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Distribution and Contribution of Ethnic Groups on Fertility in Indonesia: Population Census Long Form and National Socio-economy Survey

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Abstract

Most Indonesian ethnicities have different perspectives in preferring how many children in their family have and what kind of gender must be a priority in their family. This study aimed to analyze the distribution of the ethnic groups and the effect of ethnicity on fertility in Indonesia. This study used the 15 largest ethnic groups in Indonesia using samples of the 2020 Population Census Long Form microdata (N=275,773,774) and married women number 45,153,267. The results of the analysis of ethnic distribution mapping in several regions show that the diversity of the ethnic groups spread to all regions in Indonesia such as the ethnicity of Minangkabau, Bugis, Malay, Chinese, Batak, and Dayak. It was found that the Sasak ethnic group had the highest influence on the birth of many children, which was 8.89 times higher than other ethnic groups in married women even after controlling for other factors. In the simple model, it was also found that the Sasak ethnic group was also the most influential in determining the birth of many children. The Indonesian government implemented policies that may utilize a cultural approach to organize population diversity and distribution, and use performance indicators using the local socio-cultural norms approach.

Keywords: *Culture, Ethnic Groups, Ethnic Mapping, Ethnic Diversity, Population Census.*

Introduction

Background

Since the population census was conducted in Indonesia, it is rare to find research that presents the distribution of ethnicities in various parts of Indonesia. One of the research results explained the importance of understanding and evaluating policies, especially in the field of education from the aspects of race and ethnicity (Jennifer L. Hochschild and Shen, 2014). Another study conducted by Montalvo & Reynal-Querol, 2020 also strengthened urban studies, which have a positive relationship among ethnic diversity, wages, and productivity. The study argued that there is a positive relationship between diversity and economic growth in Africa. It was consistent with the data, namely increased trade between ethnic groups due to ethnic specialization. Arifin et al., (2015) also explained through their research in Indonesia that information on ethnic diversity is very important because this can be a burden or an asset for development. The relevance of this is even higher at the district level, as Indonesia since 2004 has implemented decentralization of governmental power at the provincial and district/city level where it has gained much greater authority in developing the region.

Furthermore, ethnicity directly influences social and cultural variables by involving assimilation, acculturation, social strata, and psycho-social perspectives so that it can more complexly explain fertility in a family (Wong & Meng, 1985). The ethnic approach described by Wong and Meng (1985) is closely related to the culture found in each region, until now it has not been found other theories that explain how the position of ethnicity in influencing the size of fertility in a region. The embodiment of cultural values found in a group of people can be seen in everyday life such as in social rules, religious ceremonies, and marriage procedures to determine the number of children. The view between ethnicity and culture is also explained that ethnicity significantly functions to predict cultural attitudes to cross all geographic boundaries and the portion of cultural diversity explained by ethnicity is very small so that cultural diversity is not correlated with ethnic diversity (Desmet et al., 2017). Ethnicity is indeed related to fundamental differences in values,

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attitudes, and preferences that are in line with primordialism views, namely the attitude of holding fast to what is carried since childhood, traditions, customs, beliefs, and everything in the environment.

Previous research on ethnicity and fertility have been conducted in several countries, including research in Nigeria and Russia. Kollehlon (2003) and Adebowale, (2019) found that the Hausa-Fulani ethnicity had the lowest fertility rate compared to all other Nigerian women and several other ethnicities, such as the Yoruba and Ibo ethnicities. Another study conducted in the Dagestan region of Russia found differences in fertility among ethnic descendants of migrants living in rural and urban areas (Kazenin dan Kozlov, 2021: 21). The variation in births across ethnicities shows the importance of cultural factors in Nigeria's birth rate reduction strategy (Adebowale; 2019 dan Kazenin dan Kozlov, 2021).

Figure 1 shows the average number of live-born children (CEB) born to each woman by ethnicity, the highest CEB is found in Batak ethnicity at 3.16, then the second highest is in Minangkabau ethnicity at 2.98, the third highest is in Banten ethnicity at 2.94 and in Aceh ethnicity at 2.89. This figure proves that there are variations in births between ethnicities and the influence of ethnicity on fertility in Indonesia.

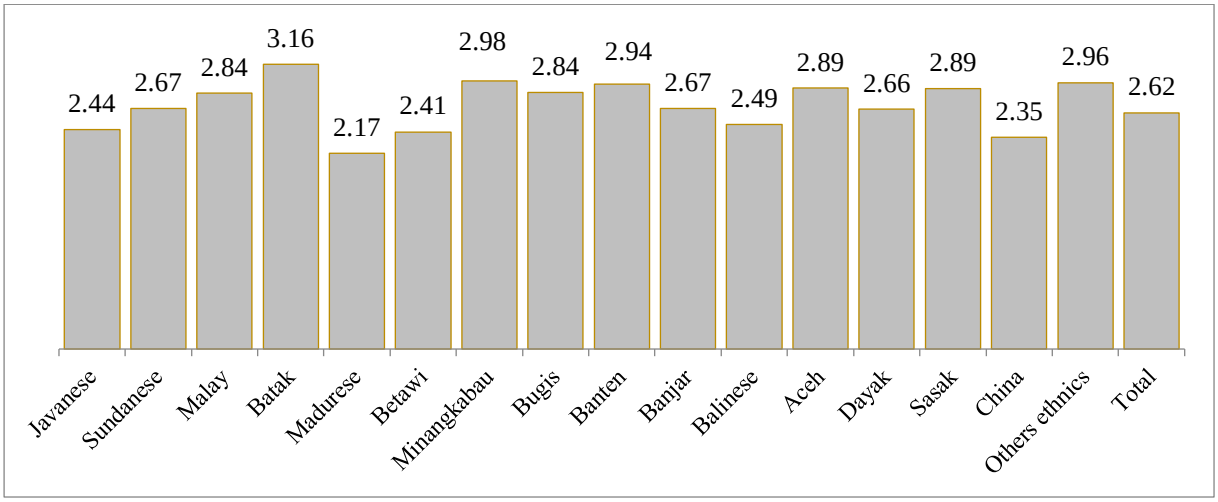

Figure 1. Average of Children Ever Born (CEB)

