

**THE SURVEY OF INCOME AND  
PROGRAM PARTICIPATION**

**PARTICIPATION IN INDUSTRIAL  
TRAINING PROGRAMS**

**No. 60**

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## Participation in Industrial Training Programs

by Sheldon E. Haber

In this paper newly available data from the Bureau of the Census Survey of Income and Program Participation (SIPP) are examined to explore the relationship between firm size and worker participation in training programs both at work and outside of work.

Training programs outside of work, principally in the form of vocational training, have been the subject of many studies, but only recently has attention been directed at industrial training. Little is known about who participates in industrial training and even less is known about who provides this form of training. Based on their analysis of Current Population Survey and National Longitudinal Survey data, Lillard and Tan (1986) suggest there is a complementarity between formal schooling and participation in a company training program, but they do not consider the relationship between this form of training and firm size. In separate studies of American and Canadian firms, Barron, Black, and Lowenstein (1984) and Simpson (1984), respectively, found that training programs are more prevalent among large firms than small ones. In the former study prevalence is based, in part, on the probability of a firm's most recently hired worker receiving formal training by management; in the latter study prevalence is measured by the duration in months of industrial nonapprenticeship training programs. Being based on employer surveys the empirical data of these studies do not include information about the worker characteristics. Like the Lillard and Tan study, this one is based on a household survey but it also contains information about the size of a firm in which respondents were employed.

based on a household survey but it also contains information about the size of a firm in which respondents were employed.

The size of firm information permits investigation of two predictions derivable from the recent literature on firm heterogeneity and the matching of workers and firms. The major findings of the paper, namely, that large firms provide more specific training than small ones and that this type of training is most often given to workers who have invested in human capital are consistent with the implications of the models developed in the literature. As indicated below we also look at where workers who participate in a training program outside of work are employed, i.e., in small or large firms, and the extent to which firms of different size pay for training taken outside of the work place.

### 1. Theoretical Implications from Economic Theory

Among the more recent advances in economic theory is the development of economic models in which a market equilibrium occurs with firms of different size. Among other features the models of Lucas (1978), Rosen (1981, 1982) and Oi (1983a,b) predict that small and large firms will employ different types of workers (Cordes, Barth, and Haber, 1987). Consideration of these models also offers a useful point of departure for exploring the relationship between firm size and training.

The model developed by Oi is particularly useful for this purpose. In this model entrepreneurs differ in their ability to coordinate production but are alike in their ability to monitor workers. As a result entrepreneurial ability and firm size are positively related and, all else being the same,

monitoring costs associated with employing an additional worker are higher for a large firm than a small one. Insofar as large firms have a comparative advantage in monitoring workers relative to small firms, they will find it advantageous to hire relatively high productivity workers who require less monitoring, i.e., workers with characteristics associated with low monitoring costs as reflected in such observable variables as educational attainment. Small firms, on the other hand, will find it more efficient to expand output by hiring relatively low productivity workers even though they may require additional monitoring.

Firms become large when an entrepreneur is able to coordinate the production of a large volume of a standardized product. To achieve efficiency large firms typically utilize large amounts of specialized capital; hence it is essential that interruptions in production be avoided. One way of ensuring this outcome is to provide specific training. Specific training includes not only training on how to operate a unique piece of equipment but also learning to conform to a firm's prescribed operating practices and methods of doing business. Specific training allows substitutability between workers and reduces the cost of supervision. As not all workers are equally trainable or willing to meet the requirements of team production, large firms tend, as noted, to recruit high productivity workers whose training cost per efficiency unit of labor are relatively low. At the other end of the scale small firms do best by choosing techniques of production that are not capital intensive and the capital that is used can be readily shifted among alternative product lines to produce output in small batches. Likewise they have a lesser need for workers with specialized skills. Often this translates into the hiring of lower productivity workers and the deployment of such workers in a variety

of production settings. The training that occurs in this work environment typically takes the form of general training. It is seen therefore that small and large firms tend to occupy different niches in the production spectrum, employ different mixes of workers, and provide different kinds of training. In particular it is plausible to assume that employees of large firms receive more specific training than their counterparts in small firms.

