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The Influence of Personality on Students' Career Decisiveness – A Comparison between Chinese and German Economics and Management Students**

Within the last decade, the relation between personality and career decisiveness has received increased attention. This study examines the country-specific influence of the Big Five personality traits on career decisiveness and its determinants, namely career related adaptability, career-related optimism, and career-related knowledge, among 406 Chinese and German economics and management students. The results show that personality traits affect career decisiveness and its determinants and that the effects partly differ across countries. The findings, their implications, and further research directions are discussed and suggestions for career counseling are made.

Key words: career decisiveness, country comparison, personality traits

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1. Introduction

Research in the area of career psychology has attempted to understand the reasons behind career (in)decisiveness for the past decades (Newman et al. 1999). The link between personality and students' career planning has been seen as one of the factors influencing career decision making. Goldschmid (1967) already demonstrated that personality influences the choice of college majors. Järnlström (2000) showed that personality is related to the career expectations of students. In addition, Reed et al. (2004) demonstrated that personality factors influence the career choices of students. Bacanlı (2006) pointed out that personality characteristics may be seen as predictors for a student's career indecisiveness. These relationships cause a need for diverse career counseling for students with different personalities. As Rottinghaus et al. (2005) point out, examining career decisiveness might help career counselors to identify personal concerns, which interfere with career decision making. This in turn, makes counseling process more efficient. Rottinghaus et al. (2005) developed the career futures inventory (CFI), which measures the career identity status or career plan. It measures positive career planning attitudes through career-related adaptability, optimism, and knowledge. These three factors appear to be an essential basis for successful career planning which leads to career decisiveness.

So far, the literature has not examined the influence of students' nationality on career decisiveness even though recent studies (e.g., Church 2000; Hofstede/McCrae 2004) have shown that there is a link between national culture and personality traits. That is, personality and culture might be related concepts, and therefore, a certain type of personality might display itself in different forms in different nations. As firms become more and more international and hire students in various countries, it becomes of crucial importance for the human resource management of international organizations to be able to anticipate the career planning of students in the countries of operations. The objective of our study is to examine the influence of career-related adaptability, optimism, and knowledge on career decisiveness. In addition, we will investigate the influence of personality traits on students' career decisiveness and its antecedents. Furthermore, we will examine if the various relations are similar in two countries, China and Germany. Differences in career planning process would imply a differing need as well as diverse process of career counseling in the two countries.

2. The relation between personality and career planning

Career planning is the fundamental first step in the course of career development, the process of general and vocational decision making. This, however, implies that individuals are aware of their interests, skills, and values. Furthermore the individuals are assumed to have an idea about the world of labor (Parsons 1909). As career planning is of diverse nature, Gutteridge (1986: 52) defines it "as a deliberate process of (1) becoming aware of self, opportunities, constraints, choice and consequences; (2) identifying career-related goals, and (3) programming work, education and related developmental experiences to provide the direction, timing and sequence of steps to attain a specific career goal."

Rottinghaus et al. (2005) developed the career futures inventory (CFI), which measures the career identity status or career plan. The CFI has been developed to provide a measure of “positive career planning attitudes” (Rottinghaus et al. 2005: 3), namely career related adaptability, optimism, and job-related knowledge. Career adaptability can be defined as an individual’s readiness to deal with and adjust to changes in the future, the willingness to take increasing work responsibilities, as well as the capability to adjust quickly in case of unexpected alteration of the career plan. Resources include cognitive skills, such as knowledge and decision-making abilities, social skills, i.e. empathy, and psychological capacities, relating to the readiness to decide on something. This implies that individuals who lack career adaptability skills rather do not have a career plan compared to individuals with good career adaptability skills. Career optimism relates to the attitude of expecting the best possible outcome for the future career. Furthermore, it describes individuals who are optimistic and positive concerning the prospects of their career development and feel comfortable with completing career planning tasks. Career knowledge of job market measures the individuals’ perceptions concerning their comprehension of job market and employment trends. Generally, students who are well informed with regard to the job market may also be able to make better career-related decisions. As a result, the three factors, career adaptability, career optimism, and career knowledge, appear to be an essential basis for successful career planning.

Personality traits, especially the ones presented by the Five Factor Model (FFM), have emerged as predictors for significant outcomes in life, e. g. job-related outcomes. It is assumed that personality traits are associated with a broad range of career belief and performance variables, irrespective of occupation and nationality. Tokar et al. (1998) showed that facets of personality, which underlie the factors neuroticism, extraversion, and conscientiousness, may be related to certain vocational behaviors, e.g. occupational interest, career indecision, and job satisfaction. They state that the FFM dimensions relate to the career exploration variables such as self-exploration, career information seeking, stress regarding career exploration, and career search self-efficacy. The fields of personality and vocational psychology are not only linked through common methodology and conceptual propositions, but also through the application of most vocational models, which imply that career development can be regarded as an extension of personality.