Source: Population census processed, 2010 (weighted)

Ever-Married Women by Ethnicity in Indonesia

The variation in the average number of children ever born (CEB) in each ethnicity described above shows the influence of ethnicity on the number of children born, one of which is the Batak ethnicity, which views kinship relations as an important element in all aspects of life, including marriage. Children resulting from marriage are included in their father's clan. So that this child gets many rights and obligations from the clan of parents from the male side (his father). In other words, the Batak people apply the principle of patrilineal descent which is physically expressed by the name of the father's clan (Hadar, 1977).

Furthermore, Minangkabau society imposes a lineage or kinship based on the mother (matrilineal) or a typical maternal line and also likes to migrate (Hadar, 1977). Minangkabau custom believes that a woman has a higher and nobler position than a man, therefore a consequence, men must respect women in Minangkabau. This causes Minangkabau parents to be happier if they have daughters than sons, (Rohman, 2014).

Based on the description above, distribution of fertility by ethnic group studies in Indonesia and the effect of fertility by ethnic group to the fertility were rarely published and this study presents an analysis related to these ethnic groups which can be used as a reference for policymakers, especially in Indonesia which has

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a numerous ethnic. Therefore, program policies carried out by the government through a cultural approach can accelerate and facilitate government performance toward the golden Indonesia in 2045.

Methods

Data Source

The study utilized secondary data processed from the 2020 Long Form (LF) Population Census (PC) raw data, conducted by Indonesia's Central Statistics Agency (BPS). The LF PC 2020 consisted of two stages: an initial population data collection using short forms in 2020, followed by a sample census using more complex questionnaires. The data collection took place from May 15 to June 30, 2022, involving 4,294,896 households and 275,773,774 individuals (weighted) across 268,431 census blocks in 514 districts/cities. A multistage random sampling technique was used with a 5% sample fraction, making this the largest survey in Indonesia's history (Badan Pusat Statistik, 2023). The collection methods included interviews and self-administered questionnaires, supported by 23,761 supervisors and 53,498 enumerators using multi-mode techniques such as CAWI, CAPI, PAPI, and CATI. Data validation involved rigorous processes like editing, coding, and imputation to ensure quality.

Additionally, a national socio-economic survey was conducted in March 2022, sampling 345,000 households across all 34 provinces. This survey excluded special households (e.g., dormitories, prisons, and Islamic boarding schools), focusing on regular census blocks (BPS, 2022). Two key variables—contraceptive use and internet access—were extracted from the socio-economic survey and merged with LF PC 2020 data for analysis. The study's unit of analysis included all sampled individuals of all ages, providing comprehensive insights into Indonesia's population and socio-economic conditions. The method of collection was through interviews and self-administered questionnaires conducted by 23,761 supervisory officers and 53,498 enumerators accessed via

https://sensus.bps.go.id/metadata_kegiatan/index/sp2022/desain%20pengumpulan%20data

Data Analysis

This quantitative research used descriptive analysis to examine fertility among the 15 largest ethnic groups in Indonesia, as classified by Ananta et al., 2014, focusing on married women aged 15-49 (childbearing age), totaling 45,153,267 individuals. The study analyzed household samples of 4,294,896, representing a weighted population of 275,773,774 in 2022. Socio-demographic variables, including region, education, and welfare status, were included to illustrate ethnic diversity in Indonesia. Data were processed using IBM SPSS Statistics version 23 (IBM https://www.ibm.com/analytics/spssstatistics-software) and mapping using Microsoft 365 (@geoname, Microsoft, tomtom). Inferential analysis employed binary logistic regression, with fertility (TFR) as the dependent variable and ethnicity as one of the independent variables. TFR calculations used the rele method, preferred for its accuracy and reduced bias with small ethnic samples, and relied on FERT (mini software, a tool commonly used by Statistics Indonesia. The analysis focused on TFR rather than age-specific fertility rates (ASFR) to simplify the study. (1) the ethnic sample in each ethnic group in each birth age group is insufficient for the minimum sample at the district/city aggregation level so that it will cause bias, (2) the rele method is the method whose results are closest to the results using the own children method. Researchers only focused on the total fertility rate (TFR), so birth rates per age group (ASFR) were not needed, the rele method is the method with birth rate calculation results closest to the own children method compared to other indirect methods of Statistics Indonesia (BPS) DIY, https://dinp3ap2kb.slemankab.go.id/wp-content/uploads/2020/07/Paparan-TFR-Kab-Kota2020-2.pptx (accessed February 29, 2024).

To facilitate and reduce human error, the process of calculating this indicator used FERT mini software developed by the East-West Population Center in 1992. This software has been implemented so far by Statistics Indonesia in calculating indirect methods, one of which is the rele method (Salim et al., 2018).

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Results

The following presents the percentage distribution of the 15 largest ethnic groups in Indonesia over the past 10 years. Based on Table 1 above, the results of the 2020 Long Form Population Census survey showed the 15 largest ethnic groups in Indonesia. It was known that the percentage of the Javanese ethnic group decreased by 1.28 percent from the 2010 population census of 40.06 percent. This means that although the percentage shows a decrease, the absolute number of Javanese ethnic groups increased to 106,954 million people compared to the 2010 population census of 94,843 million people. Javanese ethnicity is the most numerous ethnicity compared to other ethnicities due to the largest population on the island of Java. Around 56.1% of Indonesia's total population is found on the island of Java (BPS, 2021).

