Pathways to Refugee Integration: Predictions from Longitudinal Data in Colorado

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In this study, we examine whether and how the success of refugee integration varies over time and the factors that facilitate successful integration. Using data from the Refugee Integration Survey and Evaluation (RISE), we assess the integration of 467 newly resettled refugees in Colorado over three consecutive years, beginning in 2011. We find that that integration significantly increases with more time in the United States, and that age, gender, and education in one's home country explained approximately half of the variance in overall integration three years postarrival. The integration pathways we derive from the data explain a sizable component of the variance, and we find differences in the integration process across the population subgroups that we examine.

Keywords: refugees; integration; longitudinal data; resettlement

At no other time in recent recorded history has there been a displacement crisis like the one we are witnessing at the time of this writing. The United Nations High Commissioner for Refugees (UNHCR) estimates 70.8 million people worldwide have been forcibly displaced from their homes, including 13.6 million in 2018 alone (UNHCR 2018). This figure includes 20.4 million refugees under UNHCR's

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mandate. Over half of UNHCR refugees originate from Syria, Afghanistan, and south Sudan, fleeing from war and persecution by their governments. In 2018, 92,400 refugees were resettled into receiving countries (UNHCR 2019). Integrating such a large number of refugees into new societies is a complex, expensive challenge that affects and is affected by national politics, social values, the economy, government policies, and sensibilities of host communities.

For refugees, integrating into the receiving community is complex, because of the many barriers newly resettled people face. Immediate stressors include inability to speak the host language and poor job skills (Elwell et al. 2014; Cheung and Phillimore 2017; Hugo 2014; Taylor 2004). Over time, many refugees continue to face barriers to integration, including difficulty navigating their host country's bureaucracy, lack of health insurance, low literacy, lack of transportation, social isolation, and poor mental and physical health (Simich 2003; Mirza et al. 2014; Thomson 2012; Kennedy, Seymour, and Hummel 1999; Savin et al. 2005). The confluence of these factors can present formidable obstacles to refugees, in terms of integrating into the social, economic, and political fabric of a new country. Thus, in this article, we sought to examine the longitudinal process of integration of refugees into a metropolitan area in the United States, along with the factors that influenced this process. Our hope is that through better understanding of the factors that predict refugee integration over time, resources, and support can be allocated to promote this dynamic process.

Understanding Refugee Integration

Ager and Strang's (2008) integration framework has been used to understand refugee integration in countries throughout the world. This conceptual framework was derived based on interviews with refugees and host-country citizens in the UK. The framework outlines ten dimensions of refugee integration that have proven to be relevant across countries and refugee subgroups. The ten dimensions of refugee integration they outline include rights and citizenship, language and cultural knowledge, safety and stability, social bridging, social bonding, social links, housing, employment, education, and health. The Ager and Strang

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framework has become a common lens through which refugee integration is viewed in research, policy, and practice; and it has been referenced by researchers around the world, including Australia, Canada, Germany, Italy, the Netherlands, Slovenia, Sweden, the UK, and the United States (Beirens et al. 2007; Fozdar and Hartley 2013; Valenta and Bunar 2010).

To date, nearly all of the research based on the Ager and Strang framework has been qualitative and has provided a useful foundation for examining refugee integration. However, studies have typically focused on describing only one or a limited number of the framework's dimensions. For example, researchers have examined the relationship between integration and resilience (Thomas et al. 2011), pediatric oral health (Riggs et al. 2015), and workplace integration (Boese 2015; Omar 2013). Few quantitative studies have operationalized the framework fully, more often selecting specific domains relevant to a narrow research question, such as studies examining the influence of residence status on economic self-sufficiency (Bakker, Dagevos, and Engbersen 2014) and the relationship between social bonds and employment outcomes (Chaumba 2016). Additionally, few studies have used Ager and Strang's conceptual framework to measure integration over time (Richardson et al. 2004; De Maio et al. 2014; Cheung and Phillimore 2017). As such, researchers have highlighted the need for longitudinal studies of refugee integration (Lichtenstein and Puma 2018; Capps et al. 2015; National Academies of Sciences, Engineering, and Medicine 2015; Bernstein and DuBois 2018).

The Refugee Integration Survey and Evaluation (RISE) study (Lichtenstein et al. 2016) not only empirically operationalized Ager and Strang's integration framework, it also applied it to understand the integration trajectory of a sample of newly resettled refugees over the course of four years. This article uses data from the RISE study to identify factors that predict refugees' integration over time.

