

TOPICS	ELEMENT	SUBJECT : MIGRATION SURVEY REPORT
		INFORMATION
<b>1. Source Organisation</b>	Contact Person and Organization	Name : Ms. Riyanti Saari Title : Director Address : Manpower and Social Statistics Division Department of Statistics, Malaysia Level 6, Block C6, Parcel C Federal Government Administrative Centre 62514 Putrajaya, Malaysia Phone No : 03 – 8885 7171 Fax. No. : 03 – 8888 9233 E-mail : riyanti@stats.gov.my
	Data Sources Used	Household survey
	Name of Collection / Source Used	Migration Survey
	Direct source	Department of Statistics, Malaysia
	Source Periodicity	Monthly
	Source Metadata	Central Repository
	Date Last Input Received From Source	Eight (8) weeks after data collection

<b>2. Data Characteristic and collection</b>	Variable collected	Socio-economics characteristics of migrants and non-migrants such as: i) Age; ii) Sex; iii) Status of Employment; iv) Type of occupation at the place of destination; v) Marital status; and vi) Educational attainment.
	Sampling Frame	The sampling frame used is from the National Household Sampling Frame (NHSF) which is made up of Enumeration Blocks (EBs) - geographically contiguous areas of land with identifiable boundaries-created for the 2010 Population and Housing Census
	Sampling Design	- Two levels of stratification are used, i.e., primary stratum (made up of states of Malaysia, including federal territories) and secondary stratum (made up of urban and rural stratum formed within the primary stratum). - Samples are drawn independently within each level of the secondary stratum. The first stage of units of sample selection is the EB level while the second stage units are the living quarters (LQs) within the EBs. All households and persons within the selected LQs are canvassed.
	Determination of Sample Size	The (annual) number of selected LQs is around 70,000 to 80,000
	Periodicity	Monthly