Table 1. Changes in Ethnic Group Composition, Indonesia 2010-2020

Ethnic groups	LF Population Cencus 2020		Population Cencus 2010		Differences
	Count (000)	Col %	Count (000)	Col %	
Javanese	106,954	38.78	94,843	40.06	(1.28)
Sundanese	42,813	15.52	36,705	15.51	0.01
Malay	10,949	3.97	8,754	3.70	0.27
Betawi	10,353	3.75	6,808	2.88	0.87
Batak	9,930	3.60	8,467	3.58	0.02
Madurese	8,643	3.13	7,179	3.03	0.10
Bugis	7,395	2.68	6,415	2.71	(0.03)
Minangkabau	7,064	2.56	6,463	2.73	(0.17)
Banjar	4,807	1.74	4,127	1.74	0.00
Balinese	4,764	1.73	3,925	1.66	0.07
Dayak	4,229	1.53	3,220	1.36	0.17
Aceh	4,087	1.48	3,404	1.44	0.04
Sasak	3,959	1.44	3,175	1.34	0.10
Banten	3,900	1.41	4,642	1.96	(0.55)
Chinese	2,260	0.82	2,833	1.20	(0.38)
Other Ethnics	43,667	15.83	35,769	15.11	0.72
Indonesia	**275,774**	**100**	**236.728**	**100**	

Source: Data Processed, LF PC 2020

In addition, the next largest ethnic group is the Sundanese ethnicity at 15.52%. This ethnicity is almost the same percentage as the results of the 2010 population census, only experiencing an increase of 0.01% and in absolute terms increased from PC 2010 of 36.705 million people to 42.813 million people in LF PC 2020. Sundanese ethnicity is the third largest ethnic group at 3.97% or 10.949 million people. This number has increased by 0.27% which previously in PC 2010 amounted to 3.70% or 8.754 million people. Meanwhile, the smallest ethnic group is ethnic Chinese at 0.82% and other ethnic groups at 15.83% or 43.667 million people. Overall, based on 15 ethnic groups, five ethnic groups have decreased in percentage compared to PC 2010, namely the Javanese ethnic group, Bugis ethnic group, Minangkabau ethnic group, Banten ethnic group, and Chinese ethnic group, but in absolute terms the number of ethnic groups has continued to increase over the past 10 years.

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Distribution of Javanese Ethnicity (%)

Distribution of Sundanese Ethnicity (%)

Distribution of Malay Ethnicity (%)

Distribution of Betawi Ethnicity (%)

Figure 2. Mapping of Ethnic Groups (Javanese, Sundanese, Malay, and Betawi)

Source: Data Processed, LF PC 2020

Figure 2 shows the distribution of ethnicities (ethnic groups) according to the provincial level aggregation level known from the LF PC 2020 results showed that the majority were in their original provinces. For example, Javanese ethnicity, the majority of Javanese ethnicity is domiciled in Central Java Province (33.7%) and East Java Province (30.2%). Lampung Province (5.6%) and North Sumatra Province (4.9%) have a relatively small distribution of Javanese ethnicity. While other provinces have a distribution of Javanese ethnicity below 4%. Next, the Sundanese ethnicity, known from the map above, is highest in West Java Province (82.7%), DKI Jakarta Province (2.5%), and Lampung Province (2.2%), and only under 1% of the Sundanese ethnicity can be found in another province.

The ethnicity distribution that is more evenly distributed in other provinces based on the map above is the Malay ethnicity. It is known that the percentage of Malay ethnicity in Riau Province (20.9%), Jambi Province

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(15.2%), South Sumatra Province (17%), West Kalimantan Province (18.8%), North Sumatra Province (7.3%), Bengkulu Province (6.3%), Riau Islands Province (6.4%), and other provinces ranges from 0.1% to 1.1%. It is also noteworthy that the distribution of Betawi ethnicity is predominantly concentrated in DKI Province (44.4%), West Java Province (36.4%), and Banten Province (18.1%), but other provinces do not have too much Betawi ethnicity distribution ranging below 1%. An intriguing observation can be made based on the ethnicity distribution map presented above which illustrates that the Malay ethnicity is a particularly prevalent one in the central, northern, and southern regions of Sumatra, as well as in the western part of Kalimantan. In contrast, the Javanese, Sundanese, and Betawi ethnicities are predominantly concentrated in their original areas or buffer areas and directly adjacent to their original domicile (Figure 2).

Distribution of Batak Ethnicity (%)

Distribution of Madurese Ethnicity (%)

Distribution of Bugis Ethnicity (%)

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Distribution of Madurese Ethnicity (%)

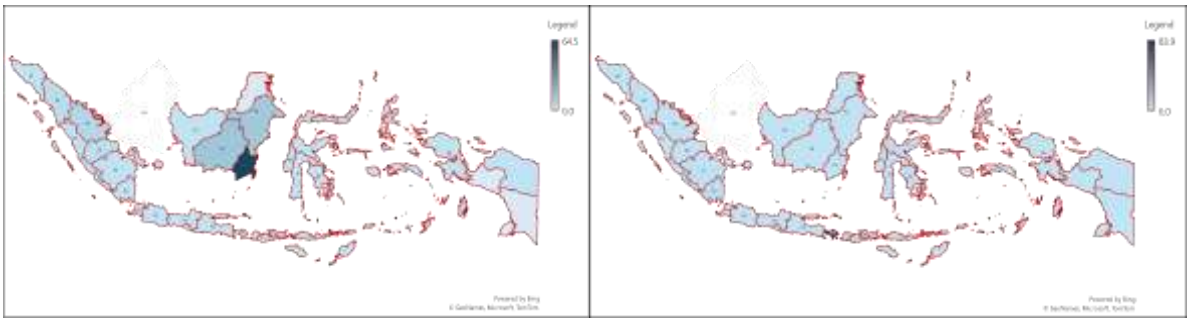
Figure 3. Mapping of Ethnic Group (Batak, Madurese, Bugis and Minangkabau)

