

Pelopor Data Statistik Terpercaya Untuk Semua

MEASURING FOOD INSECURITY EXPERIENCE SCALE (FIES) IN INDONESIA

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Food Insecurity

FAO's Voices of the Hungry (VoH) is developing a new global standard for estimating food insecurity prevalence through the use of a tool called the Food Insecurity Experience Scale (FIES).

FIES is a food insecurity severity experience matrix that relies on immediate responses of respondents to questions about their access to adequate food \rightarrow to see the ability to access / obtain food.

Sample units collected in FIES: household or individual.







- 1. Produce timely, reliable and meaningful information about the ability to access food at the individual or household level.
- 2. Easy to apply at low cost in any individual or household survey.
- 3. FIES is a direct measure of food insecurity experienced experienced by people and households.
- 4. Prevalence rates can be compared between countries and cultures.
- 5. Allows for analysis of gender differences in food insecurity when applied at the individual level.
- 6. When included in a large survey, it can provide information for follow-up by policy makers and can be used to identify vulnerable population groups and guide in policy interventions.
- 7. Deepens our understanding of the determinants and consequences of individuals and households affected by food insecurity when used in conjunction with other indicators in large-scale surveys.





- FIES Survey Module (FIES-SM) consists of 8 questions on access to food.
- Questions on FIES-SM focus on their own behaviors and experiences related to the increasing difficulty in accessing food due to resource constraints.



in 2017, Susenas incorporates FIES Questions into the SUSENAS KOR Questionnaire, at the household level

FIES Questions in SUSENAS

SEKARANG SAYA AKAN MENGAJUKAN BEBERAPA PERTANYAAN MENGENAI AKSES TERHADAP MAKANAN.						
DALAM SETAHUN TERAKHIR, APAKAH ADA SAAT DIMANA:						
1501. SELAMA SETAHUN TERAKHIR, APAKAH ANDA/ART LAINNYA KHAWATIR TIDAK AKAN MEMILIKI CUKUP MAKANAN UNTUK DISANTAP KARENA KURANGNYA UANG ATAU SUMBER DAYA LAINNYA?	Ya					
1502. SELAMA SETAHUN TERAKHIR, APAKAH ADA SAAT DI MANA ANDA/ART LAINNYA TIDAK DAPAT MENYANTAP MAKANAN SEHAT DAN BERGIZI KARENA KURANGNYA UANG ATAU SUMBER DAYA LAINNYA?	Ya					
1503. Selama setahun terakhir, apakah Anda/ART lainnya hanya menyantap sedikit jenis makanan karena tidak memiliki uang atau sumber daya lainnya?	Ya					
1504. SELAMA SETAHUN TERAKHIR, APAKAH ANDA/ART LAINNYA PERNAH MELEWATKAN MAKAN PADA SUATU HARI TERTENTU KARENA TIDAK MEMILIKI UANG ATAU SUMBER DAYA LAIN YANG CUKUP UNTUK MENDAPATKAN MAKANAN?	Ya					
1505. SELAMA SETAHUN TERAKHIR, APAKAH ANDA/ART LAINNYA MAKAN LEBIH SEDIKIT DARIPADA SEHARUSNYA KARENA KURANGNYA UANG ATAU SUMBER DAYA LAINNYA?	Ya					
1506. SELAMA SETAHUN TERAKHIR, APAKAH RUMAH TANGGA KEHABISAN MAKANAN KARENA KURANGNYA UANG ATAU SUMBER DAYA LAINNYA?	Ya					
1507. SELAMA SETAHUN TERAKHIR, APAKAH ANDA/ART LAINNYA MERASA LAPAR TAPI TIDAK MAKAN KARENA KURANGNYA UANG ATAU SUMBER DAYA LAINNYA UNTUK MENDAPATKAN MAKANAN?	Ya					
1508. SELAMA SETAHUN TERAKHIR, APAKAH ANDA/ART LAINNYA TIDAK MAKAN SEHARIAN KARENA KURANGNYA UANG ATAU SUMBER DAYA LAINNYA?	Ya					

