COMPETING OR DUAL MOTIVATIONS: WHO ASPIRES TO STEM OCCUPATIONS, WHY, AND WHERE? (The full paper is also submitted.)

1.1. Introduction

Gender scholars argue that the internalization of gender-essentialist beliefs, reinforced by the growing emphasis on self-expression to pursue one's own interests, contributes to the persistence of occupational sex segregation (Cech, 2013; Charles and Bradley, 2009; Correll, 2004; England, 2010; Ridgeway, 2011). Why, then, are affluent and more gender-egalitarian societies more segregated than their less affluent counterparts—a phenomenon known as the gender-equality paradox (Breda et al., 2020; Charles and Bradley, 2009) (see also Richardson et al., 2020)? This paradox was first observed in comparative research on labor markets, where seemingly more progressive economies in Scandinavia, such as Sweden, exhibit higher occupational sex segregation than more gender conservative societies like Japan (Charles and Grusky, 2005; Jacobs and Lim, 1992). However, the gender equality paradox extends beyond the labor market to college major choices and career aspirations among adolescents. Previous research has identified similar cross-national differences, indicating that gender disparities in fields of study in college (Charles and Bradley, 2009), intentions to study math or to pursue math-related jobs (Breda et al., 2020; Charles, 2017), and expectations to work in science, technology, engineering, and mathematics (STEM) occupations (Sikora and Pokropek, 2012) are more pronounced in favor of boys in affluent, advanced industrialized economies than in developing and transitional economies.

How can the gender-equality paradox be explained? A prominent explanation from the culturalist perspective suggests that individuals in advanced industrialized economies and transitional economies have different priorities when making educational and occupational decisions. In advanced industrialized societies, the pervasive cultural belief in self-expression and self-realization, encourage individuals to pursue their own interests. However, these interests are shaped by entrenched gender essentialism, which presumes that men and women have inherently different natures, making them suited for different jobs and roles. In the name of pursuing their true selves, women indulge in studying and working in fields that emphasize a strong caring nature. Conversely, in developing and transitional societies, the level of economic prosperity seen in advanced industrialized nations is less established. As a result, the desire to achieve material security suppresses self-expressive needs in these societies, leading to a greater number of women entering high-earning STEM fields (Charles and Bradley, 2009). I refer to this as *the competing motivation hypothesis*.

Direct evidence supporting the competing motivation hypothesis remains fragmented. On one hand, a growing body of evidence from advanced industrialized economies suggests that self-concepts, preferences, and interests, rather than actual ability, prevent women from developing STEM aspirations (Cech, 2013; Combet, 2024; Correll, 2004). On the other hand, research focused on transitional economies is lacking, leaving the motivations of women in these societies for pursuing STEM unclear. Evidence that women from transitional economies are driven by economic motivations to pursue STEM often comes from convenient samples of students already studying in STEM fields (Lagesen, 2008; Varma, 2010). This narrow focus on STEM majors, without accounting for women who chose other fields, raises concerns about selectivity bias. Furthermore, attempts to establish a causal link at the individual level often yield conflicting evidence. Some studies suggest that women with lower socioeconomic status are more likely to enroll in STEM fields (Blank et al., 2023; Ma, 2009), while others find the opposite (Uunk, 2023). Additionally, some research indicates that this association varies depending on how the outcome is measured (Liu, 2020).

This study aims to address this gap by directly testing *the competing motivation hypothesis* using nationally representative, comparative data on high school students' motivations in occupational decision-making. Specifically, it explores which students are more likely to aspire[1] to STEM-related occupations versus female-dominated occupations, the motivations underlying these aspirations, and how these motivations may vary depending on the economic context. The pooled sample include students from 30 societies in varying stage of economic development, offering an opportunities to extend previous study by including more transitional and developing economies. The motivation questions I used, which ask students about their motivations without referencing a specific field, offer an advantage over previous questions that focused on instrumental orientations toward specific

[1] In this study, I use the terms "aspire" and "expect", along with their variations, interchangeably.

fields. This approach more effectively disentangles students' attitudes toward the usefulness of math or scientific subjects from their true motivations in occupational decision-making.

Results from my empirical analyses show that developing and transitional economies do not necessarily have a higher proportion of students valuing economic security over self-expression. Instead, both motivations coexist in occupational decisions and are prevalent among most students in both contexts. This finding challenges *the competing motivation hypothesis*, which posits that economic security and self-expression are opposing forces. Students with dual motivations are just as likely as those who prioritize economic security alone to pursue STEM careers, compared to students who prioritize self-expression above all. However, in supporting *the competing motivation hypothesis*, this association only appears in developing and transitional economies. Furthermore, students in advanced industrialized economies, on average, have higher expectations of pursuing female-dominated professional jobs than those in developing and transitional economies. Yet, this gap is most pronounced among students who value economic security rather than those who prioritize self-expression. These findings lend partial support to *the competing motivation hypothesis* while also suggesting modifications to the original hypothesis to better explain cross-cultural variations in female STEM participation.

1.2. Literature Review (Omitted; see full paper for details)

Hypothesis 1a.—Female students in developing and transitional economies are more likely to prioritize economic security over self-expression when making career choices compared to female students in advanced industrialized economies.

Hypothesis 1b.—Female students in advanced industrialized economies are more likely to prioritize self-expression over economic security when making career choices compared to female students in developing and transitional economies.

Hypothesis 2a.—Female students who prioritize economic security over self-expression are more interested in STEM careers compared to female students who prioritize self-expression in developing and transitional.

Hypothesis 2b.—Female students who prioritize self-expression over economic security are more interested in female-dominated professional careers compared to female students who prioritize economic security in developing and transitional.

Hypothesis 3a.—Female students who prioritize economic security over self-expression are *more* interested in pursuing STEM careers in developing and transitional economies compared to female students in advanced industrialized economies.

Hypothesis 3b.—Female students who prioritize self-expression over economic security are *more* interested in pursuing female-dominated professional careers in advanced industrialized economies compared to female students in developing and transitional economies.

1.3. Data and Method

To test my hypotheses, I used data from the Programme for International Student Assessment (PISA) 2018. PISA is a large-scale study conducted by the Organisation for Economic Co-operation and Development (OECD) that assesses the academic performance of 15-year-old students worldwide. Conducted every three years, PISA evaluates students' abilities in reading, mathematics, and science, providing insights into education systems across various countries. The survey also collects extensive background information on students, their families, schools, and educational environments.

