Health and Humanitarian Migrants' Economic Participation

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Abstract Refugees and immigrants being resettled in Australia on humanitarian grounds are known to have poorer health than other immigrants. Using data from the Longitudinal Surveys of Immigrants to Australia, the paper examines the influence of three measures of health—self-reported health status, the presence of a long-term health condition and mental health status—on the economic participation of humanitarian migrants. Multivariate logistic regression is used to control for other factors known to affect immigrants' economic participation, such as age, skills and English language proficiency, to see if health has an independent effect. The results show that migrants with poor physical health are less likely than migrants with good health to be in the work force. Mental health status affects the economic participation of male but not female migrants. The findings provide important empirical evidence of the significant role of health in the economic integration of migrants of refugee background.

Keywords Health · Immigrants · Refugees · Labor force participation · Economic integration

Introduction

Most studies of the factors influencing immigrants' incorporation into the labor force have focused on the role of demographic characteristics such as age, sex and country of

origin, and human capital characteristics such as level of education and language skills [1–3]. There has been little research on the effect of immigrants' health status on their labor market participation. Yet participation in the labor force is dependent on good health. While health may not be much of an issue in the labor market participation of migrants who had moved specifically in search of employment—they presumably have good health—it may be an issue in the case of refugees and other migrants resettled because of humanitarian concerns. Studies of the economic adjustment of migrants of refugee background have usually not looked at the possible influence of health [4] while those that have examined the health of refugee migrants have not linked their health status to economic participation [5–8]. One exception is a recent study of immigrants of refugee background in Sweden that has examined the health of immigrants in relation to unemployment and sick leave [9]. This study takes a gender perspective of the issue and finds that the influence of health is more significant for immigrant women than immigrant men. This is a small study based on 60 unemployed persons of refugee background. The results also showed that there was a reciprocal influence between health, work and migration, with poor labor market outcomes contributing to poorer health.

This paper aims to add to the limited knowledge on the influence of health on the economic participation of migrants of refugee background using data for two migrant cohorts from the Longitudinal Surveys of Immigrants to Australia. The surveys include three measures of health status (self-reported health status, the presence of a long-term health condition and mental health status), allowing for an analysis of whether and how economic participation is affected by both general and mental health.

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Theoretical Issues

Studies that have examined immigrant health have usually drawn attention to the better health status of migrants compared with the native-born population [10–12]. This is known as the healthy immigrant effect and is related to the selective migration of healthier individuals. Health is therefore not an issue in the labor market incorporation of most immigrants.

However, it is unlikely that the healthy immigrant effect applies to immigrants of refugee background whose migration is often involuntary and who may have spent some time in precarious environments or refugee camps with poor public health conditions and limited access to medical facilities. Indeed their health is likely to be not as good as that of the native population. Therefore, their health status is likely to be a factor in whether they are able to work upon arrival for resettlement in a new country.

Participation in the workforce is related to one's demographic characteristics such as age and sex, and human capital characteristics such as level of education, work skills and experience. For women, family characteristics such as the number of children and the age of the youngest child can also affect their decision to enter the work force and this is also true for immigrant women [13–15]. It can also be argued that particularly among immigrant women, ethnicity, religion and cultural background can also influence economic participation in that some religions and cultural traditions prohibit or discourage women from working outside the home or in certain occupations. For immigrants, proficiency in the language of the destination country and duration of residence are also important factors. Studies of immigrant labor market outcomes in Australia have shown consistently the importance of English language proficiency in successful labor market outcomes and that employment rates increase and unemployment rates decrease with increasing length of residence, as migrants gain more information about, and adjust to, the labor market [3, 16, 17]. All these factors would also influence the labor market participation of immigrants of refugee background. It is therefore necessary to take them into account in any analysis of the effect of health status on the economic participation of these migrants.

Some of the characteristics that are correlated with economic participation may also affect health status. For example, health status varies by age and in the case of immigrants of refugee background may also vary by region of origin. Depending on their pre-migration circumstances, humanitarian migrants from particular countries or region of origin may have poorer health than those from other regions. This in turn can affect their economic participation in the country of resettlement. Since these variables can

affect both health and economic participation they need to be considered in examining the relation between the two factors.

The Context of Humanitarian Migration to Australia

Australia's immigration program has three main components: family reunion, skilled and humanitarian migration.¹ The Humanitarian Program provides for the resettlement in Australia of refugees and others granted permanent residence on broader humanitarian grounds. Since the end of the second World War, over 675,000 refugees and other humanitarian migrants have been resettled in Australia under the program [18]. The Australian government sets the number of visas to be granted annually in the program. Since the 1990s, the Humanitarian migration program has been set at about 12,000 visas each year, increasing to 13,000 after 2004. This compares with about 40,000 visas in family reunion migration and 70–90,000 in the skilled permanent migration program in recent years [19]. The number of humanitarian visas granted each year include those granted to refugees and others who are resettled from overseas as well as those people who have applied for and granted asylum in Australia. Australia is one of ten countries with an established resettlement program for refugees and other humanitarian migrants and ranks among the top three countries in terms of the number of people resettled [20].

