Lampiran 1. Data yang digunakan

TAHUN	TREN	LAMMSI	IHK	HRDMSI	HRDKI	SBRBI	HPUD	CUHUJI	PMSI	HRDMGSI	KPMGI
1998	1	3631.30	35.23	13982.40	17678.12	49.31	83.22	70.00	1.48	13085.50	3000.00
1999	2	3676.80	42.45	7279.15	10537.10	22.27	66.02	128.00	1.76	9512.96	3500.00
2000	3	3742.10	44.02	5479.33	11687.87	12.54	100.93	177.00	1.87	7865.38	3500.00
2001	4	4713.43	49.08	4525.26	11609.62	16.61	96.45	183.00	1.78	7515.79	7217.88
2002	5	5067.06	54.92	5660.96	11504.01	14.95	94.42	196.00	1.90	8320.63	8765.00
2003	6	5283.56	58.63	6317.58	16310.76	9.94	138.19	181.00	1.98	8676.51	9703.24
2004	7	5717.03	62.18	6588.94	17426.83	7.42	174.91	202.00	2.16	8873.21	10266.99
2005	8	5950.32	68.68	5473.21	17035.53	9.25	217.35	314.00	2.46	7599.07	11222.30
2006	9	6284.96	77.69	4633.80	16471.88	11.83	222.14	63.00	2.64	7059.15	11280.00
2007	10	6853.92	82.67	7188.82	12138.62	8.60	307.11	193.00	2.60	10124.00	12200.00
2008	11	7333.71	91.12	7796.31	6154.52	8.67	514.98	190.00	2.65	11084.17	12350.00
2009	12	7949.39	95.12	6379.31	6921.78	7.14	251.08	120.00	2.69	9305.97	15430.00
2010	13	8548.83	100.00	10893.00	11928.00	6.50	288.91	157.00	2.62	11435.58	15430.00
2011	14	9132.30	105.36	10041.76	12162.11	6.00	398.97	125.00	2.63	12252.20	15430.00
2012	15	10133.32	109.86	8564.54	10221.19	5.77	398.58	115.00	2.57	11942.02	15430.00
2013	16	10465.02	116.91	6521.26	8994.95	6.47	339.62	198.00	2.65	10786.36	17890.00
2014	17	10754.80	124.39	8105.96	7131.60	7.54	308.44	75.00	2.72	11031.50	18760.00
2015	18	11260.28	132.30	5548.00	6918.37	7.52	277.94	59.00	2.76	10349.46	19054.30
2016	19	11201.47	136.97	5426.74	5422.36	6.00	194.13	253.00	2.81	10118.22	19054.30
2017	20	12383.10	142.18	6243.49	5189.20	4.55	213.04	267.00	2.82	13463.89	19054.30
2018	21	14326.35	146.73	4730.46	6250.26	5.10	249.45	165.00	2.99	9421.88	23188.55
2019	22	14456.61	151.18	4300.17	5681.31	5.63	245.28	165.00	3.26	14508.33	24887.15
2020	23	14586.60	154.08	4219.24	5306.98	4.25	229.10	186.00	3.14	15441.67	26710.18
2021	24	14621.69	156.48	8717.41	6072.34	3.52	483.20	196.00	3.09	17829.17	28666.75
2022	25	15338.56	163.07	6345.74	5243.15	4.00	700.02	196.00	3.05	18312.50	30776.64

TAHUN	HRMSD	HRDMI	KPMI	PdMSIS	HRDSI	KPSI	PdMSIL	HRBD	EMSI	LSMSI	HREMSI
1998	671.08	19491.91	357.90	205.61	4475.70	430.35	200.00	2.11	403.84	0.25	546.34
1999	365.43	20329.80	357.90	246.14	4728.60	430.35	230.00	2.15	865.43	0.20	311.97
2000	310.25	20688.32	357.90	294.60	3694.91	430.35	260.00	2.13	1817.66	0.39	262.12
2001	287.46	19979.63	357.90	289.02	3368.03	430.35	280.00	2.96	1849.14	0.66	219.78
2002	410.90	16582.30	432.00	398.87	3102.59	430.35	430.00	1.52	2804.79	0.50	318.03
2003	476.70	18577.52	432.00	308.20	2906.40	430.35	470.00	2.24	2892.13	0.71	367.28
2004	499.30	23000.96	432.00	349.90	2739.79	678.00	510.00	1.88	3819.93	1.00	378.13
2005	450.57	25786.26	455.20	332.97	2210.28	678.00	300.00	2.06	4565.63	0.95	348.98
2006	508.30	22835.63	455.20	343.81	1998.97	1232.50	400.00	1.97	5199.29	0.93	383.45
2007	816.70	27423.49	455.20	369.70	2255.32	1232.50	650.00	2.15	5701.29	1.93	655.76
2008	1042.92	30290.83	455.20	391.84	2400.13	1232.50	800.00	2.97	7904.18	1.39	830.11
2009	741.15	33762.62	455.20	324.11	2493.69	1232.50	1250.00	1.69	9566.75	1.05	596.04
2010	933.02	32386.00	455.20	353.40	2362.01	1232.50	1800.00	2.20	9444.17	1.02	810.02
2011	1193.37	31693.24	800.00	414.50	2321.56	1232.50	2300.00	3.02	8424.04	1.99	1041.90
2012	1043.40	31267.07	800.00	468.31	2291.10	1232.50	3000.00	3.11	7252.52	2.79	920.58
2013	870.73	30827.13	800.00	527.77	2194.85	1232.50	4000.00	3.02	6584.73	3.12	756.07
2014	837.47	31325.67	800.00	563.25	2168.98	1232.50	1850.00	2.80	5726.82	2.91	734.57
2015	663.39	31875.28	800.00	463.64	2243.39	1232.50	3700.00	1.66	7788.55	2.89	563.40
2016	735.70	31750.02	800.00	602.40	2222.38	2836.37	3500.00	1.35	5283.95	2.86	625.59
2017	750.90	33154.45	800.00	628.62	2293.57	3600.00	5725.00	1.66	7076.06	2.11	663.96
2018	638.66	37843.66	828.08	654.78	2228.13	2373.78	7450.00	2.09	6554.50	3.09	545.71
2019	601.61	40275.17	875.12	698.28	2251.39	2487.89	8300.00	1.77	7401.80	2.91	492.00
2020	753.83	43331.39	905.83	744.67	2299.82	2607.83	9200.00	1.25	7169.59	4.58	661.62
2021	1117.88	46786.17	937.63	794.15	2357.66	2733.55	10500.00	2.07	2498.06	5.50	1078.27
2022	1275.99	49229.17	970.54	846.38	2355.28	2865.32	11500.00	3.72	3462.82	7.75	984.78

