ASSESSING THE QUALITY OF CIVIL REGISTRATION AND VITAL STATISTICS IN MALAYSIA USING POPULATION CENSUS DATA

LAI SIOW LI

POPULATION STUDIES UNIT

FACULTY OF BUSINESS AND ECONOMICS

UNIVERSITI MALAYA

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INTRODUCTION

- Birth registration in Malaysia is known to be complete
- Birth certificate is required for various dealings with the gov. agencies (e.g., register as voter, IC and passport application, access health care, school enrolment, etc)
- Births and Deaths Registration (Amendment) Act 2016 – all births and deaths in Malaysia are registered at NRD offices using a centralized computer database
- Birth and death registration are almost complete at the national level, but a recent study has discovered a deficiency in vital registration in some remote areas and among non-citizens (Lai and Tey, 2021)
- Plausible reasons: misreporting of place of occurrence as place of usual residence, delayed reporting, non-coverage, ignorance, inaccessibility, migration, miscommunication, and errors in data entry

SDGs

- SDG target 16.9: to provide legal identity for all, through birth registration, by 2030
- Birth data are needed to measure and achieve universal health coverage (SDG target 3.8) for policymakers and planners to target persons in need of health care, education, and other services
- Completeness and coverage of birth registration are essential to achieve other SDGs, such as SDG 1 (no poverty), SDG 4 (quality education), SDG 5 (gender equality), SDG 10 (reduced inequalities), SDG 16 (peace, justice, and strong institutions), and SDG 17 (partnerships for the goals)
- Rahman et al. (2019) found that more than 110 low- and middle-income countries have deficient CRVS systems
- Efforts must be made to improve CRVS systems for the effective delivery of health and social development programs (WHO] 2013)

DOSM & CRVS

- DOSM is the focal point in the compilation and reporting of SDG Indicators Development at the national level, and a team member of an Inter-agency Expert Group in the Southeastern Region
- Over the years, DOSM has developed its expertise in collecting and disseminating official statistics with increased use of technology (NPFDB, 2018)
- Malaysia has achieved the minimum percentage for both birth and death registrations. A 2016 study on underreporting of deaths concluded that death registration is almost 100%, except for Sabah (88.0%) (NPFDB, 2018)
- However, the completeness of birth registration at the national level or even at the state level may not reflect the actual fertility level in smaller geographical areas

WHY ACCURATE CRVS IS IMPORTANT?

- Accurate data on the number of births and the birth rate in small geographical areas are needed for human resource planning, allocation of resources, and provision of financial assistance
- Under-reporting of births will result in budgetary misallocations and may deprive people in these localities of the resources they need
- It will also result in sub-optimal investments in health care and education (Makinde et al., 2016)
- Children with no legal identity are highly vulnerable to the risk of human trafficking and exploitation (Makinde, 2016; Makinde et al., 2017)
- Individuals who do not have an identity card are stateless and marginalized

Top 10 districts in Malaysia with the lowest CBR

District	State	CBR (2019)	CBR ranking from lowest (1) to highest (147)	CWR (2010)	CWR ranking from lowest to highest
Kinabatangan	Sabah	3.5	1	428	108
Bagan Datuk (new district)	Perak	6.0	2	–	–
Putatan	Sabah	6.8	3	395	88
Belaga	Sarawak	7.1	4	399	92
Timur Laut	Pulau Pinang	7.3	5	213	2
Tongod	Sabah	9.4	6	723	144
Kampar	Perak	9.4	7	182	1
Beluran	Sabah	10.2	8	496	132
Tawau	Sabah	10.4	9	361	69
Marudi	Sarawak	10.4	10	463	124

The CWR was computed using the 2% sample of the 2010 population census

Source: Vital statistics, Malaysia, 2020 (DOSM, 2020f)

Number of births recorded 5 years preceding the 2010 census and population under 5 years in 2010, Malaysia and Sabah