Equally plausible is the proposition that in large firms training programs are most likely to be provided to those workers who are most sought after by these firms, i.e., to workers with prior investments in human capital and whose turnover is likely to be low. Indeed, workers with these characteristics are also the most likely to participate in a training program in small firms. Not so clear, however, is how the large-small firm differential in training program participation varies among given qualities of labor.

Where people who participate in away-from-work training programs find employment is also of interest, since this information provides insight into how the labor market allocates such person among firms of different size. One might expect that firms that do not provide in-house training programs also hire a relatively low proportion of workers who participate in training programs outside of work. However this may not be so. Small firms, where general training is more prevalent, may find it less costly to hire individuals who have already made this investment, say, by taking training at a vocational school, than to provide such training themselves. On the other hand, even apart from economies of scale large firms may prefer to do their own training because workers who participate in training programs elsewhere may not have the specific skills that these firms need. If so, large firms, even if they were to employ a larger fraction of workers who participate in in-house

training programs, may not hire proportionately more workers who received their training elsewhere.

Although some of the findings presented in this paper can be inferred from what is known about firm size and job tenure, job tenure data convey only indirect information about specific training. Training program participation data yield a more direct measure of specific training. Moreover they provide explicit information about training program participation that cannot be derived from job tenure data, e.g., information about the proportion of the work force that has had such training and the length of this training.

A distinguishing feature of SIPP is that it is a longitudinal survey; however it included retrospective data that are pertinent to our analysis, namely, information about participation in training programs and the size of an employee's firm. Each SIPP panel is divided into four rotation groups. One rotation group is interviewed during the first two weeks of each month. One cycle or wave of interviewing of the four rotation groups requires four months; thus each household is interviewed three times a year. The reference period of an interview is the four month period preceding the interview month.

## 2. The SIPP Training Program Participation Data

In Wave 3 of the 1984 Panel<sup>1</sup> SIPP respondents were asked "did [you] receive training designed to help [you] find a job, improve job skills or learn a new job"? Follow-up questions for those responding "yes" were "do [you] use this training on [your] (most recent) job" and "where did [you] receive this training"? The training programs referred to were training programs at work; training programs at a previous job; apprenticeship programs; military training programs; correspondence courses; specific occupational training received at

business, commercial, and vocational schools or at junior and community colleges, four year colleges, and graduate schools (excluding courses leading to a degree); and government sponsored training programs.

Two types of questions are asked about training in SIPP. The first relates to all training programs that an individual has ever participated in. The second pertains to an individual's most recent training program and where it was obtained, i.e., at work or elsewhere.<sup>2</sup> For the second set of questions information is also available about the length of training and who paid for it, provided the training occurred in 1980 or later.

It is to be noticed that for persons who began a job before 1980 there is some ambiguity about the source of their training program, since respondents were not explicitly asked if their most recent training program experience occurred while working for their current employer. Presumably this is what is meant by a response that training was received "at work" since an alternative response "at a previous employer" is also possible. The error introduced by this problem is probably small for the following reasons: 1) individuals tend to receive training soon after becoming employed by a firm, 2) the SIPP data we use are for an individual's most recent training experience, and 3) information about where a training program is taken is generally sufficient to determine whether the training was received at work or somewhere else (and who paid for it).

Participation in a program at a junior college, for example, typically predates a person's current job (and is usually paid for by the participant). However such training may have been obtained while working for one's latest employer and additionally may have been paid for by that employer. In the latter instance the training occurs outside of the work place but is provided

by the employer and should be considered as on-the-job training.

Evidence is presented below indicating that our conclusions would remain unchanged were the SIPP training data tied more closely to an individual's current job. This evidence is based on the training program experience of persons who started their current job in 1980 or later for whom a precise determination can be made of whether their training occurred before or after they began work with their current employer.