TAHUN	NTRTD	PEMSI	FKMSMMG	PdMSIMG	PdMGSI	GDPI	POPI	EMGSID	HREMGSI	NTRTD	FKMSMM
1998	8025.00	40.00	0.90	2674.79	1787.47	95445.55	207.90	107.54	4878.59	8025.00	0.70
1999	7100.00	7.50	0.90	1901.20	1789.84	140001.35	211.00	243.36	3469.16	7100.00	0.70
2000	9595.00	4.00	0.90	1624.06	1745.86	165021.01	214.10	229.24	2664.63	9595.00	0.70
2001	10265.67	3.00	0.90	1577.46	1826.97	160446.95	217.30	305.41	2208.50	10265.67	0.70
2002	9261.17	3.00	0.90	1659.70	1853.03	195660.61	220.10	352.89	3401.64	9261.17	0.70
2003	8571.17	3.00	0.90	1737.56	1975.84	234772.46	223.10	349.43	3984.81	8571.17	0.70
2004	9030.42	3.00	0.90	1835.16	1925.81	256836.88	225.90	484.17	4125.32	9030.42	0.70
2005	9750.58	2.25	0.90	1944.27	2032.59	285868.62	228.80	581.06	3722.49	9750.58	0.70
2006	9141.25	1.50	0.90	2034.74	2242.59	364570.52	231.80	690.16	4091.77	9141.25	0.70
2007	9142.42	6.00	0.90	2250.77	2019.58	432216.74	234.90	617.41	6689.21	9142.42	0.70
2008	9771.67	3.25	0.90	2435.55	2027.69	510228.63	237.90	638.65	9103.95	9771.67	0.70
2009	10356.17	1.50	0.90	2621.42	1983.16	539580.09	241.00	726.25	6424.09	10356.17	0.70
2010	9078.25	6.00	0.90	2949.31	2075.29	755094.16	244.00	684.77	8497.74	9078.25	0.70
2011	8773.25	16.50	0.90	3459.22	2113.28	892969.10	247.10	801.22	10589.14	8773.25	0.70
2012	9418.58	10.50	0.90	3908.28	2253.18	917869.91	250.20	1159.25	9424.77	9418.58	0.70
2013	10562.67	10.50	0.90	4404.49	2195.18	912524.14	253.30	1399.32	7761.14	10562.67	0.70
2014	11884.50	9.00	0.90	4700.58	2315.06	890814.76	256.20	1716.56	7723.68	11884.50	0.70
2015	13457.58	0.00	0.90	3869.35	2551.26	860854.23	259.10	1867.90	5887.46	13457.58	0.70
2016	13329.83	0.00	0.90	5027.36	2664.74	931877.36	261.90	1747.54	6328.81	13329.83	0.70
2017	13398.17	0.00	0.90	5246.13	2698.57	1015618.74	264.50	2027.77	6813.02	13398.17	0.70
2018	14267.33	0.00	0.90	5094.05	2560.82	1042271.53	267.10	2133.97	6068.98	14267.33	0.70
2019	14131.58	0.00	0.90	5335.86	2598.34	1119099.87	269.60	2087.76	5304.53	14131.58	0.70
2020	14625.25	0.00	0.90	5589.14	2636.41	1059054.84	271.90	1876.55	6725.30	14625.25	0.70
2021	14344.92	6.90	0.90	5854.45	2831.24	1186505.46	273.80	2303.39	10407.07	14344.92	0.70
2022	14196.75	43.95	0.90	6132.35	2714.23	1319100.22	273.80	2154.61	11304.00	14196.75	0.70