	Malaysia	Sabah
Births in 2005	474,473	47,160
Births in 2006	472,698	46,142
Births in 2007	479,647	47,017
Births in 2008	493,203	50,272
Births in 2009	501,644	52,782
Births in 2010	491,239	54,134
Births 5 years preceding the census	2,430,048	246,860
2010 census (total population, including non-citizens)		
(i) Population under 5 years	2,426,957	335,943
(ii) Infant and toddler deaths over 5 years	20,112	1055
(i) + (ii)	2,447,069 (99.3%)	336,998 (73.3%)
2010 census (citizen population)		
(iii) Population under 5 years	2,290,776	251,806
(iv) Infant and toddler deaths over 5 years (it may be presumed that most infant and toddler deaths among non-citizens were not reported)	20,112	1055
(iii) + (iv)	2,310,888 (105.2%)	252,861 (97.6%)

Sources: Vital statistics, Malaysia, 2020; Vital statistics time series, Malaysia, 2000–2009; Population and housing census of Malaysia: Population distribution and basic demographic characteristics, 2010 (DOSM, 2011b, 2015, 2020f)

District	CBR (2019)	CWR (2000)	% non-citizens (2000)	% women aged 15-49 (2000)	Hospitals	Health clinics	Rural clinics
SABAH	**13.5**	**407.2**	23.2	**27.5**	**25**	**131**	**166**
Tawau	10.4	361.4	39.2	28.7	1	9	5
Lahad Datu	14.1	419.7	35.1	27.4	1	6	12
Semporna	19.5	505.0	32.3	24.8	1	2	8
Sandakan	10.6	315.2	27.9	29.5	1	8	8
Kinabatangan	3.5	429.7	76.1	28.2	1	5	-
Beluran	10.2	496.1	39.2	23.3	1	12	5
Kota Kinabalu	13.1	411.1	14.0	29.5	5	8	5
Ranau	16.1	538.9	7.0	24.7	1	8	10
Kota Belud	17.0	388.5	3.2	25.9	1	4	13
Tuaran	20.1	348.3	3.2	28.2	1	6	13
Penampang	13.2	367.8	9.4	28.7	-	2	6
Papar	14.6	412.9	6.6	25.7	1	5	8
Kudat	18.4	445.4	3.6	24.3	1	9	5
Kota Marudu	20.6	450.6	1.3	26.4	1	3	10
Pitas	23.1	524.9	2.2	23.3	1	5	7
Beaufort	16.4	468.8	6.1	25.6	1	5	11
Kuala Penyu	17.2	216.3	5.7	27.6	1	3	2
Sipitang	15.1	225.3	9.3	30.0	1	5	4
Tenom	14.4	488.7	9.5	24.4	1	4	8
Nabawan	19.0	565.3	6.6	25.3	-	4	2
Keningau	13.7	443.7	18.0	27.8	1	7	13
Tambunan	16.8	558.3	13.4	21.9	1	3	8
Kunak	14.7	351.2	47.7	30.1	1	2	2
Tongod	9.4	723.0	27.7	22.4	-	5	1
Putatan	6.8	395.4	7.2	27.6	-	1	-