In my analysis, I relied on the Educational Career Questionnaire from the PISA 2018 data in addition to the student survey. Students from 30 different societies[2] were asked about the factors influencing their decisions when choosing future occupations ('How important are the following things in the decisions you make about your future occupation?'). I focus on four specific factors that align with my research questions and capture two distinct dimensions of students' motivations behind occupational decisions. I argue that students who prioritize 'my special talents' and 'my hobbies' reflect a need for self-expression, whereas those who emphasize 'employment opportunities' and 'expected salary' are motivated by the goal of achieving economic security. Before discussing my

[2] Among the 31 countries and economies participating in the Educational Career Questionnaire, the UK was excluded due to a large amount of missing data in key variables.

analytical approach, I will first outline the operationalization of the main dependent and independent variables in the following section.

1.3.1. Operationalization (Details omitted; refer to the full paper)

1.3.2. Analytic Approach (Details omitted; refer to the full paper)

I conducted three types of analyses. First, I identified latent classes of students' motivations in their occupational decision-making based on four questions designed to capture two dimensions: self-expressiveness and economic security. Second, I investigated the relative composition of the identified classes by country groups. Using these latent classes as dependent variables, I examined the associations between sociodemographic correlates and each identified class. Finally, using these latent classes as independent variables, I analyzed the predictability of the identified classes regarding students' career expectations in STEM fields or female-dominated professions.

1.4. Results

1.4.1. Identification of latent classes

I begin by estimating a latent class model using four questions on students' motivations in occupational decision-making. In practice, this approach requires fitting models with different numbers of latent classes and using goodness-of-fit statistics, such as the Bayesian Information Criterion (BIC), to select the optimal number of classes, where lower BIC scores indicate a better fit. Table 1.1 shows a comparison of goodness-of-fit statistics for different predetermined numbers of classes. The goodness-of-fit statistics indicate that a four-class model is the optimal model.

After selecting a four-class model, it is important to assess whether the meaning of these classes is consistent across countries, a concept known as the measurement invariance assumption in cross-cultural comparison literature. Following Kankaraš et al. (2018), I compared the heterogeneous, partially homogeneous, and homogeneous models using BIC criteria. The homogeneous model assumes that the meaning of latent classes is the same across all countries, whereas the heterogeneous model suggests that these classes have different meanings in different countries, making cross-country comparisons challenging. The partially homogeneous model strikes a balance between these extremes by allowing meaningful comparisons of latent classes across countries while also accounting for country-specific effects on the indicators through country-specific intercepts. Goodness-of-fit statistics presented in Table 1.2 indicates that the partially homogeneous model outperform both the heterogeneous model and homogeneous model. Support for the partially homogeneous model provides reassurance that the meanings of these latent classes are comparable across societies, while acknowledging that the proportion of individuals in each class may vary between societies. I used the results from the partially homogeneous model for the following analyses.

1.4.2. Interpretation and distribution of latent classes

In Figure 1.1, I presented the predicted responses from four indicators conditional on class. To aid interpretation, I label the four classes as (1) Dual motivations, (2) Economic security, (3) Self-expressiveness (4) Neither motivations.

(Details omitted; refer to the full paper.)

1.4.3. Predicting latent class membership based on sociodemographic covariates

While the *dual motivations class* is dominant in nearly all countries except Brunei, how are the other classes distributed across different countries and stages of economic development? A descriptive look at Figure 1.2 shows that, on average, advanced industrialized economies have a higher proportion of students in the class that prioritizes economic security over self-expression (12.4%) compared to students in transitional economies (10.5%), contradicting the competitive motivation hypothesis. However, advanced industrialized economies also show a higher proportion of students prioritizing self-expression over economic security (21.9%) than those in transitional economies (16.8%), offering support to the competitive motivation hypothesis. It should also be noted that, similar to the *dual motivations class*, the proportions of the *economic security class* and the *self-expressive class* also vary significantly across societies.

Next, Table 1.3 presents the three-step ML logistic model of class membership based on individuals' demographic characteristics. This analysis has two main goals. First, it aims to examine whether students in advanced industrialized economies are more likely to belong to the class that prioritizes self-expression, while students in transitional economies are more likely to fall into the class that prioritizes economic security, controlling for sociodemographic characteristics. Second, it explores the correlation between individual characteristics and latent class membership, providing further test that the latent classes represent real motivational differences rather than statistical artifacts.

Compared to the dual motivations class, students in transitional economies are not more likely to belong to the *economic security class*, which prioritizes economic return only (Model 1). However, they are less likely to belong to the *self-expressiveness class*, which prioritizes self-interest only (Model 2). Additionally, when comparing the *self-expressiveness class* with the *economic security class*, students in transitional economies are again less likely to be in the *self-expressiveness class* (Model 4). Taken together, these regression results provide partial support for the competitive motivations hypothesis, when the *economic security class* and the *self-expressiveness class* are compared directly.

A consistent finding is that first- and second-generation immigrants are more likely to prioritize economic security over self-expression than native students (Model 4). Additionally, even when compared with the dual motivations class, first- and second-generation immigrants are more likely to fall into the *economic security class* (Model 1). The coefficients for socioeconomic status are also significant across models. Higher socioeconomic status significantly reduces the likelihood of falling into the neither motivations class compared to all other classes (Models 3, 5, and 6). It also significantly increases the probability of belonging to the *self-expressiveness class* (Models 2, 4, and 6). However, when comparing the *economic security class* to the dual motivations class, higher socioeconomic status is associated with a slightly higher probability of being in the *economic security class*, although the effect size is relatively small (Model 1). In sum, aside from the last finding, most results examining the correlation between sociodemographic factors and class membership align with expectations.

1.4.4. Who aspires to STEM jobs, why, and where?

In the previous sections, I identified four distinct latent classes that describe female students' motivations behind occupational decision-making. Although the distribution of these classes varies across countries and economies, their meanings remain comparable across different contexts. This allows us to further explore whether class membership predicts students' expectations for a STEM job by the age of 30 for these 15-year-old female students: what I refer to as the question of why.

More importantly, I explore whether these patterns differ based on the stage of economic development—what I refer to as the question of where. To address these questions, I conduct a logistic regression of STEM job expectations on class membership separately for advanced industrialized and transitional economies. Additionally, I test whether the differences in the effects of class membership are significant by including an interaction term between class membership and the country group indicator in the pooled sample.

Why

Table 1.4 presents the results of a logistic regression analysis of class membership related to STEM job expectation using the pooled sample. Senate weights are applied in all analyses to ensure equal contribution from each country. In Models 1 to 3, the *self-expressiveness class* serves as the reference category, while in Models 4 to 6, the *economic security class* is used as the reference.