TAHUN	PdMSIM	PdMI	EMID	HREMI	FKMSMS	PdSI	ESID	HRESI	DKEIND
1998	142.61	13.55	77.25	491.86	0.65	142.25	59.84	864.26	1.00
1999	111.36	14.68	75.18	626.59	0.65	144.89	109.85	843.93	0.00
2000	124.70	14.85	80.32	328.12	0.65	134.55	111.77	863.15	0.00
2001	131.12	12.05	74.39	392.96	0.65	196.76	129.90	761.77	0.00
2002	147.44	10.19	101.13	463.96	0.65	147.91	157.09	759.42	0.00
2003	143.41	11.36	99.47	527.54	0.65	158.45	138.86	855.77	0.00
2004	146.91	12.57	98.07	483.44	0.65	170.49	160.99	831.91	0.00
2005	149.29	15.94	96.98	446.55	0.65	216.70	158.70	871.91	0.00
2006	156.23	16.17	87.20	474.32	0.65	242.98	163.42	848.70	0.00
2007	172.82	19.68	74.00	704.24	0.65	216.59	167.33	1004.35	0.00
2008	187.01	13.31	86.14	908.86	0.65	231.40	198.22	1244.26	1.00
2009	201.28	11.25	70.25	696.66	0.65	466.45	208.03	1163.34	1.00
2010	226.46	12.55	76.04	854.16	0.65	319.90	210.00	1220.22	0.00
2011	265.61	13.94	80.11	1028.23	0.65	351.76	241.27	1311.27	0.00
2012	300.09	9.42	73.95	972.00	0.65	440.48	278.26	1357.12	0.00
2013	338.19	10.75	80.20	836.82	0.65	517.71	328.16	1245.82	0.00
2014	360.92	12.10	97.18	852.92	0.65	558.19	323.09	1227.12	0.00
2015	297.10	17.17	79.82	704.72	0.65	713.20	275.15	1136.22	0.00
2016	386.01	17.38	89.99	734.54	0.65	684.94	318.75	892.12	0.00
2017	402.81	28.92	106.13	763.40	0.65	655.27	273.63	1108.76	0.00
2018	415.34	15.21	111.53	714.96	0.65	714.09	250.31	1068.06	0.00
2019	441.76	14.87	112.06	633.89	0.65	762.26	177.25	1192.86	1.00
2020	469.86	14.54	126.44	723.34	0.65	813.69	173.68	1290.78	1.00
2021	499.75	14.21	116.00	965.49	0.65	868.58	141.06	1422.04	0.00
2022	531.54	13.89	109.86	1140.22	0.65	927.18	145.04	1736.96	0.00