Table 1 shows the number and main countries of origin of migrants who arrived in Australia on humanitarian visas in the years since 1993. The sources of humanitarian migration to Australia has changed over the period shown. In the early 1990s, the main countries of origin were the former Yugoslav republic, Vietnam and Iraq. While the Balkan countries and Iraq continued to be significant sources, the number of humanitarian migrants from Vietnam declined sharply over the years. Numbers from the Balkan countries also dropped after the end of the 1990s, and from 2000 onwards, the numbers from Sudan and other African countries increased significantly.

The Australian government's Integrated Humanitarian Settlement Strategy (IHSS), in association with community groups, provides settlement assistance to newly arrived humanitarian migrants. This includes assistance with housing, learning English through the Adult Migrant English Program, and torture and trauma counseling. Humanitarian migrants also have immediate access to the national medical service (Medicare), welfare support

¹ Migration of New Zealand citizens to Australia does not require a visa under the Trans-Tasman Agreement between the two countries and forms a fourth component.

Table 1 Humanitarian migrant arrivals in Australia by birthplace, 1993–2006

Birthplace	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006			
Bosnia-Herzegovina	}	}	}	3,318	1,993	2,064	1,327	588	675	324	83	30	2	1			
Croatia	}	}	}	551	495	907	983	904	1,141	563	256	76	6	0			
Other former Yugoslavia	}	3,133	}	3,665	}	5,100	2,352	na	na	2,286	1,535	1,521	1,417	1,020	417	169	35
Other Europe	1,738	9,24	1,153	620	2,038	1,359	189	305	123	99	40	13	5	2			
Iraq	1,333	949	2,245	2,170	1,599	1,393	1,179	1,204	881	881	2,219	1,480	1,443	1,834			
Sudan	78	315	323	426	328	395	538	563	1,111	1,046	2,711	4,530	5,572	3,660			
Other ME and N. Africa	297	308	588	816	447	495	476	744	669	522	970	947	1,013	820			
Burma	1	400	500	360	264	95	43	86	83	100	60	39	205	506			
Cambodia	5	452	600	549	275	22	14	3	na	na	na	na	na	na			
Vietnam	1,902	2,298	1,507	271	1,042	401	34	21	17	44	60	53	0	2			
Other SE Asia	524	376	240	225	105	21	18	13	14	37	26	229	261	259			
Afghanistan	524	564	268	499	242	439	649	644	327	521	842	999	780	1,508			
Other S Asia	45	83	30	435	351	328	156	102	212	94	90	108	25	84			
Eritria	}	}	}	384	153	90	44	132	104	107	108	74	104	65	111		
Ethiopia	}	493	}	440	}	239	134	108	186	115	267	227	382	495	368	215	
Somalia	154	276	330	383	261	506	404	187	212	192	103	132	134	127			
Other Africa	97	86	129	171	82	106	76	96	236	512	608	820	3,185	2,844			
Other regions	450	214	235	286	140	96	100	53	44	54	10	15	11	16			
Total	10,939	11,350	13,632	13,824	9,886	8,779	8,790	7,267	7,640	6,732	9,569	10,335	13,235	12,113			

Sources: DIMA (various years), Immigration update

(including unemployment benefits, age or disability pensions and family allowance), and assistance with finding employment through the government-funded Job Network.

Notwithstanding this assistance, studies of the settlement experiences of immigrants in Australia have shown consistently that humanitarian migrants are more disadvantaged than non-humanitarian migrants on a number of measures. They are less likely to own their homes and more likely to be renting and paying a greater proportion of their income on housing compared with non-humanitarian migrants in the same migration cohort even after controlling for differences in demographic characteristics such as age, sex, origin and location of residence [21]. They also lag behind in the level of English language proficiency [22] and do not do as well in the labor market, having lower labor force participation and employment rates than non-humanitarian migrants [16, 23].

Humanitarian migrants also have poorer health than non-humanitarian migrants [24]. This is because while immigrants to Australia have to pass a health test, immigrants in the Humanitarian visa categories can have a negative result in their health test waived so that they can still migrate if they are considered in need of resettlement. They are urged to seek medical treatment on their arrival in Australia. Since 2005, the government has also initiated a pre-departure medical screening program for refugees and other humanitarian migrants coming from African

countries so that they can receive medical treatment before traveling to Australia.

While empirical studies have shown that humanitarian migrants have poorer health and poorer labor market outcomes than non-humanitarian migrants, no study has sought to examine whether humanitarian migrants' health affects their labor market participation. This paper seeks to fill this gap by examining the health status and economic participation of two cohorts of recently arrived humanitarian migrants to see if there is a relationship between the two factors.