Source: Data Processed, LF PC 2020

The ethnic distribution, as illustrated in Figure 3, is comprised of the Batak, Madurese, Bugis, and Minangkabau ethnic groups. As illustrated on the map, the majority of Batak ethnic group distribution is located in North Sumatra Province (68.8%), with a relatively small portion situated in Riau Province (8.5%). In contrast, the majority of the Madurese ethnic group is concentrated in East Java Province (90%). The majority of the Minangkabau ethnic group is located in West Sumatra Province (69.3%), with a smaller population present in Riau Province (10.1%), North Sumatra Province (5.3%), Riau Islands Province (2.8%), and several provinces in Java, including DKI Jakarta Province (2.8%), and West Java Province (2.9%). It is noteworthy that the distribution pattern of the four ethnic groups depicted on the map above tends the Madurese ethnic group to domicile in their original province (East Java Province).

The distribution of these ethnicities does not appear to be evenly spread in areas outside the province of East Java, whereas the Javanese ethnicity, which is also found in East Java Province, is mostly spread in several provinces on the island of Java. In contrast to the Bugis ethnicity, although around 55.8% are found in the original area of South Sulawesi Province, the distribution is also found in Central Sulawesi Province (6.3%) and in East Kalimantan Province (9.8%) West Kalimantan Province (2.1%), the remaining small portion is on the island of Sumatra, namely Riau Province (1.4%) and Jambi Province (1.4%). This means that this ethnic group also has a culture of migrating to other areas even outside Sulawesi Island.

Distribution of Banjar Ethnicity (%) *Distribution of Balinese Ethnicity (%)*



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Distribution of Dayak Ethnicity (%) *Distribution of Aceh Ethnicity (%)*

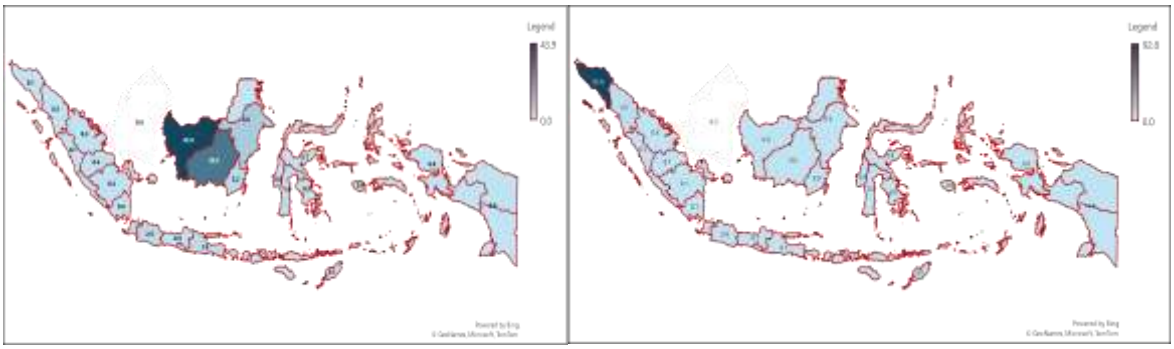

Figure 4. Mapping of Ethnic Groups (Banjar, Balinese, Dayak, and Aceh)

Source: Data Processed, LF PC 2020

The next ethnicity distribution map in Figure 3 shows that there are three ethnic groups whose majority are found in their original areas as Banjar ethnic group in South Kalimantan Province (64.5%), the Balinese ethnic group in Bali Province (83.9%), and Aceh ethnic group in Aceh Province by 92.8%. In contrast to the Dayak ethnic group, no more than 50% of the ethnicity is in its original area, namely West Kalimantan Province (43.9%). Dayak is also scattered in some areas on the island of Kalimantan such as East Kalimantan Province (6.5%) and North Kalimantan Province (6,5%).

Distribution of Sasak Ethnicity (%)

Distribution of Banten Ethnicity (%)

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Distribution of Chinese Ethnicity (%)

Figure 5. Mapping of Ethnic Groups (Sasak, Banten, and Chinese)

Source: Data Processed, LF PC 2020

The mapping of the distribution of the Sasak, Banten, and Chinese ethnic groups reveals that the two ethnic groups are predominantly domiciled in their original areas. The Sasak ethnic group is concentrated in West Nusa Tenggara Province (95.4%), while the Banten ethnic group is concentrated in Banten Province (93%). In contrast to the Chinese ethnic group, no province can be identified as having a majority distribution of the Chinese ethnic group. The highest percentage of ethnic Chinese is in DKI Jakarta Province (20.2%), and the distribution in other provinces is also quite scattered, with the next highest percentages occurring in West Kalimantan Province (14.7%), North Sumatra Province (12.5%), West Java Province (7.5%), Riau Islands Province (6.6%), Bangka Belitung Province (3.9%), and South Sumatra Province (2.4%). It can thus be concluded that the majority ethnic distribution pattern is predominantly found in the original province of domicile, as evidenced by the 15 largest ethnic groups in Indonesia. (Figure 5)

Notably, there are several ethnic groups whose distribution is not the majority in their original province. These include the Malay, Chinese, and Dayak ethnicities, which collectively represent a population exceeding 50% of the total in their original province. It should be noted, however, that there are also several other ethnicities, including Betawi, Bugis, and Minangkabau, that are distributed in other regions, with a percentage ranging from 2% to 10%. This suggests that the high distribution of certain ethnicities in other provinces may be attributed to the cultural practice of migrating to other regions.