Empirical studies provide evidence on the influence of personality on vocational interests and career-related goals, vocational identity, etc. (Hartman 2006). Even though the FFM is the most common personality measure of empirical studies, it has not been widely applied in connection to students’ career planning. Career decisiveness, which can be defined as an individual’s certainty about the career decision (Osipow et al. 1987) is a vast research field. Newman, Grey, and Fuqua (1999) inspected the relation between personality and career decisiveness of U.S. American students to determine the career decisiveness of the students. They demonstrated a relationship between some personality characteristics and career indecisiveness. Several studies showed that certain personality characteristics, such as, external locus of control, low self esteem, low self confidence, and high level of irrational beliefs may lead to career indecisiveness (Bacanli 2006; Cooper et al. 1984; Fuqua et al. 1988; Germeijs/De

Boeck 2002; Nevo 1987; Salomone 1982; Stead et al. 1993; Taylor 1982). Rottinghaus et al. (2005) showed a relationship between the FFM variables and the variables of career-related adaptability, optimism, and career knowledge and concluded that the personality trait neuroticism has a significant negative influence on all three variables, whereas the trait conscientiousness has a positive influence on the same variables. Therefore, it can be concluded that neuroticism may be an indicator of career indecisiveness whereas conscientiousness would rather be related to career decisiveness.

Given the existing literature, we believe that personality has an influence on students' career decisiveness. However, the state of the research does not allow a formulation of directional hypotheses, and therefore, we propose the following research questions (RQS):

- RQ1: Do personality traits have a direct effect on business student's career adaptability, career optimism, and career knowledge?
- RQ2: Do career adaptability, career optimism, and career knowledge have a positive effect on business student's career decisiveness?
- RQ3: Do personality traits affect business students' career decisiveness?

Mau (2001) stresses the assumption that career decision making is considerably influenced by culture. Despite the comprehensive research on career decision making, the influence of culture or nationality has been widely neglected so far. Hence, further research regarding the impact of nationality on career choice and career planning needs to be conducted. The question of main interest is if different personality traits have a similar influence on the career planning of business students across nations. That is, can it be assumed that individuals with similar personalities in various countries have also similar career plans?

- RQ4: Do the determinants of business students' career decisiveness vary across countries?

To examine these research questions, in the following we will perform our analysis using two different country samples, one from China one from Germany.

3. Research method

3.1 Sample and data collection

The research questions are investigated using a sample consisting of 406 university students from China and Germany. The Chinese sample consists of 196 students who are mostly undergraduate (89.8%) and graduate (7.8%) students from economics and management study programs of a university in South-East China. The Chinese sample contains 106 (54.1%) female students. The students' mean age is 24.71 years. The German sample consists of 210 students from economics and management study programs of a public university located in the Eastern part of Germany. The German sample contains 112 (53.3%) female students. The students' mean age is 23.02 years. In contrast to the Chinese sample, the percentage of undergraduates, who completed the questionnaire, is only 29.7%, while the percentage of graduates is 68.4% in the German sample. All students in both countries were citizens of and born in their respective countries. The students were asked to voluntarily participate in the study by filling out the questionnaire during regular class room sessions.

3.2 Measures

The questionnaire was composed of three parts. The first part included information on the career futures inventory and the dependent variable. Using the career futures inventory by Rottinghaus et al. (2005), students' *career adaptability* (2 items, e.g., "I am good at adapting to new work settings", China $a = .62$, Germany $a = .60$), *career optimism* (2 items, e.g., "Thinking about my career frustrates me" reverse, China $a = .65$, Germany $a = .61$), and *career knowledge* (2 items, e.g., "I am good at understanding job market trends", China $a = .78$, Germany $a = .84$) were taken as independent variables. For all three variables, the five-point scales were anchored at strongly agree/strongly disagree. The dependent variable, *career decisiveness*, was based on the work of Marcia (1966). It was measured using four-statements, one-choice item representing a 2 x 2 typology (e.g., "I have not made a career choice at this time and I do not feel particularly concerned or worried about it"). In the second part, the personality traits were measured using the Big Five Inventory (BFI) questionnaire from John et al. (1991) including *extraversion* (2 items, e.g., "I see myself as someone who is sometimes shy, inhibited", China $a = .63$, Germany $a = .63$), *neuroticism* (2 items, e.g., "I see myself as someone who is depressed, blue", China $a = .64$, Germany $a = .67$), *conscientiousness* (2 items, e.g., "I see myself as someone who does things efficiently", China $a = .60$, Germany $a = .63$), *agreeableness* (2 items, e.g., "I see myself as someone who starts quarrels with others" reverse, China $a = .67$, Germany $a = .78$), and *openness* (2 items, e.g., "I see myself as someone who is original, comes up with ideas", China $a = .74$, Germany $a = .79$). For all five personality traits, the five-point scales were anchored at agree strongly/disagree strongly. The third part included the control variables (age, gender, number of semesters) as well as questions regarding demographic information (citizenship, citizenship at birth, study major). The questionnaire was conducted in the respective national language in both countries. Following Brislin (1986) and Harzing (2005), three separate country natives translated the original English questionnaire. The translations were conducted using one individual for the translation, one individual for the translation back into English, and one individual in order to solve differences in the translations with the two translators.