FIES Questions in SUSENAS

BLOCK XV. ACCESS TO FOOD					
Now I would like to ask you some questions about food. During the	LAST ONE YEAR, WAS THERE A TIME	Wł	HEN:		
1501. DURING THE LAST ONE YEAR, YOU WERE WORRIED YOU WOULD NOT HAVE ENOUGH FOOD TO EAT BECAUSE OF A LACK OF MONEY OR OTHER RESOURCES?	Yes 1 No Do not know 8 Refused	3	5 9		
1502. DURING THE LAST ONE YEAR, YOU WERE UNABLE TO EAT HEALTHY AND NUTRITIOUS FOOD BECAUSE OF A LACK OF MONEY OR OTHER RESOURCES?	Yes 1 No Do not know 8 Refused	3	5 9		
1503. DURING THE LAST ONE YEAR, YOU ATE ONLY A FEW KINDS OF FOODS BECAUSE OF A LACK OF MONEY OR OTHER RESOURCES?	Yes 1 No Do not know 8 Refused	3	5 9		
1504. DURING THE LAST ONE YEAR, YOU HAD TO SKIP A MEAL BECAUSE THERE WAS NOT ENOUGH MONEY OR OTHER RESOURCES TO GET FOOD?	Yes 1 No Do not know 8 Refused	3	5 9		
1505. DURING THE LAST ONE YEAR, YOU ATE LESS THAN YOU THOUGHT YOU SHOULD BECAUSE OF A LACK OF MONEY OR OTHER RESOURCES?	Yes 1 No Do not know 8 Refused	3	5 9		
1506. DURING THE LAST ONE YEAR , YOUR HOUSEHOLD RAN OUT OF FOOD BECAUSE OF A LACK OF MONEY OR OTHER RESOURCES?	Yes 1 No Do not know 8 Refused	3	5 9		
1507. DURING THE LAST ONE YEAR, YOU WERE HUNGRY BUT DID NOT EAT BECAUSE THERE WAS NOT ENOUGH MONEY OR OTHER RESOURCES FOR FOOD?	Yes 1 No Do not know 8 Refused	3	5 9		
1508. DURING THE LAST ONE YEAR, YOU WENT WITHOUT EATING FOR A WHOLE DAY BECAUSE OF A LACK OF MONEY OR OTHER RESOURCES?	Yes 1 No Do not know 8 Refused	3	5 9		



Each respondent's answer will be scored according to the question items, then classified according to:







$$Prob(X_{i,j} = 1) = \frac{\exp(\theta_i - \beta_j)}{1 - \exp(\theta_i - \beta_j)}$$

- The model provides the basis for Estimating the severity parameters associated both with items (i.e., the various experiences mentioned in the questions) and with respondents
- Conducting statistical tests of the strength of association of the responses to the latent trait, and of goodness of fit

fies1

fies5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Tidak	848023	74,9	74,9	74,9
	Ya	284726	25,1	25,1	100,0
	Total	1132749	100,0	100,0	

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Tidak	1021572	90,2	90,2	90,2
	Ya	111177	9,8	9,8	100,0
	Total	1132749	100,0	100,0	

fies2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Tidak	936425	82,7	82,7	82,7
	Ya	196324	17,3	17,3	100,0
	Total	1132749	100,0	100,0	

			fies6		
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Tidak	1069965	94,5	94,5	94,5
	Ya	62784	5,5	5,5	100,0
	Total	1132749	100,0	100,0	

fies3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Tidak	970517	85,7	85,7	85,7
	Ya	162232	14,3	14,3	100,0
	Total	1132749	100,0	100,0	

fies4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Tidak	1083528	95,7	95,7	95,7
	Ya	49221	4,3	4,3	100,0
	Total	1132749	100,0	100,0	

fies7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Tidak	1090273	96,3	96,3	96,3
	Ya	42476	3,7	3,7	100,0
	Total	1132749	100,0	100,0	

fies8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Tidak	1107547	97,8	97,8	97,8
	Ya	25202	2,2	2,2	100,0
	Total	1132749	100,0	100,0	



- Referring to the experience of food insecurity, the percentage of household members who stated "Yes" to each FIES question should be smaller than the questions 1 through 8. Suppose question 1 states "Yes" of 25.1%, greater than the question to 2 which states "Yes" of 17.3%. Similarly, when compared to the second and third questions, the percentage of household member that states "Yes" in the third question is 14.3%, smaller than the second question of 17.3%. Thus up to the eighth question.
- The anomaly occurs in the fourth and fifth questions, the percentage of household member that states "Yes" in the fourth question is 4.3%, smaller than the fifth question of 9.8%. Should answer "Yes" in the fourth question is between 14.3% (third question) and 9.8% (fifth question). This is most likely caused by a fourth question almost similar to the eighth question that many respondents say "No" to the fourth question. This will cause the fourth question location to be closer to the eighth question.

One of the recommendations suggested by FAO related to the anomaly in the fourth question is to provide longer time in the training of officers/surveyor when discussing the FIES and emphasis on the fourth and eighth question explanations so that surveyor and respondents can distinguish the fourth and eighth questions



Pertanyaan	Sev Global Standard	Sev Indonesia	Jarak
1	-1.22305641042655	-3,3003455	2,077289
2	-0.847120973979218	-1,8907132	1,043592
3	-1.1056616195967	-1,3718246	0,266163
4	0.350984786690848	1,3961944	1,04521
5	-0.311799948213288	-0,3927713	0,080971
6	0.506505085808895	0,8331009	0,326596
7	0.754613821163174	1,7048690	0,950255
8	1.87553525855283	3,0214971	1,145962

comparison of Global Standard and Indonesia



- When compared to the global standard, the value in column sev is different from the global standard. Values on the first question in the global standard are around -1,2231 (Indonesia -3,300) and at the eighth question 1.876 (Indonesia 3,0215), so the distance on Global Standard is about 3.1 and Indonesia about 6.3. The intervals are very different (2 times) between global standards and Indonesia, so calibration is required so that Indonesia's output can be compared.
- Comparison of global and Indonesian standard values identifies the need for national calibration of global standards. Calibration is done by standardization