Recent studies of the two cohorts of humanitarian migrants have shown differences in their health status and economic participation rates [16, 23, 24]. The first cohort who arrived during 1993–1995 reported better health on average than the second cohort who arrived during 1999–2000. The humanitarian migrants in the first cohort also had higher labor force participation rates than the second cohort. At 18 months after arrival, 67% of the men and 33% of the women in the first cohort were in the labor force compared with 41% of the men and 13% of the women in the second cohort. In contrast, non-humanitarian migrants in the second cohort had higher labor force participation rates (87% of men and 57% of women) than those in the first cohort (81% of men and 45% of women). While the improvement in the labor market participation rates of the non-humanitarian migrants is partly due to changes in

the selection criteria for skilled migrants [23] there was no change in humanitarian migration policy that could have contributed to the different labor market participation rates of humanitarian migrants in the two cohorts. Economic and labor market conditions in Australia were also much better in the years after the arrival of the second cohort than in the years following the arrival of the first cohort and it was intriguing that many humanitarian immigrants in the second cohort had not entered the labor market when economic conditions were more favorable, in contrast to non-humanitarian migrants. A related objective of the paper therefore is to also investigate whether the different health status of the two cohorts can explain their different economic participation rates.

Data and Method

The paper is based on data from the Longitudinal Survey of Immigrants to Australia, an initiative of the Australian government's Department of Immigration and Multicultural Affairs. The aim of the survey was to provide information to the government to evaluate its immigrant selection and settlement policies. The survey tracked two cohorts of recently arrived immigrants during the first few years of residence. In the first cohort, 5,192 primary migrants who arrived in 1993–1995 were surveyed three times, at approximately 6, 18 and 42 months after arrival. In the second cohort, 3,124 primary migrants who arrived in 1999–2000 were surveyed twice, at 6 and 18 months after arrival. The primary migrant was the person making the application for migration and whose characteristics were assessed in relation to the selection criteria for visa grant.

The survey samples were randomly selected from 75,000 primary migrants who arrived during 1993–1995 and 32,500 primary migrants who arrived during 1999–2000, who were aged 15 years and over at arrival and who settled in the major cities and urban areas. The samples were stratified by region or country of birth, state of residence and visa category.² Because of the stratified nature of the data, weights have been estimated and are applied in the data analysis³ so that the findings are representative of primary migrants in the two cohorts.

² The sample was selected to achieve a 2.5% absolute standard error for each visa category and a 7% absolute standard error for each region or country of birth.

³ Each individual record file has a weight variable attached to it. This variable indicates the number of migrants with the stratified characteristics that are represented by the individual respondent. In the data analysis, the individual record is multiplied by the weight variable so that the findings apply to the migrant population represented by this individual respondent.

More than 300 questions were asked in the survey covering a wide range of topics including the immigration process, labor force activity, health and English language skills. Interviews were conducted face-to-face by trained interviewers. Approximately one-third of the interviews were conducted in languages other than English; about half of these interviews were conducted with the assistance of respondents' family and friends, the others were conducted through using an accredited interpreter or a bilingual interviewer.

Humanitarian migrants comprised 19% of all migrants arriving in Australia during 1993–1995 and 12% in 1999–2000. There were 831 humanitarian migrants in the first cohort sample (16% of all respondents) and 558 in the second cohort sample (18% of all respondents).⁴ The paper focuses on the 728 humanitarian migrants in the first cohort and the 479 in the second cohort who participated in both the first and second wave interviews. Sample attrition between the first and second wave interviews was 14% for all migrants and 12% for humanitarian migrants in the first cohort and 15% for all migrants and 14% for humanitarian migrants in the second cohort. Analyses of the effect of sample attrition did not show any serious attrition bias, although the estimated unemployment rate was slightly higher for the sample of humanitarian migrants in the first cohort who participated in both waves of interviews compared with the sample before attrition [25]. Since the data are used in this paper to examine whether health affects economic participation, not to estimate participation rates, sample attrition should not affect the findings of the study.

The longitudinal data set allows us to examine the effect of the migrants' health status as measured at the time of the first wave interview soon after arrival in Australia on their economic participation at the second wave interview, about 18 months after arrival. Very few humanitarian migrants were in the labor force at the first wave interview soon after arrival. Also by examining the relation between health status at the time of arrival and economic participation some 18 months later, a clear direction of causation is established.

Migrants in the survey were asked to report any long-term chronic health conditions such as arthritis, diabetes, heart disorder and stress problems. They were also asked to rate their health as very good, good, fair, poor or very poor. This self-assessment of health status is often asked in surveys and has been found to be a good predictor of morbidity and mortality [26, 27]. An indicator of mental health is obtained from the 12-question module of the General Health Questionnaire (GHQ-12). The GHQ asks a series of questions that are used to measure the state of a

⁴ Humanitarian migrants were oversampled in the second cohort to allow for sufficient numbers for data analysis.

person's mental health, and has been used in many studies in Australia, as reviewed in a recent paper [28]. The questions include whether the person feels unhappy and depressed, is sleeping well, is feeling under strain, can make decisions, is able to face up to problems, etc. Responses to each question are scored from 0 to 3 and the scores are totaled for the 12 questions, with a high score indicating adverse mental health. The effect of these three indicators of health status on economic participation is examined.