Data and Methods

Data source

RISE project data were procured through the Colorado Open Records Act (CORA) and were used to conduct all analyses. RISE survey data were collected over three consecutive years (4 waves: 90 days after resettlement [wave 1] and 1, 2, and 3 years postresettlement [waves 2–4, respectively]) with a cohort of 341 newly arrived refugees (refugees in the RISE study who had at least two datapoints).

Although some findings from the study are reported elsewhere (Lichtenstein and Puma 2018; Puma, Lichtenstein, and Stein 2018), in this study we ask two new questions. First, to what extent does overall integration into a host society vary over time and, if it does, is that change statistically significant? Second, other than demographic attributes, what factors predict *later* integration and *changes* in overall integration over time? Thus, we assess the extent to which integration changes, the

TABLE 1
10 RISE Survey Pathways and Descriptions

Employment & Economic Sufficiency—Included items that measured employment status, number of jobs and hours worked, pay and benefits, and sufficiency of income to meet family needs
Education & Training—Included items that measured certification/training/classes received or taken in the United States, as well as enrollment in any degree programs
Child's Education—Items measured child's grade levels in school, volunteer experience at their child(ren)'s schools, visits with child(ren)'s teachers, attendance at school events, child(ren)'s friends from different cultures
Physical Health & Well-Being—Items measured status of routine physical check-ups, has regular doctor(s) and/or dentist, knowledge of how to make appointments, and has health insurance coverage
Housing—Item measured housing situation (homeless, transitional housing, home owner)
Social Bonding—Items included interaction with people from *same* culture/ethnic group, information sources from *same* culture/ethnic group, attended events from the *same* culture/ethnic group
Social Bridging—Items included interaction with people from *different* culture/ethnic group, information sources from *different* culture/ethnic group, attended events from the *different* culture/ethnic group
Language & Cultural Knowledge—Items measured self-reported proficiency in spoken English; familiarity with U.S. cultural facts, such as who is the president, where are Congress and the White House located, and three sports that are popular in the United States
Safety & Stability—Items measured feelings of safety at home and outside the home, comfort level with calling on police or the fire department, trust of neighbors, victim of crime or discrimination
Civic Engagement—Participation in community meetings, clubs or organizations, advocacy or "speaking up" for rights, possession of a driver's license, applied for green card, desire for U.S. citizenship

key drivers of integration, and how those drivers vary across refugee subgroups. We hypothesize that there will be a statistically significant increase in integration over time; that certain integration pathways—adapted from the ten dimensions of integration that Ager and Strang (2008) outline, and are described here and included in Table 1—will predict both change over time and overall integration three years postresettlement; and that integration pathways that predict overall integration will change over the first few years, given that refugees face different challenges at different points in their integration process. Furthermore, we hypothesize that predictive factors of successful integration may vary across refugee subgroups.

Survey instrument and data collection methods

The RISE study measured refugee integration with forty-three core items, which were summed to create the overall integration score, and fifty-five

auxiliary items (Puma, Lichtenstein, and Stein 2018). RISE data were collected through a survey that adapted and operationalized integration pathways (called domains by Ager and Strang 2008). The RISE pathways are *employment and economic stability; education and training; child's education; physical health and well-being; housing; social bonding; social bridging; language and cultural knowledge; safety and stability*; and *civic engagement*. The RISE pathways differ in minor ways from Ager and Strang's domains. Some minor differences include *child's education*, which was not a domain identified by Ager and Strang, and the modification of the components of *social links* into other pathways (*social bridging* and *civic engagement*) (Puma, Lichtenstein, and Stein 2018).

The RISE integration pathways and general description of the items included in the pathways are included in Table 1. Most of the core items on the survey were scored as yes/no (1 or 0). Core item scores in each section were summed to create pathway scores. Pathway scores were then summed to yield an *overall integration* score for each respondent (range = 0–44). Pathway scores were calculated by the original RISE study team and included in the CORA RISE dataset. See Puma, Lichtenstein, and Stein (2018) for more information about the survey items.

The survey was administered orally in respondents' native language to adult newly arrived refugees in Denver, Colorado, between 2011 and 2012. Wave 1 data were collected by refugee resettlement case workers at the 90-day, mandatory postarrival meeting. In waves 2 through 4 of data collection, survey data were collected by contracted community connectors (CCs), based on a community connector model, which had proven highly effective in a previous study that targeted a hard-to-reach population (Puma et al. 2017). CCs were reliable members from each target community; they were fluent in refugees' home language and in English, had sufficient literacy skills and education to understand and support the study, and had the ability to adhere to strict study protocols and Institutional Review Board human subjects requirements (Lichtenstein and Puma 2018). CCs made three contacts each year with each respondent and administered the RISE survey in a fourth contact, resulting in a 70 percent overall retention rate after three years of study. Thus, the RISE study offers an ideal dataset for exploring the factors related to refugee integration across the early years of resettlement.