Lampiran 2. Program estimasi model permintaan dan penawaran minyak sawit (CPO) dan produk turunan indonesia di pasar domestik dan dunia

```
OPTION NODATE NONUMBER;

/*
Libname Latih 'D:\MAGISTER';
*/


/*PROC IMPORT DATAFILE="D:\ASIFA\DATA PENELITIAN ASIFA.xls" OUT=DATA
REPLACE;
SHEET="DATA";
GETNAMES=YES;
run;
*/

DATA ESTIMASI;
SET DATA;
/*MERESPESIFIKASIKAN VARIABEL*/
/*Membuat Variabel Baru*/
PIMSI = LAMMSI * PMSI;
TPdMSIN = PdMSIMG + PdMSIM + PdMSIS + PdMSIL;
PsDMSI = PIMSI - EMSI + LSMSI;
PDEMSI = EMSI * HREMSI * NTRTD;
PIMGI = PdMSIMG * FKMSMMG;
PsMGSI = PIMGI - EMGSID;
PDEMGSI = EMGSID * HREMGSI * NTRTD;
PIMI = PdMSIM * FKMSMM;
PsMI = PIMI - EMID;
PDEMI = EMID * HREMI * NTRTD;
PISI = PdMSIS * FKMSMS;
PsSI = PISI - ESID;
PDESI = ESID * HRESI * NTRTD;

/*Membuat Variabel Riil*/
PHRESI = (DHRESI/LHRESI)*100;
PPsMGSI = (DPsMGSI/LPsMGSI)*100;

/*Creating Variabel Lag Endogen*/
LLAMMSI = LAG(LAMMSI);
LPMSI = LAG(PMSI);
LPdMSIMG = LAG(PdMSIMG);
LPdMSIM = LAG(PdMSIM);
LPdMSIS = LAG(PdMSIS);
LPdMSIL = LAG(PdMSIL);
LHRDMSI = LAG(HRDMSI);
LEMSI = LAG(EMSI);
LPdMGSI = LAG(PdMGSI);
LHRDMGSI = LAG(HRDMGSI);
LEMGSID = LAG(EMGSID);
LPdMI = LAG(PdMI);
LHRDMI = LAG(HRDMI);
LEMID = LAG(EMID);
```

```
LPdSI = LAG(PdSI);
LHRDSI = LAG(HRDSI);
LESID = LAG(ESID);

/*Mentranformasikan Variabel*/
LHREMSI = LAG(HREMSI);
LSBRBI = LAG (SBRBI);
LKPMGI = LAG (KPMGI);
LHRDMSI = LAG(HRDMSI);
LHREMI = LAG (HREMI);
LHRESI = LAG (HRESI);
LPISI = LAG (PISI);
LSBRBI= LAG(SBRBI);
LHREMGSI = LAG(HREMGSI);
DHRDMSI = HRDMSI-LHRDMSI;
DHREMSI = HREMSI-LHREMSI;
DHREMI = HREMI-LHREMI;
GDP_POP = GDPI/POPI;
DHRDSI = HRDSI-LHRDSI;
DHRESI = HRESI-LHRESI;
RHRESI = HRESI/LHRESI;
DPISI = PISI-LPISI;
DPdMGSI = PdMGSI-LPdMGSI;
LPsMGSI = LAG(PsMGSI);
DPsMGSI = PsMGSI-LPsMGSI;
RPsMGSI = PsMGSI/LPsMGSI;
LTPdMSIN = LAG(TPdMSIN);

/*MEMBUAT DESKRIPSI VARIABEL*/
Label
/* Blok Minyak Sawit Mentah */
LAMMSI = "Luas Areal Menghasilkan Minyak Sawit Indonesia (juta ha)"
HRDMSI = "Harga Riil Domestik Minyak Sawit Indonesia (Rp/ton)"
DHRDMSI = "Selisih Harga Riil Domestik Minyak Sawit Indonesia tahun t dengan tahun t-1
(Rp/ton)"
HRMSD = "Harga Riil Minyak Sawit Dunia (US$/ton)"
HRDKI = "Harga Riil Domestik Karet Indonesia (Rp/ton)"
SBRBI = "Suku Bunga Riil Bank Indonesia (%)"
HPUD = "Harga Pupuk Urea Dunia ($/ton)"
LLAMMSI = "Luas Areal Menghasilkan Minyak Sawit Indonesia tahun t-1(juta ha)"
PMSI = "Produktivitas Minyak Sawit Indonesia (ton/ha)"
CUHUJI = "Curah Hujan Indonesia (hari hujan)"
LPMSI = "Produktivitas Minyak Sawit Indonesia tahun t-1 (ton/ha)"
PIMSI = "Produksi Minyak Sawit Indonesia (000 ton)"
TPdMSIN = "Total Permintaan Minyak Sawit Indonesia (000 ton)"
LTPdMSIN = "Total Permintaan Minyak Sawit Indonesia tahun t-1 (000 ton)"
PdMSIMG = "Permintaan Minyak Sawit oleh Industri Minyak Goreng (000 ton)"
PdMSIM = "Permintaan Minyak Sawit oleh Industri Margarin (000 ton)"
PdMSIS = "Permintaan Minyak Sawit oleh Industri Sabun (000 ton)"
/*PdMSIL = "Permintaan Minyak Sawit oleh Industri Lainnya (000 ton)"*/
HRDMGSI = "Harga Riil Domestik Minyak Goreng Indonesia (Rp/ton)"
KPMGI = "Kapasitas Produksi Minyak Goreng Indonesia (ton)"
LPdMSIMG = "Permintaan Minyak Sawit oleh Industri Minyak Goreng tahun t-1 (000 ton)"
HRDMI = "Harga Riil Domestik Margarin Indonesia (Rp/ton)"
KPMI = "Kapasitas Produksi Margarin Indonesia (ton)"
HRDSI = "Harga Riil Domestik Sabun Indonesia (Rp/ton)"
KPSI = "Kapasitas Produksi Sabun Indonesia (ton)"
HRBD = "Harga Riil Biodiesel Dunia (US$/ton)"
```