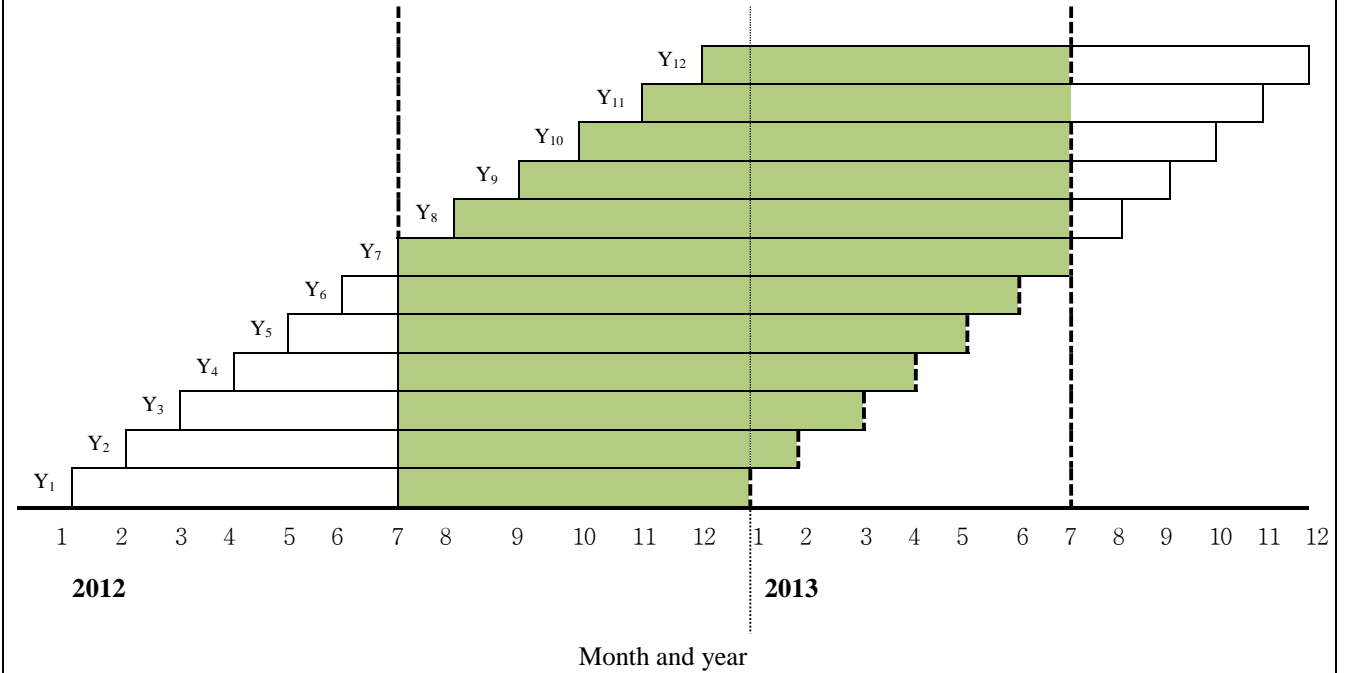
	Reference Period	The reference period of the survey is “monthly moving reference period” that is: <table border="1"> <thead> <tr> <th>Survey month</th> <th>Reference period</th> </tr> </thead> <tbody> <tr> <td>January</td> <td>1 January 2012 to 1 January 2013</td> </tr> <tr> <td>February</td> <td>1 February 2012 to 1 February 2013</td> </tr> <tr> <td>March</td> <td>1 March 2012 to 1 March 2013</td> </tr> <tr> <td>April</td> <td>1 April 2012 to 1 April 2013</td> </tr> <tr> <td>May</td> <td>1 May 2012 to 1 May 2013</td> </tr> <tr> <td>June</td> <td>1 June 2012 to 1 June 2013</td> </tr> <tr> <td>July</td> <td>1 July 2012 to 1 July 2013</td> </tr> <tr> <td>August</td> <td>1 August 2012 to 1 August 2013</td> </tr> <tr> <td>September</td> <td>1 September 2012 to 1 September 2013</td> </tr> <tr> <td>October</td> <td>1 October 2012 to 1 October 2013</td> </tr> <tr> <td>November</td> <td>1 November 2012 to 1 November 2013</td> </tr> <tr> <td>December</td> <td>1 December 2012 to 1 December 2013</td> </tr> </tbody> </table>	Survey month	Reference period	January	1 January 2012 to 1 January 2013	February	1 February 2012 to 1 February 2013	March	1 March 2012 to 1 March 2013	April	1 April 2012 to 1 April 2013	May	1 May 2012 to 1 May 2013	June	1 June 2012 to 1 June 2013	July	1 July 2012 to 1 July 2013	August	1 August 2012 to 1 August 2013	September	1 September 2012 to 1 September 2013	October	1 October 2012 to 1 October 2013	November	1 November 2012 to 1 November 2013	December	1 December 2012 to 1 December 2013
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Base Period	NA																											
Date Last Updated	2013																											
Link To Release Calender	30 Jun 2014																											
Other Data Characteristics and Collection	NA																											
<b>3. Statistical Population and Scope of the Data</b>	Statistical Population	Household																										
	Subtopic	NA																										
	Geographical Coverage	Malaysia																										

	Sector Coverage	NA
	Institutional Coverage	NA
	Item/Product Coverage	NA
	Population Coverage	Household members (persons who may be related and/or persons unrelated who usually live together and make common provisions for food and other essentials for living) aged one year and over who resides in private living quarters (LQ) in Malaysia.
	Product Coverage	NA
	Other Coverage	NA
<b>4. Statistical Concepts and Classifications Used</b>	Key Statistical Concepts Used	<ul style="list-style-type: none"> <li>• Manual on methods of estimating population: Manual VI - Methods of Measuring Internal Migration</li> <li>• Respondent are asked for the usual place of residence on two specific reference dates which are exactly one year apart. The scope of the survey is “fixed-term migration”. A change in the usual place of residence locality at these two points in time constitutes migration. Any intervening move between these two reference dates in not taken into consideration.</li> <li>• The survey population is defined as the following migration status: <ul style="list-style-type: none"> <li>a. Internal migrants; those who have changed their place of residence at various geographical levels. They may be categorized as inter-state migrants, if they move from one state to another. If the movement is within the same state, they are known as intra-state migrants.</li> <li>b. International migrants; those who has moved from other country to Malaysia.</li> <li>c. Non-migrants; refers to those with the same usual place of residence or move within the same locality.</li> </ul> </li> <li>• The definition of employment follows the recommendation of the International Labour Organisation.</li> </ul>

