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RESEARCH PAPER

Migrant Status and the Wellbeing Gap: The Case of an Ethnically Diverse, High-Conflict Area in Indonesia

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Abstract

Communities with high levels of in-migration can experience substantial social, cultural, and economic change due to the upheaval in social dynamics and changes to the economy. Such upheaval can result in between-group inequalities amongst the native and migrant populations, with migrants tending to have lower levels of wellbeing compared to those who were born in the area. Through utilising a culturally adapted wellbeing measurement tool, the Indonesian Wellbeing Scale, this study examines the native-immigrant wellbeing gap in Papua, Indonesia. Papua has historically experienced high levels of conflict, and is highly ethnically diverse, making it a unique context to examine the native-immigrant wellbeing gap. Drawing on data collected in 2020, the results indicate that the immigrant population has significantly higher levels of wellbeing when controlling for a number of socio-demographic characteristics. This finding is driven by all wellbeing dimensions within the Indonesian Wellbeing Scale: spirituality, social relations, material needs, and self-acceptance. Possible explanations for this include the happy migrant hypothesis, levels of wellbeing pre-migration, and impacts of the migration process. These findings have important implications for migration within both Indonesia, and in similar contexts throughout the world, highlighting that care must be taken when implementing migration policies to ensure that receiving communities are not negatively affected. Furthermore, the study emphasises the value in using a multidimensional, culturally adapted wellbeing measurement tool that was developed in consultation with individuals in the community to ensure we are more closely measuring what matters to people.

Keywords Subjective wellbeing · Measurement · Native-immigrant gap · Papua · Indonesia · Internal migration

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1 Introduction and Background

High levels of migration can result in substantial social, cultural, and economic impacts to the receiving communities. Such impacts can be both positive and negative, and largely depend on the contexts of both the sending and receiving areas. Benefits for the receiving area can include increases in labour supply resulting in economic growth, while negative effects can consist of job loss for the local population, heavier burdens on public services, and increased social tensions (Klugman, 2009; Ratha et al., 2011). Unsurprisingly, the effects of migration tend to be different for the migrant, compared to the local, population (Hendriks, 2021). One way to assess variation in the experiences of non-migrants and migrants is to evaluate and contrast their levels of health and wellbeing. A range of studies have previously explored this in various contexts, using measures of mortality, physical health, mental health, economic wellbeing, and subjective wellbeing (Feranil, 2006; Landale et al., 2000; Newbold & Danforth, 2003). However, an important gap exists in contrasting the wellbeing of internal migrants and the local population in a high-conflict, ethnically diverse region.

A systematic review of studies examining the native-immigrant wellbeing gap has found that immigrants tend to have poorer levels of subjective wellbeing or happiness than the native population (Hendriks, 2015). In explaining the smaller proportion of studies that did show the immigrant population attaining native-level wellbeing, the authors suggest that this may be influenced by a pre-migration wellbeing gap, low sample sizes, or a true acculturation in wellbeing. The 'happy migrant hypothesis', whereby those who choose to migrate have characteristics which predispose them to having better health and greater wellbeing, is also commonly referred to in the literature to explain higher wellbeing amongst migrants (Kennedy et al., 2015; Lu, 2008; Palloni & Morenoff, 2001). Existing studies have predominantly focused on international migration in the European context (e.g. Bárcena-Martín & Pérez-Moreno, 2017; Hadjar & Backes, 2013; Sand & Gruber, 2018). The few studies examining internal migration have found similar effects to those most often reported in the international migration literature, with internal migrants generally reporting lower levels of happiness than the native population, attributed to poor social capital, lower self-esteem, stress, and lower engagement in activities (Ek et al., 2008; Hendriks et al., 2016). The vast majority of studies on both internal and international migration have focused on European and other Western countries, highlighting a gap regarding internal migration within lower-income countries.

This paper fills this gap by using a culturally adapted wellbeing measurement tool developed in consultation with individuals in Indonesia to examine the wellbeing gap between migrants and non-migrants in the province of Papua, Indonesia. In doing so we make three important contributions to the literature. Firstly, this study provides a deeper insight into the wellbeing gap between migrant and local population groups in a high-conflict, ethnically diverse region. Secondly, the paper contributes to the existing evidence base regarding wellbeing and migration in Indonesia. Finally, by using a culturally adapted wellbeing measurement tool, we contribute to the subjective wellbeing literature more generally by highlighting the value in using a context-specific tool, rather than global wellbeing measurement tools.

Papua, a province in Indonesia, provides an interesting context to examine the wellbeing gap between internal migrants and the Indigenous population, as it is an ethnically diverse, high-conflict area with a strong independence movement. Papua has had a complicated history regarding independence and conflict. Papua was under largely Dutch colonial rule from the mid 1800s to the 1940s, until the region was transferred to Indonesia in 1963 with a promise of a plebiscite for independence (McGibbon, 2006). The plebiscite, which was widely seen as questionable and suspect, led to Indonesia retaining rule of the region. Perceiving this as a continuation of colonial rule, Papua has since had a strong independence movement through *Organisasi Papua Merdeka* (the Free Papua movement), with high levels of conflict seen between the military and the separatist movement in the region (Gault-Williams, 1987; McGibbon, 2006; Resosudarmo et al., 2009). This conflict has been largely episodic (McGibbon, 2006), with the most notable period of unrest in recent times being the 2019 Papua protests, which saw over one thousand people in Jayapura protest against reports of racial and ethnic discrimination, with calls for independence. The protests resulted in high levels of civil unrest between protestors, and police and military personnel (Reuters, 2019b). The protests and resulting unrest led to a large number of arrests, as well as deaths of protestors and law enforcement across Papua and West Papua (Firdaus, 2019). The high level of conflict within Papua is reflected in crime statistics, with 208 per 100,000 citizens at risk of being affected by crime in 2020 (with Papua being ranked 6th worst amongst all Indonesian provinces) (Badan Pusat Statistik, 2021b), Papua also has a high level of ethnic diversity with at least 261 ethnic groups living in both West Papua and Papua (Ananta et al., 2016; Resosudarmo et al., 2009). Those living in Papua experience relatively high levels of poverty compared to elsewhere in Indonesia, and are generally reported to have the lowest levels of wellbeing amongst all Indonesian provinces when using global measurement tools (Badan Pusat Statistik, 2021a; Sujarwoto, 2021).

This paper also provides an important input to the literature base on migration in Indonesia. Indonesia is an important context to examine due to its long-running internal migration policy, *Transmigrasi*. The policy has a long history, commencing well before Indonesian independence from the Dutch (e.g. Fearnside, 1997). While it has existed in various different forms, transmigration is today still a key component of Indonesia's economic policy (Human Rights Watch, 2021). A core aim of *Transmigrasi* is to reduce population density on the island of Java and create a unified "Indonesian" identity by incentivising migration to the outer islands of Indonesia, including Papua (Fearnside, 1997). More than one-third of Papua's population is made up of internal migrants, with the high levels of migration heavily influenced by *Transmigrasi*. The Indonesian government incentivised migration to the region to meet the demographic and employment objectives of the transmigration scheme, to improve infrastructure, and to promote national integration (World Bank Group, 1988). Anti-migrant protests are common within the province due to political resentment and economic inequalities (Human Rights Watch, 2001). These protests have at times led to violence and deaths of migrants, with Indigenous Papuans feeling discriminated against, particularly economically, due to Indonesians from other provinces migrating to the country for cheap land and economic opportunities (Reuters, 2019a). While numerous papers have previously discussed the social and environmental impacts of the *Transmigrasi* scheme in Indonesia (e.g. Fearnside, 1997; Hardjono, 1986, 1988; Potter,

2012), there are very few studies exploring the association between migrant status and wellbeing outcomes. In an analysis of social exclusion and wellbeing, Seda et al. (2018) contrasted the outcomes of the native and migrant population in West Papua using a subjective wellbeing index comprising the dimensions of education, economic wellbeing, and health. Seda found that Indigenous Papuans had a higher overall wellbeing score than both the migrant Papuan and non-Papuan population groups and scored higher than the non-Papuan group on all dimensions. Lu (2008, 2010a, 2010b) has explored the impacts of internal migration in certain regions of Indonesia (Papua being excluded), finding that the process of migration resulted in increased risk of psychological disorder and reduced levels of social support in the receiving community.

