apprentices' tasks, relative to workers' tasks, in two ways. First, apprentices are partly workers' helpers, and an increase in the number of apprentices reduces the work available to each one. Second, because a worker has less time to spend with each one, apprentices learn less. Thus, an atypically large new cohort will initially reduce the wages of young workers.

Given this perspective on career phases, which occupations will cohort size affect most severely? The answer depends on the ease with which the necessary skills are acquired and the distinction employers make between tasks performed by learners and by workers. In some occupations, in terms of the skills required and the tasks performed, a worker who has had two years on the job very closely resembles a worker who has had 22 years on the job. In other occupations, however, it may take as long as 10 years before workers would be indistinguishable in those terms. It seems reasonable that these distinctions are sharper in highly skilled than in relatively unskilled jobs. This explains why (as Table 2 indicated) the impact of cohort size is greater for college graduates than for high school graduates and, although we have not reported it in Table 2, the effect is also greater for those with high school diplomas than for those with only elementary school education.

Thus, the nature of career phases enables us to understand why large cohorts matter and why more educated workers feel the greatest impact. It also provides insights into the broader question of whether atypically large cohorts face dismal economic prospects throughout their careers.

Long-term economic prospects for large cohorts

Members of large cohorts are likely to be penalized throughout their careers because they will have to compete with a relatively large number of people at each career phase. However, there are good reasons to suspect the adverse effects are more severe when these people enter the market than will be the case later in their careers.

Arriving with their diplomas, the more numerous graduates face stiff competition for entry-level jobs. The time they spend looking for a satisfactory job lengthens, especially if they adjust slowly to market realities, which are harsh in contrast with those of the recent past. Thus, initial effects for graduates entering the labor market take the form of lower wages and rising unemployment. However, since almost all workers eventually work full-time hours and achieve more job stability over time, the employment effects should be concentrated at the front end.

There is a second reason to expect these initial effects to decay over work careers. The arrival of a large new cohort affects different areas of the market differently. Predictably, in occupations and industries that experience the greatest influx of workers, the pressures for wage reductions are largest. In addition, to the extent that wage rigidities exist, individuals attempting to enter these occupations will confront the greatest difficulty in obtaining employment. Those who suffer these wage reductions, or reduced employment prospects, thus have incentives to enter, and acquire the skills for, less affected areas. In a sense, the labor market operates as a melting pot, eventually blending the mix of workers to smooth out initial perturbations.

A third reason for predicting that entry-level effects will be more severe than long-term effects relies on the previously discussed division of careers into learner and earner phases. This division is, of course, an artificial one because in some sense workers always differ, and most never completely finish the process of investing in new skills or polishing old ones. Nevertheless, for our purposes it is sufficient to distinguish between a relatively short period of intensive investment—the learner phase—and a much longer earner phase. The relative length of these two periods acts to erode the initial negative economic effects for large cohorts.

To understand how this mechanism works, let us suppose that a typical worker's career spans 45 years—5 as a learner and 40 as an earner. Let us suppose further that his occupation has an equal number of people at each year of market experience, so that there are eight times as many earners as learners. Members of a large cohort would find their labor market much affected during their apprentice years. However, as the cohort moves into the earner phase, the larger number of workers in the earner pool dilutes the effect of the larger

cohort. For example, if a new cohort were twice as large as normal, the number of apprentices would be 20 percent above normal during each of the 5 apprentice years. But in the earner phase, the large cohort is more easily absorbed, and the percentage of workers in each earner year drops to only 2.5 percent above normal.[10]

These arguments imply that while members of the baby-boom cohort may have a bitter economic pill to swallow at the beginning of their careers, the future promises to be sweeter. But is there any evidence to validate the theoretical picture we have drawn?

The effects of cohort size on earnings and employment

In a recent paper, one of us uses the career phase model to estimate the effects of relative cohort size on wages and employment as a cohort enters the labor market and the long-term effects as they reach mature career stages.[11] These estimates are based on Current Population Surveys for the years 1967–75. One advantage of our specification is that we allowed the impact of relative cohort size to vary with years of market experience. Our results suggest that early in the cohort's career, its relative size has a large depressing effect on wages, weeks worked, and hours worked per week. Unemployment and increased part-time work (i.e., shorter hours) accounted for one-third of the initial reduction in annual earnings in the first year on the job for high school graduates but only one-fourth for college graduates. Nevertheless, a given increase in relative cohort size had a greater impact on the wages of college graduates than on those of new high school graduates. In the first year of market experience, wage effects for high school graduates are estimated as 40 percent smaller than for the college trained. We believe this ratio reflects the greater distinction for college graduates between the learner and earner phases that we discussed above.