Sample characteristics

Table 2 includes the demographic characteristics of the sample from waves 1 through 4. Bhutanese and Burmese refugees composed the majority of the sample. Male and female respondents were equally sampled throughout the years of data collection, and their average age ranged from 33.5 years at wave 1 to 38.9 years in wave 4. About half (50.7 percent) of the sample had a primary level of education or less (0–8 years) in their home country, and one-third (33.4 percent) had at least nine or more years of schooling.

TABLE 2
Demographic Characteristics of the RISE Samples over Time

Demographic Variable	Wave 1 % (n = 467)	Wave 2 % (n = 367)	Wave 3 % (n = 340)	Wave 4 % (n = 327)
Country of origin				
Bhutan	57.9	68.8	73.2	77.9
Burma	33.4	24.7	23.8	22.1
Iraq	3.9	3.4	0.6	0.0
Somalia	4.8	3.1	2.4	0.0
Gender				
Male	49.2	48.8	47.6	49.8
Female	50.8	51.2	52.4	50.2
Level of education in home country				
Primary (0–8 years)	50.7			
Secondary (9–12 years)	33.4			
2 years' college (13–14 years)	5.5			
4-year college degree (15–16 years)	3.4			
Graduate school (>16 years)	1.8			
Age (in years), mean (*SD*)	33.5 (12.8)	34.16 (13.1)	34.9 (13.70)	38.9 (14.0)

SOURCE: Adapted from Lichtenstein and Puma (2018).

Analytic Strategy

To assess change in overall integration over time, and which integration pathways predict change over time, we ran repeated linear mixed models of *overall integration* across the four waves. We took a series of steps to build the final analytical model to address this research question, including using the Akaike Information Criterion (AIC) to assess the relative fit of the models produced in each step. Specifically, the models

1. Assessed change over time in integration and included "time" (representing years from arrival: baseline [arrival] = 0, 1 year, 2 years, 3 years) in the model (as continuous and then as categorical), but no other independent variables.
2. Included time as continuous variable and added in demographic variable main effects (gender, age, level of education in home country, and country of origin collected in wave 1), and then systematically tested interactions with time to build the final statistical model and determine what demographic factors predicted change over time in integration.
3. Built on the demographic main effects and significant demographic × time interaction effects and added the ten integration pathway variable main effects (measured at wave 1). Then each integration pathway interactions

TABLE 3
Factors That Predict Overall Integration over Time (waves 1–4)

Variables	*F*-Value (*df*)	*p*-Value
Demographic characteristics		
Country of origin (Bhutanese)	8.86 (1, 200)	.003
Gender (Male)	6.10 (1, 200)	.014
Age (in years)	14.14 (1, 200)	<.001
Level of education in home country	17.54 (4, 200)	<.001
Integration Pathways	*F*-Value (*df*)	*p*-Value
Employment & economic sufficiency	136.22 (7, 200)	<.0001
Education & training	70.66 (2, 200)	<.0001
Child's education	33.94 (3, 200)	<.0001
Physical health & well-being	31.68 (4, 200)	<.0001
Housing	34.88 (1, 200)	<.0001
Social bonding	63.05 (3, 200)	<.0001
Social bridging	103.59 (3, 200)	<.0001
Safety & stability	39.09 (3, 200)	<.0001
Civic engagement	58.05 (2, 200)	<.0001
Language	-	-
Cultural knowledge	66.03 (6, 200)	<.0001
Interaction Effects (Integration Pathway × Time)	*F*-Value (*df*)	*p*-Value
Age × Time	**13.77**	**<.001**
Housing × Time	1.07	.301
Social Bonding × Time	**6.81**	**<.001**
Social Bridging × Time	0.64	.591
Civic Engagement × Time	1.37	.255

with time were individually and systematically tested to determine which pathway predicted change over time in overall integration.

These three analytic steps resulted in the final model, which included "time," the demographic and integration pathway main effects, and all significant interaction terms. (The results from the final model are discussed here and presented in Table 3.) In addition, because the integration pathway scores were summed to create the *overall integration* score, we used pathways scores as predictors of *change over time* and predictors of *future* overall integration (three years postresettlement).

To assess which factors from waves 1, 2, and 3 predicted later *overall integration* (in wave 4), we estimated hierarchical linear regressions analyses, controlling for demographic characteristics. In these models, the dependent variable was *overall integration* in wave 4 (three years after initial U.S. resettlement); the key

independent variables were the integration pathway variables in waves 1 through 3, and other covariates include gender, age, level of education in home country, and country of origin measured at wave 1. Last, we estimated separate models by gender, age, and education to understand whether and how integration pathways are differentially related to overall integration among refugee subgroups. We identified statistically significant relationships between integration pathway variables (in wave 1) and *overall integration* (in wave 4) and then tested for interaction effects with the entire sample (waves 1–3).