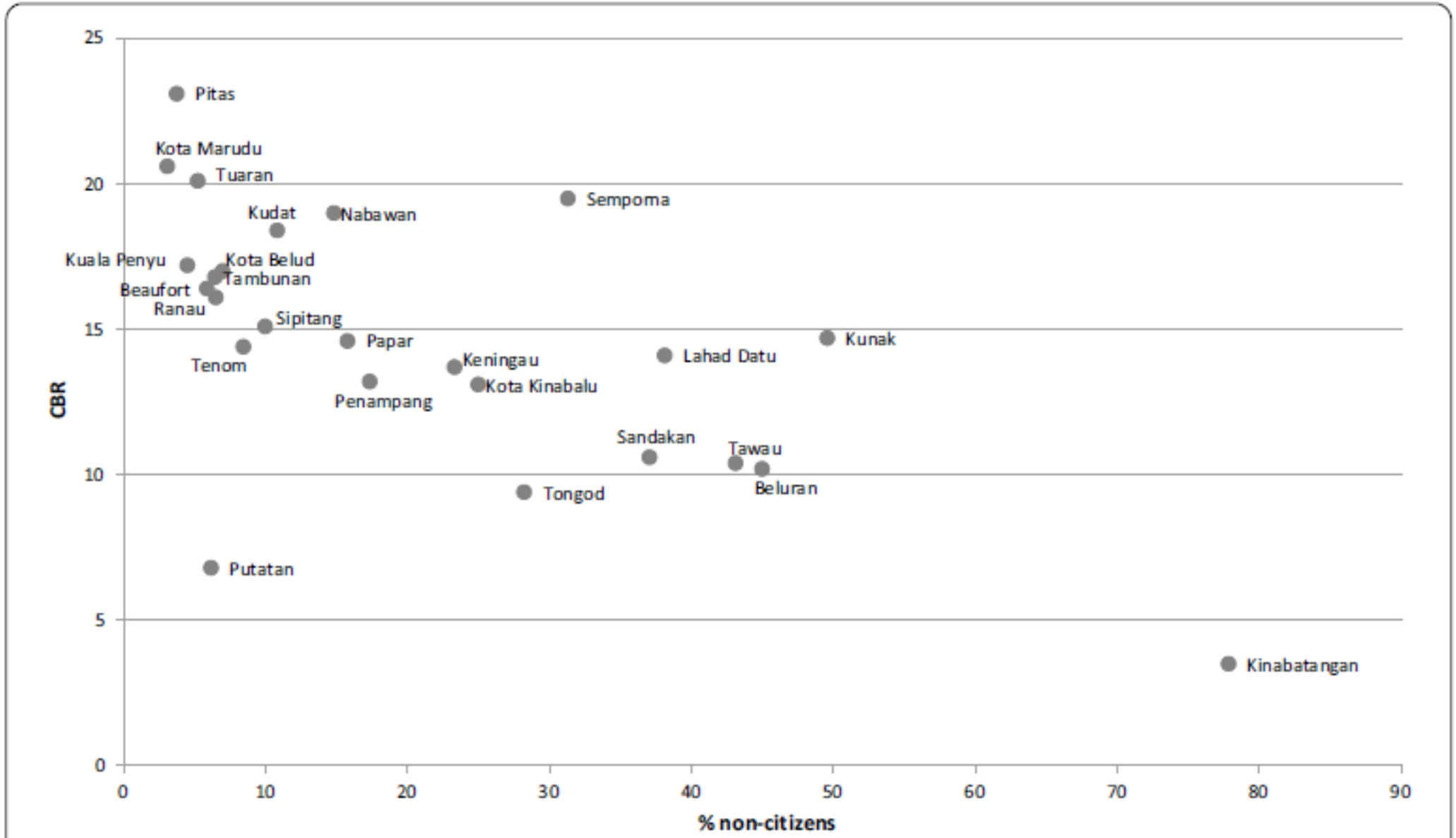

Fig. 3 Percentage of non-citizens and CBR by district in Sabah, 2019. Spearman correlation coefficient = −0.646, $p < 0.001$. Sources: Vital statistics, Malaysia, 2020; My local stats, Sabah, 2019 (DOSM, 2020d, f)