Global standard
Indonesia



Residual pattern



prcomp(rr\$mat.res)

- The residual pattern of the eight questions forms a particular pattern, decreasing regularly and indicating that the residual is not correlated. If the residual plot to eight irregular FIES questions indicates residual correlation between questions.
- The residual plot of the FIES question shows a regular pattern, the first question has the largest residual, then shrinks on the second question and continues to narrow down to the eighth question

Result (4)

Province		Food security status						
		Secure and Mild	Moderate	Severe	Common Item	Reliability	Mean Square (Adjusted)	Standrad Deviation (Adjusted)
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)
11	Aceh	0,8996	0,0840	0,0163	3 - 8	0,7763	0,8498	1,5203
12	Sumatera	0,9063	0,0829	0,0108	3 - 8	0,7900	0,9367	1,8506
13	West Sumatera	0,8877	0,0984	0,0139	2 - 8	0,7849	0,5366	1,8252
14	Riau	0,9105	0,0755	0,0139	3 - 8	0,7801	0,8569	1,5907
15	Jambi	0,9425	0,0517	0,0058	3 - 8	0,7965	1,0023	1,7325
16	Sumatera Selatan	0,9164	0,0745	0,0091	2 - 8	0,7827	0,5257	1,7316
17	Bengkulu	0,9206	0,0675	0,0119	3 - 8	0,7993	1,0025	1,7070
18	Lampung	0,9082	0,0794	0,0124	2 - 8	0,7817	0,5169	1,7469
19	Kep. Bangka Belitung	0,9623	0,0343	0,0034	2 - 8	0,7836	0,5668	1,7713
21	Kepulauan Riau	0,8971	0,0818	0,0211	2 - 8	0,7854	0,4829	1,8718
31	DKI Jakarta	0,9355	0,0495	0,0150	1 - 2; 4 - 7	0,7575	0,2129	1,3875
32	Jawa Barat	0,9101	0,0799	0,0100	2 - 8	0,7957	0,5576	1,9875
33	Jawa Tengah	0,9452	0,0471	0,0077	3 - 8	0,7784	0,8560	1,6076
34	DI Yogyakarta	0,9416	0,0509	0,0075	1 - 2; 5 - 8	0,7644	-0,0601	1,9176
35	Jawa Timur	0,9229	0,0691	0,0080	1 - 2; 5 - 8	0,7755	0,0471	2,2224
36	Banten	0,9127	0,0700	0,0173	3 - 8	0,7743	0,9083	1,3759
51	Bali	0,9249	0,0667	0,0084	2 - 8	0,7827	0,5082	1,8772
52	Nusa Tenggara Barat	0,8690	0,1193	0,0117	3 - 8	0,7935	0,9401	1,7784
53	Nusa Tenggara Timur	0,6821	0,3001	0,0178	1 - 2; 5 - 8	0,8039	-0,0587	2,7214
61	Kalimantan BArat	0,9225	0,0693	0,0082	3 - 8	0,7914	0,9409	1,7849
62	Kalimantan Tengah	0,9140	0,0713	0,0147	3 - 8	0,7923	0,9430	1,6933
63	Kalimantan Selatan	0,9524	0,0422	0,0054	3 - 8	0,7969	0,9995	1,7301
64	Kalimantan Timur	0,9358	0,0527	0,0115	3 - 8	0,7674	0,7609	1,4197
65	Kalimantan Utara	0,8940	0,0927	0,0133	2 - 8	0,7860	0,4239	1,9388
71	Sulawesi Utara	0,8632	0,1118	0,0250	2 - 3; 5 - 8	0,7804	0,3484	1,8155
72	Sulawesi Tengah	0,8579	0,1264	0,0157	3 - 8	0,7905	0,8840	1,7167
73	Sulawesi Selatan	0,9243	0,0653	0,0103	3 - 8	0,7983	0,9832	1,7083
74	Sulawesi Tenggara	0,8553	0,1316	0,0131	1 - 2; 5 - 8	0,7996	-0,1563	2,5135
75	Gorontalo	0,8133	0,1725	0,0142	2 - 8	0,7884	0,5722	1,9425
76	Sulawesi Barat	0,9049	0,0822	0,0129	3 - 8	0,8014	1,0230	1,8365
81	Maluku	0,8305	0,1472	0,0223	1 - 2; 5 - 8	0,7722	-0,0133	1,9808
82	Mauluku Utara	0,8581	0,1154	0,0265	3 - 8	0,7678	0,7642	1,3593
91	Papua Barat	0,8657	0,1092	0,0252	2 - 3, 5 - 8	0,7305	0,1713	1,2440
94	Рариа	0,8405	0,1176	0,0420	1, 3 - 8	0,7300	0,2840	1,1543
Indonesia			0.08451718	0.01126165	2-5-6-7-8			





- Must conduct household survey
- Culture may effect the answer of the respondent (eq. between provinces), need further study
- Respondent difficult to distinguish between question (eq. between question 4 & 8)
- Educational level, sex, type of area may also effect the answer of the respondent
- As a new indicator, need a massive socialiation to allstakeholder



For Detailed Information on FIES and POU of Indonesia Please contact:

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