In all statistical models, statistical assumptions were tested and met (including normality, linearity, and homoscedasticity). Although none of the integration pathway variables had missing data, the demographic variables did (13.8 percent had missing observations for gender, 12.6 percent for level of education in home country, 7.4 percent for age, and 6.5 percent for ethnicity). Little's MCAR (missing completely at random) test revealed that these data were not missing completely at random ($p < .01$). As a result, we used both multiple imputation (MI) and listwise deletion techniques to handle the missing data (using an alpha [α] set at .05). Because the pattern of results did not vary across these two approaches, we present findings without the multiply imputed values. (This analysis is available from the authors on request.)

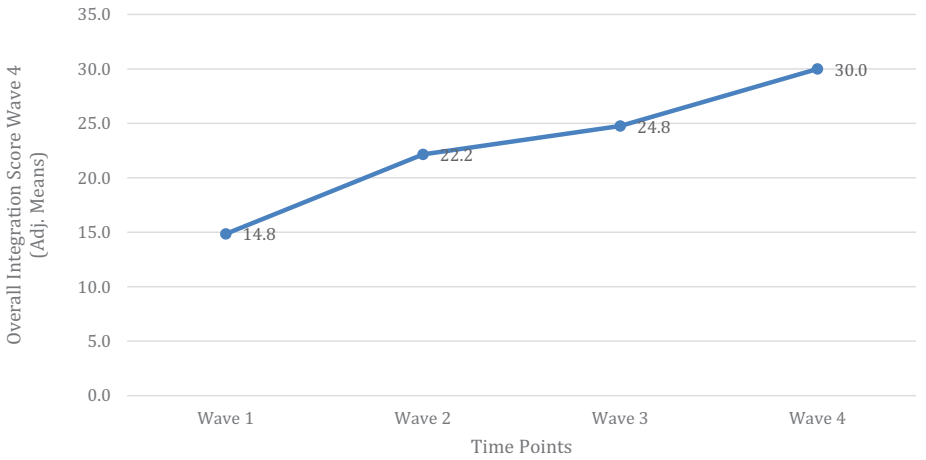
Findings

Change in integration over time

Our first research questions consider the extent to which overall integration deepens over time and, if it does, whether that change is statistically significant. Findings reveal that there is a statistically significant shift over time in *overall integration* ($t = 39.24$, $p \leq .0001$). For the "continuous time" model, the intercept was at 15.04 and, on average, *overall integration* increased 4.74 points each year. Because the rate of change in *overall integration* was not the same among the years, however, the "categorical time" model (which allowed for the changing slopes between waves of data collection) fit the data better (had a lower AIC: 8,296.8 compared to 8,355.3). Figure 1 shows the means for the categorical time model for *overall integration* at each of the time points ($F = 535.38$, $p < .0001$).[1] Both the visual display and the model with time included as a categorical variable reveal that the trend in integration is not perfectly linear; there is a larger increase in the first year after resettlement than in other years (waves 1 to 2), even though increases in integration between all subsequent years is statistically significant (waves 2 to 3, and 3 to 4).

We next wanted to know what, other than demographic attributes, predicts *change in* integration over time, what predicts *later* integration compared to earlier integration, and whether these predictors vary by refugee subgroup. Table 3 shows the results that address the predictors of change in integration over time. Here we can see that there were only two statistically significant predictors of change in integration over time in the final model, age and *social bonding* (age ×

FIGURE 1
Change in Overall Integration over Time (adjusted means)