However, these initial effects decayed rapidly over work careers, so that by the time workers had been in the labor force for ten years there were essentially no long-term effects of cohort size on hours or weeks worked. This change reflects the fact that most male workers did eventually assume full-time permanent jobs. Hourly wage effects did persist, but even they amounted to only one-third of initial effects for both high school and college graduates. Based on these estimates, the increasing new-entrant share of the labor force leads to predicted reductions in new-entrant weekly wages relative to peak earners' wages of 10 percent for high school graduates and 13 percent for college graduates between 1967 and 1975. This compares with an actual change over this period of 12 percent for high school and 16 percent for college graduates. Therefore, about 80 percent of the actual decline in the relative earnings of new entrants in this period can be attributed to relative cohort size alone.

This impact of cohort size on employment in the early stages of work careers suggests that cohort size may have contributed to the deepening problem of youth employment, particularly among black teenagers. We know that the

arrival of these large cohorts crowded the labor market, putting downward pressure on the wages of teenagers relative to older, more skilled workers. With lower relative wages, some teenagers would find employment less attractive relative to other alternatives such as full-time schooling. But more importantly, large cohort size interacts with traditional causes of teenage unemployment, such as minimum wages, to exacerbate employment problems. A legislated minimum wage prevents the wage of low-skilled teenagers from falling when their numbers increase relative to more skilled workers. With wages unable to adjust, the burden of expanding numbers is concentrated on reduced employment probabilities. In another study,[12] we estimated the effect of the relative size of the teenage work force on the relative employment of black male teenagers to white teenagers. Our estimates indicate that a 10 percent increase in the population of teenagers relative to adults reduces the employment probability of black teenage males relative to white teenage males by from 13 to 39 percent.

Given these results, how large are the economic costs that a large cohort endures? Although the penalties are high early in the career, recovery is rapid, though not complete, as the career proceeds. Reduction in full lifetime wealth provides a useful summary measure that incorporates these differential effects at stages of the career. Based on our regressions, we simulated the change in lifetime wealth attributable to relative cohort size for all cohorts joining the labor force between 1940 and 1990.[13] According to our estimates, the effects on full lifetime earnings are not extreme, but for the cohorts most affected, they are not trivial. Between the smallest and largest cohort that entered the labor market since 1940, the difference in lifetime earnings is 4 percent for high school graduates and 10 percent for college graduates. Thus, the wealth of the least-favored college cohort of 1970 is estimated at about 90 percent of the wealth of 1962 entrants (the most favored—i.e., the cohort with the smallest relative number of college graduates in proportion to the college-trained male labor force). Clearly other cohorts lie between these extremes. While relative cohort size definitely affects the well-being of its members, these calculations suggest that the current labor market problems of the baby-boom cohorts should not be taken as portents of perpetual gloom.

This, then, is our prognosis for the baby-boom cohort. But what of the future of the labor market itself? What will be the size and effects of future cohorts? In 1978, the largest single-year group was the 20-year age group—the product of the peak year of the baby boom. Most of these 20-year-old males were either in college or already in the labor market. Although smaller in comparison to the recent past, the current crop of teenagers remains relatively large when compared to all post World War II cohorts. Fertility rates in the years of their births were declining but were still high by historical standards. By the mid–1980s, however, the number of people entering the job market will be substantially lower than during the 1970s. At the end of the next decade, the average number of new workers will be 20 percent lower than it was in the late 1970s. The long lead time from birth to first employment guarantees that for the remainder of the twentieth century the labor force will continuously adjust to smaller cohorts.

How will these changes affect lifetime earnings of future cohorts? The 1970s depression in early career earnings was not unique, and, just as earlier depressions eroded into higher income, this recent one will be followed by high lifetime earnings of the next generations. Our simulations indicate that the wage depression induced by the arrival of the baby-boom cohorts will begin to erode in the next few years. Our projections for 1990 entrants foresee career earnings equal to those of the "most favored" entrants of the mid-1950s and early 1960s. In addition, by 1990 the population of teenagers will have fallen by 23 percent in absolute numbers and by 39 percent relative to the adult labor force, which will expand with the aging of the baby-boom babies. Based on our regression estimates, we project that this demographic shift will raise the employment probability of black teenagers relative to white teenagers throughout the 1980s. By 1990, the relative employment probability of black teenagers will rise by more than a third above current levels, but black teenage males will remain less likely to be employed than their white counterparts.

Is there a "new depression" in higher education?

Throughout this paper, we have argued, and the empirical evidence has confirmed, that the economic costs of large cohort size are principally realized at young ages and that the early career trough gradually erodes into a rather mild late career depression. But we have also seen that young college graduates were penalized more than those with less schooling. This early career differential impact across schooling classes raises a question of whether, as many have claimed, college education is no longer a worthwhile investment.

