Research on Curriculum Reform of Statistics for Accounting Major in the Time of Big Data

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Abstract. Advances in technology have brought enormous challenges to accounting staffs. With the explosive growth of data, the scope of accounting functions is no longer limited to the basic functions such as accounting and checking. Data processing skills are one of the indispensable skills of today's accountants. Changing the traditional statistical teaching framework and increasing the teaching content related to big data helps students to better adapt to new requirements and better integrate to the society.

1. Introduction

The generation and development of accounting is almost synchronous with the emergence and development of the economy. The more the economy develops, the more important the accounting is. Traditional accounting work requires accountants to be skilled in bookkeeping, accounting, reimbursing, and making use of account. However, with the evolution of human society, industrial development, and technological advancement, the functions of accounting are constantly improving and changing. Nowadays, the rapid development of science and technology strongly stimulates profound changes in the accounting function. The new economic transformation, such as “One Belt and One Road”, “Public Entrepreneurship, Innovation” and “Industrial 2025”, puts higher demands on accountants, that is, accountants must not only have basic calculation and recording capabilities, but also have high-level occupations, risk prevention and control ability, comprehensive analysis ability and economic management ability.

The changes in accounting field have given new practice requirements to accounting practitioners. How to cultivate accounting practitioners who meet the requirements of the big data era through curriculum reform is an issue that accounting professional teachers must consider. Statistics is a discipline that seeks laws from massive data and draws management conclusions. It is closely related to big data \cite{1}. Actually, big data is one of the applications of statistics \cite{2}. Learning statistics is helpful to help accounting practitioners better obtain information from financial data and provide scientific advice for the organization's future operation decisions. This paper constructs a reform model of statistics for accounting major under the background of big data, and puts forward relevant suggestions.
2. The Connection Between Big Data and Financial Statistics

In the time of big data, there are three major changes in the accounting field: 1) new industrial formats continue to emerge, and the industry's requirements for accounting have changed significantly: not only require accountants to fully perform accounting and reporting functions, but also require them to manage from the perspective of the entire enterprise to predict future business development trends, manage budget, etc.; 2) Big data, cloud computing, mobile Internet development, provide new technologies and methods for modern accounting; 3) International accounting standards continue to optimize, China's accounting system keeps pace with the times.

Nowadays, data is the key to business success, and statistics can make data vital. Financial data is the key data in the business management process. Through financial data, accounting practitioners can sort out many financial indicators closely related to business management activities. Financial indicators refer to the relative indicators of the company's summary and evaluation of financial status and operating results, including solvency indicators, operational capability indicators and profitability indicators.

To sum up, in the process of business management, many financial data will be generated. It is one of the functions of accounting in the new era to extract effective information from massive data through accounting activities and guide the future management of enterprises. Statistics is a discipline that summarizes data patterns from large amounts of data, discovers data characteristics, and predicts the future through the value of the data. Therefore, in the time of big data, statistics and accounting are inseparable.

3. Statistical Ability Requirements of Accounting Practitioners in the Time of Big Data

Because new technology such as artificial intelligence of big data has the ability to process massive amounts of data quickly, traditional accounting work will gradually be completed by big data technology, and accounting practitioners engaged in basic accounting may face the risk of unemployment in the near future. Therefore, it is more important to improve the ability of accounting practitioners to process data and make themselves irreplaceable. Statistics is a discipline related to data processing, thus, students in accounting major can gain their own competitiveness by learning statistics and acquiring data analysis and processing skills.

In the time of big data, for all those who have accepted classical statistics, the idea of “overall replacement of the sample” is a change in thinking that is enough to incite their deep-rooted statistical nerves. Thus, there have also been new changes in the statistical ability requirements of accounting practitioners, we should focus on the statistical ability of student studying accounting in the following aspects:

1) Accounting is not the focus of the finance department. It is the development direction of the financial person with multiple professional capabilities.

Data processing technology is replacing traditional accounting and even more accounting functions. Through data processing technology and network technology, an accountant of an accounting company can act on the accounts of 150 to 300 companies, which means the disappearance of 150 to 300 accounting positions.
However, financial work and all management work are closely related. In the future, accounting practitioners should have some management capabilities. For example, in the aspect of human resource management, if you want to attract talents and retain talents, you will be inseparable from incentives. Incentives mean dealing with money. Performance appraisal, bonus distribution, equity incentives, etc. are all closely related to finance. These financial decisions can be completed not only by data processing technology, but also need to fully consider interpersonal relationships, organizational future development and other factors. This is a task that can only be accomplished by virtue of human intelligence. It cannot be removed by big data technology.