Several findings emerge from the pooled sample analysis. First, students in the *economic security class* are more likely to expect STEM-related careers than those in the *self-expressiveness class*, even after accounting for sociodemographic covariates and subject-specific standardized test scores. This association remains significant even when including country fixed effects, which allows for a within-country comparison between class membership and STEM aspirations. Second, students with dual motivations (valuing both economic security and self-expressiveness) also show a higher likelihood of expecting STEM careers compared to students who prioritize self-expressiveness alone. However, there is no significant difference in STEM job expectations between students with dual motivations and those who prioritize economic security exclusively.

Third, although not the main focus of this study, the analysis reveals that female students with high socioeconomic status are more inclined to pursue STEM career. Additionally, first-generation immigrants are more likely to aspire to STEM careers compared to native-born students, though this association does not extend to second-generation immigrants. Furthermore, students who achieve higher scores on math and science standardized tests are more likely to express an interest in STEM jobs. These findings underscore the complexity previously identified in research on the gender equality paradox at the individual level (Liu, 2020; Richardson et al., 2020; Uunk, 2023). On one hand, minorities, such as immigrants, are more likely to develop STEM aspirations. On the other hand, female students from high socioeconomic status families may have better opportunities to prepare for and develop an interest in STEM.

Where

A central tenet of the culturalist perspective is that females in advanced industrialized economies are encouraged to be self-expressive and pursue their interests, while those in transitional economies, lacking broad economic security, are driven by economic motivations when choosing their field of study or career path, making them more likely to pursue higher-paying STEM occupations. Models 1 to 4 in Table 1.5 presents the results of the logistic regression of class membership on STEM job expectations by economic type: advanced industrialized economies and transitional economies.

The relationship between class membership and STEM expectations highlights a stark contrast between advanced industrialized economies and transitional economies. In transitional economies, female students who have dual motivations or prioritize economic security are more likely to develop STEM-related job expectation compared to those who prioritize self-expression alone. This association persists even after controlling for socioeconomic status and standardized test scores in mathematics, science, and reading. However, in advanced industrialized economies, STEM-related job expectation do not vary across class membership among female students (Model 3 and 4 in Table 1.5). These findings suggest that the association observed in the pooled sample is primarily driven by the strong relationship found in transitional economies.

Model 5 in Table 1.5 tests the differences in the effect of class membership by introducing an interaction term between class membership and the economic type indicator, which divides countries and economies into advanced industrialized and transitional ones. Although the interaction effects between age and occupation are significant, the magnitude and significance of the coefficients are less meaningful in the context of a nonlinear model (Ai and Norton, 2003; Mize, 2019). To aid in interpretation, Figure 1.3 presents the average marginal effects of class membership on STEM aspirations across two set of economies. The results indicate that the female students with dual motivations and who prioritize economic security are more likely to aspire STEM jobs and the effect is stronger in transitional countries than advanced industrialized countries.

1.4.5. Completing the Argument: Who Aspires to Female Professional Jobs?

The analyses above demonstrate that women can have strong expectations of pursuing STEM-related jobs if they seek a job that aligns with their interests and talents while also providing economic security, or if they prioritize economic security above all. This finding highlights the significant role that economic returns and opportunities in STEM careers play in women's occupational decision-making. Moreover, the results reveal that economic motivation does not conflict with self-expressive motives; in fact, the coexistence of both motivations accounts for the largest share of class membership in most countries and shows a significant positive association with STEM aspirations. However, this effect is context-dependent, as it is only observed in transitional economies, not in advanced industrialized economies, which supports the competing motivation hypothesis. Furthermore, the results indicate that when economic security is less of a concern and self-expression becomes the priority, female students are less likely to pursue STEM jobs in both transitional and advanced industrialized economies.

The next question is whether students who prioritize self-expression alone show a strong interest in pursuing female-dominated professional jobs, and whether this varies depending on the context. The results provide mixed support. Table 1.6 presents the results of the logistic regression analysis of female professional job expectations based on class membership. In transitional economies, students with dual motivations are less likely to pursue female-dominated professional jobs compared to those who prioritize self-expression alone. Conversely, in advanced industrialized economies, students who prioritize economic security are more likely to pursue female-dominated professional jobs than those who value self-expression only. Figure 1.4 depicts the average marginal effect of class membership on female professional job expectations by economic type. In sum, on average, students in advanced industrialized economies show a higher expectation of pursuing female professional jobs compared to those in transitional economies. However, this difference is most apparent among students who prioritize economic security.

1.5. Discussion and conclusion (Omitted; see full paper for details)

Tables and figures

Table 1.1: Bayesian Information Criterion (BIC) by the Number of Classes

	BIC(LL)	% Change in BIC
1-Class	443850.01	
2-Class	385447.12	0.87
3-Class	376830.41	0.98
4-Class	*371515.25*	0.99
5-Class	371573.91	1.00
6-Class	371632.57	1.00

Note: All models incorporate senate weights to ensure equal contribution from each country.

Table 1.2: Bayesian Information Criterion (BIC), Testing Measurement Invariance

	BIC(LL)
Full heterogeneous	361212.20
Partially homogeneous	357907.82
Fully homogeneous	371515.25

Note: All models incorporate senate weights to ensure equal contribution from each country.

Table 1.3: Multinomial Logistic Regression of Class Membership on Sociodemographic Predictors

	Economic vs. Dual	**Self-expressive vs. Dual**	**Neither vs. Dual**	**Self-expressive vs. Economic**	**Neither vs. Economic**	**Neither vs. Self-expressive**
	(1)	(2)	(3)	(4)	(5)	(6)
Transitional economies	-0.0399	-0.254***	0.303***	-0.214***	0.343***	0.557***
	(0.0249)	(0.0213)	(0.0310)	(0.0302)	(0.0377)	(0.0354)
Immigration status						
Second-generation	0.245***	0.0344	-0.120*	-0.210***	-0.365***	-0.154**
	(0.0481)	(0.0427)	(0.0651)	(0.0584)	(0.0764)	(0.0732)
First-generation	0.540***	-0.0958*	-0.141*	-0.636***	-0.681***	-0.0451
	(0.0513)	(0.0542)	(0.0789)	(0.0672)	(0.0885)	(0.0904)
SES scale	0.0377***	0.104***	-0.132***	0.0661***	-0.170***	-0.236***
	(0.0108)	(0.00989)	(0.0115)	(0.0135)	(0.0148)	(0.0142)
Constant	-1.985***	-1.369***	-2.491***	0.616***	-0.506***	-1.122***
	(0.0178)	(0.0150)	(0.0243)	(0.0212)	(0.0286)	(0.0269)
Observations	120,459	120,459	120,459	120,459	120,459	120,459

[a] Robust standard errors in parentheses
[b] *** indicates significance at the 0.01 level; ** at the 0.05 level; * at the 0.1 level.