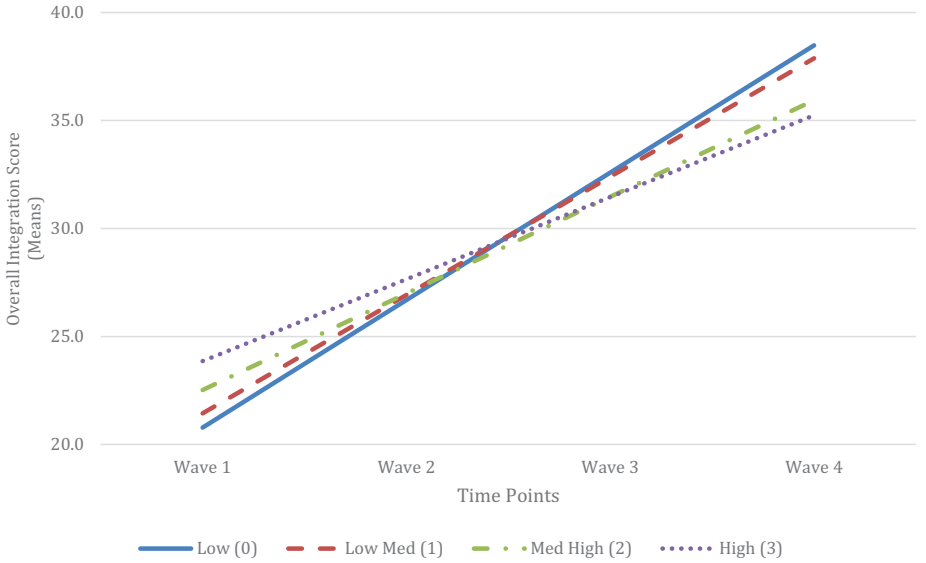
time [$F_{1,693}$ = 13.77] and *social bonding* × time [$F_{3,693}$ = 6.81]).[2] As age increases, the rate of change in overall integration slows, and lower levels of social bonding at baseline predicted more accelerated integration over time (see Figure 2).

Predicting integration three years postresettlement

We also wanted to understand the key drivers of integration. Results in Table 4 show that factors in the earlier years predict integration at three years postresettlement (wave 4). Across all predictive years, demographic variables accounted for just under half of the variance in later *overall integration* (R^2 = .45). The demographic variable that was most predictive of later overall integration was age (Beta-weight: wave 1 = –.36; wave 2: –.29; wave 3: –.36), such that as age increased, *overall integration* decreased. Education level in one's home country was the next most powerful predictor (Beta-weight: wave 1 = .26; wave 2: .18; wave 3: .18). As levels of education increased, *overall integration* in three years postresettlement increased. Last, being male was a statistically significant predictor of higher later *overall integration* in wave 1 (Beta-weight = .17) and at wave 3 (Beta-weight = .14).

After controlling for demographic variables, the integration pathway variables accounted for an additional 8 to 15 percent of the variance in *overall integration*.[3] Results revealed that *employment and economic sufficiency* was a statistically significant predicator across all years (Beta-weight: wave 1 = .13; wave 2: .19; wave 3: .19). All associations for *employment and economic sufficiency* and later *overall integration* were positive, as were associations of all other significant pathway variables and *overall integration*. This means that as individuals improved their score on individual pathways, they also were more likely to be more integrated

FIGURE 2
Change in Overall Integration over Time by Wave 1 Social Bonding Categories (Means)



by their fourth year in the United States than their peers whose pathway scores remained stable or declined. At wave 1, *child's education* and *cultural knowledge* (not *language*) were statistically significant predictors (Beta-weights = .15 and .18, respectively). At wave 2, *education and training* (Beta-weight = .13), *social bonding* (Beta-weight = .15), and *civic engagement* (Beta-weight = .16) were all statistically significant predictors. Last, at wave 3, *child's education* (Beta-weight = .19), *physical health and well-being* (Beta-weight = .10), *social bridging* (Beta-weight = .19), and *civic engagement* (Beta-weight = .13) were statistically significant predictors.

Predicting integration differences by age, gender, and education

In addition to understanding the key drivers of integration, we also wanted to know how they varied for different refugee subgroups. Table 5 shows the relationships between integration pathways in wave 1 and *overall integration* in wave 4, and how they varied by age and education level in home country. (Table 6 presents results by gender.) Demographic variables accounted for different shares of *overall integration* three years postresettlement (younger vs. older: 19 percent vs. 46 percent; lower vs. higher education in home country: 44 percent vs. 11 percent). For younger (18–34 years old) versus older (35–76 years old) refugees, gender and ethnicity were statistically significant predictors of *overall integration* in wave 4. Integration pathways accounted for an additional 9 percent

TABLE 4
Factors That Predict Integration Three Years Postresettlement (in wave 4)

Predictors	Data Collection Wave		
	Wave 1 (n = 246)	Wave 2 (n = 214)	Wave 3 (n = 226)
Block 1: Demographic variables (fixed)	R^2 = .45	R^2 = .44	R^2 = .45
	Beta-Weights		
Country of origin (Bhutanese = 1; Burmese = 0)	.01	.12	.12
Gender (male = 1; female = 0)	.17**	.07	.14**
Age	–.36***	–.29***	–.36***
Level of education in home country	.26***	.18**	.18**
Block 2: Integration pathways (time-varying)	R^2 = .53	R^2 = .58	R^2 = .60
	Beta-Weights		
Employment & economic sufficiency	.13*	.19**	.19**
Education & training	.03	.13*	.02
Child's education	.15**	.08	.19***
Physical health & well-being	–.05	.06	.10*
Housing	.01	–.05	—
Social bonding	–.08	.15*	.01
Social bridging	.11	.09	.19*
Safety & stability	.07	.07	.06
Civic engagement	.06	.16**	.13*
Language	–.12	–.14	—
Cultural knowledge	.18*	.13	—