Finally, this study contributes to the literature on subjective wellbeing, regarding both the broader literature base and in relation to migration studies specifically. There has been increasing recognition over the last decade that understandings of wellbeing can differ based on context, and thus, we should be adapting our measurement tools to ensure they align with context-specific understandings of wellbeing (Greco et al., 2015; Lomas, 2015; White & Pettit, 2004). However, in the broader literature, there are very few examples of these being applied (e.g. Mitchell et al., 2015). Furthermore, while measurement tools to assess the wellbeing of Papuans, and Indonesians more generally, have been applied extensively (Badan Pusat Statistik, 2021a; Sujarwoto, 2021), these are generally Western-developed tools which have not been adapted to suit the cultural context. Within the field of migration, while some migration studies have used multidimensional wellbeing measures to explore migration and wellbeing (e.g. Kuschminder et al., 2018), to the authors' best knowledge, this study represents the first example of a culturally adapted wellbeing measurement tool, developed in consultation with the community, being applied within migration analysis. The adoption of this approach provides more confidence that we are measuring what truly matters to participants in the study.

This paper will firstly outline the methodology and data for the study before presenting the results. The limitations of the study are then described, followed by a more detailed discussion of the results and their implications. The paper will conclude with some final remarks.

2 Methodology

2.1 Data

This study uses secondary data from a household survey undertaken in Jayapura regency, Papua (in the sub-districts of Abepura and Heram) in January 2020. The primary purpose of the survey was to better understand the long-term health, educational, and wellbeing impacts of contracting malaria as a child. However, given the detailed information in the survey regarding respondents' migration history, the relatively high proportion of individuals who were migrants, and the inclusion of a wellbeing scale tailored to the Indonesian context, the data from this survey can also be used to explore the relationship between migration status and wellbeing. While this same survey was also undertaken in Ambon, Maluku, this sample was excluded from the analysis as there were only 20 individuals in Ambon who were not born on the island of Ambon.

A stratified spatial random sampling technique was used to select households into the survey. This involved randomly selecting 18 geospatial units of inhabited land in both the Abepura and Heram subdistricts in Jayapura regency. From each of these 18 geospatial units, a point was randomly selected from which 10 households within a radius of 200 m from the points were randomly selected for the survey. All individuals aged 15–60 years in these households were invited to take part in the survey. Overall, 313 households were randomly selected, with 12 declining to participate. Following this, three households were removed from the analysis as there were no respondents in the target age range (15–60). This left 298 households to be used for analysis, with a total of 694 respondents agreeing to complete the survey. The survey, on average, took 30 min to complete per respondent, or 90 min per household. All households who commenced the survey stayed on until completion. Specific compensation was not provided, however, respondents were provided the opportunity to participate in an investment game at the end of the survey to measure participants' level of risk aversion (where a random amount of money may have been given).

To determine the migrant status of individuals, three categories were identified: Non-migrant, Migrant from Papua/West Papua, and Migrant from another Indonesian province.[1] A non-migrant was defined as someone who was born in the regency or city of Jayapura, and a migrant from Papua was defined as someone who was born in Papua but not in Jayapura regency/city. The sample characteristics of individuals with each of these migrant statuses are highlighted in Table 1.

The survey consisted of a household questionnaire, which was responded to by the household head on behalf of the household, as well as individual questionnaires for all household members aged 15–60. The household questionnaire included a household roster detailing sex, age, marital status, religion and educational level), housing conditions, household expenditure, household assets, food security, trust and social capital, and history of malaria in the household. The individual questionnaires included questions on migration history, malaria history, childhood conditions, physical health, education history, employment history, subjective wellbeing (the Indonesian Wellbeing Scale), life satisfaction, happiness, mental health, and a cognition test. The subjective wellbeing, life satisfaction, and happiness questions were spaced apart in the survey to prevent context effects influencing the way individuals responded. Furthermore, the ordering of the four dimensions of the Indonesian Wellbeing Scale (discussed further below) was randomised to measure and control for any context effects created through priming from previous questions.

2.2 Measuring Subjective Wellbeing: The Indonesian Wellbeing Scale, Life Satisfaction, and Happiness

The primary outcome measure used in this study is the Indonesian Wellbeing Scale (IWS), developed and validated by Maulana et al. (2019). The scale is comprised of four dimensions specific to the Indonesian context: spirituality, social relations, basic needs, and self-acceptance (see Maulana et al., 2019 for the full scale and validation process). These dimensions were identified through qualitative research with individuals in Indonesia, in which participants were asked what wellbeing meant to them (Maulana et al., 2018),

[1] Migrants from elsewhere in Papua were combined with migrants from West Papua due to the small sample size of those from West Papua (n = 14), as well as the geographical proximity and cultural similarities of the two provinces. Migrants from other Indonesian province comprises of migrants from outside Papua and West Papua.

Table 1 Sample characteristics

	Full sample		Non-migrant		Migrant from Papua/West Papua		Migrant from other Indonesian province	
	N (%) or Mean	Std. error	N (%) or Mean	Std. error	N (%) or Mean	Std. error	N (%) or Mean	Std. error
	694 (100%)		418 (60.2%)	1.9%	92 (13.3%)	1.3%	184 (26.5%)	1.7%
Gender								
Male	314 (45.2%)	1.9%	192 (61.1%)	2.8%	39 (12.4%)	1.9%	83 (26.4%)	2.5%
Female	380 (54.8%)	1.9%	226 (59.5%)	2.5%	53 (13.9%)	1.8%	101 (26.7%)	2.3%
Religion								
Islam	220 (31.7%)	1.8%	113 (51.3%)	3.4%	3 (1.4%)	0.8%	104 (47.3%)	3.4%
Christian	411 (59.2%)	1.9%	273 (66.4%)	2.3%	85 (20.7%)	2.0%	53 (12.9%)	1.7%
Catholic	63 (9.1%)	1.1%	32 (50.8%)	6.3%	4 (6.3%)	3.1%	27 (42.9%)	6.3%
Village								
Hedam	322 (46.4%)	1.9%	203 (63.0%)	2.7%	56 (17.4%)	2.1%	63 (19.6%)	2.2%
Kota Baru	372 (53.6%)	1.9%	215 (57.8%)	2.6%	36 (9.7%)	1.5%	121 (32.5%)	2.4%
Marriage status								
Married	472 (68.0%)	1.8%	232 (49.2%)	2.3%	73 (15.5%)	1.7%	167 (35.4%)	2.2%
Not married	222 (32.0%)	1.8%	186 (83.8%)	2.5%	19 (8.6%)	1.9%	17 (7.7%)	1.8%
Age	36.2	0.47	32.5	0.61	39.9	1.11	42.6	0.75
BMI	24.4	0.14	24.0	0.17	25.3	0.47	24.9	0.26
Highest level of education								
Primary school (*Sekolah dasar)*	53 (7.6%)	1.0%	24 (45.3%)	6.9%	8 (15.1%)	5.0%	21 (39.6%)	6.8%
Junior High School (*SMP)*	97 (14.0%)	1.3%	55 (56.7%)	5.1%	12 (12.4%)	3.4%	30 (30.9%)	4.7%
Senior High School (*SMA)*	318 (45.9%)	1.9%	193 (60.7%)	2.7%	36 (11.3%)	1.8%	89 (28.0%)	2.5%
Diploma (*Akademi D)*	50 (7.2%)	1.0%	40 (80.0%)	5.7%	1 (2.0%)	2.0%	9 (18.0%)	5.5%
University	175 (25.3%)	1.7%	106 (60.6%)	3.7%	34 (19.4%)	3.0%	35 (20.0%)	3.0%

Table 1 (continued)

	Full sample		Non-migrant		Migrant from Papua/West Papua		Migrant from other Indonesian province	
	N (%) or Mean	Std. error	N (%) or Mean	Std. error	N (%) or Mean	Std. error	N (%) or Mean	Std. error
Monthly salary (IDR)								
No salary	377 (54.5%)	1.9%	255 (67.6%)	2.4%	45 (11.9%)	1.7%	77 (20.4%)	2.1%
Less than 500.000	50 (7.2%)	1.0%	27 (54.0%)	7.1%	5 (10.0%)	4.3%	18 (36.0%)	6.9%
500.000–999.999	34 (4.9%)	0.8%	17 (50.0%)	8.7%	6 (17.7%)	6.6%	11 (32.4%)	8.1%
1.000.000–2.499.999	54 (7.8%)	1.0%	29 (53.7%)	6.8%	9 (16.7%)	5.1%	16 (29.6%)	6.3%
2.500.000–3.999.999	82 (11.9%)	1.2%	43 (52.4%)	5.5%	10 (12.2%)	3.6%	29 (35.4%)	5.3%
4.000.000–5.499.999	61 (8.8%)	1.1%	30 (49.2%)	6.5%	9 (14.8%)	4.6%	22 (36.1%)	6.2%
5.500.000 or more	34 (4.9%)	0.8%	17 (50.0%)	8.7%	7 (20.6%)	7.0%	10 (29.4%)	7.9%
Number of bedrooms	2.5	0.04	2.7	0.06	2.5	0.11	2.3	0.07
Land ownership								
Owns land	434 (62.5%)	1.8%	284 (65.4%)	2.3%	57 (13.1%)	1.6%	93 (21.4%)	2.0%
Doesn't own land	260 (37.5%)	1.8%	134 (51.5%)	3.1%	35 (13.5%)	2.1%	91 (35.0%)	3.0%

ensuring that the tool is culturally relevant for analysis in Indonesia. Final items within the scale were generated through a Delphi approach, as well as Exploratory and Confirmatory Factor Analysis with a sample of 1,028 individuals in Indonesia (Maulana et al., 2019). It should be noted that these two phases of research had a relative over-representation of individuals in Java. While further qualitative research would need to be conducted to confirm the appropriateness of this scale for use in Papua, we consider that this it is the most relevant scale available, having been developed for use in the Indonesian context. To provide indicative evidence as to whether this scale is suitable for this sample, Confirmatory Factor Analysis was undertaken. The output is shown in Appendix 1, illustrating high factor loadings for all variables and an overall good model fit.