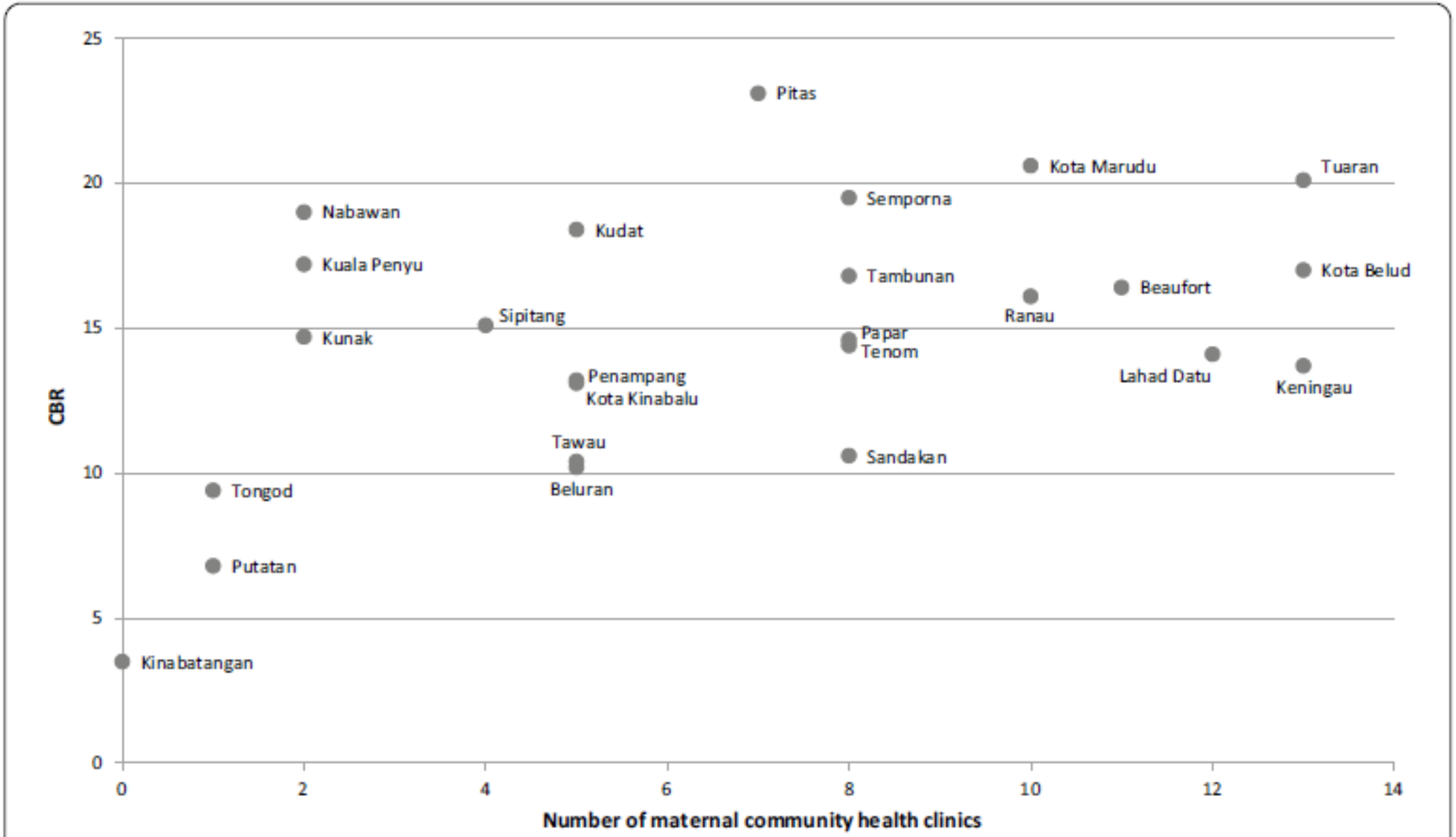

Fig. 4 Number of maternal community health clinics (rural clinics) and CBR by district in Sabah, 2019. Spearman correlation coefficient = 0.405, $p = 0.045$. Sources: Vital statistics, Malaysia, 2020; Statistics yearbook, Sabah, 2019 (DOSM, 2020f; DOSM, 2020g)