In this study the observational unit is a firm. Large and small firms are defined as having fewer than 100 employees and 100 employees or more, respectively. Owners of a business including incorporated businesses (except those who also had a job as a paid employee) are excluded from the data set. In SIPP owners of an incorporated business are considered as "self-employed" rather than as wage and salary workers; size of firm information is missing for the former group. Unpaid family workers, government workers, private household workers, and workers in agriculture are also omitted from the analysis.

### 3. The Empirical Data

The SIPP data on most recent training program experience are summarized in Table 1. The figures in this table reveal several interesting relationships between participation in a training program and firm size. In 1984 approximately 18 million workers or 23.1 percent of all workers in private non-agricultural firms had participated in a training program at some time in their work career. While most workers never participate in a training program and the majority of those that do participate at a site other than at work, still a rather substantial proportion, 9.4 percent, participated in a training

TABLE 1

Most Recent Training Program:  
All Employees of Small and Large Firms

	Firm Size		
	<u>Total</u>	<u>Small</u> <sup>a</sup>	<u>Large</u> <sup>b</sup>
Number in Sample	17,089	6,612	10,477
Number of Employees (000's)	77,742	30,065	47,678
Number of Employees Who Participated in a Training Program (000's)	17,955	6,013	11,942
Percent of All Employees Who Participated in a Training Program	23.1	20.0	25.0
At Work	8.4	5.2	10.5
Not at Work	14.7	14.8	14.5
Previous Employer	1.0	0.9	1.1
Other than Previous Employer	13.7	13.9	13.4

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<sup>a</sup> Firms with 1-99 employees.

<sup>b</sup> Firms with 100 or more employees.

program in an industrial setting either at work (8.4 percent) or at a previous job (1.0 percent).

Of significance for this study it is seen that the proportion of all workers who received their most recent training at work is higher among large firms, 10.5 percent, than small ones, 5.2 percent. In terms of those workers who participated in a training program, 11.9 million and 6.0 million workers in large and small firms, respectively, 41.8 percent of the former and 25.8 percent of the latter obtained their training at work. These findings support the proposition that firm-specific training is more prevalent among large firms than small ones.

Although small firms are less likely to engage in training programs the data in Table 1 indicate that the likelihood of a worker with vocational training finding employment in a small firm is the same as in a large one. Among all employees in small firms, 13.9 percent participated in a vocational training program; the corresponding figure for large firms is 13.4 percent. This is a somewhat surprising finding in view of the fact that the training program data indicate that a smaller fraction of workers in small firms participate in training programs than their counterparts in large firms. An explanation for this apparent anomaly has been offered above: small firms find it economical to hire workers who have invested in general training in the form of vocational training. Such general training, on the other hand, is less likely to fit the needs of large firms who require specifically trained workers.

The findings of Table 1 are also reflected in Table 2 where the data are displayed in a somewhat different manner for individuals whose most recent training experience occurred in 1980 or later. For this group, it is possible to ascertain who paid for the training and the length of the training program,

as well as where the training was obtained.

From Table 2 it is seen that for those with a training program experience in 1980 or later the proportion who received their training at work is again higher for large firms, 52.4 percent, than for small firms, 31.6 percent. The corresponding percentage for all workers noted above were 41.8 percent for large firms and 25.8 for small firms. Thus the figures in Table 2 are in agreement with those for all workers who participated in a training program.

As might be expected not all training programs at work are paid for by employers. In some instances individuals pay for such programs; in many however the program is government funded. The high percentage of employees in at-work training programs paid for by employers -- approximately 88 percent for small firms and 95 percent for large firms -- is consistent with the response that a training program was offered at a work site.

It is noticed that the percentage of training program participants who have vocational training that was financed by their employer is the same for workers in small firms, 15.7 percent, as in large firms, 15.4 percent. The explanation for this is that although a lower porportion of workers in large firms had vocational training (44.1 percent) than in small firms (65.2 percent), this is counterbalanced by the higher fraction of workers in the former firm size who had their vocational training paid for by their employer. As can be inferred from Table 2, among workers in large firms who had vocational training, about 35 percent reported that the training was employer financed; the corresponding figure for small firms was approximately 24 percent, consistent with the proposition that large firms are more likely to finance training at a site away from work.