NOTE: dependent variable = overall integration at wave 4 (3 years postresettlement). Model in wave 3 had problems with multicollinearity between social bridging, language, and cultural knowledge. As such, language and cultural knowledge were removed from the regression models. Housing excluded from regression model because no variation in wave 3.
*$p < .05$. **$p < .01$. ***$p < .001$.

of the variance among younger participants, but 19 percent among older participants. Significant pathway predictors of later *overall integration* also differed by age. For younger participants, none of the integration pathways in wave 1 predicted later *overall integration*. Among older participants, *cultural knowledge* was the only statistically significant predictor (Beta-weight = .39).

Finally, when examining differences between those with lower levels of education in their home country (primary school or less) and those with higher levels of education (some secondary school or greater), demographic characteristics accounted for 44 versus 11 percent, respectively, of the variance in

TABLE 5
Factors That Differentially Predict Integration Three Years Postresettlement (in wave 4) for Younger vs. Older and Lower vs. Higher Levels of Education

	Age		Level of Education in Home Country	
Wave 1 Variables	Younger (18–34 years) (n = 194)	Older (35–76 years) (n = 42)	Lower (primary or less) (n = 101)	Higher (some secondary or greater) (n = 143)
Block 1: Demographic variables	R^2 = .19	R^2 = .46	R^2 = .44	R^2 = .11
Gender	.17*	.20*	.24**	.14
Age	—	—	–.49***	–.11
Level of education in home country	.17	.10	—	—
Ethnicity (Bhutanese = 1; Burmese = 0)	.31***	–.18*	–.03	.02
Block 2: Integration pathways	R^2 = .28	R^2 = .65	R^2 = .53	R^2 = .35
Employment & economic sufficiency	.15	.17	.21*	.11
Education & training	–.09	.14	.08	.05
Child's education	.15	.13	.16	.30***
Physical health & well–being	–.10	.00	.02	–.08
Housing	–.05	.07	.15	–.04
Social bonding	–.05	–.08	–.15	.02
Social bridging	.05	.09	.11	.06
Safety & stability	–.07	.10	.13	.05
Civic engagement	.10	–.06	–.06	.09
Language[a]	-	-	–.13	.03
Cultural knowledge	.05	.39**	.15	.27**

a. Model had problems with multicollinearity, so the variable Language was removed from the model.
*$p < .05$. **$p < .01$. ***$p < .001$.

overall integration at wave 4. Among those who had lower education, integration pathways accounted for an additional 9 percent of the variance in later *overall integration* compared to an additional 24 percent for those with higher education. Among those with primary education or less, the integration pathway *employment and economic sufficiency* in wave 1 predicted later *overall integration* (Beta-weight = .21). For those with secondary education or greater, integration pathways of *child's education* and *cultural knowledge* in wave 1 were statistically significant predictors of later *overall integration* (*child's education*: Beta-weight = .30; *cultural knowledge*: Beta-weight = .27).

TABLE 6
Predicting Integration Three Years after Initial Resettlement (in wave 4) for Total Sample, Men and Women

	Longitudinal Models (independent variables in waves 1–3 predicting dependent variables in wave 4)					
	Wave 1		Wave 2		Wave 3	
Independent Variables	Men	Women	Men[a]	Women[a]	Men[a,b]	Women[a,b]
Block 1: Demographic variables	R^2 = .38	R^2 = .46	R^2 = .38	R^2 = .43	R^2 = .38	R^2 = .46
Gender	—	—	—	—	—	—
Age	–.30**	–.41***	–.29**	–.29**	–.45***	–.36***
Level of education in home country	.30**	.25*	.17	.18*	.22**	.20**
Ethnicity (Bhutanese = 1; Burmese = 0)	.00	.05	–.04	–.13	–.08	–.12
Block 2: Integration pathways	R^2 = .50	R^2 = .54	R^2 = .59	R^2 = .57	R^2 = .59	R^2 = .62
Employment & economic self–sufficiency	.24**	.00	.28**	.05	.21*	.18*
Education & training	.10	–.02	.04	.20*	–.07	.11
Child's education	.15	.19*	.13	.04	.33**	.10
Physical health & well–being	–.05	–.07	.13	–.04	.13	.09
Housing	–.04	.05	–.09	–.12	—	—
Social bonding	–.16	–.06	.00	.32***	–.07	.03
Social bridging	.07	.14	.08	.08	.05	.19
Safety & stability	.04	.08	.17*	.01	.19*	–.02
Civic engagement	.09	.10	.20*	.13	.12	.16*
Language	–.15	–.09	—	—	—	—
Cultural knowledge	.23	.14	—	—	—	—

