

## Employability Determinants of Senior Agricultural Students in Iran

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### ABSTRACT

Internationally, employability has recently become an increasingly controversial issue in higher education. The emergence of knowledge-based economies, accompanied by the by-products of globalization, has forced agricultural higher education systems all around the world to think twice about the quantity and quality of their courses. On one hand, there has been a surplus of highly educated graduates seeking a career, while on the other hand, potential employers complain of a skill-mismatch phenomenon. Employability is defined as the perceived ability of conquering sustainable employment appropriate to one's qualification(s). This study evaluates factors influencing the employability of senior agricultural students at the level of Bachelor of Science (BSc) using a descriptive-correlation survey methodology. A sample of 274 out of 979 senior agricultural students was selected from agricultural faculties of five universities located in the western provinces of Iran through a stratified random sampling technique. Students showed moderate employability levels, which were significantly different depending on their field of study. The path analysis technique revealed that social class, university obligations, mastery in generic competencies, and agricultural background were the most important factors affecting students' perceived employability, respectively.

**Keywords:** Agricultural student, Educational expectations, Employability, Path analysis.

### INTRODUCTION

Employability has become one of the most defining concepts of nations' labor market policies over the last decade. For instance, the idea of employability formed one of four pillars of the European Employment Strategy (Lindsay *et al.*, 2003). Employability has been conceptualized as a set of achievements that increases graduates' likelihood of finding employment opportunities; and guarantees them success in their chosen occupations, which would eventually benefit the workforce, the community, the economy and the graduates

themselves (York, 2004). This research addresses the idea of employability from the students' perspective, attempts to understand the current situation and offers ways to enhance students' employability.

Since the last decades of the 20<sup>th</sup> century, economic structures of nations have been affected by the advent of the Knowledge Based Economy (KBE) and also the emergence of globalization (1980s-1990s), which has led to the initiation of profound changes in the world economy (Tome, 2007). Even within the limited scope of knowledge acquisition, processing and transfer, employability is a complex concept

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defined as being “the permanent updating of human commodity workforce; so essential for personal capacity building” (Morley, 2007). Recent shifts in education and labor market policies due to the appearance of knowledge-based economies have resulted in an ever-increasing and unprecedented pressure on universities to deliver employable graduates (Bridgstock, 2009). Recently, this has been one of the main driving force behind raising the issue of employability in higher education systems; i.e. the systems that play an important role in delivering graduates with the appropriate capabilities and enable them to contribute to the knowledge-based economy (Gendye et al., 2004).

In addition, international demand for a more multifaceted workforce is a consequence of many other factors such as changing demographics, technological advancement, an increase in employee autonomy, cultural diversity and nations’ desire to maintain a globally competitive position (Shay, 2004). In such an insecure environment, the concept of employability has emerged as a key contributor to the career achievements of graduates (McArdle et al., 2007).

McQuaid and Lindsay (2005) believe that employability has recently emerged as an all-embracing objective; directing national and supranational policies toward addressing unemployment crises. It has forced politicians all around the world to encounter new challenges (Salehi and Baradaran, 2006). In this context, Iran has also faced serious challenges. Approximately 270,000 Iranian students graduate from universities annually, adding to the already high demand for jobs, which the job market is unable to accommodate (Azizi and Hosseini, 2006).

In 2002, there were 147,000 agricultural graduates, from which 23, 10 and 40 percent were employed in related public sector posts, appropriate private enterprises and unrelated vocations, respectively; while 27 percent were still seeking a career at the time of the survey (Jalali, 2004). The unemployment rate for agricultural

graduates was estimated to be 21 percent, almost twice that of other graduates which was calculated to be around 14 percent (Alibeige and Zarafshani, 2006). Consequently, job opportunities for most of Iran’s agricultural graduates are thought to be limited.

On the other hand, contributing to the void situation is the idea of a “skills mismatch”, which is one of the most prevalent labor market explanations for unemployment (Houston, 2005). Such a mismatch or gap between the skills of the unemployed and the skills needed in today’s economy could partially explain a high unemployment rate amongst recent agricultural graduates in an ever-changing agricultural industry.