TABLE 2

Most Recent Training Program: Employees Who Participated in a Training Program in 1980 or Later

	Firm Size		
	<u>Total</u>	<u>Small<sup>a</sup></u>	<u>Large<sup>b</sup></u>
Number in Sample	2,353	764	1,589
Number of Employees Who Participated in a Training Program in 1980 or Later (000's)	10,570	3,360	7,221
Percent Distribution of Training Program Participants Whose Most Recent Training Program was			
At Work	45.8	31.6	52.4
Paid by Employer	42.8	27.8	49.7
Not Paid by Employer	3.0	3.8	2.7
Not at Work	54.2	68.4	47.6
Previous Employer	3.4	3.2	3.5
Other than Previous Employer	50.8	65.2	44.1
Paid by Employer	15.5	15.7	15.4
Not Paid by Employer	35.3	49.5	28.7
Length of Training Program (in weeks)			
At Work, Paid by Employer	5.6	7.0	5.3
Not at Work (Other than Previous Employer), Not Paid by Employer	22.2	21.6	22.6

<sup>a</sup> Firms with 1-99 employees.

<sup>b</sup> Firms with 100 or more employees.

Not surprisingly the length of vocational training programs whose cost is borne by individuals, 22.2 weeks, is substantially longer than the length of at-work training programs paid for by employers, 5.6 weeks. It is also seen from Table 2 that the average duration is about the same for each type of training program whether the participants are employed in small firms or in large firms. It thus appears that while the proportion of workers with some training program experience is positively related to firm size, the amount of training, as measured by duration, obtained by those who participate at work in employer-funded training programs or away from work in other than employer-funded training programs is independent of firm size.

Earlier in the discussion, it was suggested that workers with characteristics deemed desirable by large firms would be the ones to participate in training programs in such firms. In general it is to be expected that in large firms workers whose cost of training is low (high) will receive more (less) training -- and that this is also the case in small firms. As indicated below when workers are classified by educational attainment it is indeed found that a higher proportion of more educated workers than less educated workers in large and small firms participate in training programs at work. But how does the differential (between large and small firms) in the proportion participating in such programs change as the level of educational attainment increases? One might suspect a widening of this differential as educational attainment increases if workers with little education are least likely to participate in training programs irrespective of the size of firm in which they are employed, and if relatively little specific training occurs in small firms so that training program participation is not prevalent among well-educated workers in these firms. Again the empirical data suggest this is the case.

The relationship between training program participation, worker characteristics, and firm size is shown in Table 3. The proportions in this table for the row "all employees" (except for the last two columns) are also found in Table 1. Thus the interpretation of the figures is the same as in the latter table. From Table 3, for example, it is noticed that 3.6 percent of workers age 16-24 years employed in small firms reported that their most recent training program experience occurred at work.

Several aspects of Table 3 are noteworthy. Looking first at training programs at work, i.e., training programs that are closely related to on-the-job training, the following conclusions can be drawn:

In no instance is the percentage of workers in large firms who participated in an at-work training program lower than the corresponding percentage for small firms.

As expected, those groups that tend to be hired disproportionately by large firms, namely, well-educated workers, full-time workers, and workers in the prime age groups are most likely to participate in an at-work training program in both large and in small firms.

Two groups of workers who may be perceived by employers to have low marginal productivity with respect to training are women and nonmarried individuals. Both, and particularly the latter, are less likely to participate in an at-work training program than their counterpart groups.