NOTE: Significant moderating effects
Year 1:
Gender × Child_Educ interaction effect was statistically significant in wave 1 (t = 2.51; p = .013)
Year 2:
Gender × Training_Educ interaction effect was statistically significant in wave 2 (t = –2.16; p = .03)
Gender × Social_Bonding interaction effect was statistically significant in wave 2 (t = –2.09; p = .04)
Year 3:
Gender × Child_Educ interaction effect was statistically significant in wave 3 (t = 2.44; p = .02)
a. Removed language and cultural knowledge from models because of multicollinearity.
b. Housing excluded because no variability in housing scores in wave 3.
*$p < .05$. **$p < .01$. ***$p < .001$.

In Table 6, we consider gender differences in the factors that differentially predict integration at three years postresettlement over each of the waves (1–3). Integration pathways that significantly predicted *overall integration* at three years postresettlement (wave 4) differed across genders at all three time points. For wave 1 among men, *employment and economic sufficiency* was the only statistically significant predictor (Beta-weight = .24) of later integration. For women, *child's education* was the only statistically significant predictor (Beta-weight = .19). Analysis of moderating effects reveals that the interaction between gender and *child's education* was statistically significant in wave 1 ($t = 2.51$; $p = .013$). In wave 2, for men, later *overall integration* was predicted by *employment and economic sufficiency* (Beta-weight = .28), *safety and stability* (Beta-weight = .17), and *civic engagement* (Beta-weight = .20). Among women in wave 2, later *overall integration* was predicted by *education & training* (Beta-weight = .20) and *social bonding* (Beta-weight = .32). Moreover, analysis of moderating effects revealed that in wave 2 the interactions between gender and *education & training* ($t = -2.16$; $p = .03$) and between gender and *social bonding* ($t = -2.09$; $p = .04$) were statistically significant. Finally, in wave 3, *employment and economic sufficiency* was a statistically significant predictor of later *overall integration* for both men (Beta-weight = .21, $p < .05$) and women (Beta-weight = .18). Among the former in wave 3, *child's education* (Beta-weight = .33) and *safety and stability* (Beta-weight = .19) were statistically significant predictors of later *overall integration*. Among women in wave 3, only *civic engagement* (Beta-weight = .16) was statistically significant. Analysis of moderating effects revealed that the interaction between gender and *child's education* was statistically significant in wave 3, similar to previous years ($t = 2.44$; $p = .02$).

Discussion

Our analysis reveals a statistically significant change in overall integration over the course of three years. *Overall integration* increased in each of the first three years following resettlement, but there was a more significant increase in the first year after resettlement than in the other years. This suggests that, on average, although integration increases over time, the biggest gains in integration are made in the first year.

Second, among integration pathways in wave 1, only *social bonding* predicted *change over time* in *overall integration*, controlling for demographic characteristics. Specifically, lower levels of social bonding at baseline predicted more accelerated integration over time. This finding bears further study. It may be that individuals with a less cohesive social network comprising members from their own ethnic group are more likely to take risks in building social bridges to new members in the host community, which then may accelerate their integration. If this is the case, then programmatic services that promote the development of socially bridging relationships in receiving communities for all refugees—especially during the early years of resettlement—may enhance refugees' overall integration.

Third, certain integration pathways in waves 1 through 3 predicted *overall integration* three years postresettlement. This supports our hypothesis that different factors would support integration differently in each year. Demographic characteristics of age, education in one's home country, and gender (measured in wave 1) significantly contributed to the prediction of *overall integration*. On aggregate, older refugees achieved lower levels of integration three years after resettlement. But for those with higher education levels, later *overall integration* increased, and men had higher levels of integration than women.

Fourth, while *employment and economic sufficiency* is positively predictive of *overall integration* at all three time points (waves 1–3), other pathway variables were significant predictors of integration at different points in time. At wave 1, for example, *child's education* and *cultural knowledge* were statistically significant predictors of integration. At wave 2, *education and training, social bonding*, and *civic engagement* were statistically significant. At wave 3, *child's education, physical health and well-being, social bridging*, and *civic engagement* were all statistically significant predictors.

That *employment and economic sufficiency* was significant across all three waves of the study is noteworthy and highlights the importance of this pathway for the integration of resettled refugees. It is also consistent with the current U.S. resettlement programs' emphasis on job training, workforce placement, and employment supports. It is also important to note differences in the timing of importance of *employment and economic sufficiency* for men and for women. While this pathway significantly predicted men's integration across all years, it did so for women only in wave 3. This suggests that future programming focused on women's employment may need to be strategically timed to best support their later integration.

