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Analysis of factors relating to success on the CFP® certification examination

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Abstract

We analyzed survey data from examinees of six administrations of the CFP® Certification Examination between November 1999 and November 2001. We observed increases in the proportions of examinees that work in insurance and as attorneys, and in the proportion of persons whose highest degree is a baccalaureate. We updated earlier work on factors associated with success on the examination. One new result is that exam preparation, in hours per week, is positively associated with performance on the examination. The five variables that are most predictive of performance on the examination are exam retake (yes, no), primary business activity, registered program, SAT score, and holding a CPA license. © 2005 Academy of Financial Services. All rights reserved.

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1. Introduction

The CFP® certification is probably the most widely recognized professional credential in personal financial planning. Over 44,000 persons carry the certification within the United States, and more than 42,000 persons outside of the United States. The use of the CFP®, CERTIFIED FINANCIAL PLANNER™ and  certification marks is regulated by Certified Financial Planner Board of Standards, Inc., a professional regulatory organization that fosters professional standards in personal financial planning so that the public values, has access to, and benefits from competent financial planning. To fulfill initial certification requirements to use the CFP®, CERTIFIED FINANCIAL PLANNER™ and certification marks, individuals must satisfy a number of educational, examination, work experience, and ethical requirements.

In 1991, CFP Board introduced a single comprehensive examination to test the candidates' integration and application of the knowledge important to providing financial advice to clients. The CFP® Certification Examination is designed to assess a candidate's ability to apply financial planning knowledge to real-life financial planning situations. The exam is administered three times each year, in March, July, and November. In 2000 over 5,000 persons in the United States took the CFP® Certification Examination, and in 2004 the number of takers exceeded 6,500.

In 1999, CFP Board's Board of Examiners, working in conjunction with CFP Board's Board of Governors and the staff of Certified Financial Planner Board of Standards, embarked on a new project. The goal of that project was to identify factors that are associated with success on the CFP® Certification Examination and, wherever applicable, to share that information with individuals selecting a CFP Board-Registered Program, candidates preparing for the CFP® Certification Examination, and CFP Board-Registered Programs evaluating their educational training.

In earlier work (Grange et al., 2003), we reported the results of analyses to determine factors that were associated with success on the CFP® Certification Examination using data obtained from examinees taking the exam in the November 1999, and March and July 2000 administrations. Subsequently, data from examinees that took the exam in the March, July, and November 2001 administrations became available. The new data contained all the variables that were in the original data set, plus some new variables. Upon running the analyses described in Grange et al. (2003) on the new data, it was evident that some of the new variables were strongly related to success (or failure) on the CFP® Certification Examination, that some variables that had been identified in Grange et al. (2003) as being associated with success on the exam did not seem to be important for the 2001 examinees, and that some variables that were *not* significant in the original analyses *were* significant for the 2001 examinees. Over time the educational programs that prepare candidates for the CFP® Certification Examination, the review materials that are available to candidates and even the make-up of the examinees are changing, so we expect that the factors that are related to success on the examination will also change.

There are three main objectives of this paper. The first objective is to identify and discuss trends and other changes in the examinee population, and in the pass rates for various subgroups of examinees defined by the measured variables. Some changes of interest are those in the composition of the population, such as primary business activities, work

experience levels, and educational backgrounds of the examinees. Other changes of interest include choices of the examinees, such as types of programs and study materials. For evaluating changes in the examinee population, and in pass rates for various groups over time, data from six administrations of the CFP® Certification Examination are used. The six exam administrations considered are November 1999, March 2000, and July 2000—the three administrations that were the subject of the analyses reported in Grange et al. (2003)—plus the three administrations in March, July, and November of 2001. Some preliminary analyses have also been carried out on the November 2002 administration of CFP® Certification Examination, and are occasionally used to reinforce observations on the six earlier administrations of the exam.

The second objective of this paper is to update the earlier work reported in Grange et al. (2003) on factors associated with success on the CFP® Certification Examination. Our emphasis in this paper differs from that in our previous paper in that we discuss and interpret results from a variety of statistical analysis procedures applied to the data, whereas in Grange et al. (2003) the discussion was very much focused on the results of one procedure. The different methods do yield somewhat different results. In particular, the techniques that consider the association of each variable with exam scores or pass rates without any consideration for other variables tend to identify more variables as being associated with "success" on the CFP® Certification Examination, and the techniques that are applied to the raw exam scores tend to be a little more sensitive to differences among groups of examinees than techniques applied to the pass rates for the different groups.

The third purpose of this paper is to identify the measured factors that are most closely associated with passing—the best predictors of passing—the CFP® Certification Examination.

2. Background

The literature on factors affecting performance on the CFP® Certification Examination is still small. Grange et al. (2003) use logistic regression to analyze data from the November 1999 and March and July 2000 administrations of the CFP® Certification Examination. Factors that were associated with passing the examination included highest degree earned, undergraduate GPA, the enrolled agent and securities designations, and primary business activity. Hampton et al. (2003) considered the question of whether younger (30 years of age or less) CFP® Certification Examination takers are different from older takers in terms of a number of demographic characteristics and in terms of what factors are most closely associated with success. Some correlates of success were the same: for both sets of examinees primary business activity, years worked in the financial services industry, being a CPA, and academic achievement indicators such as GPA and SAT scores, academic major, time between finishing a registered program and taking the exam, and having to retake the exam were statistically significantly related to performance on the CFP® Certification Examination. For the younger test takers, being an Investment Advisor, a ChFC, or holding a securities license was positively associated with success on the CFP® Certification Examination. Also, the pass rate for persons 30 and under was much higher when they completed

a CFP Board–Registered Masters Degree program or Certificate program, than if they completed a CFP Board–Registered undergraduate program.