Besides, it is important to acknowledge that agriculture will continue to play a major role in the process of national development; especially that of developing countries such as Iran, and despite their need to confront other development challenges. Agricultural developments in some western provinces of Iran, which are within the geographical boundaries of the present study, have proved to be profitable; and there are future potentialities as well. This indicates that well thought-out development of agriculture in such a region may be a crucial part of the strategy to achieve nationally sustainable agriculture. Rational policymaking and strategic planning towards the advancement of sustainable agriculture in Iran is considered to be one of the most important challenges faced by potential beneficiaries and institutional actors like all higher education institutions. This helps us understand the necessity of making graduates competent and properly educating them, not only to have skills in a specific area of knowledge, but also to have skills that ensure their employability, which in turn prepares them for the current competitive job market and knowledge-based economy.

It is taken for granted that agricultural higher education acts as a bridge in the transfer of scientific knowledge and employability skills to students and as a

result strengthens their career prospects. The core mission of agricultural higher education is said to be: preparing students for future careers. Nevertheless, one might ask: Does agricultural higher education successfully perform its mission? Do agricultural faculties adequately prepare students to succeed in the workplace?

In Iran, a relatively high number of graduates, mostly women, arriving in the job market year after year, have introduced new opportunities and challenges for the future of agricultural higher education. Most importantly, employability, meaning all those skills that make a person eventually successful in finding an appropriate career, has attracted many researchers' attention.

Pezeshki Rad *et al.* (2005) found a significant positive relationship between teaching capabilities of educators, teaching methods, content of education, and graduates' *job ability*. According to this research, employed graduates mentioned vocational and technical higher education had prepared them for careers in the agricultural sector.

However, employability presents a more comprehensive concept in comparison with job ability. Since it is a person-centered construct, it can be decoupled from one's employment status. This means that one can be employable without necessarily being in employment (McArdle *et al.*, 2007), whereas job ability and similar concepts only measure the abilities of employed graduates. Thus, examining job ability as an indicator is not good enough to be utilized in evaluating how capable particular universities are of educating their students. Thus, our research preferred to use employability as an indicator. In this paper, employability skills are those basic skills necessary for properly finding, keeping, and doing one's job. They are rather generic in nature and cut across all industries, businesses, and job levels, from the entry-level worker to the most senior position (GurcharanSing and GaribSing, 2008).

The above discussion challenges higher education institutions and should motivate

them to evaluate their output by measuring the employability performance of their graduates. In order to make sure they are enhancing their student's employability, universities need to conduct more research on the level of employability of their graduates, as well as researching the skills graduates require to succeed in the workplace (Jackson, 2007). While many attempts have been made to introduce students to the employability skills that every graduate needs to possess upon entering the workplace, few studies have particularly focused on the skills agricultural students need to be successful in their careers (Robinson, 2008; Robinson and Garton, 2007; Berle, 2007; Garton and Robinsin, 2006; Andelt *et al.*, 1997). However, research has hinted that entry-level graduates are not equipped with the general, transferable skills necessary for employment; and thus are not prepared to enter the workplace (Crebert *et al.*, 2004). For example, according to Coulter *et al.*'s report (1990) on employment opportunities for college graduates in food and agricultural sciences in the United States, there were approximately 48,000 annual vacancies for college graduates in food, agriculture, and natural resources for which only 43,500 graduates qualified (Love and Yoder, 1989). This study revealed that many agricultural graduates lacked skills in critical thinking, communication, team work and complex problem solving. Students' deficiencies in these critical skills have been repeatedly identified in the literature (e.g. Jenkinson, 1994; Andelt *et al.*, 1997; Schmidt, 1999).

According to Cartmell and Garton (2000), agricultural education courses at Missouri University successfully equipped graduates with skills required for agricultural careers. This finding indicated that the major role of agricultural education at MU was to prepare students for related careers.

The main purpose of our study was to analyze perceived employability of senior agricultural students currently studying in universities located in the western part of



Iran. The specific objectives were to: (1) describe the demographic profile of the agricultural undergraduates including their level of commitment to the university; (2) identify their self-perceived level of competence; (3) determine their perceived level of employability; and finally (4) explore factors having an influence on the employability level of graduates in agricultural disciplines.