Participants responded to the 20 items of the IWS scale on a 5-point likert scale, with a higher score indicating a higher level of agreement (and subsequently a higher wellbeing score). An average of scores within each dimension was taken to calculate the wellbeing score for each of the four dimensions. These dimension scores were then averaged to calculate the overall IWS score. This means that all dimensions are weighted equally. The histograms for the IWS score, and each of the dimension scores are displayed in Appendix 2. These histograms may indicate some level of social desirability bias, which is discussed further in the Limitations section.

Two standard life satisfaction and happiness scales were used as secondary outcome variables, both of which have been widely used by Indonesia's national statistics agency (*Badan Pusat Statisik)*, as well as in other established surveys in Indonesia such as the Indonesia Family Life Survey and the Survey of Happiness (e.g. Anna et al., 2019; Nandini & Afiatno, 2020; Sutawi et al., 2021). The life satisfaction scale asks the question "Please think about your life as a whole. How satisfied are you with it?". Responses to this scale are on a 5-point scale from "completely satisfied" to "not at all satisfied". The happiness scale asks "Taking all things together, how would you say things are these days?". This scale has four possible response options from "very happy" to "very unhappy". Given that one key purpose of this paper is to assess the value and benefit of using a context-specific wellbeing measurement tool, these secondary outcome variables were incorporated into the analysis to compare the findings of these outcome variables in contrast to the IWS scale. The distributions of responses for these scales are outlined in Appendix 3.

2.3 Analysis Approach

The analysis approach entailed using regression techniques to determine whether migrant status was associated with subjective wellbeing after controlling for a number of socio-demographic characteristics. Ordinary Least Squares regression was conducted for the primary outcome variable, while Ordered Logit Regression was conducted for the two secondary outcome variables. These results were also disaggregated further to determine any differential impacts by gender, geographic area of origin, or whether the individual migrated to Jayapura before or after the age of 12.[2] Additional analysis was also conducted to better understand differential impacts by region for those who have migrated from elsewhere in Papua/West Papua (see Fig. 1). These regions were identified due to their distinct cultural differences. For example, individuals from the coastal regions have historically had

[2] Migration before/after 12 years old was analysed due to it being the only information on timing of migration collected in the survey.

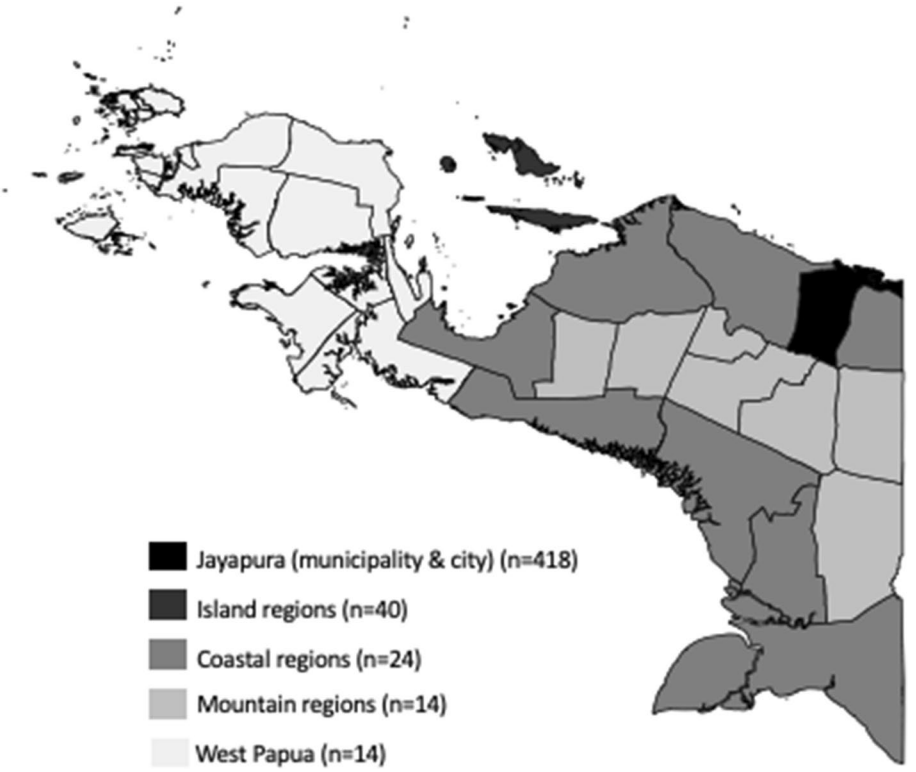


Fig. 1 Map of regions in Papua and West Papua used for additional analysis

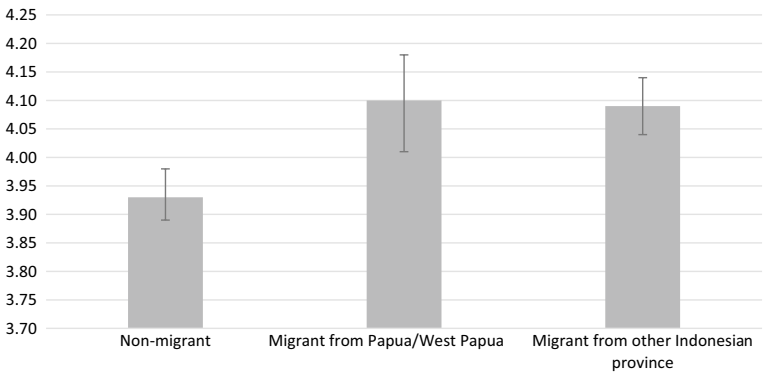


Fig. 2 IWS score by migrant status

greater interaction with outsiders and were some of the first Papuans who received modern education during the Dutch colonial period. People from the mountain regions, in contrast, have typically started receiving modern education only since Indonesian independence, and have had more limited contact with those outside their region. Models were also developed with the scores for each of the four dimensions used as outcome variables.

A number of variables were incorporated into the model to control for other factors that may influence subjective wellbeing. These included village, gender, religion, marital status, age, health (BMI), highest level of education, income, number of bedrooms in the house, and housing quality (an average of responses related to quality of the floor, walls, roof, and toilet).

3 Results

Figure 2 firstly illustrates the IWS score by migration status, with a higher score indicating higher wellbeing. The results show that non-migrants report significantly lower wellbeing than migrants at the 5% significance level. No significant differences were observed based on whether the migrant was from elsewhere in Papua/West Papua, or another Indonesian province.

Given that these results may be influenced by migrants having differing socio-demographic characteristics to non-migrants, such as income and health, it is important to control for such information.

Table 2 illustrates the model output, using the primary outcome variable, the IWS scale, as a dependent variable, as well as the two secondary outcome variables: a life satisfaction scale and a standard happiness scale. Model 1 indicates that when controlling for a number of socio-demographic variables, migrants to Jayapura from elsewhere in Papua and migrants from outside of Papua/West Papua have significantly higher wellbeing compared to non-migrants when using the IWS (at the 10% and 1% level respectively). Given the high level of geographical and cultural disparity in migrants from elsewhere in Papua, Appendix 4 presents additional analysis to distinguish the differential impact for those who come from island, coastal, and mountain regions of Papua, and those from West Papua. The results suggest that the higher wellbeing of migrants from Papua may predominantly be driven by those coming from the mountain regions, which is significant at the 5% level. While this finding would need to be further verified through a larger sample size of migrants from Papua/West Papua, it is interesting to note that the higher levels of wellbeing are driven by a group which typically has lower levels of education, but higher levels of social cohesion. It is also important to note that income and education have significant positive associations with wellbeing, with those local to Papua tending to have lower levels of education and income. Thus, within the community, this wellbeing gap may be even more observable.