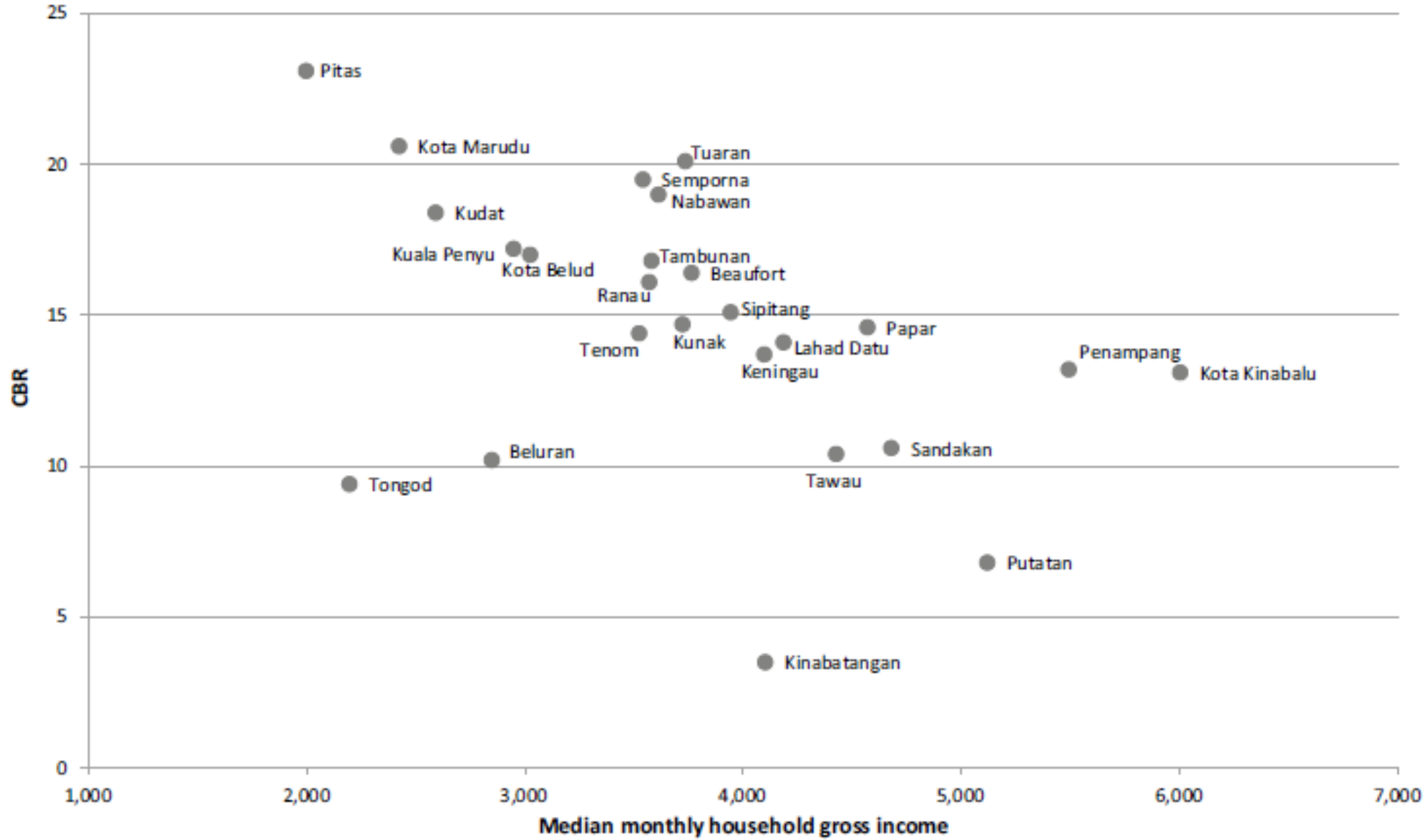

Fig. 5 Median monthly household gross income and CBR by district in Sabah, 2019. Spearman correlation coefficient = −0.534, $p = 0.006$. Sources: Vital statistics, Malaysia, 2020; Household income survey and basic amenities report by state and administrative district, Sabah, 2019 (DOSM, 2020b, f)

CRVS DURING COVID-19 PANDEMIC

- Muslim and non-Muslim marriages fell from 147,847 and 55,814 in 2019 to 145,202 and 39,387 in 2020, respectively. Likewise, the number of divorces declined from 45,502 and 11,122 to 37,854 and 7,901, respectively, despite an increasing trend in these two statistics in recent years
- The total fertility rate has also dropped to the lowest level ever recorded – 1.7 overall, 2.2 for the Bumiputera, 1.0 for Chinese, and 1.2 for Indian (Malaysian).
- It remains to be seen if the sharp reduction in the number of marriages, divorces, and births is due to the deliberate postponement of these events during the difficult period, with a reversal in the next few years

CRVS DEFICIENCY? CENSUS DEFICIENCY?