## MATERIALS AND METHODS

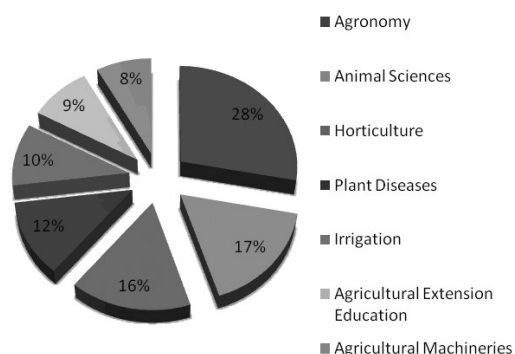
A descriptive-correlational survey was utilized to study senior BSc students of agricultural faculties at five universities located in the west of Iran (namely Kordestan, Kermanshah, Ilam, Hamedan, and Lorestan). A total population of 979 senior BSc students was listed based on the faculties' databases. Using the Krejcie and Morgan's (1970) sampling table, a sample of 274 out of 979 students (with 5 percent error) was selected through a stratified random sampling technique, for which agricultural disciplines of the faculties determined the last categorical variable for classification. A survey self-completion questionnaire was developed by the authors consisting of five parts, which contained the objectives of the study. Demographics of the respondents comprised of variables such as gender, place of birth, discipline of study, father's occupation, and university commitment. The instrument also consisted of a section in which a student was asked to grade his/her self-perceived ability to perform 23 aptitudes/skills using a five-point Likert Scale (5= Extremely competent, 4= Very competent, 3= Somewhat competent, 2= Slightly competent, 1= Not at all competent). In section four of the questionnaire, agricultural students were asked to identify their perceived level of mastery of selected generic competencies through a five-point Likert Scale. This section was adapted from Rothwell, Herbert, and Rothwell (2008) and modified based on the local context.

The questionnaire was reviewed for construct and face validity by a panel of experts consisting of six faculty members of the department of agricultural extension and education at Razi University plus the provincial managers of the Kermanshah Jihad- Agriculture Organization. After incorporating comments and inputs offered by the panel into the questionnaire, it was also pilot tested to ascertain its reliability using 30 similar agricultural students not participating in the main study. The reliability of the instrument was established using the Cronbach's alpha test, calculated for self-perceived constructs such as the ability to perform those 23 aptitudes/skills and the level of mastery of selected generic competencies. Results ranging from 0.73 to 0.89 confirmed that the instrument was reliable.

A total of 253 readable responses were collected, resulting in a response rate of 92%. A comparison was made between early and late respondents to see if there was a bias on no response (Esterns and Bowen, 2005; Miller and Smith, 1983). A Chi-square analysis procedure was used to compare early and late respondents using the gender, place of birth, and the academic major of participants. No statistically significant differences were found between early and late respondents on any of these three so-called variables. A path analysis technique was later utilized to identify direct and indirect influences of independent variables on the perceived employability level of agricultural disciplines.

## RESULTS AND DISCUSSION

The respondents' age ranged from 21 to 26 years old, with an average age of 23. The percentage of female students 52% was slightly more than that of male students 48%. Figure 1 shows the percentages of students scattered across various disciplines of agriculture in a descending order; with agronomy comprising the highest and



**Figure 1.** Percentage of respondents across various disciplines of agriculture.

agricultural machineries the lowest percent of respondents.

When asked about their parents, over three quarters of the respondents indicated that their parents' job was not related to agriculture; and on average they had received 10 years of education, with fathers being educated better. The majority of undergraduates (67%) fell in the middle social class. Of the other 33 percent, 20 percent ranked themselves as coming from the high and 13 percents from the low social classes.

Students were asked to rate some seven statements (Table 1) to measure their level of commitment to their university, using the following scale: from 1= Strongly disagree, to 5= Strongly agree. With an aggregate mean of 2.5, students revealed a low level of commitment to their universities.

As shown in Table 1, students agreed ( $M=2.77$ ) that they really cared about their

university and its future. But, they disagreed ( $M=2.18$ ) on their university being the best and that their university's values were similar to their own values.