Interestingly, when using life satisfaction and happiness as outcome variables (Model 2 and Model 3), no significant differences are found based on migrant status, indicating that these more standard measures of wellbeing may lack sensitivity. This is further confirmed through Figs. 9 and 10 in Appendix 3, which illustrates that there is very little variation in how participants responded to these measures. The tendency to respond positively to these items may be influenced by cultural norms, where being grateful for what one has is viewed as important (Maulana et al., 2018). This indicates that such scales may not always be culturally appropriate for use in the Indonesian context.

Table 2 Full IWS, life satisfaction, and happiness models

	Model 1—IWS		Model 2—Life satisfaction		Model 3—Happiness	
	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Migration status						
Migrant from Papua	0.082*	0.042	−0.036	0.294	−0.17	0.368
Migrant from other Indonesian province	0.109***	0.035	−0.321	0.242	−0.457	0.328
Male	−0.05	0.032	−0.268	0.22	−0.084	0.282
Religion		0				
Christian	−0.034	0.033	−0.382*	0.231	0.264	0.316
Catholic	−0.11**	0.051	−0.063	0.349	0.962**	0.423
Village (lives in Hedam)	0.067**	0.028	0.033	0.193	0.307	0.245
Married	0.137***	0.041	0.802***	0.285	0.853**	0.404
Age	−0.002	0.009	−0.085	0.06	−0.156**	0.077
Age-squared	0	0	0.001*	0.001	0.002**	0.001
BMI	−0.015	0.034	0.158	0.227	−0.252	0.276
BMI-squared	0	0.001	−0.003	0.004	0.005	0.005
Education		0				
Junior High School (*SMP)*	0.045	0.059	−0.389	0.393	1.29	0.813
Senior High School (*SMA)*	0.157***	0.053	0.417	0.364	1.2	0.765
Diploma (*Akademi D)*	0.123*	0.073	0.24	0.495	1.336	0.874
University	0.27***	0.059	0.536	0.406	1.34*	0.785
Monthly salary (IDR)		0				
Less than 500.000	−0.12**	0.058	−0.606	0.379	-1.121	0.785
500.000–999.999	−0.17**	0.068	−0.186	0.455	−0.656	0.81
1.000.000–2.499.999	0.008	0.055	−0.444	0.377	−0.929	0.656
2.500.000–3.999.999	0.131***	0.048	0.309	0.339	0.317	0.398
4.000.000–5.499.999	0.21***	0.055	0.813**	0.396	0.14	0.448
5.000.000 or more	0.409***	0.066	1.104**	0.465	1.442***	0.456
Owns land	0.04	0.03	−0.323	0.208	−0.027	0.284
Number of bedrooms	0.049***	0.015	0.206**	0.104	0.064	0.123
Housing quality index	0.054*	0.03	1.247***	0.228	0.706***	0.239
Constant	3.53***	0.432				
Cut point 1			−1.113***	3.091	0.816***	3.6

Table 2 (continued)

	Model 1—IWS		Model 2—Life satisfaction		Model 3—Happiness	
	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Cut point 2			0.506***	2.959		
Cut point 3			4.039***	2.93		
Cut point 4			8.78***	2.954		
Pseudo/Adjusted R-squared	0.3043		0.1104		0.1158	
Sample size	684		684		684	

*Significant at 10% level ** significant at 5% level *** significant at 1% level

Model 1 is an Ordinary Least Squares model. Models 2–3 are Ordered Logit models. Base case is born in Jayapura regency/city, female, Muslim, lives in Kota Baru village, not married, has completed primary school only, reports no monthly salary, and does not own land

Table 3 explores these results in greater detail to better understand what demographic groups might be driving this wellbeing gap between migrants and non-migrants. Model 1 and Model 2 show that the wellbeing gap is driven by both males and females. Model 3 illustrates that when examining the origin of migrants, the wellbeing gap between migrants and non-migrants is driven by individuals originating from Sulawesi (significant at the 1% level) and Java (significant at the 10% level). It should be noted, however, that this may be driven by the relatively low standard error for these areas of origin in comparison to the standard error for the other geographic areas. This is due to the relatively larger sample sizes for these groups. Finally, the age at which individuals migrated to Jayapura was examined in Model 4. The findings suggest that there are no significant differences in wellbeing between individuals who migrated to Jayapura when they were 12 years or younger compared to those who migrated when they were older than 12 years.

Finally, it is important to examine which wellbeing dimensions in particular are driving this wellbeing gap. Table 4 disaggregates the findings by the four IWS sub-scales: spirituality, social relations, basic needs, and self-acceptance. We find that the wellbeing gap is driven by all four dimensions. It is interesting to note that for the basic needs dimension this association holds even when controlling for a number of economic variables. This may indicate either that, all else being equal, migrants simply have better self-perceptions of their material needs when compared to non-migrants. On the other hand, this may simply indicate omitted variable bias. For example, migrants may have a greater sense of financial security through informal networks.

4 Limitations

Before discussing the results in greater detail, is important to highlight some limitations of the study. Firstly, this paper uses secondary data which was not collected specifically for the purposes of exploring the wellbeing gap between migrants and non-migrants. For that reason, some key variables of interest are missing that would add value to the analysis. These include the exact age of migration, reason for migration, whether family members migrated alongside the individual, whether the individual's parents and grandparents were migrants, and level of social and community integration since migration. Future studies

Table 3 IWS results by subgroups

	Model 1—Females only		Model 2—Males only		Model 3—Province of origin		Model 4—Age of migration	
	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Migration status								
Migrant from Papua	0.033	0.055	0.12*	0.068	0.081*	0.042		
Migrant from other Indonesian Province	0.124***	0.047	0.092*	0.056				
(Java)					0.092*	0.05		
(Lesser Sunda Islands)					0.05	0.094		
(Sumatra)					−0.033	0.124		
(Kalimantan)					0.272	0.201		
(Sulawesi)					0.156***	0.048		
(Maluku)					0.089	0.087		
Age of migration								
Born in Jayapura							−0.076**	0.034
Migrated after 12 years old							0.064	0.046
Male					−0.047	0.032	−0.049	0.032
Religion								
Christian	−0.026	0.044	−0.059	0.053	−0.034	0.035	−0.043	0.031
Catholic	−0.039	0.068	−0.189**	0.079	−0.101*	0.055	−0.113**	0.051
Village (lives in Hedam)	0.057	0.037	0.068	0.044	0.07**	0.028	0.069**	0.028
Married	0.12**	0.053	0.17**	0.079	0.138***	0.041	0.135***	0.041
Age	−0.009	0.011	0.009	0.015	−0.002	0.009	−0.002	0.009
Age-squared	0	0	0	0	0	0	0	0
BMI	0.017	0.038	−0.095	0.075	−0.013	0.034	−0.013	0.034
BMI-squared	0	0.001	0.002	0.001	0	0.001	0	0.001
Education								
Junior High School (*SMP*)	0.021	0.074	0.122	0.104	0.038	0.06	0.046	0.059

Table 3 (continued)

	Model 1—Females only		Model 2—Males only		Model 3—Province of origin		Model 4—Age of migration	
	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Senior High School (*SMA*)	0.158**	0.065	0.167*	0.097	0.151***	0.054	0.161***	0.053
Diploma (*Akademi D*)	0.105	0.095	0.146	0.124	0.117	0.074	0.128*	0.073
University	0.244***	0.074	0.304***	0.106	0.269***	0.059	0.274***	0.059
Monthly salary (IDR)								
Less than 500.000	−0.113	0.089	−0.166	0.102	−0.121**	0.059	−0.114**	0.058
500.000–999.999	0.117	0.143	−0.294***	0.104	−0.169**	0.069	−0.178***	0.069
1.000.000–2.499.999	0.057	0.101	−0.052	0.091	0.004	0.055	0.003	0.055
2.500.000–3.999.999	0.055	0.076	0.109	0.087	0.128***	0.048	0.135***	0.047
4.000.000–5.499.999	0.073	0.105	0.208**	0.086	0.212***	0.055	0.205***	0.055
5.000.000 or more	0.352***	0.097	0.449***	0.106	0.41***	0.066	0.389***	0.068
Owns land	0.05	0.04	0.013	0.049	0.038	0.03	0.034	0.03
Number of bedrooms	0.066***	0.02	0.035	0.023	0.049***	0.015	0.051***	0.015
Housing quality index	0.027	0.041	0.092**	0.046	0.049	0.031	0.046	0.031
Constant	3.316***	0.498	4.209***	0.918	3.524***	0.434	3.599***	0.429
Adjusted R-squared	0.2092		0.3844		0.3032		0.3060	
Sample size	374		310		684		684	