In Grange et al. (2003), we reviewed the literature on successful performance on the CPA examination. We found that several factors other researchers identified as being related to success on the CPA examination were also related to success on the CFP® Certification Examination. These factors included highest academic qualification earned, undergraduate grade point average, and the time between finishing coursework and taking the examination. Some factors that we hypothesized would be related to success on the CFP® Certification Examination, based on our review of the literature concerning the CPA exam, did not turn out to be. These factors included the length of program and amount of preparation for the exam. The most recent literature on the CPA examination is dominated by the issue of the efficacy of the 150 hr education rule. See, for example, Grant, Ciccotello, and Dickie (2002), Shafer, Kunkel, and Hansen (2003), and Raghunandan, Read, and Brown (2003).

Whitten and Brahmasrene (2002) analyze data from the May 1998 CPA examination using cross-tabulations and conclude that gender and having a bachelors degree are not associated with passing or failing the exam, and that a live review course may be more beneficial for some candidates than self-study. Brahmasrene and Whitten (2001) use logistic regression with forward and backward variable selection to identify factors associated with success on the May 2000 administration of the Uniform CPA examination in Indianapolis, Indiana. Factors that were significantly associated with passing or failing the exam included undergraduate GPA, which concurs with Grange et al.'s (2003) analysis of CFP® Certification Examination data, but also age, gender, and private accounting experience.

Raghunandan, Read, and Brown (2003) also use logistic regression methods to analyze national data on more than 115,000 first-time takers of the CPA examination. They observe that persons taking 150 or more hours of educational programs are more likely to pass all 4 parts of the CPA exam on the first attempt. They also find that high scores on both the verbal and quantitative SAT exam are associated with higher pass rates on the CPA examination. This latter finding is consistent with our finding in this paper that high SAT scores are associated with higher scores and pass rates on the CFP® Certification Examination.

3. Data and methods

3.1. Data

A survey of the background, experience, preparation, academic qualifications and performance, and the professional designations of candidates taking the CFP® Certification Examination has been carried out several times since November 1999. A questionnaire has been sent out to each candidate shortly after the exam administration, with the completed questionnaire to be returned *before* the results of the exam are announced. Data from examinees who returned their questionnaires after the CFP® Certification Examination results were announced are not considered in our analyses. Additional information, taken from the candidate's application forms and his or her exam scores and outcomes (pass or fail), are appended to the questionnaire information for the candidate. The names and other

information that might identify the candidates were removed, and the data was provided to the authors by CFP Board staff in the form of Microsoft Excel files.

The questionnaire that is used to obtain information from the examination candidates has changed slightly over time, notably between March 2000 and July 2000, and again before the November 2002 exam administration. However, the same questionnaire was used for all three administrations of the CFP® Certification Examination in 2001, and that questionnaire is also the same one that was used following the July 2000 exam.

Table 1 contains variable names and descriptions for all questions that are considered in the analyses for this paper. Variables that were not included in the questionnaires for the November 1999 and March 2000 administrations of the CFP® Certification Examination, and hence were not included in the analyses reported in Grange et al. (2003), include the candidate's scores on the ACT and SAT examinations, whether the candidate was taking the exam for the first time or retaking it, the importance of CFP® certification to the candidate, whether the candidate's educational program was a degree or certificate program, whether or not a capstone class was required in the candidate's educational program, and the number of preparatory aids used by the candidate to get ready for the exam.

3.2. Statistical methods

To address the questions of changes in the examinee characteristics and pass rates over time, simple cross-tabulations were constructed. First, each variable in Table 1 was cross-tabulated with the six exam administration dates. Then, pass rates for every category of every variable in Table 1 were computed for each of the six exam dates. The statistical significance of any trends observed was evaluated using simple logit models (Agresti, 1996).

To determine which variables are associated with success on the CFP® Certification Examination a variety of univariate and multivariate statistical techniques were applied to the pass/fail outcomes and to the raw exam scores. First, the pass/fail outcomes were cross-tabulated individually with each of the variables in Table 1, and pass rates for the different categories within each variable were compared using the χ^2-test for independence (Webster, p. 798, 1995). For the raw exam scores, we used one-way analysis of variance (ANOVA) to compare the mean scores of the different categories within each factor (Webster, p. 545, 1995) and the non-parametric version of one-way ANOVA, namely the Kruskal-Wallis test (Webster, pp. 814–815, 1995), which uses the ranks of the scores rather than the scores themselves and which does not require even approximate normality of the raw scores.

The three univariate methods described above assess the association of each variable individually without regard to any of the other variables that were measured. To assess the association of each of the variables with success on the exam in the presence of all the other measured variables we applied two multivariate statistical techniques. We fit a general linear model (Webster, pp. 698–773, 1995; Hamilton, 1999) for the exam scores, and a multiple logistic regression model (Agresti, 1996; Grange et al., 2003) for the pass/fail outcomes. Each of these techniques assesses the association between each explanatory variable and the response variable, in the presence of all the other explanatory variables.

There was clear evidence of very extreme *multicollinearity* (Webster, p. 716, 1995) among the explanatory factors in both the general linear model and the logistic regression. To