4. Data analysis and results

First, the data sets were examined country by country using confirmatory factor analysis (CFA), to identify any country-specific components. Here, AMOS 16 and the maximum likelihood estimation procedure were used. All factor loadings were statistically significant at the .001 level and showed squared multiple correlations above the .5 threshold. The factor structures were similar for both countries and the values of the comparative fit index (CFI) and the root mean square error of approximation (RMSEA) for the confirmatory factor analysis models. Were 0.92 and 0.04 for the Chinese and 0.95 and 0.05 for the German sample respectively, indicating an acceptable fit of the measurement models. In order to examine the invariance of the measurement models in China and Germany, the two data sets were examined using multi-group confirmatory factor analysis (MGCFA). Here, the maximum likelihood estimation procedure was used to assess the invariance of the measurement model across countries. In the first model, all factor loadings were constrained to be equal in both

groups (configural invariance). The results for this first model show an acceptable fit ($\chi^2[146] = 262.52$, CFI = .930, RMSEA = .042). In the second model, the factor loadings were allowed to vary between groups (metric invariance). As presented in table 1, the results of the estimation of the second model indicates that the constructs were measured adequately through their indicators in both countries ($\chi^2[152] = 276.55$, CFI = .921, RMSEA = .044). A chi-square difference ($\Delta\chi^2$) test as well as a CFI difference (Δ CFI) test was used to assess whether the improvement in model fit due to relaxing between-groups equality constraints of certain parameters was statistically significant. The differences between the two models were not significant at the 0.05 level ($\Delta\chi^2 = 14.03$, Δ df = 8, Δ CFI = .009) and, therefore, the factor structure can be considered invariant across the two countries (Byrne 2010; Cheung/Rensvold 2002). The third model tested scalar invariance. The results show an inadequate fit of the model ($\chi^2[168] = 462.97$, CFI = .835, RMSEA = .060). The comparison between the second and the third model shows that the data did not fit the requirement for scalar invariance ($\Delta\chi^2 = 186.42$, Δ df = 8, $p < .001$, Δ CFI = .086) and, consequently, the data did not meet the requirement for meaningful comparison of the means across countries (Steenkamp/Baumgartner 1998).

Table 1: Results of multi-group confirmatory factor analysis

Models	Comparative Model	χ^2	df	$\Delta\chi^2$	Δ df	Stat. sig.	CFI	Δ CFI	RMSEA	Interpretation
Model 1 Unconstrained model	–	262.52	146	–	–	–	.930	–	.042	The factor structure is invariant across countries (configural invariance)
Model 2 Equal measurement weights	2 versus 1	276.55	152	14.03	8	NS	.921	.009	.044	The factor loadings between items and factors are invariant across countries (metric invariance)
Model 3 Measurement intercepts	3 versus 2	462.97	168	186.42	8	$p < .001$.835	.086	.060	The intercepts of item regressions on the latent variable are not invariant across countries (scalar invariance is not supported)

Note: $n = 406$. MGCFA = Multi-group confirmatory factor analysis, df = Degrees of freedom, CFI = Comparative fit index, TLI = Tucker-Lewis index, RMSEA = Root mean square error of approximation

The respective items, the factor loadings of the national analysis, and the results of the reliability analysis are provided in table 2. Based on the conservative standard of 0.7, the item reliability figures for extraversion, agreeableness, conscientiousness, neuroticism, career adaptability, and career optimism are low. Given the small number of items ($n = 2$) for these scales, it can be argued that the items cover a clear, uni-dimensional domain and, therefore, a Cronbach alpha as low as 0.49 is acceptable (Schmitt 1996; Cortina 1993). In addition to the Cronbach alpha, we calculated com-

posite reliabilities (Fornell/Larcker 1981). All Cronbach alphas and composite reliabilities are above .6, which shows that the variables have sufficient internal consistency.

Table 2: Results of confirmatory factor analysis and reliability analysis

Items	Variables	Factor loadings		Cronbach's α (Composite reliabilities)	
		China	Germany	China	Germany
I see myself as someone who is sometimes shy, inhibited. (r)	Extraversion	.61	.43		
I see myself as someone who is outgoing, sociable.		.71	.83	.63 (.75)	.63 (.65)
I see myself as someone who starts quarrels with others. (r)	Agreeableness	.71	.51		
I see myself as someone who often has arguments with others. (r)		.54	.72	.67 (.88)	.78 (.80)
I see myself as someone who tends to be lazy. (r)	Conscientiousness	.51	.89		
I see myself as someone who does things efficiently.		.59	.32	.60 (.72)	.63 (.64)
I see myself as someone who is depressed, blue.	Neuroticism	.56	.62		
I see myself as someone who is relaxed, handles stress well. (r)		.57	.40	.64 (.61)	.67 (.69)
I see myself as someone who is original, comes up with ideas.	Openness	.66	.81		
I see myself as someone who is inventive.		.54	.53	.74 (.89)	.79 (.83)
I am good at adapting to new work settings.	Career Adaptability	.55	.53		
I can adapt to change in the world of work.		.30	.35	.62 (.79)	.60 (.64)
I am good at understanding job market trends.	Career Knowledge	.58	.65		
I do not understand job market trends. (r)		.71	.91	.78 (.89)	.84 (.85)
Thinking about my career frustrates me. (r)	Career Optimism	.52	.60		
I am unsure of my future career success. (r)		.55	.81	.65 (.67)	.61 (.62)

Note: China $n = 196$, Germany $n = 210$. (r) = reverse item.