Nonhourly workers, the bulk of whom are salaried, are more likely to have been in a training program than hourly workers. A likely explanation for this is that salaried workers tend to have more stable employment and hence

TABLE 3

Most Recent Training Program:  
All Employees of Small and Large Firms  
by Worker Characteristics

	Source of Most Recent Training Program (Percent of Specified Group)						Percent of Employees With Other Trainingd Who Used Training on Current Jobe	
	Total <sup>a</sup>		At Work		Other <sup>d</sup>		Small	Large
	Small <sup>b</sup>	Large <sup>c</sup>	Small	Large	Small	Large		
All Employees	20.0	25.0	5.2	10.5	13.9	13.4	63.8	61.0
Age								
16-24 Years	17.5	19.2	3.6	7.2	13.3	12.1	66.0	46.4
25-44 Years	22.4	28.1	6.3	12.1	15.0	14.6	64.0	65.0
45 Years and Older	18.0	23.3	4.6	10.0	12.3	12.2	60.3	64.8
Gender								
Male	20.6	26.8	5.5	11.4	14.2	14.2	62.1	61.1
Female	19.2	22.9	4.7	9.3	13.5	12.5	65.9	60.8
Marital Status								
Married, Spouse Present	20.6	26.9	5.6	12.0	13.8	13.7	65.4	63.6
Other	19.3	22.4	4.6	8.3	14.1	13.1	62.1	57.1
Education								
Less than 12 years	12.8	14.9	3.4	6.6	8.8	7.0	54.2	53.4
12-15 Years	23.3	28.0	5.7	10.9	16.5	15.9	65.2	59.7
16 Years or More	16.9	25.1	5.5	12.9	10.5	11.2	67.5	74.3

TABLE 3 (Continued)

Most Recent Training Program:  
All Employees of Small and Large Firms  
by Worker Characteristics

	Source of Most Recent Training Program (Percent of Specified Group)						Percent of Employees With Other Training Who Used Training on Current Job	
	Total <sup>a</sup>		At Work		Other <sup>d</sup>		Small	Large
	Small <sup>b</sup>	Large <sup>c</sup>	Small	Large	Small	Large		
Hours Worked								
Part-Time	18.2	17.6	3.2	5.5	14.2	11.3	57.9	46.4
Full-Time	20.7	26.6	5.8	11.5	13.8	13.9	66.2	63.6
Paid by the Hour								
Yes	18.7	23.2	4.4	8.5	13.4	13.7	58.8	56.6
No	22.2	29.0	6.3	14.6	14.7	12.9	71.6	71.4

a Includes participation in a training program at work, at a previous employer, or other source of training.  
 b Firms with 1-99 employees.  
 c Firms with 100 or more employees.  
 d Source of training not at work but other than a previous employer.  
 e For workers who had only one training program experience.

employer investments in specific training can be more easily recouped.

Of some interest is the lower proportion of participants in at-work training programs among workers age 45 years and older vis-a-vis those 25-44 years of age. As the SIPP questions pertaining to most recent training program are asked of all recipients who ever participated in a training program, the at-work training program participation rate should increase with age. That this is not the case suggests that at-work training programs have been growing over time, and as a result the oldest cohort of workers has had fewer training opportunities than younger cohorts.

Examination of Table 3 also indicates a systematic relationship in large-small firm at-work training program participation rate differentials and worker characteristics. This is best illustrated when workers are classified by educational attainment. The large-small firm differential is 7.4<sup>3</sup>, 5.2, and 3.2 percentage points, respectively, for workers with 16 or more years, 12 to 15 years, and less than 12 years of school completed. While college graduates are almost twice as likely to participate in an at-work training program as high-school dropouts in large firms, they are only about one-half again as likely to receive such training in small firms. Relatively large differentials are also found for older workers; for men; married workers with spouse present; full-time workers; and salaried workers, i.e., workers who tend to have the most investment in human capital.

An entirely different pattern is found for vocational training programs. Except for educational attainment vocational training participation rates vary little by worker characteristic.