Table 1
Variables used in the statistical analyses

Variable	Description
RegInst	Registered institution attended
Pass/Fail	Examinee passed/failed the CFP® Certification Examination
Score	Examinee's score on the CFP® Certification Examination
Retake	Examinee is taking exam for the first time or retaking it
PBusAct	Primary business activity
HDegree	Highest degree earned
Major	Undergraduate major (if applicable)
UGradGPA	Undergraduate GPA (if applicable)
SAT	Examinee's SAT score
ACT	Examinee's ACT score
YearsWkd	Number of years worked in financial services industry
CFA	Holder of the CFA designation (yes/no)
CPA	Examinee is a CPA (yes/no)
Attorney	Examinee is an attorney (yes/no)
InvAdv	Examinee is an investment advisor/investment advisor rep (yes/no)
ChFC	Holder of the ChFC designation (yes/no)
EA	Examinee is an enrolled agent (yes/no)
RealEstate	Holder of a real estate license (yes/no)
InsPandC	Holder of the property/casualty insurance designation (yes/no)
CLU	Holder of the CLU designation (yes/no)
PFS	Holder of the PFS designation (yes/no)
Securities	Holder of a securities sales license (yes/no)
InsLife	Holder of a life/health insurance designation (yes/no)
PFPprac	Examinee is a personal financial planning practitioner (yes/no)
Incentive	Employer offers a financial *incentive* to get CFP® certification (yes/no)
IncRaise	Employer offers a *raise* as an incentive to get CFP® certification (yes/no)
IncBonus	Employer offers a *bonus* as an incentive to get CFP® certification (yes/no)
IncProm	Employer offers a *promotion* as an incentive to get CFP® certification (yes/no)
IncOther	Employer offers *other* financial incentive to get CFP® certification (yes/no)
WhyCertify	Primary reason for pursuing CFP® certification
ImportCertify	How important is obtaining the CFP® certification to the examinee?
RegLength	Time taken to complete registered educational program
RegHours	Number of hours studying in registered educational program
TimetoExam	Time between end of registered program & applying to take the exam
RegGPA	GPA in registered educational program
TakeCap	Did examinee take a capstone course in registered program? (yes/no)
CapReq	Was the capstone course required or optional?
RegChoice	What was the primary factor in choosing a registered educational program?
PStudyAid	What was the primary study aid used to prepare for exam?
PDelivMeth	What was primary delivery method used to prepare for exam?
WksReview	How many weeks of review before taking the exam?
HrsperWk	How many hours per week of study for the exam?

eliminate the multicollinearity, we removed the least significant factors in the two models by backward elimination (Agresti, pp. 127–128, 1996; Hamilton, 1999).

4. Results

4.1. Trends over time

A simple taxonomy of the variables in Table 1 puts then into four classes:

1. Academic background and performance variables, including highest degree earned (HDegree), Major, SAT and ACT scores, and undergraduate grade point average (UGradGPA).
2. Business activities and work experience. The variables in this class include primary business activity (PBusAct), years spent working in the personal financial planning industry (YearsWkd), whether or not the examinee is a personal financial planner (PFPprac), and various professional licenses and designations, including being a CPA, holding a Securities license, and being licensed to practice law (Attorney).
3. Variables concerned with the examinees' motivations for seeking CFP® certification. These variables include the employer incentive variables Incentive, IncRaise, IncBonus, IncProm, and IncOther; the primary reason for pursuing CFP® certification, WhyCertify, and the importance the examinee attaches to obtaining CFP® certification, ImportCertify.
4. Variables pertaining to preparation for the CFP® Certification Examination, including the registered educational programs, review courses, and study aids. Included in this class of variables are the choice of registered educational program (RegInst) and, where appropriate, the primary reason for choosing that program; the length of the registered educational program in years (RegLength) and in hours (RegHours); whether or not the registered program had a capstone course (TakeCap) and whether the capstone course was required or optional (CapReq); grade point average in the registered educational program (RegGPA); the numbers of weeks (WksReview) and hours per week (HrsperWk) spent reviewing for the CFP® Certification Examination; and the primary delivery method (PDelivMeth), primary study aid (PStudyAid), and number of preparatory materials (NumPrep) used to prepare for the exam.

We discuss each of these classes of variables in turn.

Most aspects of the examinees' academic backgrounds and performances have remained relatively constant over time (Table 2), including undergraduate GPA, and SAT and ACT scores. The percentages of persons with undergraduate degrees in the various majors are quite variable, but there is no obvious upward or downward trend in the percentages of persons in any major.

There does seem, however, to be a slight trend in the percentage of persons whose highest degree is a bachelors degree, rising from about 55% in November 1999 to slightly over 62% in November 2001. Although the change is modest, it is highly statistically significant ($\chi^2 = 8.27$, p value $= .0040$), and preliminary data from the November 2002 administration of the CFP® Certification Examination suggests that the trend is both real and continuing, with 63.5% of survey respondents saying their highest degree is a baccalaureate degree. As the proportion of persons whose highest degree is a bachelors degree has been increasing, the percentage of examinees with a masters degree has been steadily declining by about the same amount, from a high of 32.35% in November 1999 to 24.32% in November 2001 and 22.76% in November 2002 (from preliminary data).

Lawyers comprise a very small percentage of CFP® Certification Examination takers—less than 4% in each of 6 administrations considered in this paper—but the trend in the percentage of takers with a J.D. degree is an increasing one. The change from 2.73% in

Table 2
Percentages of survey respondents for each category of academic background and performance variables, by exam administration date

Variable name	Variable codes	CFP® Certification Examination date					
		Nov 1999	March 2000	July 2000	March 2001	July 2001	Nov 2001
SAT	0–800			.76	.38	.62	.33
	80–950			3.66	3.00	2.59	2.50
	951–1050			6.81	7.00	9.00	7.06
	1051–1150			12.74	11.38	11.96	11.83
	1151–1250			12.48	13.38	10.97	11.51
	1251–1600			9.46	9.50	8.26	8.58
	Don't remember			32.28	34.25	29.35	32.79
	NA			21.82	21.13	27.25	25.41
ACT	0–15			.38	.13	.37	.65
	16–20			1.89	1.50	1.97	1.63
	21–23			3.53	3.88	4.69	3.80
	24–26			4.29	6.50	5.30	5.97
	27–30			4.79	6.50	5.55	6.41
	31–36			2.77	2.00	1.97	2.50
	Don't remember			21.56	21.88	19.98	21.61
	NA			60.78	57.63	60.17	57.44
UGradGPA	Less than 2.00	.00	.00	.00	.00	.25	.00
	2.00–2.49	2.94	4.77	3.53	3.63	3.58	2.93
	2.50–2.99	20.59	21.49	20.30	17.50	20.96	20.52
	3.00–3.49	39.60	38.86	40.35	40.63	39.21	41.37
	3.50–4.00	24.79	21.49	21.82	21.13	21.82	22.69
	Don't remember	4.10	5.57	5.17	6.63	4.81	5.75
	No degree	3.47	3.85	4.29	6.38	5.80	3.37
	NA	4.52	3.98	4.54	4.13	3.58	3.37
Major	Accounting	18.59	9.95	15.38	8.13	14.30	20.30
	Business	17.44	21.09	19.92	21.50	21.45	16.29
	Consumer science	1.47	.93	1.01	1.75	1.48	1.09
	Economics	6.20	7.82	7.06	7.00	6.66	6.30
	Finance	10.29	13.26	15.51	15.50	13.32	14.88
	Other	33.09	34.62	30.26	33.88	30.70	31.49
	No degree	3.05	4.11	4.79	6.38	5.80	3.58
	NA	9.87	8.22	6.05	5.88	6.29	6.08
HDegree	No degree	6.20	7.16	7.19	8.88	8.14	5.75
	Associate	1.89	3.32	3.03	3.00	2.34	1.52
	Bachelors	55.04	60.34	55.11	60.00	58.94	62.32
	Masters	32.35	25.33	28.88	23.00	25.40	24.32
	J.D.	2.73	2.25	3.15	3.88	3.95	3.69
	Doctorate	1.58	1.46	2.02	1.00	1.23	1.41
	NA	.21	.13	.63	.25	.00	.98