Table 1.4: Logistic Regression of STEM Jobs Expectation on Class Membership, Pooled Sample

	(1)	(2)	(3)	(4)	(5)	(6)
Dual motivations	0.068	0.231***	0.168***	-0.025	-0.031	0.021
	(0.043)	(0.042)	(0.0438)	(0.0484)	(0.0466)	(0.0495)
Economic	0.0934	0.262***	0.148**			
	(0.0601)	(0.0585)	(0.0611)			
Self-expressive				-0.0934	-0.262***	-0.148**
				(0.0601)	(0.0585)	(0.0611)
Neither	-0.342***	-0.134*	-0.00958	-0.435***	-0.396***	-0.157*
	(0.0759)	(0.0767)	(0.0774)	(0.0793)	(0.0788)	(0.0810)
Transitional economies		0.592***	1.322***		0.592***	1.322***
		(0.0311)	(0.110)		(0.0311)	(0.110)
Second-generation		-0.00523	0.0390		-0.00523	0.0390
		(0.0651)	(0.0674)		(0.0651)	(0.0674)
First-generation		0.265***	0.262***		0.265***	0.262***
		(0.0731)	(0.0758)		(0.0731)	(0.0758)
ESCS		0.0902***	0.158***		0.0902***	0.158***
		(0.0156)	(0.0154)		(0.0156)	(0.0154)
Math score		0.0845***	0.280***		0.0845***	0.280***
		(0.0274)	(0.0293)		(0.0274)	(0.0293)
Science score		0.271***	0.292***		0.271***	0.292***
		(0.0325)	(0.0336)		(0.0325)	(0.0336)
Reading score		0.0269	-0.0193		0.0269	-0.0193
		(0.0315)	(0.0335)		(0.0315)	(0.0335)
Constant	-2.393***	-3.265***	-3.569***	-2.300***	-3.003***	-3.421***
	(0.0787)	(0.0455)	(0.0963)	(0.0794)	(0.0481)	(0.0986)
Country dummies			X			X
Observations	124,566	120,459	120,459	124,566	120,459	120,459

[a] Robust standard errors in parentheses
[b] *** indicates significance at the 0.01 level; ** at the 0.05 level; * at the 0.1 level.

Table 1.5: Logistic Regression of STEM Jobs Expectation on Class Membership, by Economic Type

	Transitional		Advanced industrialized		Pooled sample
	(1)	(2)	(3)	(4)	(5)
Class membership					
Dual motivations	0.160***	0.246***	-0.055	0.060	0.082
	(0.059)	(0.0597)	(0.064)	(0.0651)	(0.0626)
Economic security	0.221***	0.277***	-0.088	-0.0431	0.112
	(0.082)	(0.0834)	(0.0872)	(0.0882)	(0.0847)
Value neither	-0.240**	0.089	-0.499***	-0.154	-0.171
	(0.094)	(0.096)	(0.133)	(0.135)	(0.133)
Immigration status					
First-generation		0.003		0.082	-0.004
		(0.114)		(0.084)	(0.065)
Second-generation		-0.101		0.450***	0.267***
		(0.153)		(0.087)	(0.073)
ESCS		0.151***		0.168***	0.090***
		(0.018)		(0.0292)	(0.0156)
Math score		0.242***		0.342***	0.086***
		(0.037)		(0.048)	(0.0275)
Science score		0.301***		0.271***	0.270***
		(0.044)		(0.0517)	(0.0325)
Read score		0.045		-0.105**	0.0271
		(0.046)		(0.0488)	(0.0315)
Transitional economies					0.375***
					(0.0787)
Interaction					
Dual x Transitional					0.262***
					(0.0856)
Econ x Transitional					0.265**
					(0.116)
Neither x Transitional					0.105
					(0.163)
Constant	-2.487***	-2.314***	-2.621***	-3.026***	-3.146***
	(0.088)	(0.091)	(0.079)	(0.088)	(0.058)
Country dummies	X	X	X	X	
Observations	61,912	60,171	62,654	60,288	120,459

[a] Robust standard errors in parentheses

[b] *** indicates significance at the 0.01 level; ** at the 0.05 level; * at the 0.1 level.

Table 1.6: Logistic Regression of Female Professional Jobs Expectation on Class Membership

	Transitional		Advanced industrialized		Pooled sample
	(1)	(2)	(3)	(4)	(5)
Class membership					
Dual motivations	-0.119***	-0.100**	0.00624	0.0112	0.0898**
	(0.0430)	(0.0434)	(0.0390)	(0.0392)	(0.0379)
Economic security	-0.00569	0.000302	0.149***	0.109**	0.266***
	(0.0629)	(0.0633)	(0.0525)	(0.0530)	(0.0502)
Value neither	-0.164***	-0.126**	-0.00256	-0.0961	0.0436
	(0.0619)	(0.0630)	(0.0685)	(0.0700)	(0.0684)
Immigration status					
Second-generation		-0.0226		-0.176***	-0.0307
		(0.0856)		(0.0506)	(0.0423)
First-generation		0.0328		-0.348***	-0.136**
		(0.113)		(0.0611)	(0.0537)
ESCS		-0.0330**		-0.0513***	0.00509
		(0.0151)		(0.0161)	(0.00989)
mathscore		-0.116***		-0.0877***	-0.0391**
		(0.0291)		(0.0280)	(0.0194)
sciscore		-0.0807**		-0.123***	-0.112***
		(0.0338)		(0.0313)	(0.0228)
readscore		0.246***		0.105***	0.183***
		(0.0346)		(0.0298)	(0.0219)
Transitional					-0.153***
					(0.0520)
Interaction					
Dual x Transitional					-0.216***
					(0.0566)
Econ x Transitional					-0.256***
					(0.0788)
Neither x Transitional					-0.171*
					(0.0918)
Constant	-1.809***	-1.789***	-1.543***	-1.319***	-1.642***
	(0.0707)	(0.0722)	(0.0488)	(0.0511)	(0.0348)
Country dummies	X	X	X	X	
Observations	61,912	60,171	62,654	60,288	120,459

[a] Robust standard errors in parentheses
[b] *** indicates significance at the 0.01 level; ** at the 0.05 level; * at the 0.1 level.