*Significant at 10% level ** significant at 5% level *** significant at 1% level

All models are Ordinary Least Squares

Models 1–2: Base case is born in Jayapura regency/city, Muslim, lives in Kota Baru village, not married, has completed primary school only, reports no monthly salary, and does not own land. Model 3: Base case is born in Jayapura, female, Muslim, lives in Kota Baru village, not married, has completed primary school only, reports no monthly salary, and does not own land Model 4: Base case migrated before 12 years old is female, Muslim, lives in Kota Baru village, not married, has completed primary school only, reports no monthly salary, and does not own land

Table 4 IWS sub-scales

	Model 1—Spirituality		Model 2—Social relations		Model 3—Basic needs		Model 4—Self-acceptance	
	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Migrant status								
Migrant from Papua	0.132**	0.063	0.021	0.057	0.05	0.067	0.123**	0.052
Migrant from other Indonesian Province	0.104**	0.052	0.1**	0.047	0.112**	0.056	0.121***	0.043
Male	−0.045	0.048	−0.042	0.043	−0.048	0.051	−0.066*	0.04
Religion								
Christian	−0.11**	0.05	−0.008	0.045	0.007	0.053	−0.025	0.041
Catholic	−0.186**	0.076	−0.116*	0.068	−0.009	0.08	−0.13**	0.063
Village (lives in Hedam)	0.058	0.041	0.069*	0.037	−0.005	0.044	0.145***	0.034
Married	0.109*	0.061	0.083	0.055	0.261***	0.065	0.096*	0.051
Age	−0.025*	0.013	−0.025**	0.012	0.049***	0.014	−0.009	0.011
Age − squared	0*	0	0**	0	0***	0	0	0
BMI	−0.037	0.05	−0.054	0.045	0.038	0.053	−0.005	0.042
BMI − squared	0.001	0.001	0.001	0.001	−0.001	0.001	0	0.001
Education								
Junior High School (*SMP*)	0.046	0.089	0.11	0.08	−0.004	0.094	0.028	0.074
Senior High School (*SMA*)	0.116	0.079	0.205***	0.071	0.172**	0.084	0.136**	0.066
Diploma (*Akademi D*)	0.17	0.109	0.209**	0.098	−0.031	0.116	0.145	0.091
University	0.252***	0.088	0.312***	0.079	0.301***	0.093	0.215***	0.073
Monthly salary (IDR)								
Less than 500.000	−0.247***	0.087	−0.139*	0.078	0.007	0.092	−0.1	0.072
500.000–999.999	−0.289***	0.102	−0.197**	0.092	−0.007	0.108	−0.189**	0.085
1.000.000–2.499.999	−0.063	0.082	−0.041	0.073	0.213**	0.087	−0.079	0.068
2.500.000–3.999.999	0.066	0.071	−0.005	0.064	0.388***	0.075	0.076	0.059
4.000.000–5.499.999	0.118	0.081	0.116	0.073	0.421***	0.087	0.186***	0.068
5.000.000 or more	0.314***	0.099	0.298***	0.089	0.621***	0.105	0.402***	0.082
Owns land	−0.002	0.045	0.091**	0.041	0.054	0.048	0.016	0.037

Table 4 (continued)

	Model 1—Spirituality		Model 2—Social relations		Model 3—Basic needs		Model 4—Self-acceptance	
	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Number of bedrooms	0.039*	0.022	0.034*	0.02	0.038	0.023	0.083***	0.018
Housing quality index	0.198***	0.045	0.002	0.041	− 0.013	0.048	0.028	0.038
Constant	4.494***	0.644	4.677***	0.579	1.384**	0.683	3.567***	0.535
Adjusted R-squared	0.1458		0.1593		0.4097		0.2012	
Sample size	684		684		684		684	

*Significant at 10% level ** significant at 5% level *** significant at 1% level

Note: Models are Ordinary Least Squares

Base case is born in Jayapura regency/city, female, Muslim, lives in Kota Baru village, not married, has completed primary school only, reports no monthly salary, and does not own land

which focus specifically on this issue may want to consider collecting more in-depth information on these aspects.

Secondly, this cross-sectional study does not allow for causal inference. We do not have information on the level of wellbeing of migrants before they migrated to Jayapura, and we cannot compare their levels of wellbeing to those still in their place of origin. For this reason, we cannot speculate as to whether migration has resulted in migrants having differing levels of wellbeing as we do not have an appropriate counterfactual. However, this study has provided an important initial insight into the association between migrant status and wellbeing in the province of Papua, which has been missed in previous analyses of migrant status and wellbeing in Indonesia (Lu, 2010a, 2010b; Seda et al., 2018).

Thirdly, while the wellbeing scale applied in this study is based on an Indonesian perspective of wellbeing, it was predominantly developed through research with individuals in Western Indonesia. Given the high level of cultural diversity throughout Indonesia, and especially between people living in Eastern Indonesia and other provinces, it is likely that Papuans may conceptualise wellbeing slightly differently compared to other areas of Indonesia. However, the use of the IWS for this study represents an important shift toward ensuring the wellbeing is measured in a more culturally adaptive way. Furthermore, Confirmatory Factor Analysis indicated that the scale represents a good model fit to the data. Going forward, it is hoped that this scale can be further validated, and potentially adapted, to ensure its appropriateness for use with the Papuan population.

Finally, it should be noted that while the use of the IWS helps to avert some limitations of the more standard unidimensional measures of wellbeing, such as the life satisfaction and happiness scales, some shortcomings are still evident. In particular, the IWS may be prone to the social-desirability bias also affecting the more standard scales, with the distribution of scores indicating a negative skew (as shown in Appendix 2). As highlighted earlier, this tendency may be influenced by cultural norms within Indonesia, with a high importance placed on being grateful for what one has (Maulana et al., 2018). While the higher level of variation in IWS scores, in contrast to the happiness and life satisfaction scales, enabled a greater level of analysis in this study, this potential social-desirability should be examined in future research to further confirm the robustness of the IWS.

Despite these limitations, the findings presented in this paper provide some valuable insights into the association between migrant status and subjective wellbeing in an ethnically diverse and high-conflict area. The following section will discuss the implications and importance of these findings.

5 Discussion

The significant and substantial wellbeing gap identified in the results, which cut across all dimensions of wellbeing noted as important for people in Indonesia have important implications. This section will firstly discuss the value and importance in using a multidimensional measure of wellbeing that was developed in consultation with individuals in Indonesia. Secondly, we will put forward possible explanations for this finding, including the happy migrant hypothesis, the process of migration, and the higher levels of wellbeing in provinces outside of Papua. Finally, we will highlight the implications of these findings for wellbeing in Papua, and what this means for a high-conflict, ethnically diverse area.

5.1 The Value of Using a Culturally Adapted Wellbeing Measurement Tool

Before discussing the findings in greater detail, this section will firstly highlight the value in using a culturally adapted, multidimensional wellbeing measurement tool, which was developed in consultation with individuals in Indonesia. While the use of context-specific wellbeing measurement tools has been growing over the past decade (e.g. Collomb et al., 2012; Greco, 2018; Manuela & Sibley, 2012), quantitative analysis tends to rely on context-neutral, global measures to evaluate wellbeing, such as the OECD subjective wellbeing measure (OECD, 2013), and the Personal Wellbeing Index (International Wellbeing Group, 2013). And there are benefits to using more universal, multidimensional measures. These include unidimensional measures being faster to complete, universal measures allowing for comparison across different cultures and contexts, and culturally adapted instruments simply being unavailable, However, we have illustrated through this paper two clear benefits of utilising a culturally adapted, multidimensional wellbeing measurement tool. Firstly, by measuring wellbeing multidimensionally, we can better understand what dimensions of wellbeing are driving the wellbeing gap. Secondly, we can have confidence that the dimensions of wellbeing measured are relevant to the population of interest.

The findings of this study indicated the presence of a wellbeing gap between migrants and non-migrants, and this is driven by all four wellbeing dimensions: spirituality, social relations, basic needs, and self-acceptance. It should be noted that this significant gap in wellbeing was not identified when using two standard, unidimensional measures of life satisfaction and happiness. The distribution in responses to these unidimensional tools indicated very low variation in how these questions were responded to, which suggests that these tools may lack the sensitivity to identify differences in wellbeing. However, even if significant differences had been identified through these tools, we would have little information as to what was driving this difference. While unidimensional measures may be quicker to implement within a survey, by using a multidimensional measure we have greater clarity about what specific dimensions of wellbeing are driving the wellbeing gap.