PsDMSI = "Penawaran Domestik Minyak Sawit Indonesia (000 ton)"
EMSI = "Ekspor Minyak Sawit Indonesia (000 ton)"
HREMSI = "Harga Riil Ekspor Minyak Sawit Indonesia (US$/ton)"
DHREMSI = "Selisih Harga Riil Ekspor Minyak Sawit Indonesia tahun t dengan tahun t-1 (US$/ton)"
NTRTD = "Nilai Tukar Rupiah terhadap Dollar (Rp/US$)"
PEMSI = "Pajak Ekspor Minyak Sawit Indonesia(%)"
PDEMSI = "Penerimaan Devisa Ekspor Minyak Sawit Indonesia (Rp)"
LPdMSIM = "Permintaan Minyak Sawit oleh Industri Margarin tahun t-1 (000 ton)"
LPdMSIS = "Permintaan Minyak Sawit oleh Industri Sabun tahun t-1 (000 ton)"
LPdMSIL = "Permintaan Minyak Sawit oleh Industri Lainnya tahun t-1 (000 ton)"
LSMSI = "Stok Minyak Sawit Indonesia tahun t-1 (000 ton)"
LHRDMSI = "Harga Riil Domestik Minyak Sawit Indonesia tahun t-1 (Rp/ton)"
LEMSI = "Ekspor Minyak Sawit Indonesia tahun t-1 (000 ton)"
LHREMSI = "Harga Riil Ekspor Minyak Sawit Indonesia tahun t-1 (US$/ton)"
/* Blok Minyak Goreng */
PIMGI = "Produksi Minyak Goreng Indonesia (000 ton)"
FKMSMMG = "Faktor Konversi Minyak Sawit menjadi Minyak Goreng"
PdMGSI = "Permintaan Minyak Goreng Sawit di Indonesia (000 ton)"
GDPI = "GDP Indonesia (juta US$)"
POPI = "Populasi Indonesia (juta jiwa)"
GDP_POP = "Rata-rata Pendapatan per Kapita Indonesia (juta US$/juta jiwa)"
PsMGSI = "Penawaran Minyak Goreng Sawit di Indonesia (000 ton)"
EMGSID = "Ekspor Minyak Goreng Sawit Indonesia ke Dunia (000 ton)"
HREMGSI = "Harga Riil Ekspor Minyak Goreng Sawit Indonesia (US$/ton)"
LHREMGSI = "Harga Riil Ekspor Minyak Goreng Sawit Indonesia tahun t-1 (US$/ton)"
PDEMGSI = "Penerimaan Devisa Ekspor Minyak Goreng Sawit Indonesia (Rp)"
LPdMGSI = "Permintaan Minyak Goreng Sawit di Indonesia tahun t-1 (000 ton)"
LHRDMGSI = "Harga Riil Domestik Minyak Goreng Sawit Indonesia tahun t-1 (US$/ton)"
LEMGSID = "Ekspor Minyak Goreng Sawit Indonesia ke Dunia tahun t-1 (000 ton)"
TREN = "Tren Waktu"
/* Blok Margarin */
PIMI = "Produksi Margarin Indonesia (000 ton)"
FKMSMM = "Faktor Konversi Minyak Sawit menjadi Margarin"
PdMI = "Permintaan Margarin Indonesia (000 ton)"
PsMI = "Penawaran Margarin Indonesia (000 ton)"
EMID = "Ekspor Margarin Indonesia (000 ton)"
HREMI = "Harga Riil Ekspor Margarin Indonesia (US$/ton)"
DHREMI = "Selisih Harga Riil Ekspor Margarin Indonesia tahun t dan tahun t-1 (US$/ton)"
PDEMI = "Penerimaan Devisa Ekspor Margarin Indonesia (Rp)"
LPdMI = "Permintaan Margarin Indonesia tahun t-1 (000 ton)"
LHRDMI = "Harga Riil Domestik Margarin Indonesia tahun t-1 (Rp/kg)"
LEMID = "Ekspor Margarin Indonesia tahun t-1 (000 ton)"
/* Blok Sabun */
PISI = "Produksi Sabun Indonesia (000 ton)"
FKMSMS = "Faktor Konversi Minyak Sawit Menjadi Sabun"
PdSI = "Permintaan Sabun Indonesia (000 ton)"
PsSI = "Penawaran Sabun Indonesia (000 ton)"
ESID = "Ekspor Sabun Indonesia ke Dunia (000 ton)"
HRESI = "Harga Riil Ekspor Sabun Indonesia (US$/ton)"
LHRESI = "Harga Riil Ekspor Sabun Indonesia tahun t-1 (US$/ton)"
PDESI = "Penerimaan Devisa Ekspor Sabun Indonesia"
LPdSI = "Permintaan Sabun Indonesia tahun t-1 (000 ton)"
LHRDSI = "Harga Riil Domestik Sabun Indonesia tahun t-1 (Rp/ton)"
DHRDSI = "Selisih Harga Riil Domestik Sabun Indonesia tahun t dengan tahun t-1 (Rp/ton)"
LESID = "Ekspor Sabun Indonesia ke Dunia tahun t-1 (000 ton)";
RUN;

PROC SYSLIN SIMPLE **2**SLS DATA=ESTIMASI OUTEST=HASIL;

ENDOGENOUS
LAMMSI PMSI PIMSI TPdMSIN PdMSIMG PdMSIM PdMSIS /*PdMSIL*/ PsDMSI HRDMSI EMSI /*HREMSI*/ PDEMSI PIMGI PdMGSI PsMGSI HRDMGSI
EMGSID PDEMGSI PIMI PdMI PsMI EMID HRDMI PDEMI PISI PdSI PsSI HRDSI ESID PDESI;

INSTRUMENTS
HRDKI SBRBI HPUD CUHUJI KPMGI KPMI KPSI HRBD LSMSI NTRTD PEMSI FKMSMMG FKMSMM GDPI POPI
HREMGSI HREMI FKMSMS HRESI LLAMMSI LPMSI
LPdMSIM LPdMSIS LPdMSIL LHRDMSI LHREMSI LPdMGSI LHRDMGSI LEMGSID LPdMI LHRDMI LEMID LPdSI LHRDSI LESID;

/*PERSAMAAN YANG DIGUNAKAN*/
/* Blok Minyak Sawit Mentah*/
/* 1. Luas Areal Menghasilkan Minyak Sawit*/
Model LAMMSI = LHRDMSI HRDKI SBRBI HPUD LLAMMSI /DW;

/*2. Produktivitas Minyak Sawit (CPO) Indonesia*/
MODEL PMSI = /*LAMMSI*/ DHRDMSI /*CUHUJI*/ /*SBRBI*/ TREN /*LPMSI*/ /DW;

/* 3. Produksi Minyak Sawit (CPO) Indonesia*/
IDENTITY PIMSI = PIMSI+**0**;

/* 4. Permintaan CPO di Indonesia*/
IDENTITY TPdMSIN = PdMSIMG + PdMSIM + PdMSIS + PdMSIL;