The first objective of the study was to explore students' perceived level of competency in performing some general skills. On average, the interpretation of respondents of their own level of employability competencies was reported to be at a moderate level ( $Mean=3.30$ ,  $SD=0.70$ ). (Table 2.)

Table 3 summarizes the results of our research work on the second objective; the self-perceived employability level of students. Overall, students perceived their employability to be at a moderate level.

The fourth objective of the study was to ascertain factors involved in the employability level of agricultural disciplines. Figure 2 shows results of a path analysis of factors related to the employability level of undergraduates.

It was found that 46 percent ( $R^2=0.46$ ) of variation in the perceived employability level of respondents was explained by the variables located to the left of dependent variable (perceived employability level). The resulting model could be interpreted as follows:

Social class with a path coefficient of  $-0.24$  ( $P=0.006$ ) had an indirect effect on perceived employability level through university commitment. University commitment in its turn influenced the perceptions towards employability level of agricultural disciplines with a path

**Table 1.** Level of commitment to the university <sup>a</sup>.

Statements	M	SD	Percent		
			High	Moderate	Low
University commitment	2.49	1.20	18.6	62.8	18.6
I really care about this university and its future.	2.77	1.26	21.7	69.6	8.7
Being at this university really inspires me.	2.58	1.23	24.5	51.4	24.1
I am proud to tell others about this university.	2.56	1.17	24.9	52.2	22.9
I am extremely glad I chose this university.	2.53	1.29	29.2	43.1	27.7
I advocate this university to my friends.	2.46	1.20	29.6	49.8	20.6
I find this university values similar to mine.	2.34	1.03	24.9	61.3	13.8
I am glad to be a student in this university.	2.18	1.20	0.0	84.6	15.4

<sup>a</sup> Scale: Strongly disagree= 1 to Strongly agree= 5.

**Table 2.** Level of competency in performing general skills as perceived by students <sup>a</sup>.

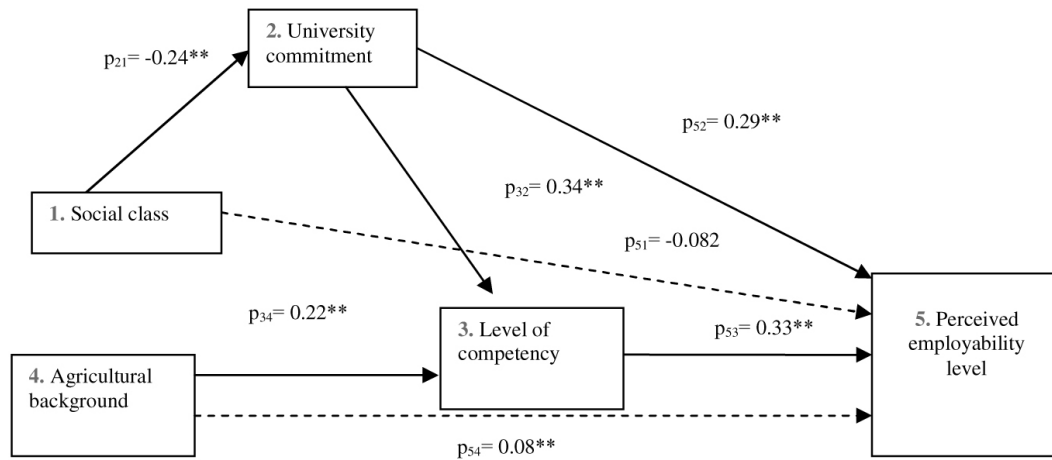
Competencies	Rank	M	SD
Competencies in general skills	-	3.30	0.70
Functional in assorted working environments	1	3.80	1.00
Order and accuracy	2	3.50	1.10
Interpersonal communication	3	3.46	1.00
Mutual understanding	4	3.42	0.95
Energy and passion	5	3.42	1.04
Flexibility	6	3.40	1.04
Responsibility	7	3.39	1.03
Leadership and influence	8	3.37	1.00
Seriousness	9	3.35	0.96
Self-confidence	10	3.35	1.03
Cultural intelligence	11	3.32	1.06
Ability to collect, organize and analyze data	12	3.27	1.03
Lifelong learning	13	3.26	0.97
Vocational ethics	14	3.23	0.95
Participation as a team member	15	3.23	0.99
Decision making	16	3.20	0.98
Problem solving	17	3.20	0.97
Written and oral communication	18	3.18	1.00
Organizational commitment	19	3.14	1.00
Critical thinking	20	3.13	1.05
Information literacy	21	2.88	0.95
Computer literacy	22	2.88	0.98
Understanding international issues	23	2.74	0.94
Creative thinking	24	2.36	0.92
English language skills	25	2.24	0.98

<sup>a</sup> Scale: 1= Not at all competent; to 5= Extremely competent.