Since migrants' economic participation is affected by their demographic and human capital characteristics and the two cohorts differ in terms of some of these characteristics, they need to be taken into account in the analysis of the effect of health on labor force participation and in whether the differences in participation rate of the two cohorts are due to their different characteristics and health status. Since the dependent variable in this analysis is a dichotomous one—whether the migrant is in the labor force (yes = 1, no = 0)—logistic regression is the method used to control statistically for the differences in the characteristics of the two cohorts in multivariate analyses. These characteristics include age, level of education, English language proficiency, country/region of origin and religion—characteristics that have been shown in the literature to affect the labor market participation of migrants. The economic participation of male and female immigrants is examined separately; for women, the number of children is also included in the analysis as it can affect their labor force participation.

Health Status and Other Characteristics of the Migrants

Table 2 shows that the two cohorts of humanitarian migrants differed significantly in their health status according to the three measures of health, particularly among the men. The two cohorts of female humanitarian migrants did not differ significantly in their self-reported health status. Overall, the health status of the second cohort was not as good as that of the first cohort on all three measures. A higher percentage of the second cohort than the first cohort reported their health as poor or very poor and had some long-term health condition. These differences were statistically significant. Thirteen percent of both men and women in the second cohort reported having nerves or stress problems, the most prevalent health condition, in contrast to just 3% in the first cohort.⁵ Not surprisingly, the second cohort had a significantly higher

average mental health score than the first cohort,⁶ indicating their poorer mental health. Indeed, there was a significant correlation between the report of stress problems and increased mental health score, with migrants reporting stress problems having an average mental health score of 19 compared with 10 for those not reporting any stress problems (ANOVA *F*-test, $P < 0.001$).

Significant differences were also observed in the age distribution, number of children, region of origin and religious background of the two cohorts (Table 2). The second cohort was older than the first cohort, with fewer people under age 25 and more over age 45. Fewer migrants in the second cohort had no children and a higher percentage had three or more children compared with the first cohort. While Europe—mainly Bosnia and other countries making up the former Yugoslavia—was the largest source of both cohorts, the percentage coming from Middle Eastern countries (mainly Iraq and Iran) was higher in the second cohort than in the first cohort, while the percentage from Southeast Asia (mainly Vietnam) declined substantially from the first to the second cohort. The percentages of Christians and Muslims were higher in the second cohort than in the first cohort, but there was a sharp decline in the percentage of Buddhists in the second cohort compared with the first cohort.

Differences in human capital characteristics between the two cohorts were not significant. There were no significant differences by qualifications between the two cohorts for both men and women. The level of English proficiency was also about the same for men in both cohorts, although some differences between the two cohorts were observed for women.

In spite of the similarities in human capital characteristics, the two cohorts had very different economic participation rates at 18 months after arrival in Australia. The decline in labor force participation between the two cohorts was seen in both men and women. Of the migrants who were not in the labor force, the men in the second cohort were more likely to be studying than those in the first cohort (Table 2). They were also more likely to be receiving sickness or disability pensions than their counterparts in the first cohort, reflecting their poorer health status. Women in the second cohort who were not in the workforce were more likely to be homemakers and less likely to be studying compared with women in the first cohort. It was notable that the unemployment rate⁷ was lower for the second cohort than the first cohort. This reflected the better labor market conditions in Australia

⁵ The questionnaire did not define stress problems, so it was left to the migrants to decide themselves if they had this health condition.

⁶ Based on analyses of variance and the *F*-test.

⁷ The unemployment rate is usually defined as the percentage of people in the labor force who are unemployed. The labor force is made up of those who are employed and those who are unemployed.

Table 2 Health status and other characteristics of the two humanitarian migrant cohorts