Figure 1.1: Responses to Questions by Class Membership (Pooled Sample)

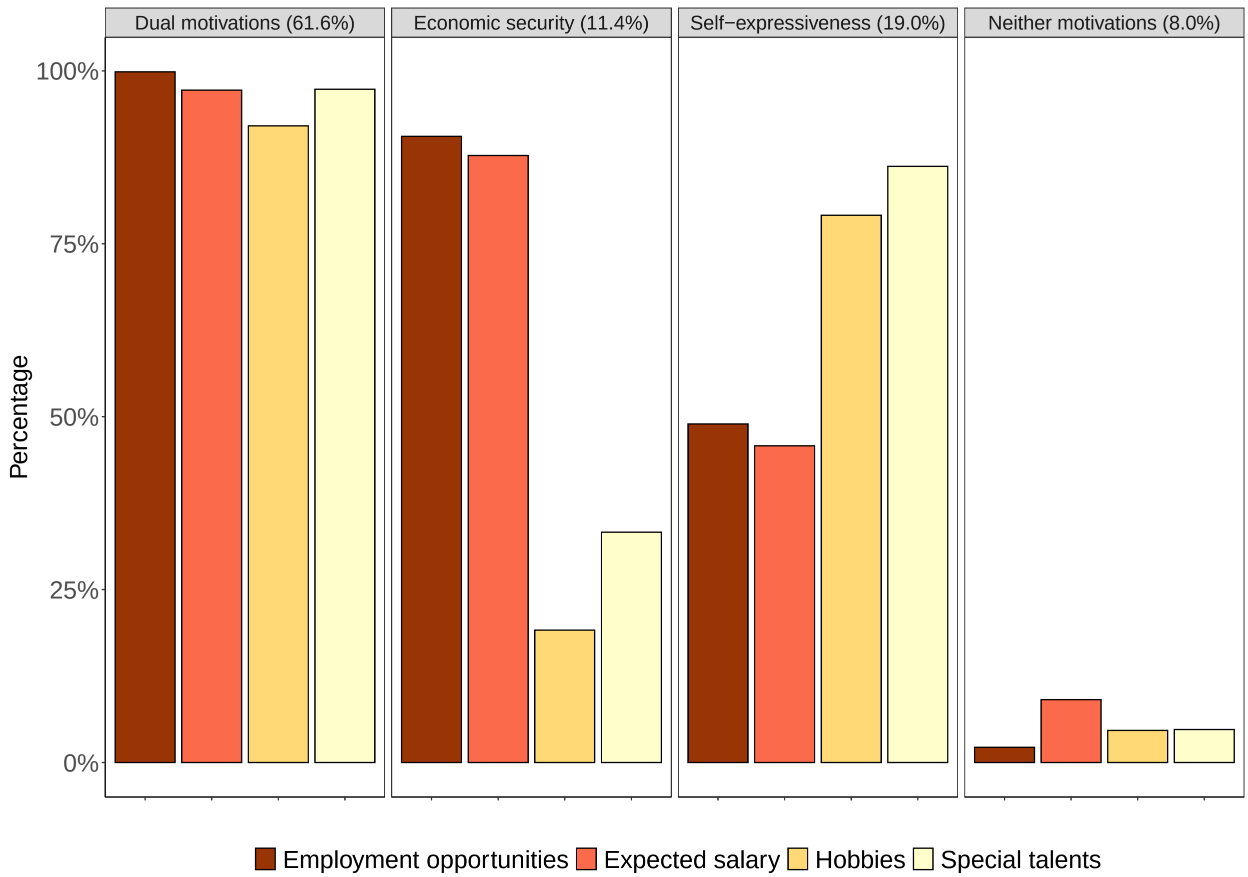


Figure 1.2: Class Membership Distribution by Country

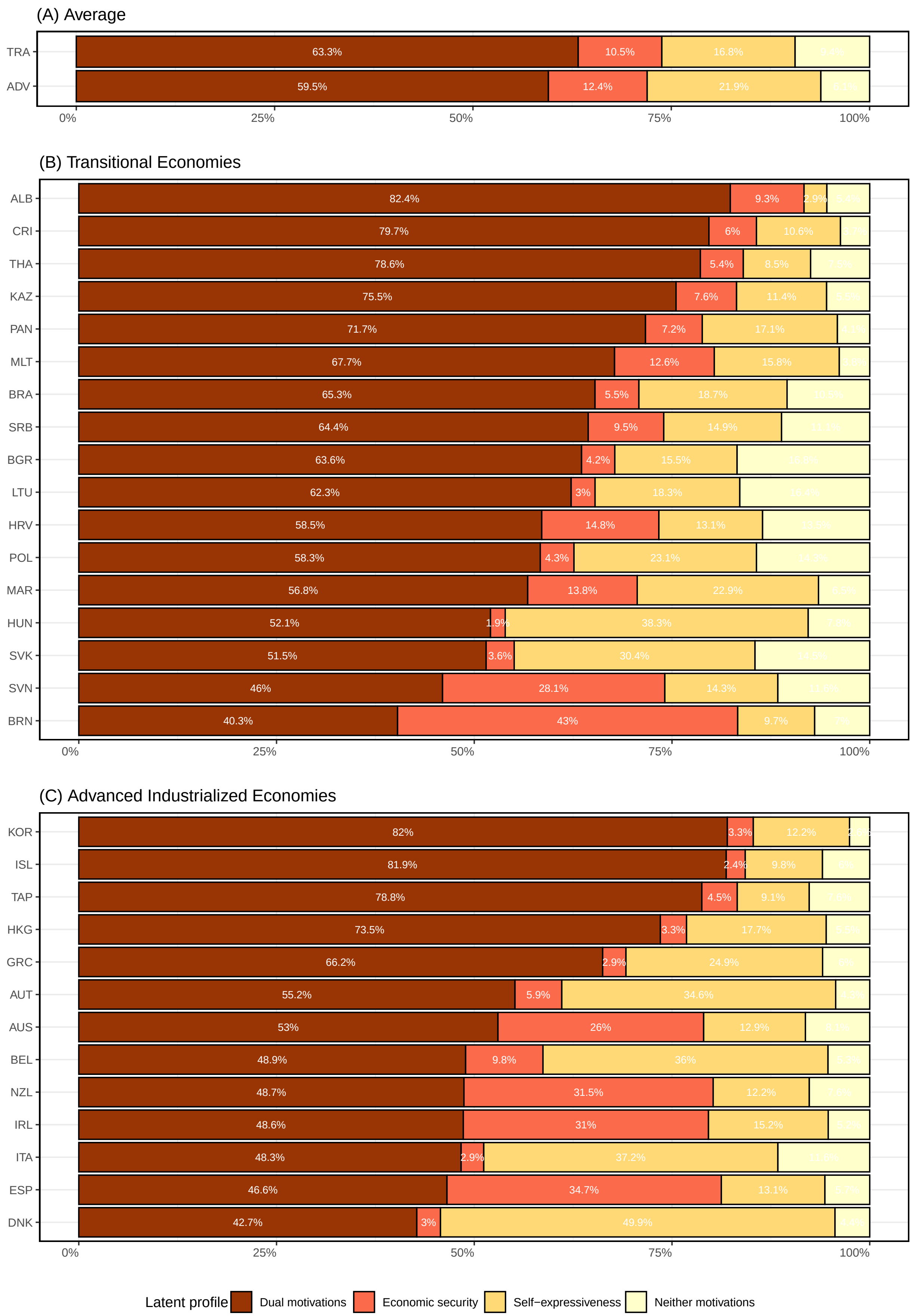


Figure 1.3: Probability of Expressing STEM Job Expectations by Country Groups and Class Membership on Motivations