Table 3 present means, standard deviations, and pairwise correlation coefficients for all variables.

Table 3: Descriptive statistics and pairwise correlations

Variables	China		Germany		1	2	3	4	5	6	7	8	9	10	11	12
	M	SD	M	SD												
1. Career Decisiveness	2.37	.72	2.65	1.06		.01	.31	.17	.19	.02	.17	-.04	.14	-.07	.01	-.12
2. Career Adaptability	3.81	.54	4.05	.55	.12		.29	.31	.23	.09	.25	-.26	.15	.10	.06	.07
3. Career Optimism	3.23	.73	3.33	.89	.33	.27		.41	.37	.09	.18	-.45	.24	.11	-.13	.01
4. Career Knowledge	3.05	.72	3.20	.83	.30	.32	.47		.22	.09	.03	-.28	.17	.19	-.19	.19
5. Extraversion	2.80	.83	3.28	.75	.04	.33	.13	.09		-.04	.18	-.41	.25	.05	.01	-.07
6. Agreeableness	4.14	.74	4.16	.68	.05	.03	.02	.02	-.09		.19	-.14	-.03	.07	-.04	.07
7. Conscientiousness	3.47	.79	3.77	.73	.24	.31	.26	.32	.20	.14		-.05	.08	.13	.25	.10
8. Neuroticism	2.46	.76	2.43	.72	-.10	-.45	-.28	-.23	-.45	-.13	-.43		-.14	-.09	.27	.04
9. Openness	3.58	.70	3.35	.73	.16	.29	.34	.31	.29	-.03	.23	-.28		.14	-.07	.06
10. Age	24.71	5.28	23.02	1.81	.38	.17	.15	.24	.19	-.01	.23	-.17	.18		-.19	.58
11. Gender (female)	54.08		53.34		-.07	-.14	-.24	-.19	-.01	.10	-.13	.09	-.22	-.37		-.11
12. Semesters	4.78	2.07	6.47	1.95	-.25	-.19	-.16	-.28	-.13	-.03	-.09	.15	-.10	-.58	.18	

Note: China *n* = 196, Germany *n* = 210. Correlation coefficients are presented below the diagonal for the Chinese sample and above the diagonal for the German sample. All correlation coefficients above |.13| are significant at *p* < .05.

To test for multicollinearity, variance inflation factors (VIF) for all country variables were examined and found to be higher than 5, suggesting significant multicollinearity for this conservative threshold. In order to address this finding and to test the effect of the five personality traits on the career futures inventory variables as well as on career decisiveness while considering the potential effect of the multicollinearity, each career futures inventory variable and career decisiveness are estimated simultaneously in a two-stage least squares (2SLS) regression analysis (Greene 2007). This analysis accounts for any correlation between the career futures inventory variables themselves as well as the personality traits and career decisiveness. An ordinary-least-squares (OLS) regression analysis is used to estimate the effect of the different career futures inventory variables and the dependent variable within the 2SLS setting. In the first stage the dependent variables are career adaptability, career optimism, and career knowledge. The respective remaining career futures inventory variables, the five personality traits, and the controls (age, gender, and semesters) are the independent variables in the three regression models. In the second stage career decisiveness is the dependent variable and the independent variables are the residuals of the three models of the first regression stage together with the personality traits, and the three control

Table 4: Results of two-stage least squares regression analysis (1st step)