November 1999 to 3.69% in November of 2001 is small compared to the totality of test takers, but constitutes a 35% increase in the percentage of persons with a J.D. degree. By comparing the proportion of examinees with J.D.s in the November 1999 and March 2000 administrations to the July and November 2001 administrations, we observed an increase of over 50% in the proportion of examinees with a J.D. degree, and the upward trend is statistically significant (p value = .0345). A similar upward trend is apparent in the

Table 3
Percentages of survey respondents for each category of business activity, business experience, and professional designation variables, by exam administration date

Variable name	Variable codes	CFP® Certification Examination date					
		Nov 1999	March 2000	July 2000	March 2001	July 2001	Nov 2001
PBusAct	Accounting	14.50	2.79	12.61	1.88	8.01	16.40
	Banking	6.72	9.68	8.83	6.25	6.66	6.30
	Insurance	9.24	14.85	9.21	15.00	13.07	14.01
	Personal financial planning	29.83	38.33	34.55	41.00	38.84	34.31
	Securities	13.03	15.25	15.26	15.88	13.32	13.68
	Other	12.29	15.25	15.76	15.88	16.28	12.60
	NA	14.39	3.85	3.78	4.13	3.82	2.71
PFPprac	Yes	74.37	71.49	72.01	75.38	71.52	69.27
	No	25.32	26.53	26.36	22.88	26.02	28.45
	NA	.32	1.99	1.64	1.75	2.47	2.28
CFA	Yes	.84	1.06	1.01	.75	.99	.98
CPA	Yes	18.17	7.43	14.12	6.13	12.21	20.09
Attorney	Yes	2.84	2.25	3.28	3.63	3.70	3.91
InvAdv	Yes	43.38	44.16	44.39	47.88	47.10	44.52
ChFC	Yes	9.77	14.59	9.96	15.63	11.34	11.73
EA	Yes	3.15	.27	1.77	.50	1.11	2.28
RealEst	Yes	4.52	3.32	3.15	3.25	2.84	2.61
InsPandC	Yes	8.72	9.28	11.48	10.50	12.45	12.16
CLU	Yes	11.55	15.92	9.96	18.00	12.70	14.12
PFS	Yes	1.26	.53	.25	.63	.74	1.30
Securities	Yes	57.46	64.59	53.59	59.63	57.58	52.77
InsLife	Yes	58.09	65.38	56.24	66.50	63.13	57.65
Years Wkd	Less than 1 year	3.26	2.65	2.77	2.75	3.21	2.82
	1–3 years	11.55	11.27	12.36	10.63	12.82	10.10
	4–6 years	27.42	26.13	24.97	26.63	25.28	26.28
	7–10 years	17.02	18.70	18.79	21.13	18.50	18.24
	More than 10 years	37.50	37.93	36.70	35.75	35.39	38.00
	Not working in industry	2.73	2.79	3.15	2.25	2.71	3.15
	NA	.53	.53	1.26	.88	2.10	1.41

percentages of examinees who have a license to practice law (see the variable Attorney in Table 3).

The percentage of examinees who are accountants varies rather dramatically. In the March 2000 and March 2001 examinations, 2.8% and 1.9% of the examinees listed accounting as their primary business activity. In November 1999 and November 2001, the corresponding figures were 14.5% and 16.4%, respectively (Table 3). Obviously, tax return deadlines have a major impact on when accountants take the CFP® Certification Examination.

The percentage of persons listing "Insurance" as their primary business activity has risen from 9.2% in November 1999 and July 2000 to 13.1% in July of 2001 and 14.0% in November of 2001. While the percentages of examinees in insurance vary, the test for an increasing trend is highly statistically significant (p value = .0029). The trend of increasing proportions of examinees in insurance is also evident from looking at the Property and Casualty Insurance license (InsPandC in Table 3). In November 1999, only 8.7% of the

Table 4
Percentages of survey respondents for each category of variables pertaining to the incentives and preparation of the students for the CFP® Certification Examination, by exam administration date