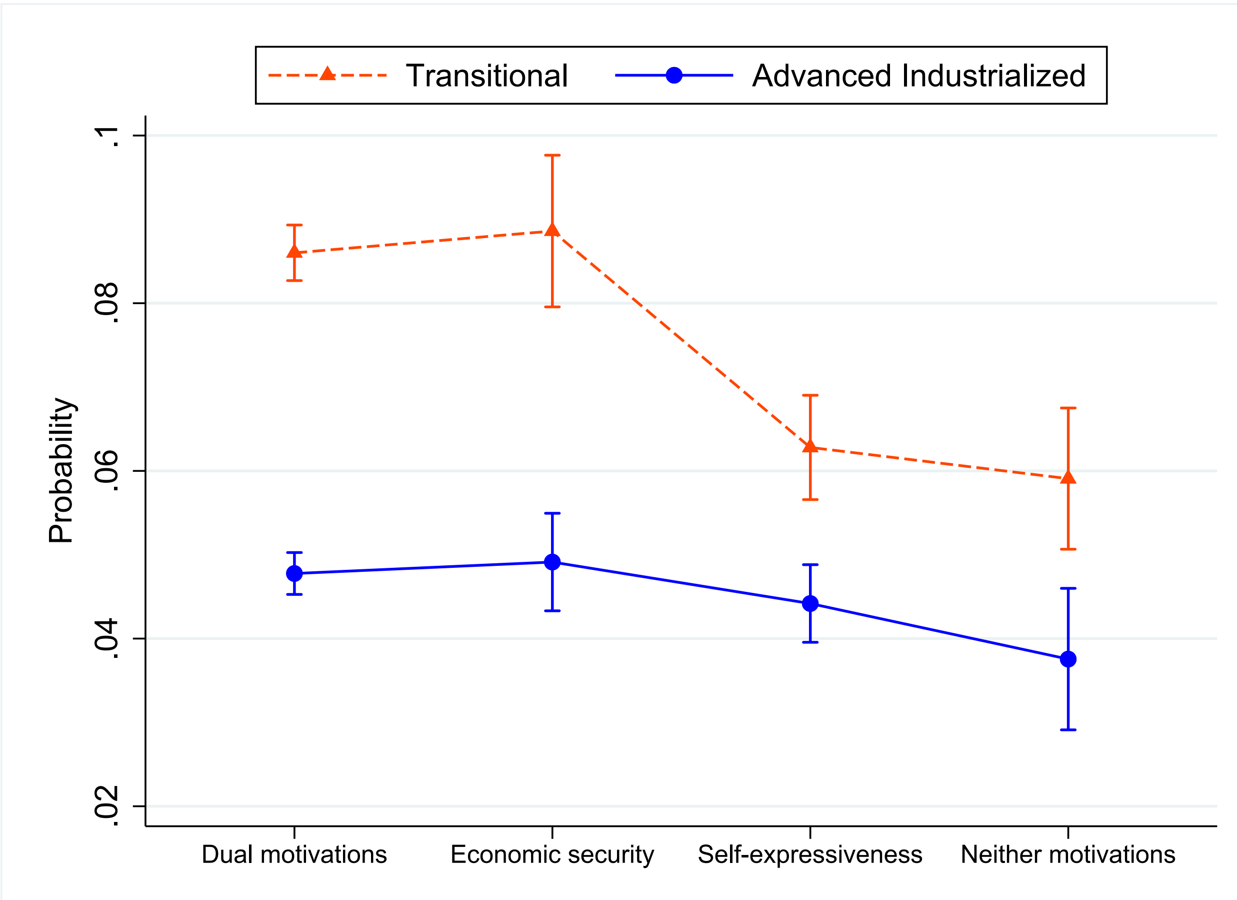
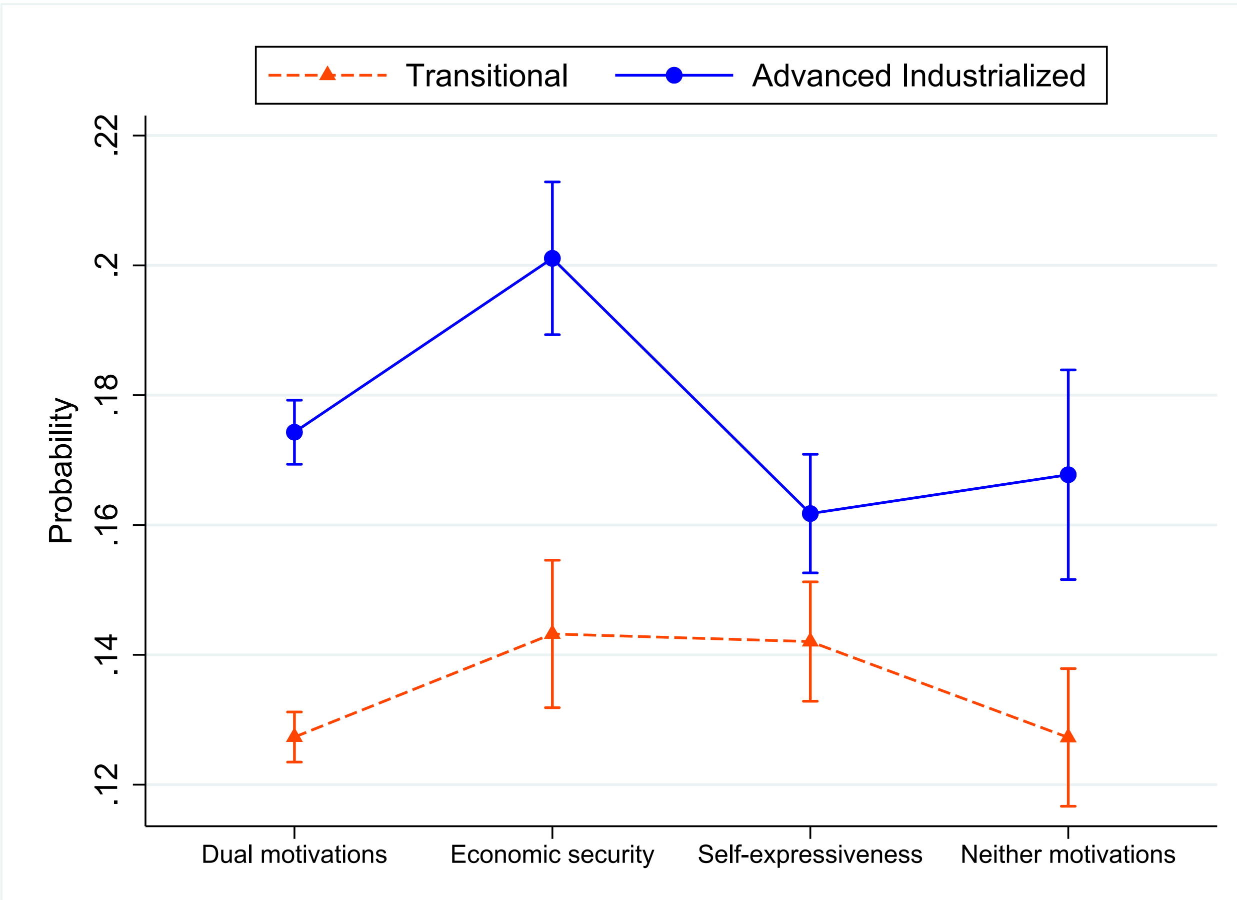