/*5. Permintaan Minyak Sawit (CPO) oleh Industri Minyak Goreng Indonesia*/
MODEL PdMSIMG = HRDMGSI KPMGI LHRDMSI /*LSBRBI*/ LPdMSIMG /DW;

/*6. Permintaan Minyak Sawit (CPO) oleh Industri Margarin Indonesia*/
MODEL PdMSIM = HRDMI KPMI HRDMSI /*SBRBI*/ LPdMSIM /DW;

/*7. Permintaan Minyak Sawit (CPO) oleh Industri Sabun Indonesia*/
MODEL PdMSIS = HRDSI KPSI LHRDMSI SBRBI LPdMSIS /DW;

/*8. Permintaan Minyak Sawit (CPO) oleh Industri Lainnya Indonesia*/
/*MODEL PdMSIL = HRBD HRDMSI /*LSBRBI*/ /*TREN*/ /*LPdMSIL*/ /*/DW;*/

/*9. Penawaran Domestik Minyak Sawit (CPO) Indonesia*/
IDENTITY PsDMSI = PIMSI - EMSI + LSMSI;

/*10. Harga Riil Domestik Minyak Sawit (CPO) Indonesia*/
MODEL HRDMSI = LTPdMSIN PsDMSI /*HRMSD*/ HREMSI /*TREN*/ LHRDMSI /DW;

/*11. Ekspor Minyak Sawit (CPO) Indonesia*/
MODEL EMSI = PIMSI HREMSI PEMSI /*NTRTD*/ /*HRMSD*//*HRDMSI*/ /*TPdMSIN*/ /*SBRBI*/ /*TREN*/ /*LEMSI*/ /DW;

/*12. Harga Riil Ekspor Minyak Sawit (CPO) Indonesia*/
/*MODEL HREMSI = EMSI /*HRMSD*/ /*PEMSI*/ /*TREN*/

/*12. Penerimaan Devisa Ekspor Minyak Sawit (CPO) Indonesia*/
IDENTITY PDEMSI = PDEMSI+**0**;

/* Blok Minyak goreng */

```
/*1. Produksi Minyak Goreng Sawit Indonesia*/
IDENTITY PIMGI = PIMGI+0;

/*2. Permintaan Minyak Goreng Sawit Indonesia*/
MODEL PdMGSI = HRDMGSI /*GDP_POP*/ /*GDPI*/ POPI /*TREN*/ LPdMGSI /DW;

/*3. Penawaran Minyak Goreng Sawit Indonesia*/
IDENTITY PsMGSI = PIMGI - EMGSID;

/*4. Harga Riil Minyak Goreng Sawit Indonesia*/
MODEL HRDMGSI = /*DPdMGSI*/ DPsMGSI TREN /*LHRDMGSI*/ /DW;

/*5. Ekspor Minyak Goreng Sawit Indonesia*/
MODEL EMGSID = LHREMGSI PIMGI NTRTD LEMGSID /DW;

/*6. Penerimaan Devisa Ekspor Minyak Goreng Sawit Indonesia*/
IDENTITY PDEMGSI = PDEMGSI+0;

/*Blok Margarin*/
/*1. Produksi Margarin Indonesia*/
IDENTITY PIMI = PIMI+0;

/*2. Permintaan Margarin Indonesia*/
MODEL PdMI = HRDMI /*HREMI*/ /*GDPI*/ POPI /*GDP_POP*/ /*RPKGDPI*/ /*TREN*/
LPdMI /DW;

/*3. Penawaran Margarin Indonesia*/
IDENTITY PsMI = PIMI - EMID;

/*4. Harga Riil Margarin Indonesia*/
MODEL HRDMI = PdMI PsMI HREMI TREN LHRDMI /DW;

/*5. Ekspor Margarin Indonesia*/
MODEL EMID = DHREMI PIMI TREN NTRTD LEMID /DW;

/*6. Penerimaan Devisa Ekspor Margarin Indoensia*/
IDENTITY PDEMI = PDEMI+0;

/*Blok Sabun*/
/*1. Produksi Sabun Indonesia*/
IDENTITY PISI = PISI+0;

/*2. Permintaan Sabun Indonesia*/
MODEL PdSI = DHRDSI /*GDPI POPI*/ GDP_POP /*RPKGDPI*/ /*TREN*/ /*LPdSI*/ /DW;

/*3. Penawaran Sabun Indonesia*/
IDENTITY PsSI = PISI - ESID;

/*4. Harga Riil Sabun Indonesia*/
MODEL HRDSI = PdSI PsSI LHRDSI /DW;

/*5. Ekspor Sabun Indonesia*/
MODEL ESID = /*HRESI*/ PISI NTRTD /*TREN*/ /*LESID*/ /DW;

/*6. Penerimaan Devisa Ekspor Sabun Indonesia*/
IDENTITY PDESI = PDESI+0;

RUN;
```

Lampiran 3. Hasil estimasi model permintaan dan penawaran minyak sawit (CPO) dan produk turunan indonesia di pasar domestik dan dunia

---

The SAS System

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	LAMMSI
Dependent Variable	LAMMSI
Label	Luas Areal Menghasilkan Minyak Sawit Indonesia (juta ha)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	5	3.2414E8	64828514	284.52	<.0001
Error	18	4101359	227853.3		
Corrected Total	23	3.2824E8			