**Table 3.** Perceived employability level of agricultural students<sup>a</sup>.

Statements	M	SD	Percent		
			Low	Moderate	High
Self-Perceived employability level	2.55	0.49	17.8	68.0	14.2
I see myself in a highly desirable career in future.	3.53	1.10	18.2	62.1	19.7
I believe my university activities have top priority.	3.28	1.12	22.1	65.6	12.3
I achieve high grades in my studies.	3.12	1.16	9.1	82.2	8.7
I am generally confident in a job interview.	3.06	1.14	11.1	81.4	7.5
My university has an outstanding reputation.	2.81	1.13	15.8	52.6	31.6
I am able to get any job as long as my skills are relevant.	2.55	1.01	17.8	64.4	17.8
I see a high demand for graduates in general.	2.54	1.24	21.7	54.2	24.1
My skills are what the employers are looking for.	2.39	1.00	21.7	66.4	11.9
My community offers plenty of job vacancies.	2.35	1.10	22.5	58.1	19.4
My chosen subjects result in highly social status.	2.34	1.08	24.9	58.9	16.2
My university is more attractive for the employers.	2.32	1.01	25.3	62.1	12.6
University image is significant in my employment.	2.31	1.13	28.9	53.0	18.2
My career is highly demanded by outer job market.	2.26	1.13	30.8	53.0	16.2
I can easily find opportunities in my field of study.	2.00	1.11	0.0	87.7	12.3
In my degree applicants are more than vacancies	1.90	1.02	0.0	74.7	25.3

<sup>a</sup> Scale: Strongly disagree=1 to Strongly agree=5.



**Figure 2.** Direct and indirect effects of predictor variables on perceived employability level. (Path coefficients are linear standardized partial regression coefficients. The significance levels are: (\*  $P < 0.05$ ; \*\*  $P < 0.01$ ).

coefficient of 0.29 ( $P = 0.07$ ). The result revealed that the needs of students with lower social class must be addressed more than others in order to enable them to hold a more positive perception of their employability. This could be assisted by increased awareness of the importance of employment after graduation.

More university commitment led to a greater perceived employability level. As shown in Figure 2, university commitment had a direct effect on perceived employability level with a path coefficient of 0.29 ( $P = 0.009$ ). It signified that perception of students towards the employability of their discipline was affected by their level of expressed university commitment. This is in line with the findings of Rothwell *et al.* (2009).

Figure 2 also shows that the level of mastery in generic competencies has a positive direct influence (Path coefficient = 0.33,  $P = 0.007$ ) on perceived employability level. The results indicate that students with higher generic competencies saw their discipline as more employable.

Finally, agricultural background with a path coefficient of 0.22 ( $P = 0.008$ ) had a positive indirect effect on perceived

employability through the level of mastery in generic competencies. Such results specified that students who had previously worked on farms were more familiar with the competencies required by the workplace, and had tried more diligently to acquire them.

## CONCLUSIONS

As expected reviewing the literature and raised in the research objectives, a moderate level of employability, and then competency was self-perceived by the students. This was in line with De Vos *et al.* (2011) who indicated that "...Self-perceived employability appeared to be positively related with career satisfaction and perceived marketability". Rothwell *et al.* (2009) revealed similar results amongst the university students of Economics in the UK; while this has been reported differently by some other researchers. Berle (2007) indicates that graduates see themselves competent for their future jobs; Rooney *et al.* (2006) unraveled the mystery of the high level of employability of the students of Geography graduating from some Italian,



British, American and Spanish universities; and finally Suvedi and Heyboer (2004) showed that employers are satisfied with the agricultural graduates of Michigan University.