Although implicit in the peak earner/new entrant comparisons in Table 2, wage ratios across schooling levels for new entrants are highlighted below. After peaking in 1970, weekly wages for new college graduates declined steadily relative to wages received by recent high school graduates. Ratios of annual earnings follow a similar cycle of initial rise and subsequent fall, but the endpoint comparisons indicate rough equality between 1967 and 1977. This falling income benefit from college after 1970 produced the first reversal in the historical trend of a rising proportion of white male high school graduates continuing on to college.[14] Based on our career phases model, we would expect that new college graduates would suffer more from a twist in the age distribution of the labor market toward the young. The sharper distinctions employers are likely to make among young and more mature skilled workers concentrate the pressures from increased supply on young skilled workers.[15] Our empirical results, based on the career phases model, confirmed our expectations. Changes in relative numbers of workers within schooling classes explained virtually all of the decline in the relative earnings of young college graduates.

	1967	1970	1977
Weekly wages	1.53	1.57	1.41
Annual earnings	1.57	1.67	1.55

It should be noted that the declining income of new college graduates has produced an alternative interpretation of the effects of cohort size. Ignoring the age distribution implications we have emphasized, this interpretation concentrated instead on declining rates of return to schooling. Labeled the "new depression in higher education" by its most prominent exponent, Richard Freeman, this theory argued that income returns from college have declined so rapidly since 1970 that college is no longer a sound monetary investment and is unlikely to be for many years to come.[16] In contrast to our emphasis on the changing number of workers by age within schooling groups, new-depression advocates see the central demographic legacy of the baby boom as the sharp increase in the total number of college-trained workers relative to those with less schooling. Since 1967, the number of college workers expanded by 84 percent, twice the rate of increase in the number of high school workers.

The declining income of new college graduates shown above is consistent with both our career phases model and the new depression hypothesis. In order to discriminate between these two views, we must compare the wages of college and high school graduates who are not new entrants. If there has occurred a broadly based and permanent decline in the economic benefits of college, the income of all college graduates should decrease relative to all high school graduates. To test this, we compare below the income of college graduates relative to high school graduates for peak earners.

	1967	1970	1977
Weekly wages	1.57	1.55	1.55
Annual earnings	1.60	1.56	1.60

The most reasonable description of these income patterns is that there exists no trend in the income ratios during the peak earning years of mature college workers relative to high school workers. If we have really witnessed a permanent decline in the demand for college graduates, the absence of any price response should pose a real dilemma to the new-depression advocates. In addition, our ability to explain virtually all of the falling relative income of young college graduates by changes in relative numbers of workers within schooling classes, without any reference to changing numbers across schooling classes, casts considerable doubt that there has been a permanent decline in the economic returns to schooling.

The wage data for the 1970s clearly tell an important story. But the weight of evidence we have examined suggests that it is not a story of the overeducated American, but one of an overcrowded new entrant. Nor is it a story of perpetual economic gloom. Rather, it tells us that overcrowding affects large cohorts negatively and that the young suffer most. As we have seen, this initial detrimental effect will erode over the years and the lifetime earnings of this group will not fall much below those of smaller cohorts.

If we consider the historically unique growth and restructuring of the labor force after 1967, the economy's ability to absorb these shocks seems more impressive than the difficulties encountered. Despite the early costs, virtually all these people eventually found full employment. Those who worry

about how the US private sector can "create" jobs will find it difficult to explain what happened in the American economy during this period. The economy's performance and the amount of time required to implement policy also suggest a prudent response to the baby boom's economic effects. As we have seen, the prospects for that cohort are better than predicted. Further, before any policy to remedy the apparent problems can be implemented, the new smaller cohorts of the baby bust will have begun to arrive in the labor market.

Notes

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1 The original proponent of the hypothesis that relative cohort size impacts on future economic well-being is Richard Easterlin. In contrast to the arguments we present in this paper, Easterlin foresees large short- and long-run impacts of large cohort size. See Richard Easterlin, "What will 1984 be like? Socioeconomic implications of recent twists in age structure," *Demography* 15, no. 4 (November 1978): 397–432.

2 Our index of the age distribution is the ratio of male civilian workers over 34 years old to male workers 20–24 years old (and alternatively those 25–34 years old). Similarly, our education measure is the ratio of male workers with some college training (or those with high school degrees) to male workers with only elementary schooling.

3 Comparisons including women—where labor force participation rates are rising—and minorities—where economic status is improving relative to white males—would involve too many ancillary issues.