	Classification Used	<ul style="list-style-type: none"> <li>• Malaysia Standard Industrial Classification (MSIC) 2008;</li> <li>• Malaysia Standard Classification of Occupations (MASCO) 2008.</li> </ul>																									
<b>5. Statistical Computation and Dissemination</b>	Aggregation and Consolidation	National and state level																									
	Estimation	<p>Estimation procedures were applied in two stages. The first stage was to obtain the weighted estimates of migration from the sample, keeping in mind that the selected EBs in the sample were systematically allocated to twelve reference period in 2013 with different reference dates as listed below:-</p> <table border="0"> <thead> <tr> <th>Round</th> <th>Reference dates</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1st January 2012 to 1st January 2013</td> </tr> <tr> <td>2</td> <td>1st February 2012 to 1st February 2013</td> </tr> <tr> <td>3</td> <td>1st March 2012 to 1st March 2013</td> </tr> <tr> <td>4</td> <td>1st April 2012 to 1st April 2013</td> </tr> <tr> <td>5</td> <td>1st May 2012 to 1st May 2013</td> </tr> <tr> <td>6</td> <td>1st June 2012 to 1st June 2013</td> </tr> <tr> <td>7</td> <td>1st July 2012 to 1st July 2013</td> </tr> <tr> <td>8</td> <td>1st August 2012 to 1st August 2013</td> </tr> <tr> <td>9</td> <td>1st September 2012 to 1st September 2013</td> </tr> <tr> <td>10</td> <td>1st October 2012 to 1st October 2013</td> </tr> <tr> <td>11</td> <td>1st November 2012 to 1st November 2013</td> </tr> <tr> <td>12</td> <td>1st December 2012 to 1 Desember 2013</td> </tr> </tbody> </table> <p>The estimation method used assumes that the migration flow is uniformly distributed throughout each one year period and thus provides the average migration estimates from 1st July 2012 to 30th June 2013 for the survey year 2013. It is also to be noted that the reference periods differ according to the survey dates.</p>	Round	Reference dates	1	1st January 2012 to 1st January 2013	2	1st February 2012 to 1st February 2013	3	1st March 2012 to 1st March 2013	4	1st April 2012 to 1st April 2013	5	1st May 2012 to 1st May 2013	6	1st June 2012 to 1st June 2013	7	1st July 2012 to 1st July 2013	8	1st August 2012 to 1st August 2013	9	1st September 2012 to 1st September 2013	10	1st October 2012 to 1st October 2013	11	1st November 2012 to 1st November 2013	12
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Let Y1, Y2, Y3..... Y12 represent the estimates of total migration for each round of the survey year 2013. This may be illustrated in the following diagram:

Diagram 1: Estimates of total migration



Average migration for 1st July 2012 to 30th June 2013

$$\begin{aligned}
 &= \left[ \frac{1}{12} \cdot \frac{1}{7} (Y_1 + Y_2 + Y_3 + Y_4 + Y_5 + Y_6 + Y_7) \right] + \left[ \frac{1}{12} \cdot \frac{1}{8} (Y_1 + Y_2 + Y_3 + Y_4 + Y_5 + Y_6 + Y_7 + Y_8) \right] \\
 &+ \left[ \frac{1}{12} \cdot \frac{1}{9} (Y_1 + Y_2 + Y_3 + Y_4 + Y_5 + Y_6 + Y_7 + Y_8 + Y_9) \right] \\
 &+ \left[ \frac{1}{12} \cdot \frac{1}{10} (Y_1 + Y_2 + Y_3 + Y_4 + Y_5 + Y_6 + Y_7 + Y_8 + Y_9 + Y_{10}) \right]
 \end{aligned}$$