Variables	Career Adaptability			Career Optimism			Career Knowledge		
	China	Germany	Full sample	China	Germany	Full sample	China	Germany	Full sample
Intercept	3.37 (.48)***	2.81 (.61)***	2.75 (.33)***	1.82 (.70)*	1.32 (.93)***	1.75 (.40)***	.68 (.69)	.11 (.93)	.12 (.49)
Career Adaptability				.045 (.09)	.10 (.10)	.07 (.06)	.19 (.09)*	.31 (.10)**	.27 (.06)***
Career Optimism	.02 (.05)	.04 (.04)	.03 (.03)	.34 (.06)***	.28 (.06)***	.32 (.04)***	.32 (.06)***	.28 (.06)***	.31 (.04)***
Career Knowledge	.11 (.05)*	.15 (.04)**	.14 (.03)***	-.01 (.06)	.15 (.07)*	.07 (.04)	-.07 (.06)	.07 (.07)	-.01 (.04)
Extraversion (E)	.09 (.04)*	.02 (.05)	.10 (.03)**	.01 (.06)	.01 (.07)	.01 (.04)	-.01 (.05)	.05 (.07)	.02 (.04)
Agreeableness (A)	-.01 (.04)	.01 (.05)	.01 (.03)	.04 (.06)	.14 (.07)*	.08 (.04)*	.15 (.06)*	-.10 (.07)	.02 (.04)
Conscientiousness (C)	.05 (.04)	.12 (.05)*	.12 (.03)***	.09 (.03)*	.33 (.06)***	.20 (.05)***	.02 (.07)	-.02 (.08)	-.02 (.05)
Neuroticism (N)	-.19 (.05)***	-.12 (.05)*	-.13 (.03)***	-.11 (.07)	-.33 (.06)***	-.22 (.05)***	.13 (.06)*	.03 (.07)	.06 (.04)
Openness (O)	.07 (.05)	.04 (.04)	.03 (.03)	.17 (.07)*	.12 (.07)*	.14 (.04)**	.01 (.01)	.01 (.03)	.01 (.01)*
Age	-.01 (.01)	.01 (.02)	.01 (.01)	-.01 (.01)	.01 (.03)	-.01 (.01)	.01 (.01)	-.09 (.05)	-.07 (.03)*
Gender (female)	-.02 (.03)	-.06 (.03)*	-.02 (.02)	-.10 (.04)*	-.03 (.05)	-.07 (.03)*	.01 (.04)	.06 (.03)*	.01 (.02)
Semesters	-.02 (.02)	.01 (.02)	.01 (.01)	-.01 (.02)	-.02 (.03)	-.01 (.01)	-.06 (.02)*	.06 (.03)*	.01 (.01)
Country dummy (CD)				-.08 (.03)**			-.01 (.04)	-.06 (.06)	-.04 (.04)
CA x CD							-.03 (.07)		.02 (.04)
CO x CD				-.01 (.03)					
CK x CD				-.01 (.03)			.03 (.04)		
E x CD				.03 (.03)			-.08 (.05)*		-.07 (.04)
A x CD				-.01 (.03)			-.01 (.04)		-.03 (.04)
C x CD				-.03 (.03)			-.05 (.05)		.12 (.04)**
N x CD				-.03 (.04)			.11 (.05)*		.02 (.05)
O x CD				.01 (.03)			.02 (.05)		.04 (.05)
Age x CD				-.01 (.01)			-.01 (.01)		-.01 (.01)
Gender (female) x CD				.04 (.02)*			.03 (.03)		-.04 (.03)
Semesters x CD				-.01 (.01)			.01 (.02)		-.06 (.02)**
R ²	.29	.21	.25	.30	.35	.30	.33	.27	.26
Adjusted R ²	.25	.17	.23	.26	.32	.29	.30	.24	.25
Δ R ²				.03			.03		.05
F	7.94 ***	5.29 ***	13.57 ***	8.36 ***	10.98 ***	17.68 ***	9.80 ***	7.53 ***	14.59 ***
n	196	210	406	196	210	406	196	210	406

Note: Regression coefficients are unstandardized; standard errors are in parentheses.

†p < .1, *p < .05, **p < .01, ***p < .001

variables. To compare the regression results across countries, both stages include two additional models. The full sample model and the full interaction model include both data sets. The full interaction model includes interaction effects for all variables and a dummy variable for the Chinese sample. To access cross-country similarities and differences in the regression coefficients, the interaction effect regression coefficients as well as the difference in the explained variance of the full sample model and the full interaction model are tested. Table 4 presents the results of the first stage of the 2SLS regression analysis estimating the three career futures inventory variables.

The first research question is concerned with the influence of personality on career adaptability, career optimism, and career knowledge. For the Chinese sample, the results show that neuroticism has a significant and negative effect on career adaptability, while career knowledge has a significant and positive effect on career adaptability. Extraversion has a tendency towards significance and a positive effect on career adaptability. Openness and career knowledge have a significant and positive effect on career optimism, while gender (female) has a significant and negative effect on career optimism. Conscientiousness and openness have a significant and positive effect on career knowledge.

Moreover, career adaptability and career optimism have a significant and positive effect on career knowledge, while the number of semesters has a significant and negative effect on career knowledge.

For the German sample the results show that conscientiousness and career knowledge have a significant and positive effect on career adaptability, while neuroticism has a significant and negative effect on career adaptability. Extraversion has a positive effect and gender (female) a negative effect on career adaptability, both with a tendency towards significance. Extraversion has a significant and positive effect on career optimism, while neuroticism has a significant and negative effect on career optimism. Conscientiousness and openness have both a positive effect on career optimism and a tendency towards significance. Career knowledge has a positive effect on career optimism. Career adaptability and career optimism have both a significant and positive effect on career knowledge. The number of semesters has a positive effect on career knowledge and a tendency towards significance. The results show that for the Chinese sample at least one personality trait affects career adaptability, career optimism, and career knowledge. The results for the German sample show that at least two of the personality traits affect career adaptability and career openness. The comparison between the model that includes the full sample and the full-interaction model the career optimism shows that neuroticism has a significantly stronger effect on career optimism for the German sample compared to the Chinese sample. A comparison of the full sample model and the full-interaction model for career knowledge shows that conscientiousness has a significantly stronger effect on career knowledge for the Chinese sample compared to the German sample. These results show that the effects of the personality on two of the determinants of career decisiveness vary across countries.

To investigate research questions 2 and 3, we used the resulting residuals for career adaptability, career optimism, and career knowledge of the first step in the second

step of the regression analysis. Table 5 presents the results of the second stage of the 2SLS regression analysis estimating career decisiveness.