The SIPP data also reveal an interesting difference between small and large

firms with respect to vocational training. One of the questions asked of persons who ever participated in a training program was whether they used the training on their current job. As can be seen from the last two columns of Table 3 a higher proportion of workers with vocational training in small firms responded "yes" vis-a-vis their counterparts in large firms if they were young, women, other than married with spouse present, and worked part-time. What is suggested by this finding is the following: for the reasons suggested earlier workers in small firms have less human capital. Because of this small firms seek out workers with vocational training skills that match those they require. Large firms, on the other hand, are not as successful at finding qualified workers with skills learned in vocationally oriented courses because of their specific training needs. The net result of these matches, it appears, is that in small firms a higher proportion of workers with low measured productivity use their vocational training at their current job. It should be noted that the large-small firm differential in the usefulness of vocational training at work is understated because large firms are more likely than small firms to finance vocational training.

We have mentioned that the SIPP training program data focus on where training programs are taken; nonetheless, as indicated, they yield important insights into the training market. Still, additional assurance that at-work training proxies on-the-job training would be welcome. Greater confidence in the findings reported above is gained by looking at individuals who started their current job in 1980 or later. For this group the year in which an individual began work with their current employer can be compared to the year in which they undertook their most recent training program. If the latter occurred in the same year or a year subsequent to the one in which they started their current job, we defined the training program as having taken place at the

current job. Only the latter which is paid for by the employer, whether the training program occurred at work or elsewhere, constitutes on-the-job training.

The data for individuals who started a job in 1980 or later for whom participation in a training program can be rigorously associated with their current job (or another source) are presented in Table 4<sup>4</sup>. By comparing this table and Table<sup>1</sup> and 2 it can be seen that although the levels are different the conclusions to be drawn are similar, namely: 1) a lower proportion of employees in small firms vis-a-vis those in large ones participate in at-work training programs paid for by their employer (2.6 vs. 6.3 percent); 2) the proportion who take vocational training while working at their current job which is employer financed is less in small firms than large ones (about 26 vs 36 percent)<sup>5</sup>; and 3) the proportion of employees who obtain vocational training prior to being hired into their current job is the same in small firms, 9.2 percent, and large firms, 9.3 percent. Likewise the conclusion that the length of at-work training programs paid by employers and vocational programs paid by employees is independent of firm size remains unaltered. The closeness of the differentials between small and large firms in Tables 1, 2, and 4 suggests that the at-work and away-from-work training program participation data are reasonably accurate proxies of industrial and vocational training, respectively.

An interesting facet of Table 4 not reflected in the earlier tables pertains to the extent to which employees who participated in a training program while working for their current employer did so in a vocational program that was paid for by someone else other than their employer. Approximately 48 percent participated in such programs at small firms, 28 percent at large firms.<sup>6</sup> These figures indicate that a higher percentage of workers in small firms

TABLE 4

Most Recent Training Program:  
All Employees of Small and Large Firms  
Who Started Their Current Job in 1980 or Later

	Firm Size		
	<u>Total</u>	<u>Small<sup>a</sup></u>	<u>Large<sup>b</sup></u>
Number in Sample	9,611	4,459	5,152
Number of Employees (000's)	43,669	20,118	23,551
Number of Employees Who Started Their Current Job in 1980 or Later and Parti- cipated in a Training Program (000's)	8,995	3,687	5,310
Percent of All Employees Who Parti- cipated in a Training Program	20.6	18.3	22.6
Current Job	10.2	8.3	12.0
At Work	4.9	2.9	6.7
Paid by Employer	4.6	2.6	6.3
Not Paid by Employer	0.3	0.3	0.4
Not at Work	5.3	5.4	5.3
Paid by Employer	1.6	1.4	1.9
Not Paid by Employer	3.7	4.0	3.4
Prior to Current Job	10.4	10.1	10.6
Previous Employer	1.1	0.9	1.3
Other Than Previous Employer	9.3	9.2	9.3
Length of Training Program (in weeks)			
At Work, Paid by Current Employer	6.2	7.4	5.8
Not at Work (Other Than Current or Previous Employer), Not Paid by Employer	23.5	22.6	24.5

a Firms with 1-99 employees.

b Firms with 100 or more employees.

finance their own training outside of work than similar workers in large firms.