Figure 1.4: Probability of Expressing Female-Professional Job Expectations by Country Groups and Class Membership on Motivations



APPENDICES

APPENDIX A

Table A.1: Science, Technology, Engineering and Mathematics Jobs

ISCO-08	Job title
2111	Physicists and Astronomers
2112	Meteorologists
2113	Chemists
2114	Geologists and Geophysicists
2120	Mathematicians, Actuaries and Statisticians
2132	Farming, Forestry and Fisheries Advisers
2133	Environmental Protection Professionals
2141	Industrial and Production Engineers
2142	Civil Engineers
2143	Environmental Engineers
2144	Mechanical Engineers
2145	Chemical Engineers
2146	Mining Engineers, Metallurgists and Related Professionals
2149	Engineering Professionals Not Elsewhere Classified
2151	Electrical Engineers
2152	Electronics Engineers
2153	Telecommunications Engineers
2161	Building Architects
2162	Landscape Architects
2164	Town and Traffic Planners
2165	Cartographers and Surveyors
2511	Systems Analysts
2512	Software Developers
2513	Web and Multimedia Developers
2514	Applications Programmers
2519	Software and Applications Developers and Analysts Not Elsewhere Classified
2521	Database Designers and Administrators
2522	Systems Administrators
2523	Computer Network Professionals
2529	Database and Network Professionals Not Elsewhere Classified
3111	Chemical and Physical Science Technicians
3112	Civil Engineering Technicians
3113	Electrical Engineering Technicians
3114	Electronics Engineering Technicians
3115	Mechanical Engineering Technicians
3116	Chemical Engineering Technicians
3117	Mining and Metallurgical Technicians
3118	Draughtspersons
3119	Physical and Engineering Science Technicians Not Elsewhere Classified
3141	Life Science Technicians (excluding Medical)
3142	Agricultural Technicians
3143	Forestry Technicians
3155	Air Traffic Safety Electronics Technicians
3511	Information and Communications Technology Operations Technicians
3512	Information and Communications Technology User Support Technicians
3513	Computer Network and Systems Technicians
3514	Web Technicians
3521	Broadcasting and Audiovisual Technicians
3522	Telecommunications Engineering Technicians

Table A.2: Female Professional Jobs, Estimated Share of Female Representation, and ISEI Score

ISCO-08	Job title	Female share (%)	ISEI score (%)
1341	Child Care Services Managers	90.26	65.01
1342	Health Services Managers	61.18	65.01
1343	Aged Care Services Managers	76.74	65.01
2163	Product and Garment Designers	64.95	79.74
2221	Nursing Professionals	76.79	68.70
2222	Midwifery Professionals	95.64	68.70
2264	Physiotherapists	69.17	67.94
2265	Dieticians and Nutritionists	82.31	65.23
2266	Audiologists and Speech Therapists	83.29	75.43
2267	Optometrists and Ophthalmic Opticians	69.26	75.43
2269	Health Professionals Not Elsewhere Classified	64.30	75.43
2341	Primary School Teachers	70.37	76.49
2342	Early Childhood Educators	92.85	58.77
2352	Special Needs Teachers	87.52	70.89
2355	Other Arts Teachers	76.33	68.88
2422	Policy Administration Professionals	62.27	72.94
2424	Training and Staff Development Professionals	61.82	70.09
2621	Archivists and Curators	85.29	77.19
2622	Librarians and Related Information Professionals	68.12	70.40
2633	Philosophers, Historians and Political Scientists	60.05	83.81
2634	Psychologists	83.64	85.85
2635	Social Work and Counselling Professionals	70.51	70.50
2643	Translators, Interpreters and Other Linguists	67.92	80.92
2653	Dancers and Choreographers	77.66	61.82
3212	Medical and Pathology Laboratory Technicians	62.27	57.37
3221	Nursing Associate Professionals	78.49	56.00
3222	Midwifery Associate Professionals	97.52	51.93
3252	Medical Records and Health Information Technicians	79.77	53.15
3253	Community Health Workers	73.25	53.15
3255	Physiotherapy Technicians and Assistants	79.97	53.15
3259	Health Associate Professionals Not Elsewhere Classified	66.37	61.91
3342	Legal Secretaries	82.26	57.99
3344	Medical Secretaries	91.59	57.99
4414	Scribes and Related Workers	72.10	54.67

Figure A.1: Marginal Effects of Transitional Economies on STEM Job Expectations by Motivation Class and Model Specifications