Root MSE	477.33982	**R-Square**	0.98751
Dependent Mean	9157.55042	**Adj R-Sq**	0.98403
Coeff Var	5.21253		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variable Label
Intercept	1	1634.877	1193.924	1.37	0.1877	Intercept
LHRDMSI	1	0.022412	0.050301	0.45	0.6612	Harga Riil Domestik Minyak Sawit Indonesia tahun t-1 (Rp/ton)
HRDKI	1	-0.03389	0.039877	-0.85	0.4066	Harga Riil Domestik Karet Indonesia (Rp/ton)
SBRBI	1	-51.8957	44.32696	-1.17	0.2570	Suku Bunga Riil Bank Indonesia (%)
HPUD	1	-0.13566	0.964665	-0.14	0.8897	Harga Pupuk Urea Dunia ($/ton)
LLAMMSI	1	0.942767	0.064229	14.68	<.0001	Luas Areal Menghasilkan Minyak Sawit Indonesia tahun t-1(juta ha)

Durbin-Watson	2.01729
Number of Observations	24
First-Order Autocorrelation	-0.01736

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	PMSI
Dependent Variable	PMSI
Label	Produktivitas Minyak Sawit Indonesia (ton/ha)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	3.887926	1.943963	73.53	<.0001
Error	21	0.555207	0.026438		
Corrected Total	23	4.443133			

Root MSE	0.16260	**R-Square**	0.87504
Dependent Mean	2.56667	**Adj R-Sq**	0.86314
Coeff Var	6.33503		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variable Label
Intercept	1	1.800172	0.075261	23.92	<.0001	Intercept
DHRDMSI	1	0.000013	0.000015	0.85	0.4022	Selisih Harga Riil Domestik Minyak Sawit Indonesia tahun t dengan tahun t-1 (Rp/ton)
TREN	1	0.057078	0.004915	11.61	<.0001	Tren Waktu

Durbin-Watson	0.590574
Number of Observations	24
First-Order Autocorrelation	0.681018

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	PdMSIMG
Dependent Variable	PdMSIMG
Label	Permintaan Minyak Sawit oleh Industri Minyak Goreng (000 ton)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	55679552	13919888	112.06	<.0001
Error	19	2360052	124213.3		
Corrected Total	23	58039604			

Root MSE	352.43903	**R-Square**	0.95934
Dependent Mean	3466.35361	**Adj R-Sq**	0.95078
Coeff Var	10.16743		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variable Label
Intercept	1	-62.0639	365.9638	-0.17	0.8671	Intercept
HRDMGSI	1	0.014940	0.046422	0.32	0.7511	Harga Riil Domestik Minyak Goreng Indonesia (Rp/ton)
KPMGI	1	0.066305	0.030962	2.14	0.0454	Kapasitas Produksi Minyak Goreng Indonesia (ton)
LHRDMSI	1	-0.00651	0.037498	-0.17	0.8640	Harga Riil Domestik Minyak Sawit Indonesia tahun t-1 (Rp/ton)
LPdMSIMG	1	0.710437	0.128722	5.52	<.0001	Permintaan Minyak Sawit oleh Industri Minyak Goreng tahun t-1 (000 ton)

Durbin-Watson	2.140131
Number of Observations	24
First-Order Autocorrelation	-0.0908

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	PdMSIM
Dependent Variable	PdMSIM
Label	Permintaan Minyak Sawit oleh Industri Margarin (000 ton)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	408290.3	102072.6	181.31	<.0001
Error	19	10696.56	562.9767		
Corrected Total	23	418986.9			

Root MSE	23.72713	**R-Square**	0.97447
Dependent Mean	275.29232	**Adj R-Sq**	0.96910
Coeff Var	8.61889		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variable Label
Intercept	1	-63.4760	28.10319	-2.26	0.0359	Intercept
HRDMI	1	0.002788	0.001466	1.90	0.0724	Harga Riil Domestik Margarin Indonesia (Rp/ton)
KPMI	1	0.182551	0.070222	2.60	0.0176	Kapasitas Produksi Margarin Indonesia (ton)
HRDMSI	1	-0.00167	0.003213	-0.52	0.6096	Harga Riil Domestik Minyak Sawit Indonesia (Rp/ton)
LPdMSIM	1	0.575092	0.167800	3.43	0.0028	Permintaan Minyak Sawit oleh Industri Margarin tahun t-1 (000 ton)

Durbin-Watson	2.673511
Number of Observations	24
First-Order Autocorrelation	-0.351

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	PdMSIS
Dependent Variable	PdMSIS
Label	Permintaan Minyak Sawit oleh Industri Sabun (000 ton)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	5	660137.6	132027.5	47.07	<.0001
Error	18	50485.12	2804.729		
Corrected Total	23	710622.7			