Meanwhile, the results of the survey showed that the agricultural students of five Iranian universities did not have much confidence in their knowledge of some essential skills such as understanding international trends, computer literacy and creative thinking. The same findings had been reported in previous research (Berle, 2007; Raybould and Sheedy, 2005 and Suvedi and Heyboer, 2004).

According to the present study, neither social class nor agricultural experience has direct significant influence on the employability of the respondents. Nevertheless, it is discovered that social class can indirectly have a negative impact on perceived employability of the students through perceived commitment to their university. In other words, the more a student see oneself as belonging to a lower social class, the higher he/she feels to be committed to his/her university and consequently the higher is his/her perceived level of employability. Such students see university study as their only chance for a better life, whereas students from higher social classes do not find the university experience as motivating.

Possessing previous agricultural experiences also tends to have an indirect effect on employability through job related competencies. Students with previous agricultural experiences see agricultural courses to be more meaningful and relevant to their background and they do their best to acquire the required skills they find necessary.

Overall, students, who are moderately committed to their university, assess their own performance in some general skills to be at a moderate level. The same students also rank their employability level as moderate. It can be concluded that students' low perception of their qualifications can be a possible reason why they do not show high

levels of employability. To the authors, this is a great area for further research and informed intervention if future agricultural graduates are to be highly employable. It seems to us that such low self-esteem originates deep in the apparatus of our society and necessitates a kind of education which is empowering and emancipating.

The path analysis revealed that when students categorize themselves in a lower social class, they are actually showing their needs for orientation training and motivational courses. Some characteristics of students such as previous experience in agriculture, perceived competency in some general skills and seeing the university as committed to their goals are associated with these students expressing more positive views on their employability level.

The study provides some insights into the employability of some senior agricultural students in Iran; nevertheless the results must be interpreted with caution. Its findings are bounded to the phrase-space of the study and the limitations of quantitative research methodology. It is recommended that the employability of students be further investigated utilizing qualitative methodologies in order to shed more light on the phenomenon.

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## پیش‌گوکننده‌های اشتغال‌پذیری دانشجویان کشاورزی در ایران

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### چکیده

امروزه، اشتغال‌پذیری یکی از مباحث چالشی آموزش عالی کشورهای مختلف دنیا محسوب می‌شود. تجلی اقتصاد دانش بنیان و آثار ملازم جهانی شدن منجر به تلاش موسسات آموزش عالی کشاورزی کشورها برای تجدیدنظر در کمیت و کیفیت دوره‌های تحصیلی شده است. از طرفی، حجم انبوهی از دانش‌آموختگان بیکار جویای کار وجود دارد و از طرف دیگر کارفرمایان از نامتناسب بودن شایستگی‌ها و مهارت‌های دانش‌آموختگان با نیازهای دنیای کار گلایه دارند. اشتغال‌پذیری، توانایی ادراک شده فرد در احراز شغلی پایدار متناسب با توانمندی‌ها و شایستگی‌های خود تلقی می‌شود. در این پژوهش توصیفی همبستگی، عوامل موثر بر اشتغال‌پذیری دانشجویان مقطع کارشناسی رشته‌های

مختلف کشاورزی مورد مطالعه قرار گرفتند. نمونه تحقیق شامل ۲۷۴ نفر از تمامی ۹۷۹ دانشجوی کشاورزی دانشکده‌های کشاورزی پنج دانشگاه غرب کشور ایران بود و به این منظور از روش نمونه‌گیری تصادفی طبقه‌ای استفاده شد. بر اساس یافته‌ها، میزان اشتغال پذیری رشته‌های کشاورزی در حد متوسط برآورد گردید و این میزان در بین رشته‌های مختلف متفاوت بود. تحلیل مسیر نشان داد که طبقه اجتماعی، میزان تعهد به دانشگاه محل تحصیل، میزان اکتساب شایستگی‌های کانونی و داشتن زمینه کار کشاورزی به ترتیب مهم‌ترین پیشگو کننده‌ها و متغیرهای تاثیرگذار بر میزان اشتغال پذیری رشته‌های کشاورزی هستند.