That different factors predicted integration at different points in time illustrates the dynamic nature of these factors and their association with integration. Further research should consider these differences for all U.S. refugees to understand when and how particular factors support integration across different settings and populations. Future research can explore which factors are dynamic and which are more stable, as well as whether particular aspects of employment and economic sufficiency are more or less important across time.

That the RISE demographic and pathway variables explain approximately 60 percent of the variance in integration suggests that an additional 40 percent is left unexplained. Bronfenbrenner's (1979) *Ecology of Human Development* may offer a promising theoretical approach. He suggests that there are concentric and embedded environmental systems that shape individual development over time. These environmental systems include interpersonal relationships (family and friends), community influences (schools, neighborhoods), and sociocultural factors (cultural beliefs, societal structures, and gender norms). Ultimately, because the systems in which resettled refugees are integrating are quite complex, future research must capture this complexity by including, for example, a range of variables related to the environmental systems that impact refugee integration over time.

It is interesting to note that among women the most salient predictor of successful overall integration three years after resettlement was getting their

child(ren) into school and engaging with that school (*child's education*). One year after resettlement, women who developed a social network within a cultural community (*social bonding*) and were focused on their own *education and training* had more successful integration three years postresettlement. In the second year after resettlement, finding employment and contributing to the family's economic stability appeared predictive of later successful integration.

Among men, the story was different. At arrival, the only predictor of integration three years after resettlement was *employment and economic sufficiency*. However, earlier in the integration process, other pathways were significant. One year after resettlement, men who reported higher *safety and stability* and *civic engagement* had higher integration three years postresettlement. *Child's education* and *safety and stability* predicted integration three years postresettlement, suggesting that men focus first on providing economic resources for their families and later on obtaining other pathways that are linked to successful integration. These gender differences align with Connell's (1987/2013) model of gender and culture and Pfau-Effinger's (1998) analysis of gender variation in employment across national settings. Our findings for men and women suggest that refugee integration during resettlement parallels the evolution of gender cultural roles and models during resettlement.

Across these analyses, *language* was not a significant predictor of integration. This finding contrasts with the common perception that acquisition of English language skills in resettlement is key to successful integration over time. Prior work using RISE data reveals that refugees' having more language and cultural knowledge resulted in substantial integration gains between waves 1 and 2, but afterward, those gains slowed (Lichtenstein and Puma 2018). One explanation for this may be that English skills are gained quickly and then plateau. Alternatively, it could be that small gains in English may have little impact on the language pathway score, but instead, they may have substantial impacts on other pathways, such as the ability to gain employment or interact with a child's teachers. One last explanation may be that newly arrived refugees overestimate or underestimate their language skills in a self-report measure, suggesting that the language construct we used may not accurately reflect a refugee's true language capability.

While the insights of our study are intriguing, readers should interpret them with caution. Although it has strengths, the RISE data contain information only for refugees interviewed across at least two data points. In addition, the loss of approximately one hundred participants between the first and second waves created more missing observations than preferred. The RISE sample size was also relatively small; although it captured most of the refugees resettled in Colorado in the baseline year, the total sample size was slightly fewer than five hundred respondents. Finally, the RISE contains self-reported data. Together these issues may suggest a bias in the RISE dataset—another issue for future researchers to assess.

Overall, longitudinal studies provide robust evidence that can inform policy decisions about how to strategically allocate resources for refugees. Yet there are challenges to carrying out such research. Longitudinal research is expensive because it involves tracking study participants over time, providing

compensation, and managing complex datasets. Refugees may be more mobile than other U.S. residents, which could further complicate this work. However, solutions are possible: they require resources; creative community-based approaches; and successful partnerships among researchers, practitioners, and policy-makers.

Notes

1. A similar figure to Figure 1 has been published previously (Lichtenstein and Puma 2018), but this one presents adjusted means.

2. The age × time interaction effect was presented in a previous publication (Lichtenstein and Puma 2018), but the modeling technique was different.

3. In the models, *social bridging* and *language* and *cultural knowledge* were colinear. This is not surprising given that one must have a high degree of language and cultural knowledge to bridge and, in turn, bridging increases language and cultural knowledge. For this study, because the items that measured language were conceptually different than items that measured cultural knowledge (despite the fact that Ager and Strang combined them), and because we wanted to retain as much information as possible in our models, we include language and cultural knowledge separately in the wave 1 and wave 2 models but removed them in the wave 3 model (see Table 4).

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