2) Information management gradually replaces traditional accounting management mode.

In the time of big data, the biggest feature is the information explosion, which means that there is a massive information and comes fast. The previous accounting was to calculate and finalize the bills after the documents arrived. The processing speed of the business personnel's documents directly affected the financial processing speed of the financial staff. Now, the database supported by information technology can update the data in real time, analyze it in real time, and mine it in real time. The organization's business and information can be shared in all aspects.

Due to the improvement of information processing capabilities, organizations no longer need decentralized management, but need to be centralized and managed to make the organization more standardized. Therefore, with the technology of big data, financial managers need to process data in the front of the business, analyze data, mine data, and discover the value of business data information, to provide convenience for centralized management. This requires financial staffs to have the ability to use data information systems, to understand the information management system, and to solve common system failures.

3) The boundaries between financial information and business information are blurred, and financial business integration is truly realized.

In the future, business processes, financial processes, and management processes will all be integrated, and the relationship between financial data and business data will be closer. Financial information will not only be a few financial indicators, accounting staffs need to mine other non-financial information at the same time, such as business information and so on. This requires accounting staffs should not only have traditional financial management capabilities, but also data mining capabilities and business identification capabilities.

To sum up, the finance staff will play more management roles. Traditional accounting functions will become smaller and smaller in the overall financial work. In other words, financial personnel will be separated from the tedious and repetitive work and will be involved in new areas such as risk management, internal control management, financial analysis, and financial forecasting.

4. Curriculum Reform of Accounting Major under the New Requirements

Data contains a wealth of information value, and in the time of big data, the value of data can be fully exploited. Therefore, accounting firms and professional associations recommend integrating big data, technology and information systems into accounting classes and providing students with the necessary knowledge and skills to adapt to the new era. The curriculum is closely related to the professional goals, but also emphasizes the cultivation of professional competence.
construction of statistics curriculum system for students major in accounting should be redesigned to help students better adapt to the requirements of accounting professional competence in the time of big data, mainly from the following aspects:

1) Integrate data mining knowledge into the statistical curriculum teaching system.

Even there are some differences between data mining and statistics, but they share common knowledge and common goals at the same time. For example, both of them contain a large number of mathematical models, and are trying to solve the business problem by describing the association between data and data. In the time of data information explosion, accounting staffs have to face massive financial data and business data. Classical statistics only focus on the data of sample, but with the technology of big data such as data mining, accounting staffs can use the overall data to produce financial statements, analyze financial data and business data, and draw more valuable management conclusions.

Thus, data mining should be integrated into statistical curriculum teaching system. We can introduce data mining knowledge when introducing knowledge of statistical and data mining common models, such as linear regression, logistic regression, cluster analysis, and time series analysis.

2) Integrate relevant knowledge of accounting profession.

The emergence of data processing technology has greatly improved the efficiency of data processing, resulting in the traditional accounting posts gradually being replaced by computers. Statistics is one of the methods of data processing. Therefore, integrating accounting-related knowledge into the teaching of statistics can avoid the narrow employment surface caused by classical statistical concepts. Combine statistics with the accounting industry, and play the role of statistics in the industry, so that accountants not only have accounting-related professional capabilities, but also have certain data analysis and processing capabilities to increase competitiveness.

3) Increase case studies related to other management functions and industries

As mentioned above, in the time of big data, only accountants with multiple professional capabilities will not be eliminated by the technology waves. Statistics for students major in accounting should increase case studies related to management functions, such as human resource management, procurement management, supply chain management, securities and financing management. By learning relevant management cases, using statistical methods to analyze the financial data and business data involved in the case, to obtain useful information and value, help students to better understand the application of statistics in all aspects of organizational management. This helps to understand and familiarize with various management functions and improve the employment competitiveness of students. On the other hand, students should also learn statistical cases in other application scenarios like tourism data analysis, population resource survey, household consumption habits survey and so on, statistical software such as the use of SPSS, EXCEL, R language should also be introduced in the course of statistical teaching.
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References