Variable name	Variable codes	CFP® Certification Examination date					
		Nov 1999	March 2000	July 2000	March 2001	July 2001	Nov 2001
Incentive	Yes	19.12	26.92	15.01	17.25	17.14	14.98
IncRaise	Yes	1.47	2.65	3.15	2.75	3.45	2.61
IncBonus	Yes	3.99	3.58	3.66	4.25	4.32	4.78
IncProm	Yes	2.00	1.99	2.65	2.88	2.71	1.95
IncOther	Yes	11.24	10.61	8.07	11.00	8.38	6.84
PDelivMeth	Live presentation/class	21.85	21.75	21.69	19.13	23.06	21.82
	Self-study/computer	8.82	8.89	7.31	10.50	6.78	13.57
	Self-study/text	62.50	63.66	66.58	64.38	65.72	59.83
WksReview	Less than 5 weeks	14.29	9.28	12.86	10.13	11.71	11.73
	From 5–8 weeks	28.47	29.44	32.03	23.25	30.46	25.73
	From 9–12 weeks	26.79	35.41	26.73	33.25	26.63	33.55
	From 13–16 weeks	16.81	13.26	12.61	15.75	16.03	14.33
	From 17–20 weeks	5.36	3.71	5.67	7.00	6.91	5.43
	More than 20 weeks	7.35	8.22	9.21	8.88	7.52	8.36
HrsperWk	Less than 5 hours	4.31	3.18	3.15	3.63	4.19	2.61
	From 5–10 hours	20.38	17.77	18.92	16.25	15.91	16.18
	From 11–15 hours	24.47	28.25	24.46	24.13	25.89	26.06
	From 16–20 hours	26.37	22.81	27.24	26.38	25.15	27.47
	More than 20 hours	23.53	27.32	25.09	28.00	28.36	26.71
RegGPA	Less than 2.0	.11	.40	.13	.00	.37	.11
	From 2.0–2.5	1.05	.93	.63	1.00	1.48	1.30
	From 2.5–3.0	8.30	8.36	5.55	7.13	5.55	4.34
	From 3.0–3.5	20.06	20.42	19.92	16.50	17.39	14.22
	From 3.5–4.0	11.87	12.33	14.63	15.50	15.29	11.94

examinees held the Property and Casualty Insurance license, whereas the figures for July and November of 2001 were both more than 12%.

The percentage of examinees who say that their employer offered them incentives to take the CFP® Certification Examination has decreased from 19.1% in November 1999 and a high of 26.9% in March of 2000, to a low of 15.0% in November 2001 (Table 4). The decreasing trend is highly statistically significant (p value $< .0001$). Examining the various categories of incentives (raises, bonus, promotions, and other), we found that the reduction is coming from the other category. As we have observed in earlier work (Grange et al., 2003), it is not clear what examinees are including in this other category. We speculated that it might include reimbursement for examination and review course fees. We also noted that examinees that were offered incentives of any kind to take the CFP® Certification Examination were less likely to pass than persons who were not offered such incentives. We now speculate that the reduction in percentages of examinees that have been offered incentives could be because employers have noticed that they do not seem to help.

With regard to reasons for selecting a particular registered program, the percentage of persons who listed "Delivery Method" (see RegChoice in Table 4) has steadily decreased from 24.0% in November 1999 to 17.3% in November 2001. A similar downward trend is

Table 5
Percentage pass rates by administration date for weeks or review, hours per week of review, grade point average in registered program, and primary delivery method of review course

Variable name	Variable codes	CFP® Certification Examination date					
		Nov 1999	March 2000	July 2000	March 2001	July 2001	Nov 2001
PDelivMeth	Live presentation/class	59.14	67.07	48.26	61.44	46.52	60.20
	Self-study/computer	46.43	53.73	46.55	54.76	56.36	55.20
	Self-study/text	61.51	69.38	63.81	62.14	56.85	62.91
RegGPA	From 2.0–2.5	50.00	57.14	60.00	50.00	41.67	75.00
	From 2.5–3.0	53.17	49.21	56.82	47.37	40.00	55.00
	From 3.0–3.5	59.16	72.73	52.53	62.12	51.77	51.91
	From 3.5–4.0	71.68	75.27	58.26	64.52	58.87	58.18
WksReview	Less than 5 weeks	61.03	60.00	61.39	59.26	57.90	54.63
	From 5–8 weeks	57.93	68.33	60.63	65.59	52.23	62.87
	From 9–12 weeks	58.82	71.16	62.09	60.90	53.70	62.01
	From 13–16 weeks	58.13	65.00	50.51	62.70	56.15	62.88
	From 17–20 weeks	54.90	78.57	51.11	55.36	53.57	58.00
	More than 20 weeks	68.57	54.84	57.53	49.30	54.10	55.84
HrsperWk	Less than 5 hours	51.22	54.17	44.00	55.17	50.00	25.00
	From 5–10 hours	56.70	68.68	61.75	54.62	51.94	61.75
	From 11–15 hours	63.09	67.45	62.89	61.66	54.29	62.50
	From 16–20 hours	64.94	68.02	56.28	64.93	59.31	65.61
	More than 20 hours	54.46	67.48	57.07	60.27	52.17	56.74

observed for the response category, "Reputation of Program/School," from 22.3% in November 1999 to 15.9% in November 2001. In contrast, more examinees seem to be choosing a registered program on the basis of employer subsidies: 10.1% in November 2001 and 13.2% in July 2001, compared to 7.3% in November of 1999.

We expected to find a substantial increase in the percentage of examinees who said the primary delivery method (PDelivMeth) of the review course they took was computer self-study. However, the data did not support our expectations; if there has been any increase, it has been modest. The performance on the CFP® Certification Examination for examinees whose primary study method was computer self-study does seem to have improved (Table 5). In the three administrations of the CFP® Certification Examination that we considered in Grange et al. (2003), the average pass rate for the computer self-study group was 48.8%, whereas for the textbook self-study group it was 64.6%. For the March, July, and November 2001 administrations, the average pass rate for the computer self-study group was 55.3% compared to 60.6% for the textbook self-study group.

There were no substantive changes over time in either pass rates or the composition of the examinees with respect the amount of review (HrsperWk and WksReview) or the length of the review course (RegLength) taken by the examinees. We did observe a modest increase from November 1999 to July 2001 in the percentage of examinees with GPAs of 3.5 or higher in their registered program (Table 4) and, at the same time, a decrease in the pass rates for this group with the highest GPAs in registered programs (Table 5), from 71.7% in November 1999 and 75.3% in March 2000, to 58.9% in July 2001 and 58.2% in November

2001. Both phenomena are likely the result of students coming from a greater variety of programs in recent years, programs that may have different standards.