- Vital statistics reports show ultra-low CBR in some districts, especially those in Sabah, which raises questions on the accuracy and completeness of vital registration and the possibility of reporting births by place of occurrence instead of place of residence
- The deficiency in birth registration in remote areas in Sabah may be attributed to various reasons, such as non-registration of newborns who die soon after birth, inaccessibility, ignorance of the law, and procedures (Apland et al., 2014; WHO, 2013; Wodon & Yedan, 2019)
- The coverage deficiency could also be due to delayed reporting, deliberate non-reporting, miscommunication, errors in data entry, and lack of coordination among the various agencies involved in the registration and reporting of vital events, resulting in information leakage (Emery, 1990; UNICEF, 2013; WHO, 2013; World Bank & WHO, 2014)
- Given that census tends to under-count, especially in the metropolitan and large urban areas, vital registration is a good source to verify the accuracy of the census data, and complement each other

THE WAY FORWARD

- Births should be reported based on both the current place of residence and place of occurrence, as it is crucial to reflect the local level's actual situation
- Complete and accurate data on birth, death, marriage, divorce, and migration (from the change of address in the identity card, which should be enforced) will allow the authorities to have better and timely population data for planning purposes
- More significant investments in the vital registration system, coupled with campaigns to inform the public of the importance of registering births, are needed to ensure that population data from census or other estimates are useful

THE WAY FORWARD

- DOSM published district-level vital statistics in the 1980s but discontinued the practice in the 1990s; it was resumed only in 2015. DOSM, as the central agency responsible for the compilation of SDG indicators, should strive to collect high-quality data required for monitoring and evaluating the various programs towards achieving the SDGs
- Evaluation of the quality of data from vital registration should be carried out from time to time. DOSM has published reports on progress in compiling the SDG indicators in Malaysia since 2019, but the district-level information is scarce
- The microdata from the 2020 population census can be used to estimate the CBR by district. By comparing these with the vital registration, we can identify districts with wide discrepancy

THE WAY FORWARD

- Efforts have been made to combine census data with vital statistics, administrative records, and service statistics towards producing comprehensive and timely data for planning purposes. For instance, the number of enrolments at the primary level can be used as an alternative measure of the number of births, with a time lag
- The Ministry of Education collects enrolment statistics for all educational levels. Since primary education is universal, the enrolment statistics for year one students in 2026 can be used to assess the accuracy of vital registration and census data reported in 2020 for each district after adjustment for migration
- Comprehensive study should be conducted nationwide to identify areas, where civil registration is deficient. DOSM should make available raw data from vital registration and censuses to researchers to conduct in-depth analysis

<<<THANK YOU>>>

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Genus

ORIGINAL ARTICLE Open Access

Deficiency in civil registration and vital statistics reporting in remote areas: the case of Sabah, Malaysia

Siow Li Lai* and Nai Peng Tey

*Correspondence:
laisl@um.edu.my
Population Studies Unit, Faculty of Economics and Administration, University of Malaya, Kuala Lumpur, Malaysia

Abstract

Malaysia has a well-established civil registration system dating back to the 1960s. Birth registration is virtually complete at the national level. However, the quality of civil registration in some remote areas is doubtful, as evidenced by the abnormally low birth and death rates in several districts. This study focuses on identifying districts in Sabah, where the reporting of births seems problematic. Sabah is the least developed state in Malaysia, and it is sparsely populated, despite being the second most populous state in the country. Sabah's civil registration lags behind the other states, to the extent that birth and death statistics were not reported for the state in the vital statistics report for the period 2000 to 2009. A 2016 study found that death registration is almost 100%, except for Sabah (88%). The plausible reasons behind the ultra-low birth rate reported

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