Table 5: Results of two-stage least squares regression analysis (2nd step)

Variables	Career Decisiveness			
	China	Germany	Full sample	Full interaction
Intercept	.42 (.61)	1.27 (.99)	.42 (.54)	.84 (.63)
Career Adaptability (CA)	.04 (.09)	-.12 (.14)	-.04 (.08)	-.03 (.08)
Career Optimism (CO)	.32 (.07)***	.41 (.09)***	.38 (.06)***	.37 (.06)***
Career Knowledge (CK)	.21 (.08)**	.25 (.10)*	.24 (.06)***	.23 (.06)***
Extraversion (E)	-.07 (.06)	.22 (.10)*	.14 (.05)*	.07 (.06)
Agreeableness (A)	.02 (.06)	.03 (.10)	.03 (.05)	.02 (.05)
Conscientiousness (C)	.14 (.06)*	.23 (.10)*	.21 (.05)***	.18 (.05)**
Neuroticism (N)	.01 (.07)	.10 (.10)	.09 (.06)	.06 (.06)
Openness (O)	.11 (.06)	.15 (.09)	.07 (.05)	.13 (.06)*
Age	.04 (.01)***	-.03 (.04)	.01 (.01)	.01 (.02)
Gender (female)	.08 (.04)	.07 (.07)	.01 (.04)	-.01 (.04)
Semesters	-.01 (.02)	-.05 (.04)	-.03 (.02)	-.03 (.02)
Country Dummy (CD)				-.15 (.05)**
CA x CD				.08 (.08)
CO x CD				-.04 (.06)
CK x CD				-.01 (.06)
E x CD				-.14 (.06)*
A x CD				-.01 (.05)
C x CD				-.04 (.05)
N x CD				-.04 (.06)
O x CD				-.02 (.06)
Age x CD				.04 (.02)*
Gender (female) x CD				-.07 (.04)
Semesters x CD				.01 (.02)
R^2	.27	.17	.17	.22
Adjusted R^2	.23	.13	.14	.18
ΔR^2				.05
F	6.46 ***	3.91 ***	7.31 ***	4.95 ***
n	196	210	406	406

Note: Regression coefficients are unstandardized; standard errors are in parentheses.

† $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$

For the Chinese sample, we obtained a positive and significant coefficient on career optimism, career knowledge, and conscientiousness indicating that higher career related optimism and knowledge as well as conscientiousness increases business students' career decisiveness. Age has a significant and positive effect on career decisiveness. For the German sample we obtained a positive and significant coefficient on ca-

reer optimism and career knowledge as well as on extraversion and conscientiousness, showing that business students with higher career related optimism and knowledge as well as extraversion and conscientiousness have higher career decisiveness. To examine the fourth research question, the cross-country differences are investigated by comparing the full sample model with the full interaction model. The comparison shows that the additional variance explained is significant. Extraversion has a significantly stronger effect on career decisiveness for the German sample compared to the Chinese sample. Age has a significantly stronger effect on career decisiveness for the Chinese sample compared to the German sample.

5. Discussion, limitations, and future research directions

The purpose of this study was threefold: First, we examined the degree to which career adaptability, career optimism, and career knowledge predict career decisiveness in China and Germany. Second, we investigated the effect of the five personality traits on the determinants of career decisiveness as well as on career decisiveness itself. Third, we examined cross-country similarities and differences related to career decisiveness and its determinants in China and Germany. To the authors' knowledge, this is the first study that investigates the relation between the personality traits and career decisiveness and its determinants. Moreover, this is the first study that investigates the various relations in countries other than the U.S. and compares the results across countries.

In line with the results by Rottinghaus et al. (2005), who used a U.S. sample, the results of the present study show a negative relation between neuroticism and career adaptability for the Chinese and the German sample and a negative relation between neuroticism and career openness for the German sample. Contrary to the results of Rottinghaus et al. (2005) our results show a positive relation between neuroticism and career knowledge for the Chinese sample. Also, in line with the findings by Rottinghaus and associates, we find a positive relation between conscientiousness and career adaptability and career openness for the German sample and between conscientiousness and career knowledge for the Chinese sample. These results suggest that in different countries different personality traits may affect the determinants of career decisiveness. In line with previous studies that were conducted in the U.S. (Lounsbury et al. 1999; Page et al. 2008), our findings suggest a positive relation between conscientiousness and career decisiveness. In contrast to the above mentioned studies we find neither a positive relation between agreeableness and career decisiveness nor a negative relation between neuroticism and career decisiveness. In line with the results by Pečjak and Košir (2007), who used a non-U.S. sample, we find that extraversion has a positive effect on career decisiveness for the German sample. These findings suggest that various personality traits may have similar effects across countries, while other personality traits have a rather country-specific effect. Therefore, theory that are based on empirical studies that were conducted in the U.S. might explain career (in)decision in non-U.S. countries only to a limited degree.