4.2. An update on factors associated with success on the CFP® certification examination

The main exhibit for this section is Table 6, which essentially summarizes the results of the analyses described in section 3.2. The first three columns of Table 6 contain *p* values for the univariate tests described in section 3.2, and columns 4–7 contain the results for the multivariate methods. The "Full" GLM and logistic regressions are the respective models with all the explanatory factors, while the "Selected" models contain only the variables retained by backward elimination. We have chosen to present all these results, in part to make the point that the different methods do yield somewhat different results. In particular, the univariate methods are more likely to identify variables as being statistically significantly associated with success of the CFP® Certification Examination than the multivariate methods, and sometimes differences in average scores for different groups of examinees are statistically significant when differences in pass rates are not large enough to be detected.

Some of the results of our new analyses are similar or even identical to those reported in Grange et al. (2003). The interested reader is referred to that paper. This discussion focuses on the new variables that were not included in the surveys analyzed in Grange et al. (2003), and on three topic areas of particular interest to us: (1) the impact of certain kinds of work experience and professional designations, (2) motivation and incentives to pass the CFP® Certification Examination, and (3) preparation for the exam. Although there are many results within these topics that could be discussed, we are most concerned with the variables that demonstrate the largest differences in pass rates and scores among their categories.

The variable Retake was not included in the November 1999 and March 2000 surveys and, hence, was not subject to the analyses reported in Grange et al. (2003). In March, July, and November of 2001, the pass rates for survey respondents who were retaking the CFP® Certification Examination were 41.8%, 24.1%, and 27.6%, respectively. The pass rates for first-time takers for the same three examination administrations were 70.1%, 69.5%, and 77.1%, respectively. The variable Retake is highly statistically significantly associated (p value $< .0001$) with success on the CFP® Certification Examination according to all the methods listed in Table 6. Obviously, the better-prepared and qualified examinees pass the exam on the first attempt. This is the variable that shows the greatest difference in pass rates for different categories among all the variables that we have analyzed.

We found the new variables containing the candidates' SAT scores (SAT) were statistically significant by all seven methods in Table 6, and ACT scores (ACT) is statistically significant by six of the seven methods. Not surprisingly, average final exam scores and pass rates increased monotonically with ACT and SAT scores. For persons reporting SAT scores less than 950, the pass rate was 45.6%; for persons with SAT scores over 1250, it was 78.8%. Similarly, persons reporting ACT scores less than 20 had a pass rate of 37.7%, while 73.5% of persons reporting ACT scores of 27 or higher passed the CFP® Certification Examination. A limitation on the use of SAT and ACT scores is that only 43.3% of examinees responded with their SAT scores, and only 20.5% of examinees provided ACT scores. Nonetheless, the differences in pass rates for persons in the highest and lowest categories of these scores are

Table 6
p-values for tests of association of each explanatory variable with performance on the March, July, and November 2001 CFP® Certification Examination administrations, using seven different methods

Variable name	Individual crosstab	One-way ANOVA	Kruskal-Wallis	Full logistic	Selected logistic	Full GLM	Selected GLM
RegInst	<.0001*	<.0001*	<.0001*	<.0001*	<.0001*	<.0001*	<.0001*
PBusAct	<.0001*	<.0001*	<.0001*	.0017*	<.0001*	.0081*	.0037*
Retake	<.0001*	<.0001*	<.0001*	<.0001*	<.0001*	<.0001*	<.0001*
Hdegree	<.0001*	<.0001*	<.0001*	.8493	.8493	.6865	.6868
Major	<.0001*	<.0001*	<.0001*	.0433**	.0036*	.1527	.1471
UGradGPA	<.0001*	<.0001*	<.0001*	.3656	.2914	.0090*	.0122**
SAT	<.0001*	<.0001*	<.0001*	<.0001*	<.0001*	<.0001*	<.0001*
ACT	<.0001*	<.0001*	<.0001*	.1782	.0463**	.0028*	.0012*
YearsWkd	.8948	.5074	.5326	.0655	.0274**	.1142	.0722
CFA	.1340	.0088*	.0073*	.2523	.2382	.0037*	.0011*
CPA	<.0001*	<.0001*	<.0001*	.0012*	.0048*	<.0001*	<.0001*
Attorney	.1785	.0502	.0575	.3272	.2050	.5459	.0037*
InvAdv	.0035*	<.0001*	<.0001*	.5080	.5027	.0340**	.0363**
ChFC	.4381	.4974	.3247	.5439	.5420	.1608	.1563
EA	.9781	.7023	.8762	.7382	.6717	.6557	.6457
RealEst	.0609	.0424**	.0816	.3499	.2490	.3526	.3481
InsPandC	.0002*	<.0001*	<.0001*	.1876	.1001	.0184**	.0050*
CLU	.1438	.0942	.0333**	.0620	.0759	.0167**	.0002
PFS	.0544	.0038*	.0058*	.3335	.3580	.0930	.0621
Securities	.0099*	<.0001*	.0011*	.0007*	.0014*	.0002*	<.0001*
InsLife	.6615	.5543	.8666	.2336	.3409	.4428	.4277
PFPprac	.0008*	<.0001*	<.0001*	.2263	.2336	.0024*	.0044*
Incentive	<.0001*	<.0001*	<.0001*	.2717	.3845	.2381	.0493**
IncRaise	.1277	.0040*	.0178**	.1797	.6455	.3594	.2841
IncBonus	.0055*	<.0001*	<.0001*	.4433	.3953	.8584	.8584
IncProm	<.0001*	<.0001*	<.0001*	.0908	.0028*	.0177**	.0009*
IncOther	.0770	.2164	.1725	.2556	.4778	.2402	.2171
WhyCertify	.0047*	<.0001*	<.0001*	.0107**	.0059*	.0011*	.0007*
ImportCertify	<.0001*	<.0001*	<.0001*	.1109	.1550	.2155	.3021
RegLenth	.1415	.1352	.0893	.4878	.4896	.6342	.6214
RegHours	.0820	.0207**	.0805	.2425	.2045	.0320**	.0298**
TimetoExam	.0014*	<.0001*	<.0001*	.2642	.3600	.3917	.4115
DegCert	.0029*	<.0001*	.0008*	.0266**	.0101**	.0430**	.0004*
RegGPA	.0782	.0044*	.0169**	.0447**	.0329**	<.0001*	<.0001*
TakeCap	.0060*	.0003*	.0014*	.1141	.3381	.1043	.2294
CapReq	.0185**	.0003*	.0026*	.2412	.1741	.2983	.3279
RegChoice	.1559	.0875	.3153	.7552	.7541	.2350	.1417
NumPrep	.0591	.3161	.2799	.0015*	.0052*	.0083*	.0015*
PStudyAid	.0020*	.0004*	.0005*	.0193**	.0169**	.0508	.0078*
PDelivMeth	.0411**	<.0001*	<.0001*	.1180	.1761	.0393**	.0589
WksReview	.5869	.2821	.3884	.1037	.1985	.2148	.2667
HrsperWk	.0052*	.0073*	.0180**	.0003*	<.0001*	.0012*	.0009*