	Men		Women		Total	
	Cohort 1 (%)	Cohort 2 (%)	Cohort 1 (%)	Cohort 2 (%)	Cohort 1 (%)	Cohort 2 (%)
<i>Self-reported health status</i>						
Very good	45	34	31	27	40	31
Good	42	39	43	45	43	41
Fair	10	17	19	16	13	17
Poor/very poor	3	10	7	12	4	11
	(<i>P</i> < .001)		(<i>P</i> = .201)		(<i>P</i> < .001)	
<i>Health conditions</i>						
Arthritis	1	5	8	8	4	7
Hearing/vision problems	5	7	3	3	4	5
Stress	2	13	4	13	3	13
Heart/liver/kidney problems	1	2	1	1	1	2
Diabetes	1	1	1	0	1	1
Loss of limb	1	1	0	0	0	1
Asthma	0	1	1	1	0	1
Other	2	5	3	8	2	6
None	89	65	80	66	85	65
	(<i>P</i> < .001)		(<i>P</i> < .001)		(<i>P</i> < .001)	
<i>Mental health score</i>	9	13	10	12	10	13
	(<i>P</i> < .001)		(<i>P</i> = .010)		(<i>P</i> < .001)	
<i>Age</i>						
15–24	15	7	13	7	15	7
25–34	36	28	31	26	34	28
35–44	28	36	30	39	29	38
45+	21	29	26	27	23	28
	(<i>P</i> < .001)		(<i>P</i> = .017)		(<i>P</i> < .001)	
<i>Number of children</i>						
None	57	45	44	44	53	45
One or two	33	45	48	37	38	42
Three or more	10	10	8	19	9	13
	(<i>P</i> = .002)		(<i>P</i> = .088)		(<i>P</i> = .024)	
<i>Region of origin</i>						
Europe	39	53	53	42	44	49
Middle East	29	33	12	36	23	34
SE Asia	23	2	23	2	23	2
South Asia	2	5	4	9	3	7
Americas	1	0	1	1	1	0
Africa	6	7	7	11	7	8
	(<i>P</i> < .001)		(<i>P</i> < .001)		(<i>P</i> < .001)	
<i>Religion</i>						
Christian	45	56	46	56	45	56
Muslim	25	31	21	33	24	31
Buddhist	15	1	14	1	15	1
Other/None	15	13	19	10	16	12
	(<i>P</i> < .001)		(<i>P</i> < .001)		(<i>P</i> < .001)	
<i>Qualifications</i>						
Degree	22	17	17	11	20	15
Trade/Technical	25	30	22	20	24	26

Table 2 continued

	Men		Women		Total	
	Cohort 1 (%)	Cohort 2 (%)	Cohort 1 (%)	Cohort 2 (%)	Cohort 1 (%)	Cohort 2 (%)
11–12 years schooling	36	37	30	37	34	37
<11 years schooling	18	15	32	33	23	22
	(P = .104)		(P = .735)		(P = .135)	
<i>English proficiency</i>						
Speaks very well	6	9	5	7	6	8
Speaks well	35	33	32	24	34	29
Not well	54	48	46	61	51	53
Not at all	5	10	16	8	9	9
	(P = .122)		(P = .039)		(P = .649)	
<i>Activity status</i>						
Employed	28	22	18	8	24	17
Unemployed	40	19	15	5	31	14
Not in labour force	33	59	67	87	45	70
Studying	23	37	26	22	24	32
Home duties	0	1	28	57	10	23
Retired	2	4	3	1	2	3
Aged pensioner	4	3	6	1	5	3
Other pensioner	3	11	4	4	3	8
Other	1	3	0	1	1	2
	(P < .001)		(P < .001)		(P < .001)	
Unemployment rate (%)	59	47	45	37	56	45
	(P = .031)		(P = .325)		(P = .024)	
Number of migrants (N)	440	296	288	183	728	479
Weighted N	5,946	1,264	3,213	787	9,159	2,051

Note: *P* values in parentheses are from chi-square tests comparing cohorts 1 and 2 on each characteristic

Source: Longitudinal Survey of Immigrants to Australia

faced by the second cohort, and indicated that for those migrants who chose to participate in the labor market, the likelihood of finding employment was better for the second cohort than for the first.

Table 3 shows that the proportion of migrants with poor health or a long-term health condition increases significantly with age, as expected. The average mental health score also increases with age. Differences in the percentage reporting poor health status were not significantly different by region of origin. However, the percentage reporting a health condition did vary by region of origin. Nearly half of all migrants from Europe in the second cohort had a health condition, with 20% reporting nerves or stress problems compared to 10% or less for migrants from other regions (not shown in table). Mental health scores also differed significantly by region, with the humanitarian migrants from Europe having the highest average score. The high mental health score shown for European migrants in the second cohort was not surprising considering the high proportion reporting stress problems.

Economic Participation

Labor market participation rates of the humanitarian migrants by health status and demographic and social characteristics are shown in Table 4. There was a clear positive relation between labor force participation and self-reported health status for both men and women. Also, a higher proportion of both male and female migrants who did not have any long-term health condition were in the work force compared with those who had a long-term health condition. The mental health score of males in the first cohort was negatively correlated with their economic participation, as expected, but no significant relationship between these variables was observed for males in the second cohort and for women in both cohorts.