Table 2. The List of 15 Largest Ethnic Groups and Their Share in Each Province,

Indonesia LF PC 2020

Province	Largest percentage	Ethnic group
Aceh	70.1	Aceh
North Sumatera	45.2	Batak
West Sumatera	86.8	Minangkabau
Riau	34.6	Malay
Jambi	45.8	Malay
South Sumatera	47.2	Others
Bengkulu	35.3	Others
Lampung	64.7	Javanese
Bangka Belitung Island	74.9	Others
Riau Island	32.3	Malay

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Province	Largest percentage	Ethnic group
Jakarta	43.1	Betawi
West Java	71.7	Sundanese
Central Java	97.4	Javanese
Yogyakarta	96.7	Javanese
East Java	78.6	Javanese
Banten	31.0	Banten
Bali	90.5	Balinese
West Nusa Tenggara	69.0	Sasak
East Nusa Tenggara	97.7	Others
West Kalimantan	37.1	Malay
Central Kalimantan	46.3	Dayak
South Kalimantan	74.1	Banjar
East Kalimantan	32.4	Javanese
North Kalimantan	31.8	Bugis
North Sulawesi	95.0	Others
Central Sulawesi	70.3	Others
South Sulawesi	51.0	Bugis
Southeast Sulawesi	66.1	Others
Gorontalo	94.6	Others
West Sulawesi	81.5	Others
Maluku	92.3	Others
North Maluku	93.9	Others
West Papua	78.1	Others
Papua	88.9	Others
Indonesia	**38.8**	**Javanese**

Others: Bangka, Belitung, Gayo, Kerinci, Lampung, Nias, Palembang, Rejang, Osing/Using, Buton, Gorontalo, Kaili, Mamasa, Mandar, Makassar, Minahasa, Mongondow, Sangir, Tolaki, Toraja, Ambon, Galela, Seram, Ternate, Tobelo, Papua

According to Table 2, the majority of the 15 largest ethnic groups in each province are native to that province. The largest ethnic group outside of their native provinces is also Javanese such as Lampung and East Kalimantan. The Betawi, a local ethnic group, is the largest ethnic group in Jakarta, the capital of Indonesia. The Sundanese are the second largest ethnic group in Indonesia, spreading across West Java. Additionally, the third largest ethnic group is Malay which is spread in Riau Island, Jambi, Riau, and West Kalimantan.

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Table 3. Characteristics of the 15 Largest Ethnic Groups in Indonesia

Ethnic Groups	Region		Education Level			Welfare Level			Total
	Urban	Rural	Low	Middle	High	Low	Middle	High	
Javanese	57.2	42.8	69.5	24.0	6.5	3.9	38.2	57.9	100
Sundanese	71.0	29.0	74.6	20.6	4.8	5.2	52.9	41.9	100
Malay	42.5	57.5	67.6	24.6	7.8	7.1	49.0	43.9	100
Batak	53.4	46.6	54.8	34.5	10.8	9.3	52.6	38.1	100
Madurese	40.7	59.3	83.9	13.3	2.9	2.8	42.7	54.5	100
Betawi	98.4	1.6	52.9	38.2	8.8	15.4	49.1	35.6	100
Minangkabau	63.0	37.0	58.9	29.8	11.4	7.4	54.4	38.2	100
Bugis	47.4	52.6	67.9	22.9	9.2	8.5	53.7	37.8	100
Banten	48.8	51.2	79.9	17.3	2.8	3.5	49.3	47.1	100
Banjar	51.9	48.1	70.6	22.4	7.1	15.3	64.0	20.7	100
Balinese	59.4	40.6	61.6	28.0	10.4	1.0	40.6	58.4	100
Aceh	38.6	61.4	62.5	28.4	9.1	6.3	48.6	45.2	100
Dayak	28.8	71.2	72.0	21.0	7.0	6.6	60.7	32.6	100
Sasak	52.7	47.3	76.7	17.9	5.3	2.1	47.0	50.9	100
Chinese	94.3	5.7	45.9	36.1	18.0	5.4	37.3	57.3	100
Others Ethnics	41.5	58.5	68.5	23.7	7.8	6.3	50.7	43.0	100
Total	**56.4**	**43.6**	**68.9**	**24.1**	**7.0**	**5.6**	**46.1**	**48.3**	**100**
P-value	**<0.001**		**<0.001**			**<0.001**			

Source: Data Processed, Long Form Population Census, 2020

Table 3 reveals that the 15 largest ethnic groups in Indonesia are more prevalent in urban than in rural areas. In fact, 56.4% of the population of these ethnic groups live in urban areas, while only 43.6% reside in rural areas. Betawi ethnicity is the most prevalent in urban areas, at 98.4%. This is likely since the DKI province is the capital of the country, and as a result, all cities in DKI Jakarta have undergone urbanization. The Aceh ethnicity is also predominantly urban, with a proportion of 94.3%. Conversely, the Dayak ethnicity is predominantly concentrated in rural areas, representing 71.2% of the population. Furthermore, the level of education is notably disparate across ethnic groups. Chinese, Minangkabau and Batak ethnic groups have a relatively high level of education, while Madurese, Banten, and Sasak ethnic groups have a comparatively low level of education.