$$\begin{aligned}
& + \left[ \frac{1}{12} \cdot \frac{1}{11} (Y_1 + Y_2 + Y_3 + Y_4 + Y_5 + Y_6 + Y_7 + Y_8 + Y_9 + Y_{10} + Y_{11}) \right] \\
& + \left[ \frac{1}{12} \cdot \frac{1}{12} (Y_1 + Y_2 + Y_3 + Y_4 + Y_5 + Y_6 + Y_7 + Y_8 + Y_9 + Y_{10} + Y_{11} + Y_{12}) \right] \\
& + \left[ \frac{1}{12} \cdot \frac{1}{11} (Y_2 + Y_3 + Y_4 + Y_5 + Y_6 + Y_7 + Y_8 + Y_9 + Y_{10} + Y_{11} + Y_{12}) \right] \\
& + \left[ \frac{1}{12} \cdot \frac{1}{10} (Y_3 + Y_4 + Y_5 + Y_6 + Y_7 + Y_8 + Y_9 + Y_{10} + Y_{11} + Y_{12}) \right] \\
& + \left[ \frac{1}{12} \cdot \frac{1}{9} (Y_4 + Y_5 + Y_6 + Y_7 + Y_8 + Y_9 + Y_{10} + Y_{11} + Y_{12}) \right] + \left[ \frac{1}{12} \cdot \frac{1}{8} (Y_5 + Y_6 + Y_7 + Y_8 + Y_9 + Y_{10} + Y_{11} + Y_{12}) \right] \\
& + \left[ \frac{1}{12} \cdot \frac{1}{7} (Y_6 + Y_7 + Y_8 + Y_9 + Y_{10} + Y_{11} + Y_{12}) \right] + \left[ \frac{1}{12} \cdot \frac{1}{6} (Y_7 + Y_8 + Y_9 + Y_{10} + Y_{11} + Y_{12}) \right] \\
& = \left( \frac{1}{84} Y_1 + \frac{1}{96} Y_1 + \frac{1}{108} Y_1 + \frac{1}{120} Y_1 + \frac{1}{132} Y_1 + \frac{1}{144} Y_1 \right) \\
& + \left( \frac{1}{84} Y_2 + \frac{1}{96} Y_2 + \frac{1}{108} Y_2 + \frac{1}{120} Y_2 + \frac{1}{132} Y_2 + \frac{1}{144} Y_2 + \frac{1}{132} Y_2 \right) \\
& + \left( \frac{1}{84} Y_3 + \frac{1}{96} Y_3 + \frac{1}{108} Y_3 + \frac{1}{120} Y_3 + \frac{1}{132} Y_3 + \frac{1}{144} Y_3 + \frac{1}{132} Y_3 + \frac{1}{120} Y_3 \right) \\
& + \left( \frac{1}{84} Y_4 + \frac{1}{96} Y_4 + \frac{1}{108} Y_4 + \frac{1}{120} Y_4 + \frac{1}{132} Y_4 + \frac{1}{144} Y_4 + \frac{1}{132} Y_4 + \frac{1}{120} Y_4 + \frac{1}{108} Y_4 \right) \\
& + \left( \frac{1}{84} Y_5 + \frac{1}{96} Y_5 + \frac{1}{108} Y_5 + \frac{1}{120} Y_5 + \frac{1}{132} Y_5 + \frac{1}{144} Y_5 + \frac{1}{132} Y_5 + \frac{1}{120} Y_5 + \frac{1}{108} Y_5 + \frac{1}{96} Y_5 \right) \\
& + \left( \frac{1}{84} Y_6 + \frac{1}{96} Y_6 + \frac{1}{108} Y_6 + \frac{1}{120} Y_6 + \frac{1}{132} Y_6 + \frac{1}{144} Y_6 + \frac{1}{132} Y_6 + \frac{1}{120} Y_6 + \frac{1}{108} Y_6 + \frac{1}{96} Y_6 + \frac{1}{84} Y_6 \right) \\
& + \left( \frac{1}{84} Y_7 + \frac{1}{96} Y_7 + \frac{1}{108} Y_7 + \frac{1}{120} Y_7 + \frac{1}{132} Y_7 + \frac{1}{144} Y_7 + \frac{1}{132} Y_7 + \frac{1}{120} Y_7 + \frac{1}{108} Y_7 + \frac{1}{96} Y_7 + \frac{1}{84} Y_7 + \frac{1}{72} Y_7 \right) \\
& + \left( \frac{1}{96} Y_8 + \frac{1}{108} Y_8 + \frac{1}{120} Y_8 + \frac{1}{132} Y_8 + \frac{1}{144} Y_8 + \frac{1}{132} Y_8 + \frac{1}{120} Y_8 + \frac{1}{108} Y_8 + \frac{1}{96} Y_8 + \frac{1}{84} Y_8 + \frac{1}{72} Y_8 \right) \\
& + \left( \frac{1}{108} Y_9 + \frac{1}{120} Y_9 + \frac{1}{132} Y_9 + \frac{1}{144} Y_9 + \frac{1}{132} Y_9 + \frac{1}{120} Y_9 + \frac{1}{108} Y_9 + \frac{1}{96} Y_9 + \frac{1}{84} Y_9 + \frac{1}{72} Y_9 \right)
\end{aligned}$$