Further to this, by using a measurement tool that was developed in consultation with the population of interest, we have greater certainty that the tool truly reflects the meaning of wellbeing for individuals in Indonesia. While there are limitations in using this tool with the Papuan population, as discussed in the Limitations section, it presents an important shift forward, moving away from global measures of wellbeing or those developed for use with Western population groups. Thus, in our analysis, we can have greater confidence that the wellbeing gap is being driven by areas of wellbeing that truly matter to individuals in Indonesia.

Thus, while there are valid reasons for using universal, unidimensional measures for certain analyses, this study has highlighted that in undertaking an analysis of wellbeing in a single context, there is high value in employing a multidimensional, culturally adapted measurement tool.

5.2 Why the Wellbeing Gap?

There are a number of potential explanations for the wellbeing gap identified in the results section. Firstly, it is important to acknowledge the 'happy migrant hypothesis', which has been studied comprehensively within the migration literature (e.g. Kennedy et al., 2015; Lu, 2008; Palloni & Morenoff, 2001). As noted earlier, the happy migrant hypothesis suggests that those who choose to migrate have characteristics distinct from those who choose

to stay in their place of origin. This can come in the form of greater levels of physical health, with migrants likely having greater levels of physical mobility and having fewer concerns over access to health care in the destination location (Riosmena et al., 2017). It can also come in the form of financial security, with migrants requiring greater financial resources to migrate in the first place (de Haas, 2010). The behavioural characteristics of migrants may also differ from those who choose to remain in their place of origin, with individuals choosing to migrate having greater propensity for risk-taking, with possible associations with mental health (Brockerhoff & Biddlecom, 1999). While the happy migrant hypothesis has not been tested specifically using measures of wellbeing, it is likely that this same effect exists for subjective wellbeing. It should be noted that while we controlled for some of these measures, such as physical health, there could be unobserved characteristics resulting in 'happier' migrants. Thus, in short, the wellbeing gap identified in this study may simply be caused by migrants, on average and when controlling for other factors, having higher levels of wellbeing than non-migrants in general.

Closely related to this is also the fact that those who have migrated to Jayapura have one distinct characteristic from those born in Jayapura. That is, they were born in, and spent some or many years growing up in, a different area. In analysing the multidimensional wellbeing of individuals in different provinces throughout Indonesia, Sujarwoto (2021) showed that the wellbeing of individuals in Papua is significantly and substantially lower than most other provinces in Indonesia. While this analysis used a different measure of wellbeing based on the OECD subjective wellbeing indicators (OECD, 2013), it does suggest that those born in provinces outside of Papua tend to have higher levels of wellbeing. Thus, in our analysis, individuals who have moved to Papua may 'export' their higher levels of wellbeing with them to Papua. In our study, this could be through the form of greater financial security (such as more expansive informal networks in the sending region) or higher levels of mental health. It should be noted, however, that we did also see a wellbeing gap in the spirituality and self-acceptance dimensions for those who had migrated within Papua to Jayapura, likely driven by those living in the mountainous regions of Papua. Furthermore, additional analysis based on data from the current study was able to utilise the supplementary data collected in Ambon (not otherwise used in the current paper) to compare the wellbeing of those who lived in Jayapura and Ambon. This analysis, presented in Appendix 5, found that there is no significant difference in wellbeing, according to the IWS scale, for individuals who are based in Ambon compared to those in Jayapura. While this only contrasts two cities in two different provinces, it does provide some further indication that the wellbeing gap may be influenced by more than just the exportation of higher wellbeing from different areas of Indonesia.

Interestingly, it should be noted that we did not find any evidence of acculturation, with some previous studies finding that the health and wellbeing of migrants assimilates to the native population over time (Antecol & Bedard, 2006; Biddle et al., 2007). Finally, it is important to note that our results suggest that the social wellbeing of migrants is significantly greater than non-migrants in Jayapura, which is largely at odds with the literature base which highlights that migrants tend to be affected by poor levels of social connection in the receiving region (Bhugra, 2004). Possible explanations for this are that migrants in this region are well connected due to the high level of ethnic diversity, and their ability to form relationships with other migrants (Ryan, 2011). Another possibility is that those born in Jayapura may have poor levels of connection due to this high proportion of migrants, as well as the fact that Papuans themselves are highly ethnically diverse (Ananta et al., 2016). This finding would need to be examined more deeply through further research.

A final possible, although unlikely, explanation for the wellbeing gap is that the wellbeing of migrants has improved as a result of the migration process. Some research has suggested the migration process might result in improved wellbeing. For example, Anson (2004) examined the mortality rates of migrants to Belgium, finding that the happy migrant hypothesis by itself was insufficient to explain lower levels of mortality amongst migrants, suggesting that the meaning of migration and the hope that it stimulates may be part of the explanation. However, research conducted in other provinces of Indonesia does not align with this, finding that migration is significantly detrimental to both physical and mental health (data on Papua and other areas of Eastern Indonesia were not available for this analysis) (Lu, 2010a, 2010b). While it is plausible that the impacts of migrating specifically to Papua are distinct from migration to other areas of Indonesia, given previous literature highlighting the influence of conditions in the receiving region on migration impacts (de Haas, 2010), it is unlikely that the migration process itself has resulted in significant improvements to wellbeing.

5.3 The Broader Implications for Migration to a High-Conflict, Ethnically Diverse Region

While the data used in this study cannot shed light on the drivers and explanations for the wellbeing gap, the fact that such a gap exists has important implications for Papua, as well as for understanding the impacts of migration to high-conflict, ethnically diverse regions more generally.

Firstly, it is important to note that the wellbeing gap may be influenced, and further exacerbated, by high levels of migration to the region. Indonesia's transmigration policy, *Transmigrasi,* which incentivises out-migration from Java into the outer islands, is a key driver of this high level of migration. The negative social and environmental impacts of *Transmigrasi* have been well documented, including deforestation, elimination of cultures, and the violation of human rights, including land rights for local populations (Fearnside, 1997; Human Rights Watch, 2021). This is no less true in Papua, where migration has resulted in hostility between groups and inter-group tensions (Anderson, 2015; Chauvel, 2005). While Indigenous peoples in Papua were also included in the transmigration program, this was only partially successful due to Indigenous people's reliance on subsistence agriculture. Thus, the mere presence of migrants in Jayapura may be contributing to the wellbeing gap.

Secondly, the wellbeing gap identified indicates a level of 'wellbeing inequality' between migrants and non-migrants in Jayapura. Inequality more generally has been found to be associated with lower levels of wellbeing. For example, income inequality has been found to be associated with social disfunction (Wilkinson & Pickett, 2009), poorer health (Kawachi & Kennedy, 1999), and lower levels of wellbeing (Oishi & Kesebir, 2015). In fact, Oshio and Urakawa (2014) found that perceived levels of income inequality were associated with lower levels of subjective wellbeing. Given that inequality (or perceived inequality) in other measures, such as income, leads to lower levels of wellbeing, it is not unreasonable to suggest that wellbeing inequality within society may beget further reductions in individual wellbeing. Thus, if this wellbeing gap is acknowledged and identified by non-migrants in Jayapura, recognising that on average migrants have higher levels of wellbeing in relation to spirituality, social relations, basic needs, and self-acceptance, this may lead to higher levels of tension and conflict, exacerbating this wellbeing gap even further.

Furthermore, it should be noted that both education and income are significantly associated with wellbeing. Non-migrants in Papua typically have lower levels of education and income compared to the migrant population (Seda et al., 2018), meaning that to individuals within the community, this wellbeing gap may be particularly evident. With migrants having greater capacity to earn additional income and invest in their children's education, this may result in exacerbated intergenerational inequalities in both education and income, and subsequently wellbeing.

These findings, and their potential implications, have important consequences for migration policies throughout the world, and within Indonesia. In the Indonesian context specifically, the wellbeing gap between migrants and non-migrants could be lessened through policies such as: providing greater educational opportunities for non-migrants; implementing policies to improve social cohesion amongst non-migrants; and strengthening affirmative action policy. Such a wellbeing gap may be present in other regions throughout the world with similar levels of conflict and ethnic diversity. When putting forward policies to encourage and incentivise migration to such regions, governments should consider the potential social and wellbeing impacts that this may have for the local population groups.