The results of the presented study serve as a help for human resource departments to analyze and understand the supply side of the job market. Therefore, the results help firms, especially the various German firms entering the Chinese market, to

sharpen their human resource strategies. Since personality tests have become a regular part of assessment center work, the results of our study might help to interpret assessment center results. We contribute to the understanding of how individuals with similar personality traits in various countries might still have differing career plans and help practitioners to concentrate their recruiting strategies along these cross-national differences.

Such a cross-country study offers several challenges, and our approach has limitations that should be addressed in future research. First, an important limitation is that we did not measure the effect of cultural traits directly and, therefore, we are limited in our conclusions. Future research should measure the influence of culture directly at the individual level and include a higher number of countries to examine the moderating role of cultural traits in a multi-level research design. In addition, recent research suggests that personality traits and cultural dimensions are interrelated and, as a result, the respective effects of personality and culture might be difficult to distinguish from each other (Taras/Rowney/Steel 2009). Second, our findings should be interpreted in light of the fact that all of the measures in our study were developed primarily in North American contexts. Although we were careful to use translation and back-translation to minimize translation errors in both countries, the constructs may have not captured country-specific factors. Future research may help address this limitation by including measures that were specifically designed and tested to be utilized in cross-country studies, considering cross-country similarities and differences. Moreover, our study is limited to a proactively matched sample of university economics and management students. Because of similarities in age and educational background or time spend in foreign countries; there may be similarities in students' attitudes, beliefs, as well as cultural norms and values. These types of similarities could potentially mask cultural differences that would have otherwise been observed if more heterogeneous samples had been used. Furthermore, in each country students of one university were included in the samples. It would have been ideal if we could have used data collected from more than a single university in each country. However, the geographical origins of the student cohort that participated in the survey represent most regions of the respective country. We would encourage future research to improve the study design further and to avoid this potential problem by combining data from different universities as well as to expand the choice of countries. Given our theoretical focus on career related adaptability, optimism, and knowledge, a further limitation is that we have not included other variables which have been found to influence career decisiveness (e. g., Holland's 1966, 1973, 1997; Super 1953). Thus, we encourage future studies to employ these existing variables and to moderating variables that may have an impact on the relationship between antecedents and career decisiveness. In addition to the future research directions already mentioned, there are several avenues to help further develop career theory. Some recent attention has turned to the potential of cultural neuroscience for management research. Research in the field of cultural neuroscience identified the relation between the cultural values of individualism and collectivism and gene frequency in Western countries, compared to East-Asian countries (Chiao/Blizinsky 2009). The results show that cross-country differences in gene frequency affect individuals' perception and processing of negative information (Fox et

al. 2009). These findings suggest that individual behavior is a product of both genetic and cultural evolution. Future research could more closely examine how individuals' perceptions of factors that influence career decisiveness are related to country-specific neural correlates and gene frequency. Despite these limitations, the present study takes a step forward and sheds some light on the complexity of business students career planning. At the same time, it underscores the need for more research in uninvestigated but important countries, such as India, Russia, and Brazil, as well as more cross-country comparisons.

References

- Bacanli, F. (2006): Personality characteristics as predictors of personal indecisiveness. In: *Journal of Career Development*, 32: 320-332.
- Brislin, R. W. (1986): The wording and translation of research instruments. In: Lonner, W.J. (Ed.): *Field methods in cross-cultural research*. Sage Publications Inc, Thousand Oaks, CA, US, 1986: 137-164.
- Byrne, M. B. (2010): *Structural equation modeling with AMOS: Basic concepts, applications, and programming*. 2nd Ed. New York: Routledge.
- Cheung, G. W./Rensvold, R. B. (2002): Evaluating goodness-of-fit indexes for testing measurement invariance. In: *Structural Equation Modeling*, 9: 233-255.
- Chiao, J. Y./Blizinsky, K. D. (2009): Culture-gene coevolution of individualism-collectivism and the serotonin transporter gene (5-HTTLPR). In: *Proceedings of the Royal Society B: Biological Sciences*, 277: 529-537.
- Church, A. T. (2000): Culture and personality: Toward an integrated cultural trait psychology. In: *Journal of Personality*, 68: 651-703.
- Cooper, S. E./Fuqua, D. R./Hartmann, B. W. (1984): The relationship of trait indecisiveness to vocational uncertainty, career indecision, and interpersonal characteristics. In: *Journal of College Student Personnel*, 25: 353-357.
- Cortina, J. M. (1993): What is coefficient alpha: An examination of theory and applications. In: *Journal of Applied Psychology*, 78: 98-104.
- Fornell, C./Larcker, D. F. (1981): Evaluating structural equation models with unobservable variables and measurement error. In: *Journal of Marketing Research*, 48: 39-50.
- Fox, E./Ridgewell, A./Ashwin, C. (2009): Looking on the bright side: Biased attention and the human serotonin gene. In: *Proceedings of the Royal Society B*, 276: 1747-1751.
- Fuqua, D. R./Newman, J. L./Seaworth, T. B. (1988): The relation of state and trait anxiety to different components of career indecision. In: *Journal of Counseling Psychology*, 35: 154-158.
- Germeijs, V./De Boeck, P. (2002): A measurement scale for indecisiveness and its relationship to career indecision and other types of indecision. In: *European Journal of Psychological Assessment*, 18: 113-122.
- Goldschmid, M. L. (1967): Prediction of college majors by personality tests. In: *Journal of Counseling Psychology*, 14: 302-308.
- Greene, W. H. (2007): *Econometric Analysis*. 6th Ed., Upper Saddle River, NJ: Prentice Hall.
- Gutteridge, T. G. (1986): Organizational career development systems. The state of the practice. In: D. T. Hall and Associates (Eds.): *Career development in organizations*. San Francisco, CA: Jossey-Bass Inc.: 50-94.
- Hartman, R.O. (2006): *The five factor model and career self-efficacy. General and domain-specific relationships*. Dissertation, The Ohio State University.
- Harzing, A. W. (2005): Does the use of English-language questionnaires in cross-national research obscure national differences? In: *International Journal of Cross Cultural Management*, 5: 213-224.
- Hofstede, G./McCrae, R. R. (2004): Personality and culture revisited. Linking traits and dimensions of culture. In: *Cross-Cultural Research*, 38: 52-88.
- Holland, J. L. (1966): A psychological classification scheme for vocations and major fields. In: *Journal of Counseling Psychology*, 13: 278-288.