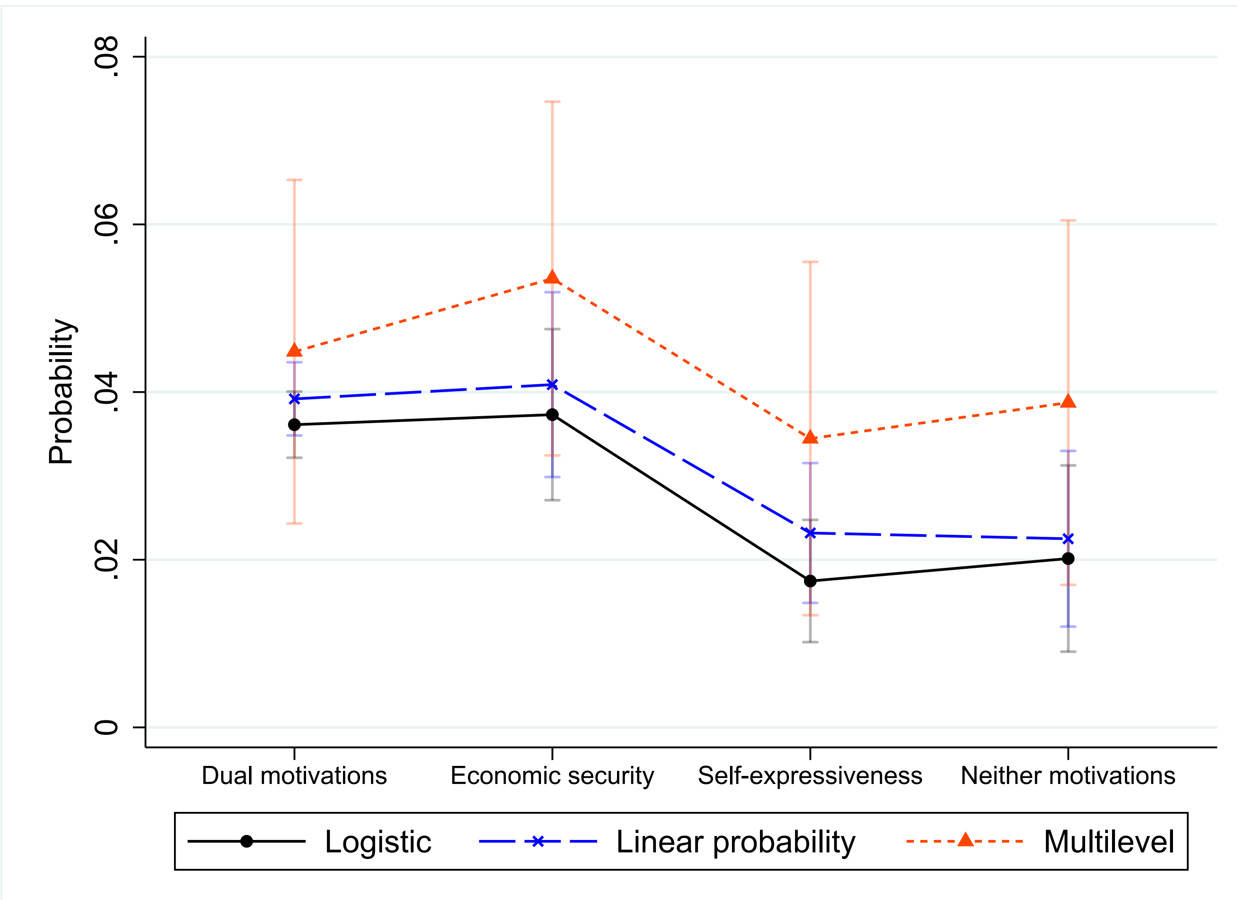
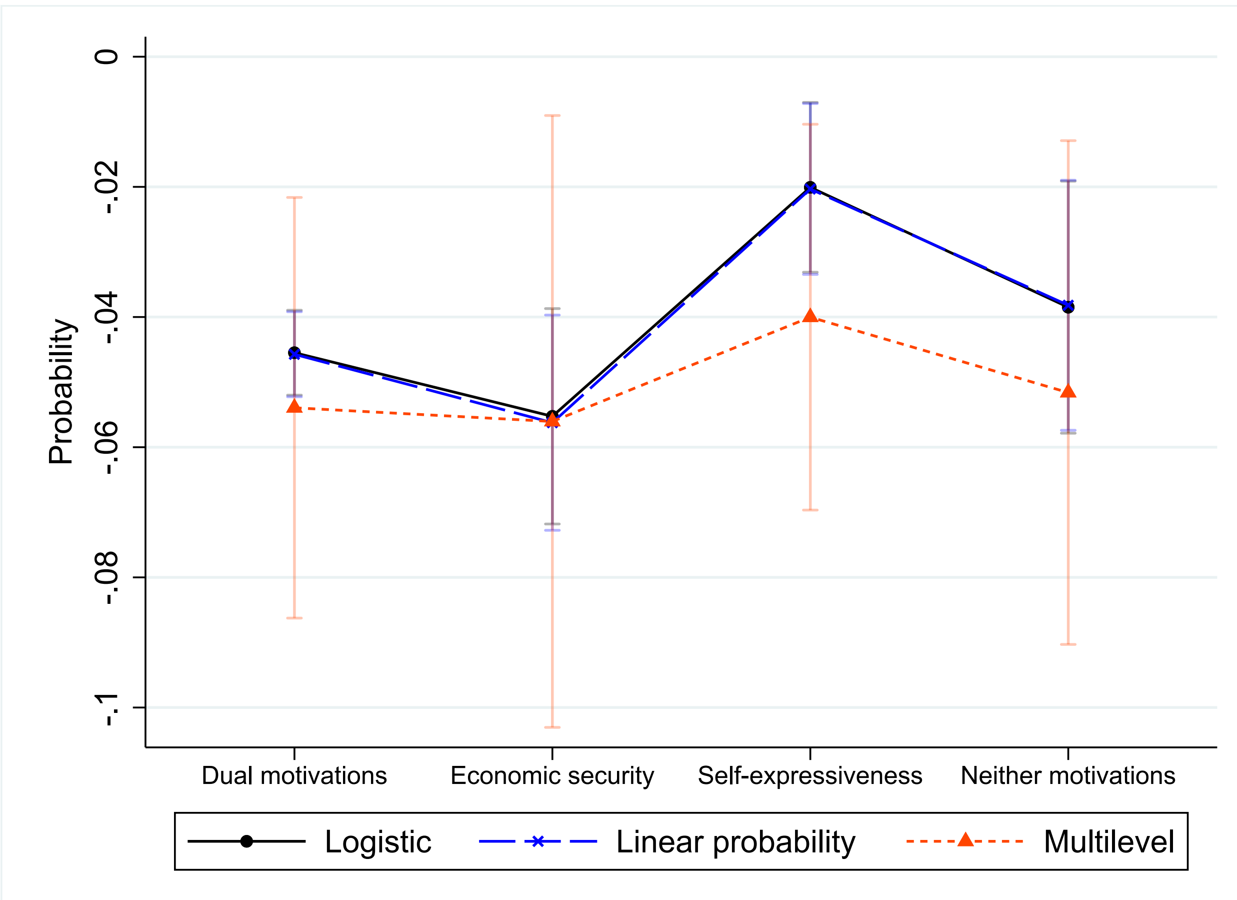


Figure A.2: Marginal Effects of Transitional Economies on Female-Professional Job Expectations by Motivation Class and Model Specifications



APPENDIX B

TITLE OF APPENDIX B

The content of Appendix B begins here.

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