$$\begin{aligned}
& + \left( \frac{1}{120}Y_{10} + \frac{1}{132}Y_{10} + \frac{1}{144}Y_{10} + \frac{1}{132}Y_{10} + \frac{1}{120}Y_{10} + \frac{1}{108}Y_{10} + \frac{1}{96}Y_{10} + \frac{1}{84}Y_{10} + \frac{1}{72}Y_{10} \right) \\
& + \left( \frac{1}{132}Y_{11} + \frac{1}{144}Y_{11} + \frac{1}{132}Y_{11} + \frac{1}{120}Y_{11} + \frac{1}{108}Y_{11} + \frac{1}{96}Y_{11} + \frac{1}{84}Y_{11} + \frac{1}{72}Y_{11} \right) \\
& + \left( \frac{1}{144}Y_{12} + \frac{1}{132}Y_{12} + \frac{1}{120}Y_{12} + \frac{1}{108}Y_{12} + \frac{1}{96}Y_{12} + \frac{1}{84}Y_{12} + \frac{1}{72}Y_{12} \right) \\
& = \frac{18,107}{332,640}Y_1 + \frac{20,627}{332,640}Y_2 + \frac{23,399}{332,640}Y_3 + \frac{26,479}{332,640}Y_4 + \frac{3,743}{41,580}Y_5 + \frac{2,119}{20,790}Y_6 + \frac{9,631}{83,160}Y_7 + \frac{8,641}{83,160}Y_8 \\
& + \frac{31,099}{332,640}Y_9 + \frac{28,019}{332,640}Y_{10} + \frac{25,247}{332,640}Y_{11} + \frac{22,727}{332,640}Y_{12} \quad \dots\dots\dots (1)
\end{aligned}$$

Thus, the average migration for 1st July 2012 to 30th June 2013 pertains to the number of migrants captured during the four survey rounds as denoted by the shaded area of the above diagram.

The values derived from the summation in the above equation denote the appropriate weights with which sample data for each of the survey rounds were weighted and then combined to obtain the average migration estimates for a specific period of time.

Weight	,	P1	=	0.1458 X 12	=	0.6532
		P2	=	0.2292 X 12	=	0.7444
		P3	=	0.3542 X 12	=	0.8441
		P4	=	0.2708 X 12	=	0.9552
		P5	=	0.3542 X 12	=	1.0802
		P6	=	0.2708 X 12	=	1.2230
		P7	=	0.3542 X 12	=	1.3897
		P8	=	0.2708 X 12	=	1.2469
		P9	=	0.3542 X 12	=	1.1219
		P10	=	0.2708 X 12	=	1.0108
		P11	=	0.3542 X 12	=	0.9108



$$P_{12} = 0.2708 \times 12 = 0.8198$$

$$= 12.000$$

The second stage uses the method of ratio estimation to obtain population estimates of a specific characteristic in the survey. The benchmark used is the mid-year population estimates of 2013 (based on 2010 Population and Housing Census) by age, sex and ethnic group. Therefore, the estimate of a characteristic (e.g. migration status) in a specific age-sex-ethnic group (e.g. Malay male aged 15-19), may be adjusted accordingly as follows :-

$$E' = \sum_{n=1}^k E_n \left( \frac{W_n}{w_n} \right)$$

where

$E_n$  is the weighted estimate from the sample count of persons for a **characteristic** (e.g. migration status) in a particular age-sex-ethnic-state (e.g. Malay males in the 15–19 years age group in Johor).