* Highly statistically significant *p*-values; ** statistically significant but not highly statistically significant *p*-values; the rest represent non-significant *p*-values.

so large that these two variables must be considered among the strongest predictors of success or failure on the CFP® Certification Examination.

The variable asking how important obtaining CFP® Certification (ImportCertify) is also

new to the surveys analyzed here. It was statistically significant by the three univariate methods used but not by any of the multivariate methods (Table 6). Interestingly, the lowest pass rate, 54.4%, is for the persons who attached the highest importance to obtaining CFP® Certification. We believe that this low pass rate is related to the whole idea of candidates being given incentives to obtain CFP® Certification. Consistent with what we noted in Grange et al. (2003) for November 1999, and March and July 2000 CFP® Certification Examination takers, being offered financial incentives seems to be associated with poor performance on the exam. Examinees who said they were offered a financial incentive (Incentive) to take the CFP® Certification Examination scored, on average, about 17 points less than persons who were not offered an incentive, and they had a pass rate of 48.7% compared to a pass rate of 60.8% for persons who were not offered an incentive. The effect was even more apparent with persons who were offered a bonus (IncBonus) to pass the CFP® Certification Examination. Examinees offered a bonus scored more than 20 points less, on average, and had a pass rate 13% less (46.0% vs. 59.2%) than examinees who were not offered a bonus. These results suggest that some of the persons who are encouraged to take the CFP® Certification Examination by a financial incentive are ill prepared to take the exam. We speculate that at least some of the persons who say that obtaining CFP® Certification is "very important" to them are doing so because they have been offered incentives to obtain CFP® Certification.

Among the new variables was one which recorded the number of sets of materials survey respondents used in preparing for the CFP® Certification Examination (NumPrep). This variable was significant by some of the methods summarized in Table 6 but not by others. The differences in the pass rates were quite modest, with "two" having the lowest pass rate (54.5%) and "three" having the highest pass rate (63.9%). Also in the category of exam preparation is the number of hours per week spent preparing for the CFP® Certification Examination (HrsperWk). This variable was not statistically significantly associated with success on the examination in Grange et al. (2003), but it is statistically significant by all seven methods in Table 6 for the March, July, and November 2001 data. The pass rates are generally highest for persons who say they have spent between 5 and 20 hours per week preparing for the exam, and rates are considerably lower for the small numbers of persons who say they spent less than 5 hours per week preparing for the exam. This is the first clear quantitative evidence that we have found that suggests that preparation for the exam really matters.

In the area of work experience, our analyses suggest that the length of work experience is not related to success on the CFP® Certification Examination but that the area in which one works *is* related to success. The number of years worked (YearsWkd) was only statistically significantly associated with success on the CFP® Certification Examination by one of the seven methods summarized in Table 6, and even that significant result was marginal. On the other hand, primary business activity (PBusAct), being a CPA (CPA), and holding a securities license (Securities) were all highly statistically significant by all seven methods in Table 6, and the variable that identifies survey respondents who consider themselves to be personal financial planning practitioners (PFPprac) was highly statistically significant by five of the seven methods. Personal financial planning practitioners had a higher pass rate (60.9%) than non-practitioners (52.7%); persons who considered personal financial planning

their primary business activity had an even higher pass rate of 62.4%. The pattern was similar for persons working with securities. Survey respondents who held a securities license (Securities) passed the CFP® Certification Examination at a higher rate (60.8%) than respondents who did not hold a securities license (55.7%), and persons who listed Securities as their primary business activity had a slightly higher pass rate of 63.6%.

The pass rate in the CFP® Certification Examination for Certified Public Accountants (CPA) was 76.3% compared to 55.9% for persons who are not CPAs. Not all persons working in accounting are CPAs. For those survey respondents whose primary business activity was accounting, the pass rate was 68.0%, which was still higher than any other category of primary business activity. In contrast, survey respondents whose primary business activity was Banking or Insurance had pass rates of 44.4% and 47.3%, respectively. The very large differences in pass rates (more than 20% in both cases) between the categories with the highest and lowest pass rates for PBusAct and CPA suggest that these are to of the most powerful predictors of success on the CFP® Certification Examination.

4.3. Factors most predictive of success on the CFP® Certification Examination

Determination of variable importance in statistical methods such as regression models and classification techniques remains one of the most difficult and least satisfactorily resolved issues in statistics. Common approaches include looking at effect sizes, statistical significance, and proportions of sums of squares or deviances because of different factors. Our approach is to identify factors that (1) are statistically significantly associated with performance on the CFP® Certification Examination, (2) exhibit large differences among pass rates for different categories of the variable, and (3) the categories that exhibit large differences in pass rates include a large number of examinees.