A further examination of the data reveals that 48.3% of ethnic groups are classified as having a high level of welfare, 46.1% are considered to have a medium level of welfare, and 5.6% are identified as having a low level of welfare. Betawi ethnicity exhibits the highest prevalence of low welfare, at 15.4%, followed by Banjar ethnicity at 15.3%, and Batak ethnicity at 9.3%. Conversely, the highest level of welfare is observed in Balinese ethnicity (58.4%), followed by Javanese ethnicity (57.9%), and Chinese ethnicity (57.3%).

Table 4. Determinants of Fertility Married Women aged 15-49 years

Karakteristik	Adjusted Odd Ratio (AOR)					Simple Odd Ratio (SOR)				
	B	Sig.	Exp(B)	95 C.I.for EXP(B)		B	Sig.	Exp(B)	95% C.I.for EXP(B)	
				Lower	Upper				Lower	Upper
Rural (ref: Urban)	0.53	0.00	1.70	1.70	1.71	0.81	0.00	2.25	2.25	2.25
Education Level (ref: High)		0.00					0.00			

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Low	-0.17	0.00	0.84	0.84	0.84	0.53	0.00	1.70	1.70	1.70
Middle	-0.09	0.00	0.91	0.91	0.92	0.11	0.00	1.11	1.11	1.11
Couple education level (ref: high)		0.00					0.00			
Low	0.33	0.00	1.39	1.39	1.40	0.66	0.00	1.94	1.93	1.94
Middle	0.22	0.00	1.24	1.24	1.25	0.25	0.00	1.29	1.28	1.29
Welfare level (ref: high)		0.00					0.00			
Low	-0.01	0.00	0.99	0.99	0.99	0.22	0.00	1.25	1.25	1.25
Middle	0.15	0.00	1.16	1.15	1.16	0.37	0.00	1.45	1.45	1.45
Working status_working (ref = not working)	0.03	0.00	1.04	1.03	1.04	0.04	0.00	1.04	1.04	1.04
Couple working status_working (ref: not working)	0.04	0.00	1.05	1.04	1.05	0.00	0.00	1.00	1.00	1.01
Age of first married	0.01	0.00	1.01	1.01	1.01	-0.14	0.00	0.87	0.87	0.87
Ethnic groups (ref: others)		0.00					0.00			
Javanese	-2.07	0.00	0.13	0.13	0.13	-2.21	0.00	0.11	0.11	0.11
Sundanese	-0.65	0.00	0.52	0.52	0.52	-0.90	0.00	0.40	0.40	0.41
Malay	0.36	0.00	1.43	1.42	1.44	0.19	0.00	1.20	1.20	1.21
Batak	-0.58	0.00	0.56	0.56	0.56	-0.87	0.00	0.42	0.42	0.42
Madurese	-3.00	0.00	0.05	0.05	0.05	-2.65	0.00	0.07	0.07	0.07
Betawi	-1.77	0.00	0.17	0.17	0.17	-2.45	0.00	0.09	0.09	0.09
Minangkabau	0.70	0.00	2.01	2.00	2.03	0.36	0.00	1.44	1.43	1.45
Bugis	-0.43	0.00	0.65	0.65	0.66	-0.59	0.00	0.55	0.55	0.56
Banten	0.49	0.00	1.62	1.61	1.64	0.37	0.00	1.44	1.43	1.46
Banjar	0.30	0.00	1.35	1.34	1.36	0.11	0.00	1.11	1.11	1.12
Balinese	-1.68	0.00	0.19	0.19	0.19	-1.81	0.00	0.16	0.16	0.16
Aceh	1.70	0.00	5.50	5.40	5.59	1.69	0.00	5.40	5.31	5.48
Dayak	-1.33	0.00	0.26	0.26	0.26	-1.22	0.00	0.30	0.29	0.30
Sasak	2.18	0.00	8.89	8.72	9.07	2.22	0.00	9.23	9.05	9.41
Chinese	-3.43	0.00	0.03	0.03	0.03	-4.04	0.00	0.02	0.02	0.02
Couple Ethnic (ref: different ethnic)	0.29	0.00	1.34	1.34	1.34	0.27	0.00	1.31	1.31	1.32

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Age groups (ref 45-49)		0.00					0.00			
Age 15-19	0.46	0.00	1.58	1.56	1.60	0.88	0.00	2.42	2.39	2.45
Age 20-24	0.51	0.00	1.66	1.65	1.67	0.59	0.00	1.80	1.79	1.80
Age 25-29	0.39	0.00	1.47	1.47	1.48	0.30	0.00	1.35	1.35	1.36
Age 30-34	0.28	0.00	1.32	1.31	1.32	0.18	0.00	1.20	1.19	1.20
Age 35-39	0.18	0.00	1.20	1.20	1.21	0.11	0.00	1.11	1.11	1.12
Age 40-44	0.09	0.00	1.10	1.09	1.10	0.05	0.00	1.05	1.04	1.05
Contraception usage	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Internet access	-0.02	0.00	0.98	0.98	0.98	-0.02	0.00	0.98	0.98	0.98

Source: Data processed, LF PC 2020; Susenas, 2022

TFR (Dependent Variables)

Sig 5%.

The birth determinants that will impact the population of each ethnic group are shown by the results of the analysis in Table 4. Table 4 shows the analysis reviews and analyzes married women aged 15-49 years after weighing with an analysis unit of 45,153,267, but because the couple is not in or living in one household, the availability of married women data that can be analyzed is 41,569,894 (weighed). This is inseparable from the fact that every woman who gives birth in Indonesia certainly goes through a marriage process (marital status). So by using the married women analysis unit, information from couples can also be used as material for analysis and study to determine the role of couples in determinants of fertility in Indonesia.