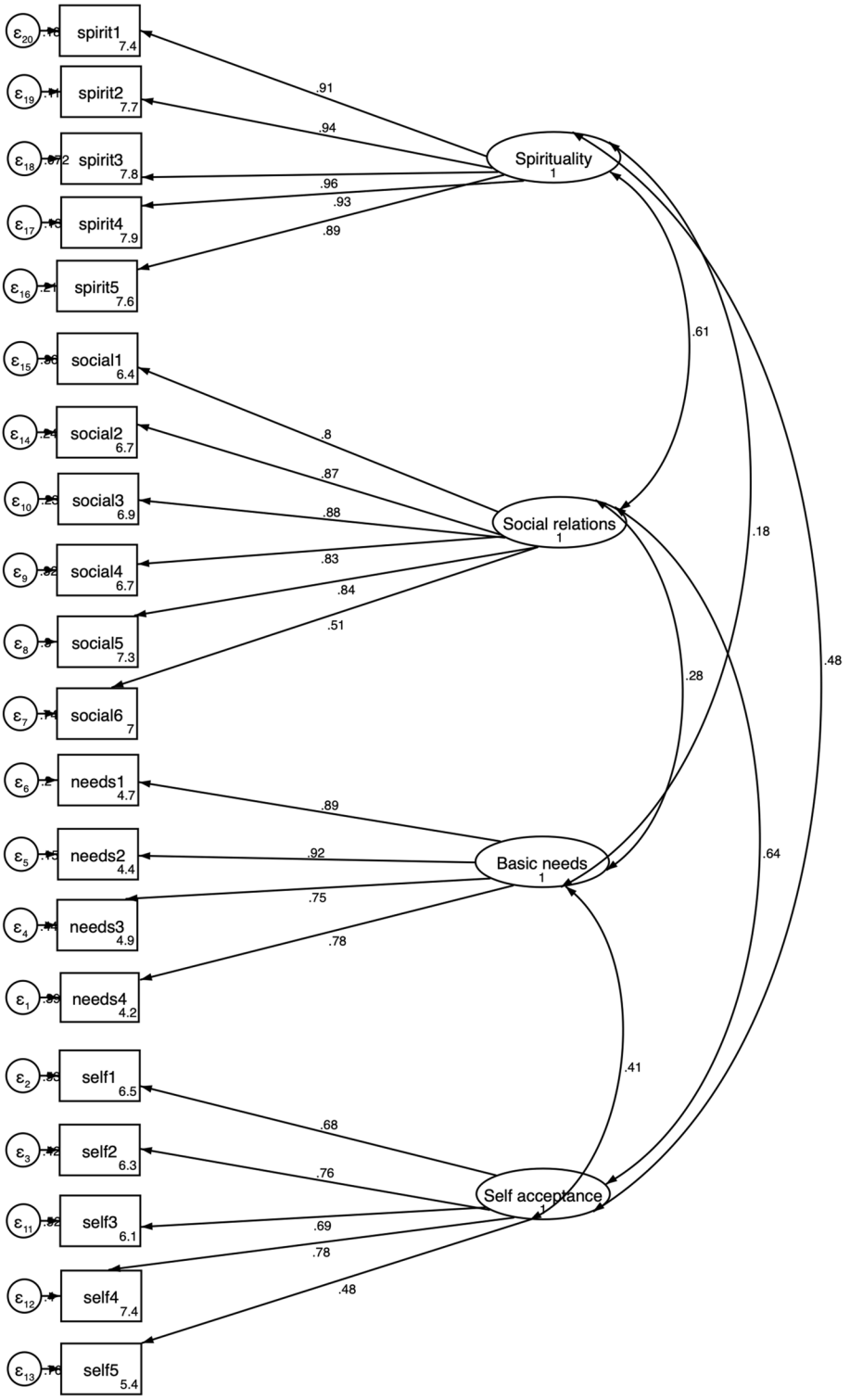
6 Conclusion

This study has made a valuable contribution to the existing literature by analysing the wellbeing gap between migrants and non-migrants in Jayapura, Papua, using a culturally adapted wellbeing measurement tool developed in consultation with individuals in Indonesia. We have shown that a significant wellbeing gap exists between migrants and non-migrants, with migrants having significantly higher levels of wellbeing. This result was driven by both males and females, and may have been influenced more predominantly by individuals who have migrated from Java and Sulawesi. When examining the wellbeing dimensions individually, we found that this wellbeing gap exists for all four wellbeing dimensions: spirituality, social relations, material needs, and self-acceptance.

While the existing data cannot explain the origins of this wellbeing gap, a number of possibilities have been discussed, including the happy migrant hypothesis, pre-migration levels of wellbeing, and the impacts of the migration process. We have also highlighted the value in using a multidimensional, culturally adaptive measurement tool for analysis. We show that more global, unidimensional measures of wellbeing lacked the sensitivity and heterogeneity to discern any differences in wellbeing, in contrast to the multidimensional IWS. Finally, we have outlined the broader implications of these findings for similar contexts and Indonesia, including the potential implications of transmigration policy, and effects of wellbeing inequality. It is hoped that the findings of this study can help support research and policy to improve the collective wellbeing of migrants and Indigenous populations going forward.

Appendix 1: IWS Confirmatory Factor Analysis

See Fig. 3 and Table 5.


spirit1
7.4
spirit2
7.7
spirit3
7.8
spirit4
7.9
spirit5
7.6
social1
6.4
social2
6.7
social3
6.9
social4
6.7
social5
7.3
social6
7
needs1
4.7
needs2
4.4
needs3
4.9
needs4
4.2
self1
6.5
self2
6.3
self3
6.1
self4
7.4
self5
5.4
Spirituality
1
Social relations
1
Basic needs
1
Self acceptance
1
.91
.94
.96
.93
.89
.8
.87
.88
.83
.84
.51
.89
.92
.75
.78
.68
.76
.69
.78
.48
.61
.18
.48
.28
.64
.41

◀ **Fig. 3** Factor loadings

Table 5 CFA Fit Indices

Comparative fit index	0.953
Tucker-lewis index	0.945
Standard root mean residual	0.064
Root mean square error of approximation	0.069

Appendix 2: IWS Graphs

See Figs. 4, 5, 6, 7 and 8.