- Holland, J. L. (1973): Making vocational choices. A theory of careers. Englewood Cliffs, NJ: Prentice Hall.
- Holland, J. L. (1997): Making vocational choices. A theory of vocational personalities and work environments. Odessa, FL: Psychological Assessment Resources Inc.
- Järnlström, M. (2000): Personality preferences and career expectations of Finnish business students. In: *Career Development International*, 5: 144-154.
- John, O.P./Donahue, E. M./Kentle, R. L. (1991): The Big Five Inventory: Versions 4a and 54. Berkeley, CA: University of California, Berkeley, Institute of Personality and Social Research.
- Lounsbury, J.W./Tatum, H.E./Chambers, W./Owens, K.S./Gibson, L.W. (1999): An investigation of career decidedness in relation to "Big Five" personality constructs and life satisfaction. In: *College Student Journal*, 33: 646-652.
- Marcia, J. E. (1966): Development and validation of ego-identity status. In: *Journal of Personality and Social Psychology*, 3: 551-558.
- Mau, W.-C. (2001): Assessing career decision-making difficulties. A cross-cultural study. In: *Journal of Career Assessment*, 9: 353-364.
- Nevo, O. (1987): Irrational expectations in career counseling and their confronting arguments. In: *Career Development Quarterly*, 35: 239-249.
- Newman, J. L./Gray, E. A./Fuqua, D. R. (1999): The Relation of Career Indecision to Personality Dimensions of the California Psychological Inventory. In: *Journal of Vocational Behavior*, 54: 174-187.
- Osipow, S. H./Carney, C./Winer, J./Yanico, B./Koschier, M. (1987): The Career decision scale (rev.ed.). Odessa, FL: Psychological Assessment Resources.
- Page, J./Bruch, M. A./Haase, R. F. (2008): Role of perfectionism and Five-Factor model traits in career indecision. In: *Personality and Individual Differences*
- Parsons, F. (1909): Choosing a vocation. New York, NY: Garrett Park Press.
- Pečjak, S./Košir, K. (2007): Personality, motivational factors and difficulties in career decision-making in secondary school students. In: *Psychological Topics*, 16: 141-158.
- Reed, M. B./Bruch, M. A./Haase, R. F. (2004): Five-Factor Model of personality and career exploration. In: *Journal of Career Assessment*, 12: 223-238.
- Rottinghaus, P. J./Day, S. X./Borgen, F. H. (2005): The Career Futures Inventory. A measure of career-related adaptability and optimism. In: *Journal of Career Assessment*, 13: 3-24.
- Salomone, P. R. (1982): Difficult cases in career counseling: II. The indecisive client. In: *Personnel and Guidance Journal*, 60: 496-500.
- Schmitt, N. (1996): Uses and abuses of coefficient alpha. In: *Psychological Assessment*, 8: 350-353.
- Stead, G. B./Watson, M. B./Foxcroft, C. D. (1993): The relation between career indecision and irrational beliefs among university students. In: *Journal of Vocational Behavior*, 42: 155-169.
- Steenkamp, J.-B./Baumgartner, H. (1998): Assessing Measurement Invariance in Cross-National Consumer Research. In: *Journal of Consumer Research*, 25: 78-90.
- Super, D. E. (1953): A theory of vocational development. In: *American Psychologist*, 8: 185-190.
- Taras, V./Rowney, J./Steel, P. (2009): Half a century of measuring culture: Review of approaches, challenges, and limitations based on the analysis of 121 instruments for quantifying culture. In: *Journal of International Management*, 15: 357-373.
- Taylor, K. M. (1982): An investigation of vocational indecision in college students: Correlates and moderators. In: *Journal of Vocational Behavior*, 21: 318-329.
- Tokar, D. M./Ficher, A. R./Subich, L. M. (1998): Personality and vocational behavior. A selective review of the literature, 1993-1997. In: *Journal of Vocational Behavior*, 53: 115-153.