There were also differences in humanitarian migrants' economic participation by their demographic and social-cultural characteristics. Significant differences were observed by age and English proficiency for men and for women in cohort 1 but not women in cohort 2. Men's

Table 3 Humanitarian migrants' health status by age, cohort and region of origin

	% with poor health		% with health condition		Mental health score	
	Cohort 1	Cohort 2	Cohort 1	Cohort 2	Cohort 1	Cohort 2
<i>Age</i>						
15–24	1	12	7	15	8	12
25–34	4	4	6	14	9	10
35–44	2	9	11	39	11	13
45+	11	20	37	54	13	15
	(<i>P</i> < .001)	(<i>P</i> = .003)	(<i>P</i> < .001)	(<i>P</i> < .001)	(<i>P</i> < .001)	(<i>P</i> < .001)
<i>Region of origin</i>						
Europe	4	14	17	44	12	16
Middle East	5	8	9	26	8	11
SE Asia	6	4	17	34	9	9
South Asia	4	12	12	27	9	10
Africa/other	3	6	12	23	10	10
	(<i>P</i> = .903)	(<i>P</i> = .679)	(<i>P</i> < .068)	(<i>P</i> < .048)	(<i>P</i> < .001)	(<i>P</i> < .001)

Note: *P* values are based on chi-square tests for percentages with poor health or health condition and on ANOVA *F*-tests for mean mental health score

Source: Longitudinal Survey of Immigrants to Australia

Table 4 Labour force participation rate of humanitarian migrants in Cohorts 1 and 2 by health status and demographic and other selected characteristics

	Men		Women		Total	
	Cohort 1 (%)	Cohort 2 (%)	Cohort 1 (%)	Cohort 2 (%)	Cohort 1 (%)	Cohort 2 (%)
<i>Health Status</i>						
Very good	78	50	42	26	68	42
Good	59	41	32	12	50	39
Fair	63	35	24	5	43	24
Poor/very poor	41	24	22	0	30	14
	(<i>P</i> = .002)	(<i>P</i> = .066)	(<i>P</i> = .252)	(<i>P</i> = .006)	(<i>P</i> < .001)	(<i>P</i> < .001)
<i>Health conditions</i>						
Yes	47	34	22	3	35	23
None	70	45	35	18	59	35
	(<i>P</i> = .004)	(<i>P</i> = .065)	(<i>P</i> = .142)	(<i>P</i> = .003)	(<i>P</i> < .001)	(<i>P</i> = .002)
<i>Mental health score</i>						
<10	71	45	33	15	60	32
10+	62	39	32	12	49	29
	(<i>P</i> = .045)	(<i>P</i> = .209)	(<i>P</i> = .910)	(<i>P</i> = .834)	(<i>P</i> = .017)	(<i>P</i> = .340)
<i>Age</i>						
15–24	62	51	41	16	56	37
25–34	72	57	44	13	63	41
35–44	79	41	32	14	61	30
45+	48	24	17	11	35	19
	(<i>P</i> = .002)	(<i>P</i> < .001)	(<i>P</i> = .011)	(<i>P</i> = .887)	(<i>P</i> < .001)	(<i>P</i> < .001)
<i>Qualifications</i>						
Degree	61	44	38	12	55	35
Trade/technical	65	41	31	25	54	36

Table 4 continued

	Men		Women		Total	
	Cohort 1 (%)	Cohort 2 (%)	Cohort 1 (%)	Cohort 2 (%)	Cohort 1 (%)	Cohort 2 (%)
11–12 years schooling	70	47	39	14	61	34
<11 years schooling	73	25	25	6	49	14
	(<i>P</i> = .667)	(<i>P</i> = .382)	(<i>P</i> = .009)	(<i>P</i> = .113)	(<i>P</i> = .009)	(<i>P</i> = .007)
<i>English proficiency</i>						
Speaks very well	62	68	23	44	49	60
Speaks well	67	46	44	11	60	35
Not well	71	37	32	12	59	26
Not at all	42	12	12	4	23	9
	(<i>P</i> = .037)	(<i>P</i> < .001)	(<i>P</i> = .004)	(<i>P</i> = .265)	(<i>P</i> < .001)	(<i>P</i> < .001)
<i>Region of origin</i>						
Europe	66	36	32	24	52	32
Middle East	67	48	20	2	58	29
SE Asia	74	20	45	12	64	17
South Asia	55	47	30	0	41	21
Americas	57	–	20	–	45	–
Africa	61	56	22	22	46	39
	(<i>P</i> = .256)	(<i>P</i> = .334)	(<i>P</i> = .037)	(<i>P</i> = .002)	(<i>P</i> = .004)	(<i>P</i> = .598)
<i>Religion</i>						
Christian	74	48	36	17	61	36
Muslim	60	33	26	5	50	21
Other/None	63	32	33	17	52	27
	(<i>P</i> = .003)	(<i>P</i> = .043)	(<i>P</i> = .173)	(<i>P</i> = .063)	(<i>P</i> = .004)	(<i>P</i> = .021)
<i>Number of children</i>						
0	61	41	39	19	54	33
1–2	76	42	30	13	56	32
3+	75	39	11	1	55	18
	(<i>P</i> = .005)	(<i>P</i> = .613)	(<i>P</i> = .009)	(<i>P</i> = .084)	(<i>P</i> = .490)	(<i>P</i> = .060)
Total	67	41	33	13	55	30

Note: *P* values in parentheses are from chi-square tests comparing the percentage in the labour force of cohorts 1 and 2 by each characteristic
Source: Longitudinal survey of immigrants to Australia

economic participation did not vary significantly by level of qualifications or region of origin; however, differences in economic participation by region were significant for women. As expected, women with more children were less likely to be in the workforce.