4 The sample on which our data are based refers to white male high school and college graduates included in the Current Population Surveys for the years 1968–78. The income data refer to the years immediately prior to each survey, so our trends cover the 1967–77 time span.

5 Peak earners are those with 20–30 years of market experience. New entrants are those with 1–5 years of market experience.

6 For two examples, see Easterlin, cited in note 1; and Landon Y. Jones, *Great Expectations: America and the Baby Boom Generation* (New York: Coward, McCann and Geoghegan, 1980).

7 For an interesting study arguing that compositional changes are important, see Annegret Harischfeger and David Wiley, "Achievement test score decline: Do we need to worry?," CEMREL Inc., 1976.

8 See, for example, Lillian Belmont and Francis Morolla, "Birth order, family size, and intelligence," *Science* 182 (December 1973): 1096–1101.

9 For a survey of the more important studies of this type, see Finis Welch, "Relationships between income and schooling," *Journal of Research in Education* (Spring 1974): 179–201.

10 The example in the text is somewhat too rigid. The relative length of the learner and earner phases is not fixed and, in fact, is likely to be altered by changing cohort size. It seems likely that a large cohort will be forced to spend more time in the apprenticeship stage, as many of today's assistant professors can verify. This results partly from rigidities in the organizational hierarchical structure of firms, but also from the fact that lower current earnings in the apprenticeship stages reduce the cost of investing. We owe this observation to an anonymous referee of this journal.

11 For a detailed statement of the methodology underlying the results we summarize here, see Finis Welch, "The effects of cohort size on earnings: The baby boom babies' financial bust," *Journal of Political Economy* 87, no. 5, part 2 (October 1979): 565–597. Relative cohort size was defined as the proportion of the work force accounted for by an individual cohort of workers. Our sample con-

sisted of white males aged 14–65 in each year. Separate regressions were run within each schooling level with ln annual earnings and ln weekly wages serving as alternative dependent variables and relative cohort size interacted with years of market experience included among the regressors. Our regressions therefore reflect both the cross-sectional variation within any Current Population Survey and the longitudinal variation obtained from the nine years of data.

12 The regressions upon which these estimates are based are reported in Nabeel A-Salam, Aline Quester, and Finis Welch, "Some determinants of the level and racial composition of teenage employment," in *Legal Minimum Wages* (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1980). Our estimates are based on time series regressions with monthly data for the period 1954–78. The dependent variable is the ratio of the proportion of black male teenagers (16–19 years old) employed to the corresponding proportion of white teenagers. The independent variables include measures of the level and coverage of minimum wages, relative cohort size (number of teenagers relative to adult workers), monthly dummies to pick up seasonal effects, and a time trend. The 13 percent estimate referred to in the text was obtained in this regression. The 39 percent estimate was obtained when three potentially endogenous variables were added: the proportions of male teenagers in school, in the military, and in Federal youth programs.

13 The simulations discussed in the text are based on our parameter estimates of the impact of relative cohort size of earnings at each experience level using the 1967–75 Current Population Surveys. Using these parameter estimates, we calculated the relative size (number of workers in that cohort at each year of its labor market experience relative to the entire labor force) of each cohort of workers who entered the labor force between 1940 and 1990. For those cohorts who had not yet entered the labor market, we "guesstimated" their relative cohort size. Given the lag between birth and labor market entry, the age distribution of future labor markets has largely been fixed by already observed fertility rates. We assumed that average levels of school completion would continue their upward drift for the next few years and then stabilize.

14 The initial rise in income of college graduates from 1967 to 1970 in Table 2 partly reflects the fact that baby-boom high school graduates entered the labor market four years earlier than the college graduates. With the initial baby-boom year of 1947, high school graduates first entered in the middle and late 1960s. The first influx of college graduates did not appear until the early 1970s.

15 Skilled workers are less hard hit in annual earnings because of the greater vulnerability of high school graduates to the higher unemployment rates of the 1970s.

16 Richard Freeman, the chief proponent of the "New Depression" hypothesis, has put forward data that show much larger reductions in relative incomes of recent college graduates than we report here. See Richard Freeman, *The Overeducated American* (New York: Academic Press, 1976). However, his comparisons involve college and high school graduates of similar ages 25 to 34 years old. Since college graduates are older when they first enter the market, this age grouping necessarily contains more new entrant college graduates than high school graduates. By simply readjusting this age interval so that college and high school graduates have comparable levels of market experience, the decline in weekly wages of new college graduates reported by Freeman is cut in half and the reduction in annual earnings is completely eliminated. Apparently, much of the evidence justifying the term "new depression" results from including new entrants in the college group and omitting them in the high school sample. See James P. Smith and Finis Welch, "The overeducated American—a review article," Proceedings of the National Academy of Education, 1980.