The five variables that meet all three criteria listed above are Retake, RegInst (registered program), PBusAct (primary business activity), SAT, and CPA. These are the best predictors of success on the CFP® Certification Examination. All of these variables are highly statistically significant by all the methods summarized in Table 6, and the difference between the highest and lowest pass rates for the different categories of each of these variables is at least 20%. For example, persons retaking the exam have a pass rate of 31.1%, while first time takers have a pass rate of 72.5%. The difference is more than 40%! Pass rates for PBusAct range from 44.4% for persons in banking and 47.3% for persons in insurance to 62.4% who list personal financial planning as their primary activity and 68% for accountants. Indeed, 76.3% of CPAs pass the CFP® Certification Examination compared to 55.9% of persons who are not CPAs. With regard to SAT scores, the pass rate for persons with an SAT score of less than 1050 was 52.4% compared to a pass rate of 74.6% for persons with an SAT score in excess of 1150.

The variable Securities was highly statistically significant by all the methods summarized in Table 6, but the difference between the pass rates for securities license holders and non-holders is only about 5% (60.8% vs. 55.7%). The high statistical significance of this variable is because of the fact that there are very large numbers of persons both with and without this license, but the impact of the variable on the pass rate is so modest it cannot be regarded as a particularly good predictor of success on the CFP® Certification Examination.

Hours per week spent studying for the CFP® Certification Examination (HrsperWk) is much like Securities: highly statistically significant but with small differences in pass rates among the different categories of the variable. Similar behavior was apparent in the variables DegCert and HDegree, each of which had one category with a very low pass rate but very small numbers of persons in those categories.

The variable ACT exhibits a very substantial difference in pass rates between the higher and lower categories, but only about 20% of survey respondents reported their ACT scores and so this limits the use of this variable for predictive purposes. ACT, along with Securities, DegCert, PStudyAid, HrsperWk, and RegGPA, comprise a second tier of variables with regard to prediction of CFP® Certification Examination outcome.

5. Summary and discussion of implications

We have analyzed data from six administrations of the CFP® Certification Examination between November 1999 and November 2001 with a view to identifying trends in the population of test takers. Among the results of these analyses, we observed an increase in the proportion of tests takers that have a baccalaureate degree as their highest degree, and an associated decrease in the proportions of examinees with a Masters degree. The numbers and proportions of exam takers who are lawyers and who work in the insurance industry are gradually increasing over time, and there have been substantial changes in the proportions of examinees taking the various registered programs and the study aids they use.

We analyzed the data from the March, July, and November 2001 administrations of the CFP® Certification Examination in more detail to update earlier work on factors that are associated with success on the examination. We found that most of the variables that we had identified in Grange et al. (2003) were still statistically significantly associated with success on the CFP® Certification Examination and, in addition, a number of new variables not considered in the earlier work were significantly associated with success on the examination. Among the important new variables were whether or not the test taker was retaking the exam (Retake), the SAT and ACT scores of the test takers, and whether the examinee took a degree or certificate educational program (DegCert). Also identified as being statistically significantly associated with success on the exam is the variable HrsperWk, which contains the number of hours per week of review for the examination. This is the first evidence we have found in all of our analyses of the effect of preparation for the exam.

By synthesizing the results of several different statistical methods, we identified five variables that we believe are most closely associated with, and are best predictors of, success on the CFP® Certification Examination. The variables are: Retake, RegInst (registered program), PBusAct (primary business activity), SAT, and CPA. Two of these variables were only measured starting from the July 2000 administration of the CFP® Certification Examination.

We believe that our results have implications for prospective CFP® Certification Examination takers, for academic institutions offering registered educational programs, and even for employers wanting to encourage employees to obtain CFP® Certification. The low pass rates for persons whose primary business activities are a banking and insurance, especially

when compared to accountants, suggest a deficiency in background and preparation that may be remedied by taking additional courses in accounting, including tax law, perhaps as part of a registered program or as an optional module in a review course for the CFP® Certification Examination. Even the relationship between SAT and ACT scores and success on the CFP® Certification Examination may have a take home message. Personal financial planning has a very quantitative, even computational dimension and so, if a prospective CFP® Certification Examination examinee has a low overall SAT score in large part because of poor math SAT or ACT scores, that person might benefit from additional coursework or exam preparation in the quantitative aspects of the discipline. The data we have obtained from the post-CFP® Certification Examination survey does not contain detailed information on SAT and ACT scores that might permit us to address this question directly at this time.

In this paper and, to a lesser degree, in Grange et al. (2003), we have noted the negative association between employer incentives and performance on the CFP® Certification Examination. While encouraging employees to obtain CFP® Certification is a very worthy goal, our results suggest that, generally, incentives are encouraging persons to take the CFP® Certification Examination before they are properly prepared, resulting in low pass rates and perhaps a low return for the employer that may have paid, for example, for the costs of a registered educational program for an employee.

Almost three-fourths of the 2001 survey respondents who took the CFP® Certification Examination passed on their first attempt. Repeat takers fared much worse: less than one in three passed the exam. Indeed, the variable Retake is the single most significant predictor of performance on the examination. The very low pass rates point to a group of CFP® Certification Examination takers that are not sufficiently prepared to take the examination. While some of these people may be persons who were enticed to take the CFP® Certification Examination earlier than they might have because of incentives (there are positive associations between Retake and all five of the incentive variables), there are many more retakers than there are examinees who have been offered incentives. In future work, we hope to explore what factors characterize retakers, and also what factors are associated with better pass rates for this group of people. We were interested to note that preparation time in hours per week (HrsperWk) was associated with success on the CFP® Certification Examination in our most recent analyses. We hypothesize that it is the group of persons retaking the exam that is most likely to need and benefit from longer registered programs and from more time spent on exam preparations as measured by hours per week and weeks of review (WksReview).

At the other end of the spectrum, there are groups of test takers defined by combinations of categories of several variables have very high pass rates, some more than 80% and a few more than 90%. Identification of the defining characteristics of these very successful groups may provide insight as to the kinds of preparation that potential examinees need to have to be successful on the CFP® Certification Examination.

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