With the exception of migrants who spoke English very well whose cohort 2 participation rate exceeded that of cohort 1, migrants in the second cohort had lower participation rates than those in the first cohort in all categories of age, qualification, region of origin, religion, number of children and health status. Multivariate analysis is needed to determine whether the different economic participation rates of the two cohorts are due to differences in the health status and demographic and social-cultural characteristics.

Table 5 shows the results of the logistic regression analyses of the probability of humanitarian migrants'

participation in the labor force by health status and demographic and social-cultural characteristics. The analyses included the 731 men and 466 women in both cohorts for whom data were available on all the variables included in the regression models. Preliminary analyses show that level of education has no relation to both men's and women's labor force participation when the other factors have been taken into account; therefore, it has been excluded from the logistic regression analyses shown in Table 5. The analyses show the net effect of each of the three measures of health status separately (Models 1–3) and then together in the same equation (Model 4), controlling for the effects of the demographic and social-cultural variables.

The logistic regression results show that health status has a significant relation to male humanitarian migrants'

Table 5 Logistic regression results for humanitarian migrants' economic participation

	Men				Women			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
<i>Age</i>								
15–24	0.405	0.480	0.489*	0.382	0.376	0.551	0.733	0.403
25–34	1.054**	0.931**	1.014**	0.989**	0.934**	1.077**	1.238**	0.976**
35–44	1.068**	1.047**	1.137**	1.048**	0.856**	0.995**	1.134**	0.891**
45+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>English proficiency</i>								
Speaks very well	0.831	1.026**	1.090**	0.805	0.538	0.636	0.703	0.515
Speaks well	0.847**	0.847**	0.925**	0.780*	1.328**	1.361**	1.433**	1.327**
Not well	1.012**	1.027**	1.048**	0.986**	0.879**	0.861*	0.937**	0.867*
Not at all	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>Region of origin</i>								
Europe	0.026	0.147	0.233	0.029	0.428	0.381	0.357	0.397
Middle East	−0.008	0.029	0.050	−0.044	−0.808	−0.879	−0.851	−0.790
SE Asia	0.595	0.662	0.616	0.617	0.847	0.737	0.705	0.863
South Asia	0.058	0.060	0.136	0.001	0.385	0.381	0.406	0.430
Africa, Other regions	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>Religion</i>								
Christian	0.567**	0.701**	0.630**	0.612**	0.351	0.388	0.340	0.348
Muslim	−0.169	−0.009	−0.084	−0.122	−0.153	−0.156	−0.228	−0.193
Other/None	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>Number of children</i>								
0	–	–	–	–	2.299**	2.296**	2.280**	2.306**
1–2	–	–	–	–	1.470**	1.506**	1.466**	1.449**
3+	–	–	–	–	0.000	0.000	0.000	0.000
<i>Health Status</i>								
Very good	1.297**	–	–	0.969*	0.858	–	–	0.951
Good	0.452	–	–	0.154	0.510	–	–	0.591
Fair	0.715	–	–	0.567	0.167	–	–	0.248
Poor/very poor	0.000	–	–	0.000	0.000	–	–	0.000
<i>Health conditions</i>								
None	–	0.626**	–	0.474*	–	0.304	–	0.067
One or more	–	0.000	–	0.000	–	0.000	–	0.000
<i>Mental health score</i>								
–	–	–	−0.029*	−0.005	–	–	0.009	0.014
<i>Migration cohort</i>								
Cohort 1	1.046**	0.997**	1.042**	0.967**	0.904**	0.884**	0.946**	0.902**
Cohort 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Intercept	−3.058	−2.894	−2.200	−3.012	−5.995	−5.789	−5.813	−6.293
Likelihood ratio chisq	121.424	103.593	100.737	124.781	88.927	85.073	84.698	90.023
df	16	14	14	18	18	16	16	20
P	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Number of migrants	731	731	731	731	466	466	466	466

** Significantly different from zero at $P < .05$; * Significantly different from zero at $P < .10$

economic participation even after taking account of the migrants' demographic and social-cultural characteristics that may affect both their health and economic participation. Male migrants who reported having very good health,

no long-term health conditions and lower mental health scores were significantly more likely to be in the work force than those whose health was not so good, had a health condition or higher mental health scores. When all three

measures were included in the same regression equation, self-reported health status and long-term health conditions continued to show a significant relation to male migrants' economic participation; however, the negative effect of the mental health score variable was much reduced and no longer statistically significant. It would appear that migrants' self-assessment of their general health status might have taken account of their mental health status as well. As indicated earlier, many people reporting a health condition had reported having stress problems so the health condition measure would have also taken account of their mental health status.