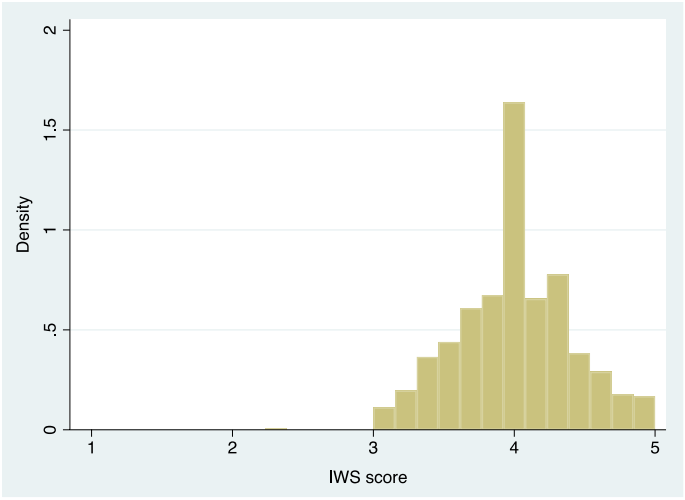


Fig. 4 Histogram of IWS scores

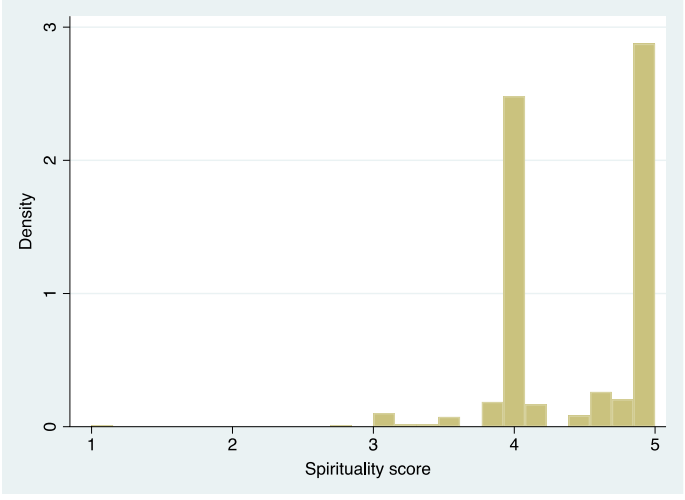


Fig. 5 Histogram of Spirituality dimension scores

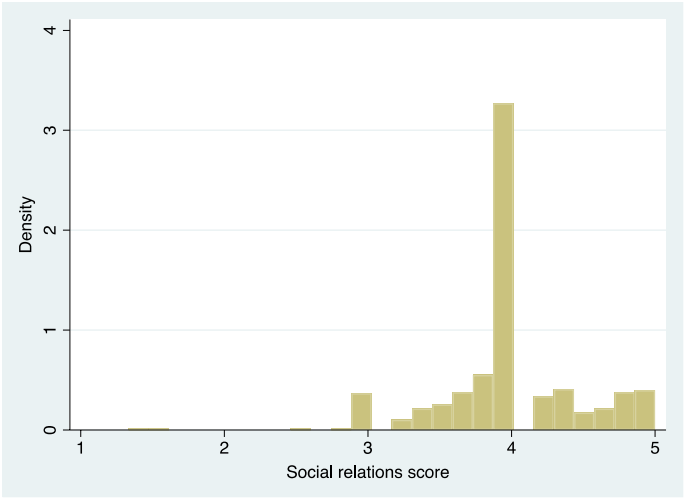


Fig. 6 Histogram of Social Relations dimension scores

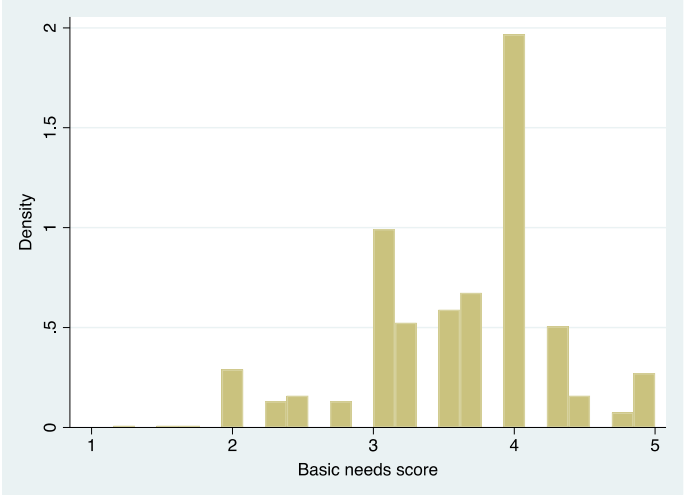


Fig. 7 Histogram of Basic Needs dimension scores

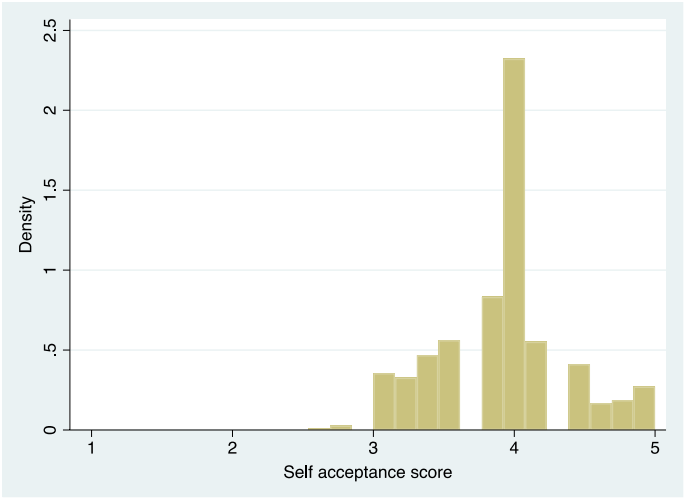


Fig. 8 Histogram of Self-Acceptance dimension scores

Appendix 3: Life Satisfaction and Happiness Scale Distributions

See Figs. 9 and 10.

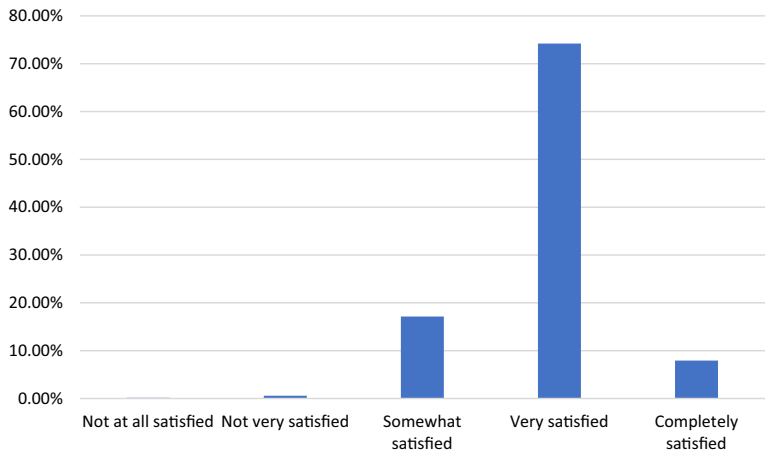


Fig. 9 Distribution of responses to life satisfaction scale

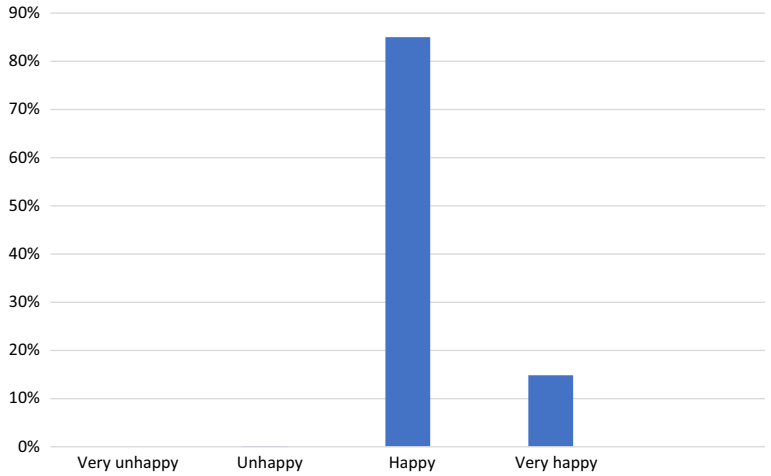


Fig. 10 Distribution of responses to happiness scale

Appendix 4: Analysis of Papuan Migrants

See Table 6.

Table 6 IWS results by region of origin

	Coefficient	Standard error
Migrant status		
Migrant from island regions	0.016	0.059
Migrant from coastal regions	0.06	0.076
Migrant from mountain regions	0.191**	0.097
Migrant from West Papua	0.129	0.094
Male	−0.058	0.036
Religion		
Christian	−0.016	0.04
Catholic	−0.127*	0.067
Village (lives in Hedam)	0.102***	0.032
Married	0.165***	0.045
Age	−0.014	0.01
Age-squared	0*	0
BMI	−0.009	0.04
BMI-squared	0	0.001
Education		
Junior High School (*SMP*)	0.088	0.075
Senior High School (*SMA*)	0.208***	0.068

Table 6 (continued)

	Coefficient	Standard error
Diploma (*Akademi D)*	0.192**	0.087
University	0.362***	0.073
Monthly salary (IDR)		
Less than 500.000	−0.137*	0.071
500.000–999.999	−0.223***	0.082
1.000.000–2.499.999	−0.004	0.064
2.500.000–3.999.999	0.197***	0.058
4.000.000–5.499.999	0.246***	0.065
5.000.000 or more	0.503***	0.078
Owns land	0.08**	0.036
Number of bedrooms	0.052***	0.017
Housing quality index	0.031	0.036
Constant	3.609***	0.516
Adjusted R-squared	0.3721	
Sample size	504	

*Significant at 10% level ** significant at 5% level *** significant at 1% level

Model is Ordinary Least Squares

Base case is born in Jayapura regency/city, female, Muslim, lives in Kota Baru village, not married, has completed primary school only, reports no monthly salary, and does not own land

Appendix 5: Contrasting Wellbeing Levels in Jayapura and Ambon

See Table 7.

Table 7 IWS results by location in 2020

	Coefficient	Standard error
Province		
Jayapura	0.024	0.021
Male	−0.054***	0.019
Religion		
Christian	−0.01	0.027
Catholic	−0.065	0.045
Married	0.084***	0.026
Age	0.011**	0.005
Age-squared	0	0
BMI	0.029*	0.016
BMI-squared	−0.001*	0
Education		
Junior High School (*SMP)*	0.021	0.038
Senior High School (*SMA)*	0.078**	0.033
Diploma (*Akademi D)*	0.078*	0.045
University	0.176***	0.039
Monthly salary (IDR)		
Less than 500.000	0.034	0.035
500.000–999.999	−0.094**	0.045

Table 7 (continued)

	Coefficient	Standard error
1.000.000–2.499.999	0.018	0.033
2.500.000–3.999.999	0.106***	0.029
4.000.000–5.499.999	0.189***	0.036
5.000.000 or more	0.342***	0.049
Owns land	0.06**	0.026
Number of bedrooms	0.028***	0.01
Housing quality index	0.062***	0.019
Constant	2.85***	0.226
Adjusted R-squared	0.2282	
Sample size	1,404	

*Significant at 10% level ** significant at 5% level *** significant at 1% level

Model is Ordinary Least Squares

Base case lives in Ambon, is female, Muslim, not married, has completed primary school only, reports no monthly salary, and does not own land

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Declarations

Conflicts of interest There are no conflicts of interest to report.

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