$W_n$  is the **independent mid-year population projection** of the number of persons in a particular age-sex-ethnic-state.

$w_n$  is the weighted estimate from the **sample count** of the number of persons in a particular age-sex-ethnic-state.

$\frac{W_n}{w_n}$  is a constant used in deriving the ratio-estimate of any characteristic in a particular age-sex-ethnic-state. Each constant which is the ratio of the independent population estimate to the sample count figures in a particular age-sex-ethnic group was then used to inflate any required characteristic within the particular age-sex-ethnic-state.

	<p><math>E_n \left( \frac{W_n}{w_n} \right)</math> is the adjusted estimate of a characteristic in a particular age-sex-ethnic-state obtained by the age-sex-ethnic-state adjustment.</p> <p><math>E'</math> is obtained by adding the adjusted estimate <math>E_n \left( \frac{W_n}{w_n} \right)</math> for all age-sex-ethnic-state. Thus, <math>E'</math> is also known as the <b>ratio estimator</b> of the characteristic.</p>
Imputation	NA
Transformation	<ul style="list-style-type: none"> <li>• In-migration rate = (In-migrants/ Population at state of destination) x 1,000</li> <li>• Out-migration rate = (Out-migrants/ Population at state of origin) x 1,000</li> <li>• Net migration = In-migrants - Out-migrants</li> <li>• Net migration rate = (Net migration/ Population at state of destination) x 1,000</li> <li>• Gross migration rate = (Gross migration/ Population at state of destination) x 1,000</li> <li>• Migration effectiveness ratio = (Net migration/ Gross migration) x 1,000</li> </ul>
Validation	Random checks are carried out by supervisors on households that were already canvassed by the enumerators.
Index Type	NA
Weights	<p>The weights were the result of calculations involving several factors, including original selection probabilities and adjustment for non-response. The weighting process would also correct for non-coverage and help reduce variance of estimates. The base weight (Design Weight) for each sample is equal to the reciprocal of the sample probability of selection. Weights were applied in two stages:</p> <ol style="list-style-type: none"> <li>a. Weight estimated based on sample design; <ol style="list-style-type: none"> <li>i. The probability of selection of a sample is the sampling rate for the corresponding sampling stratum. If <math>n_h</math> out of <math>N_h</math> are selected from a stratum denoted by <math>h</math>, then the <b>design weight</b> assigned to the sampled from the stratum was obtained as : <math display="block">W_h = \frac{N_h}{n_h}</math> <p>where <math>h</math> is stratum.</p> </li> </ol> </li> </ol>

		<p>ii. The List Sample cases can be divided into respondents and non-respondents. Further, the respondents can be either eligible or ineligible (out of scope) for the survey. We derived <b>adjusted weight</b> to take into consideration of this scenario. The <b>adjusted weight</b> was obtained as:</p> $W'_h = \frac{N_h}{n'_h}$ <p>where <math>n'_h</math> is the number of respond samples.</p> <p>b. Mid-year inter-censal population estimates by age, sex and ethnic group are used as benchmarks to estimate the characteristics of the population (no attempt is made to adjust for exclusion of the institutional population, which is not covered by the Migration Survey).</p>
	Seasonal Adjustment	NA
	Other Computation and Adjustments	NA
	Dissemination Formats	Printed or digital
<b>6. Other Aspects</b>	Recommended Uses And Limitations	<ol style="list-style-type: none"> <li>1. Since the survey estimates are based on a sample survey, they are subject to sampling and non-sampling errors.</li> <li>2. The Migration Survey data is subjected to 95 per cent confidence intervals.</li> </ol>
	History of Data	<ul style="list-style-type: none"> <li>• The first survey was carried out in 1981.</li> <li>• From 1981-1990, data were collected at Peninsular Malaysia level. Data at Peninsular Malaysia level were available for the year 1981, 1982, 1983, 1986, 1987, 1988, 1989 and 1990.</li> <li>• From 1992 onwards, data were collected at Malaysia level.</li> <li>• No survey was carried out in 1991 and 1994.</li> </ul>

Time Series Data Availability	Time series data is available from 1992 to 2013, with the inclusion of 1994 and 2004-2006.
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