The health status regression coefficients were smaller for women than for men and were not statistically significant, probably because of the smaller sample of women in the survey. Nonetheless, there is still a clear relation between health and economic participation, with female migrants reporting very good health and no health conditions more likely to participate in the workforce than those reporting poor health and having a health condition, even after controlling for demographic and social-cultural characteristics.

Among the three measures of health, self-reported health status had the strongest effect on both men's and women's economic participation. Men and women who rated their health as very good on arrival were 2.6 times (odds ratio obtained from the exponential of the regression coefficients of 0.969 for men and 0.951 for women) more likely to be in the labor force than those who rated their health as poor, other things being equal. Men who had no health condition were 61% more likely to be in the workforce than men who had a health condition while women who had no health condition were just 7% more likely than those with a health condition to be in the work force, after taking into account the effect of self-reported health status (Model 4).

The stronger effect of health on the economic participation of male migrants compared to female migrants differs from the findings of the Swedish study referred to earlier that showed that health had a more significant effect on female migrants than male migrants' unemployment and sick leave [9]. The difference may be due to the use of different measures of economic participation. The current study is also based on a larger sample of migrants of refugee background than the Swedish study.

For female humanitarian migrants, the number of children is the significant factor in their labor force participation. Women with three or more children were very unlikely to be in the labor force compared with women with fewer or no children. Male humanitarian migrants' labor force participation was not affected by their number of children.

For both men and women, age and English language proficiency are also important factors in their economic

participation. Migrants aged 25–44 were significantly more likely to be in the labor force than those younger or older. Migrants who spoke some English were also more likely to be in the labor force than those who did not speak English. The importance of English language proficiency is consistent with previous research on migrants' economic participation in Australia.

There was no significant difference in economic participation by region of origin after controlling for health status and other characteristics. Differences in the labor force participation rate by religion were not significant for women after controlling for region of origin but they remained significant for men, with Christian male migrants having a higher probability of economic participation compared to non-Christian male migrants. Male and female humanitarian migrants who are Muslim by religion had lower economic participation rates than non-Muslim migrants of similar health and demographic and human capital characteristics, as indicated by the negative coefficients, although they were not statistically significant, probably because of the small sample size.

After controlling for the differences in health status and region of origin between the two cohorts and the other factors known to affect labor force participation, cohort 1 migrants were still significantly more likely to be in the labor force than cohort 2 migrants. There appeared to be factors other than those considered in this study that were discouraging the labor force participation of both male and female humanitarian migrants in cohort 2 compared with cohort 1. As shown by the likelihood ratio chi-square statistics, the overall fit of each of the four models differed significantly from the data, indicating that there are other variables not included in the models that are affecting humanitarian migrants' economic participation.

Conclusion

As shown in this study, health was an important factor in the economic participation of male refugees and other migrants who arrived in Australia in the 1990s on Humanitarian migration visas. Male humanitarian migrants who reported poor health, a long-term health condition or poorer mental health were significantly less likely than those with better health to be in the work force. Health status had a weaker effect on female humanitarian migrants' economic participation after controlling for their demographic and social-cultural characteristics.

Migrants appear to have taken their mental health as well as the effect of any long-term health condition into consideration when reporting their general health status, making this measure the strongest of the three measures of health examined in the paper in relation to their decision to

participate in the work force. Humanitarian migrants' own perception about their general health is more important than other specific measures of physical or mental health when it comes to making a decision to enter the labor force after migration and resettlement in a new country. It would be of interest in further research to examine what factors migrants take into consideration in reporting their health status as 'very good', 'good', 'fair' or 'poor' and whether there are social-cultural differences in this assessment in order to better understand this measure of health.

The paper's findings indicate that it is important that refugees and other humanitarian migrants who have a health problem seek medical treatment as soon as they arrive for resettlement so that they will regain their health and be able to join the work force. It is important, therefore, that they have access to health services, including treatment for psychological health problems, which were reported by a significant minority of humanitarian migrants in this study. In Australia, all migrants with permanent residence status have access to Medicare, the national health service, so all humanitarian migrants can receive treatment for their health and medical problems immediately after arrival. The government-funded Integrated Humanitarian Settlement Strategy services also include an Early Health Assessment and Intervention Program that provides information, health assessment and referral to mainstream health services as well as torture and trauma counseling to humanitarian migrants soon after their arrival [29]. The findings from this study confirm the importance of this program to all humanitarian migrants, to ensure that they know about and receive the appropriate treatment for any existing physical and mental health problems.

More generally, the study's findings indicate that it is important that countries which accept refugees and other humanitarian migrants for resettlement have a policy of providing them with free access to health and medical services as part of their resettlement assistance, so that health is not a barrier to their workforce participation. Economic participation is an important aspect of immigrant settlement, allowing the migrant to integrate economically and improve the economic prospects of his family in their new country of settlement. While other factors such as language skills are also important in migrants' economic participation, the highly significant and independent effect of health status, particularly on the economic participation of male humanitarian migrants, demonstrates the importance of good health in contributing to their successful resettlement.

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