Married women who live in the village are 1.7 times more likely to have many children (high fertility) even after controlling for other factors and in the simple logistic model (SOR) the odds ratio value increases to 2.25 times higher to tend to have many children (high fertility) compared to married women living in urban areas. An interesting thing was found at the low and middle education levels of the wife, the odds ratio values were 0.84 and 0.91 times lower than the high education level to have many children. This is also known from the negative coefficient value after being controlled by other factors. However, in the simple model (SOR) it is the low education level (1.70), and middle (1.11) times higher to tend to have many children compared to the high education level of the wife. While at the low and middle education levels of the couple, respectively, 1.39 and 1.24 times tend to have many children compared to couples with high education with the control factor given in this model. In the simple model (SOR), the education level of low and middle-category couples experienced an increase in the odds ratio to 1.94 and 1.29 times higher to have many children compared to those with high education without being controlled by other factors.

For the level of welfare, in the simple model, both in the low and middle categories, the odd ratio values were 1.25 and 1.45 times higher for the tendency to have many children compared to married women with a high level of welfare. On the other hand, in the logistic model (AOR) after being given control, the level of welfare was significantly 1.16 times higher for having many children and the level of welfare in the low category was 0.99 times lower for having many children. This can be seen from the negative coefficient value of -0.01.

Regarding the working status of both the wife and her partner, it was found that in both the AOR and SOR models, the odd ratio values were equally significant in influencing high births. In the variable of age of first marriage in the AOR model, it was found that the age of first marriage was significantly 1.01 higher tending to have many children, but different in the SOR model where the age of first marriage in married women was 0.87 lower for having many children as seen from the negative coefficient of -0.14.

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Ethnic group variables, it was found that the Sasak ethnic group had the highest influence on the birth of many children, which was 8.89 times higher than other ethnic groups in married women even after controlling for other factors. In the SOR model, it was also found that the Sasak ethnic group was also the most influential in determining the birth of many children (without controlling for other factors). This means that cultural influence is a very important factor in determining births in a region.

No less interesting than the previous description, it was found from the results of the analysis of married women with the same ethnicity that it turned out to be 1.34 times higher tending to have many children compared to couples who married different ethnicities even after being given control for other factors. This finding was also confirmed in the SOR model with an odd ratio value of 1.31 times higher tending to have many children compared to married women who married different ethnicities.

In the age group, mothers in the 20-24 age group have the highest odds ratio value among other age groups, which is 1.66 times more likely to give birth to many children compared to the 45-49 age group after getting control from other variables. However, on the contrary in the SOR model, the 15-19 age group is the age group with the highest odds ratio, which is 2.42 times more likely to give birth to many children compared to the 45-49 age group.

Further findings in married women, it is known that the use of contraception is significant to births but has almost no major impact on births. The variable of information sources via the internet is also significant in determining births, from this analysis, it was found that both the AOR and SOR logistic models explained that information sources have an influence on reducing births both after being controlled by other factors and without being controlled by other factors.

Discussion

Based on the ethnic composition over the last ten years from the 2010 Population Census and the 2020 Population Census, there are changes in the composition of several ethnicities, one of which is Javanese ethnicity. The success of the family planning program carried out by the government on the island of Java is an important factor in reducing the population growth rate in Indonesia. Sinquefield & Sungkono, 2012 explained that two-thirds of Indonesia's population resides on the islands of Java and Bali and since 1974 the government has begun to carry out innovative programs to provide contraceptive services for married women aged 15-49 through the approach of community leaders and building service sites to the village. The program's target at that time was to reduce the birth rate by 50 percent until the turn of the century. The flagship programs at that time were contraceptive pills, IUDs, and condoms with a focus in the Bali region on contraceptive pills and Java Island focusing on the Pill method. An analysis conducted by Terence, 2008 also emphasized that the fertility rate will continue to decline in the long term, although the decline is slowing down due to various factors such as economic, political, and socio-cultural.

Mapping the distribution of the 15 largest ethnic groups previously described above, it can be seen that the distribution of each ethnicity varies. Variations in the distribution of each ethnicity are influenced by the culture of each ethnicity. One example of ethnicity that influences ethnic distribution is the Minangkabau people who enforce lineage or kinship based on the mother (matrilineal) or mother's line and also like to migrate, Yasmine (1977). Minangkabau customs believe that a woman has a higher and nobler position than a man, so as a consequence, men must respect women in Minangkabau. This causes Minangkabau parents to be happier if they have daughters than sons, in other research also explains a very popular term in population mobility, namely migrating to earn a living, knowledge, or experience (Rohman, 2014; Bon and Repič, 2016). Culturally influenced mobility patterns are a long-standing tradition among the Minangkabau people who consider the mobility of most ethnic groups in Indonesia (Naim, 2013).

The culture of migrating is also found in Bugis ethnicity, Wahyuddin et al., 2022; Wekke et al., 2019 in his research explained that Bugis ethnicity has long migrated to Kalimantan Island, Sumatra Island, Papua Island, and Java Island. Bugis community migration is a practice that has become one part of their tradition. Philosophically, they see this tradition as a need to migrate to strengthen their lives. "*kegisimonro soro lopie*", "*kositutomallabuse'ngereng*" (where there is a boat anchored, there will be life strengthened). In contrast, the

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Madurese are socially closer to the Javanese community. Migration by the Bugis and Madura ethnic groups is also due to economic, political, and religious factors.