While the figures in Table 4 show the proportion of workers who participate in training programs at work while employed at their current employer, they only partially reflect the proportion who receive on-the-job training. A definition of the on-the-job training conforming more to economic theory would focus on training paid for by an employer rather than whether or not the training was conducted at work. The relevant figures for estimating the proportion of workers who participated in on-the-job training programs among workers who started their current job in 1980 or later is shown in Table 5. As can be seen from this table the percentage participating in on-the-job training programs was about twice as high in large firms as in small firms (8.2 percent vs 4.0). It is to be recalled that these figures refer to participation in firm-specific training programs and exclude informal training that is firm specific or general.

#### 4. Summary and Conclusions

The recent literature has established that the labor market operates to match workers with particular skills to firms in which those skills are needed. Because of the importance of monitoring costs and of efficiencies that result from the routinization of production when producing large, standardized volumes of output, large firms tend to provide firm-specific training. Small firms, on the other hand can more easily adjust output between product lines; the skills required to facilitate such adjustments tend to be learned through general training.

An important source of specific training is at-work training programs. Consistent with the implications of the theoretical literature, a higher fraction of workers are found to participate in this form of industrial

TABLE 5

Most Recent Training Program;  
 All Employees of Small and Large Firms  
 Who Started Their Current Job in 1980 or Later<sup>a</sup>

	Firm Size		
	<u>Total</u>	<u>Small</u> <sup>b</sup>	<u>Large</u> <sup>c</sup>
Number in Sample	9,611	4,459	5,152
Number of Employees (000's)	43,669	20,118	23,551
Percent of All Employees Whose Most Recent Training Program was at Current Job and			
Paid by Employer (On-the- Job Training)	6.2	4.0	8.2
At Work	4.6	2.6	6.3
Other Than at Work	1.6	1.4	1.9

a Derived from Table 4.

b Firms with 1-99 employees.

c Firms with 100 or more employees.

training at large firms than at small ones. Given that a worker participates in a training program, however, its length is no less in small firms than in large ones.

Several other findings are of interest: 1) in both large and small firms workers with relatively large amounts of human capital are most likely to participate in at-work training programs; 2) the gap in training program participation between large and small firms is positively related to human capital investment; put another way, differences in training program participation among workers employed in large and small firms are not as pronounced for those with relatively low amounts of human capital; and 3) workers in small firms are more likely to participate in nonemployer financed vocational training than workers in large firms.

The data of this study indicate that a substantial fraction of workers who participate in training programs do so at work. They also indicate that despite the fact that small firms do not engage in these programs to the same extent as large ones, workers with vocational training obtained outside of a work setting are just as likely to find employment in a small firm as a large one. Given the growing importance of small firms in recent years to the economic well-being of the nation, these findings suggest that strengthening the link between vocational education and the small business community can assist in assuming an adequate supply of labor to this sector of the economy.

## FOOTNOTES

- 1 The Wave 3 data were collected during May-August 1984 and cover references months beginning in January 1984 and ending in July 1984.
- 2 Since the bulk of training at a non-work site occurs in a vocational setting and what happens to persons who undertake vocational training is of interest, the terms "training received elsewhere" and "training not at work but other than at a previous employer" are hereafter used interchangeably with "vocational training" interpreted in its widest sense.
- 3 The figure 7.4 is the difference between 12.9 (large firms) and 5.5 (small firms).
- 4 Two groups of workers are omitted from Table 4: 1) workers who said they received their most recent training at work, but the year in which this training was obtained is earlier than the year they started their current job, and 2) workers who said they received their most recent training at a previous employer, but the year in which this training was obtained overlaps the years spent on their recent job. In both cases, the training and job tenure information are inconsistent with each other.
- 5 The figure for small firms =  $(1.4/5.4) \times 100$ .
- 6 The figure for small firms =  $(4.0/8.3) \times 100$ .

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