Other research conducted by (Auwalin, 2020) suggested that in the 10 largest ethnic groups in Indonesia, namely Javanese, Sundanese, Malay, Madurese, Batak, Minangkabau, Bugis, Betawi, Banten, and Banjar ethnicity, although there were some changes in each ethnic group during the 10-year gap between censuses (2000-2010), it seems to have relatively high migration in 2000 and continued to show high migration levels in 2010. The process of migration/movement of people mostly occurs naturally, such as urbanization, and in several areas outside Java Island from the results of the 2020 population census, it can be seen that the distribution of domicile of each ethnic group both in urban and rural areas (see table 1). The mobility of men in the village was also influenced by the employment of loggers since the 1970s, while the women migrated to the city due to the economic boom in the late 1980s and early 1990s.

Various sociological and ethnographic studies have identified differences in the propensity to migrate among various ethnic groups in Indonesia (Hugo, 2015). Such studies showed that migration, or spending part of one's life outside of one's birth village, has become customary for some ethnic groups. It has also been confirmed that the high population mobility of these ethnic groups is driven by ethnic and cultural social norms (Auwalin, 2020). Unlike the Aceh custom, where men are not allowed to travel far from their families, the Banjar ethnic group also has a long history in the South Kalimantan province of mobility (Hugo, 1982). Ethnic Dayak is also spread across the border of mainland Malaysia and Indonesia.

According to the logistic regression test, couple in the same ethnic typically have more children than those couple with different ethnic background. Therefore, compared to couples that marry within the same ethnic group, inter-ethnic marriages considerably lower fertility. Lumbantobing (1992) explains the case that children are highly valued in the Toba Batak ethnic group's psyche as a means of explaining the factors associated with inter-ethnic marriage or within the same ethnic group. The number of children is considered to greatly influence the *sahala* (values) of the parents. The *sahala* will rise if there are many children born, and it is also considered an insult that degrades the husband and his family's honor if there are no boys among the children. Additionally, the Minangkabau ethnic group, which uses a matrilineal kinship, prefers to daughter than son, according to Whalley (1998). Husband and wife attitudes regarding the number of children born are influenced by the ethnic cultures of the Batak and Minangkabau, who view son and daughter as having a higher status in society.

Beside that, Utomo and Mcdonald (2016) explained marriages between married women of the same or different ethnicities by stating that in North Sumatra and Jakarta, a young person who has a higher level of education and resides in a city is statistically less likely to marry someone of the same ethnicity which estimates then indicate that the proportion of unmarried males to women is 7:1. Consequently, Batak men marry Sundanese women. In cases like this, the Sundanese wife will become Batak which also makes her wife learn the Batak language, convert to Christianity, attend traditional rituals, and give birth to children of Batak ethnicity.

Becoming Batak in this case does not mean a change in identity. If the wife is asked about her ethnicity, she will answer that by affiliation she is Sundanese who is married to a Batak husband. If their child is asked, she will answer that her first response is Batak, and if asked more deeply her child is Batak with a Sundanese mother (Bruner, 1974). This is the result of research related to inter-ethnic and same-ethnic marriages, referring to the results of this analysis, inter-ethnic marriages statistically prove lower fertility compared to same-ethnic marriages, so in the future, with highly educated young people living in the city can increase the chances of inter-ethnic marriages so that as a result it can reduce fertility (average number of children born). Then the Batak culture wants a son as the successor to the lineage is believed that marrying another ethnicity will also help reduce fertility with the process of cultural affiliation between husband and wife. This opinion is in line with the results of the analysis of Utomo and Mcdonald (2016) that the 2020 LF PC indicates that Indonesians prefer to marry someone from the same ethnicity, but in any case, anticipation regarding same-ethnic marriages seems to be decreasing in the future. Based on this explanation, related to the analysis of fertility of married couples of different ethnicities, it can be concluded that inter-ethnic

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marriages can occur with migration by one of the partners and the probability of migrating is higher, namely in young people who have higher education.

Conclusions and Recommendations

Several ethnic groups are spread across various regions in Indonesia due to population migration aimed at earning a living, knowledge, or experience. In addition, there are traditional factors in certain ethnic groups that are believed to be able to make a better life by migrating. The dispersion of ethnic groups across various regions in Indonesia is primarily driven by cultural and traditional practices that encourage migration from one area to another. This study examines the role of ethnic identity in individuals' decisions to migrate, using data from Indonesia. The findings indicate that different ethnic groups hold disparate views on the subject of migration. Additionally, other studies have corroborated that migration has become a cultural norm within certain ethnic groups. The aspiration to migrate to other regions is also driven by the desire to improve one's livelihood and gain valuable insights from the experiences of these ethnic groups. The characteristics of each ethnic group (rural areas, education level, and welfare level) demonstrate the present profile and development of each ethnic group, which can serve as a foundation for policy formulation. The implications of these findings indicate the necessity for further efforts to consider the distinct characteristics of ethnic groups. Although the population of the 15 largest ethnic groups has increased, in terms of percentage, the Javanese, Bugis, Minangkabau, Bantenese, and Chinese ethnic groups have decreased. While not all ethnic groups are dominant in their respective regions, some ethnic groups that are dominant in their regions are the Minangkabau, Javanese, Balinese, Banjarese, and Sasak ethnic groups. The Sasak, Acehnese, and Bantenese ethnic groups are the three ethnic groups with the highest fertility rates (TFR). This proves that birth rates vary in each ethnic group and local cultural influences also influence the birth patterns of each ethnic group.

Policies and programs strategies implemented by the Indonesian government can utilize a cultural approach (ethnic groups) to organize population diversity and distribution and use performance indicators using the local socio-cultural norms (culture) approach as short-term and medium-term performance achievements. Furthermore, the government opens access between ethnic groups by introducing the culture of each ethnic group to other ethnic groups through advertisements, social media, advertisements, exhibitions, and so on, thereby opening up inter-ethnic marriages in the future so that the interventions carried out can be measured in terms of their achievements and can be synergized with various program policies in the Central Government and Regional Governments.

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