Root MSE	52.95969	**R-Square**	0.92896
Dependent Mean	475.38858	**Adj R-Sq**	0.90922
Coeff Var	11.14029		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variable Label
Intercept	1	14.54255	82.92560	0.18	0.8627	Intercept
HRDSI	1	0.018900	0.035498	0.53	0.6009	Harga Riil Domestik Sabun Indonesia (Rp/ton)
KPSI	1	0.051028	0.022256	2.29	0.0341	Kapasitas Produksi Sabun Indonesia (ton)
LHRDMSI	1	-0.00062	0.005382	-0.12	0.9093	Harga Riil Domestik Minyak Sawit Indonesia tahun t-1 (Rp/ton)
SBRBI	1	-1.12177	5.897577	-0.19	0.8513	Suku Bunga Riil Bank Indonesia (%)
LPdMSIS	1	0.782283	0.131144	5.97	<.0001	Permintaan Minyak Sawit oleh Industri Sabun tahun t-1 (000 ton)

Durbin-Watson	2.574053
Number of Observations	24
First-Order Autocorrelation	-0.29628

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	HRDMSI
Dependent Variable	HRDMSI
Label	Harga Riil Domestik Minyak Sawit Indonesia (Rp/ton)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	56528978	14132245	17.49	<.0001
Error	19	15352523	808027.5		
Corrected Total	23	71881501			

Root MSE	898.90351	**R-Square**	0.78642
Dependent Mean	6540.85167	**Adj R-Sq**	0.74145
Coeff Var	13.74291		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variable Label
Intercept	1	4201.825	845.0343	4.97	<.0001	Intercept
LTPdMSIN	1	0.264401	0.250692	1.05	0.3048	Total Permintaan Minyak Sawit Indonesia tahun t-1 (000 ton)
PsDMSI	1	-0.19745	0.098939	-2.00	0.0605	Penawaran Domestik Minyak Sawit Indonesia (000 ton)
HREMSI	1	7.174009	0.951967	7.54	<.0001	Harga Riil Ekspor Minyak Sawit Indonesia (US$/ton)
LHRDMSI	1	0.004200	0.097503	0.04	0.9661	Harga Riil Domestik Minyak Sawit Indonesia tahun t-1 (Rp/ton)

Durbin-Watson	2.32289
Number of Observations	24
First-Order Autocorrelation	-0.23354

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	EMSI
Dependent Variable	EMSI
Label	Ekspor Minyak Sawit Indonesia (000 ton)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	64340445	21446815	5.29	0.0075
Error	20	81084608	4054230		
Corrected Total	23	1.4543E8			

Root MSE	2013.51195	**R-Square**	0.44243
Dependent Mean	5485.57625	**Adj R-Sq**	0.35879
Coeff Var	36.70557		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variable Label
Intercept	1	1724.758	1136.748	1.52	0.1448	Intercept
PIMSI	1	0.017274	0.039757	0.43	0.6686	Produksi Minyak Sawit Indonesia (000 ton)
HREMSI	1	6.873881	2.394513	2.87	0.0095	Harga Riil Ekspor Minyak Sawit Indonesia (US$/ton)
PEMSI	1	-142.199	53.99275	-2.63	0.0159	Pajak Ekspor Minyak Sawit Indonesia (%)

Durbin-Watson	1.533007
Number of Observations	24
First-Order Autocorrelation	0.206568

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	PdMGSI
Dependent Variable	PdMGSI
Label	Permintaan Minyak Goreng Sawit di Indonesia (000 ton)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	2434702	811567.3	79.40	<.0001
Error	20	204416.5	10220.83		
Corrected Total	23	2639119			

Root MSE	101.09811	**R-Square**	0.92254
Dependent Mean	2234.60667	**Adj R-Sq**	0.91093
Coeff Var	4.52420		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variable Label
Intercept	1	-917.713	421.0994	-2.18	0.0414	Intercept
HRDMGSI	1	-0.00468	0.011211	-0.42	0.6805	Harga Riil Domestik Minyak Goreng Indonesia (Rp/ton)
POPI	1	8.601519	3.150611	2.73	0.0129	Populasi Indonesia (juta jiwa)
LPdMGSI	1	0.499468	0.180043	2.77	0.0117	Permintaan Minyak Goreng Sawit di Indonesia tahun t-1 (000 ton)

Durbin-Watson	1.985947
Number of Observations	24
First-Order Autocorrelation	-0.00428

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	HRDMGSI
Dependent Variable	HRDMGSI
Label	Harga Riil Domestik Minyak Goreng Indonesia (Rp/ton)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	1.424E8	71201996	20.16	<.0001
Error	21	74158226	3531344		
Corrected Total	23	2.1656E8			

Root MSE	1879.18708	**R-Square**	0.65757
Dependent Mean	10951.2342	**Adj R-Sq**	0.62495
Coeff Var	17.15959		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variable Label
Intercept	1	6174.879	864.9876	7.14	<.0001	Intercept
DPsMGSI	1	-0.13408	1.018058	-0.13	0.8965	
TREN	1	354.2447	58.39596	6.07	<.0001	Tren Waktu

Durbin-Watson	1.115597
Number of Observations	24
First-Order Autocorrelation	0.324462

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	EMGSID
Dependent Variable	EMGSID
Label	Ekspor Minyak Goreng Sawit Indonesia ke Dunia (000 ton)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	12067390	3016848	156.16	<.0001
Error	19	367058.7	19318.88		
Corrected Total	23	12434449			

Root MSE	138.99238	**R-Square**	0.97048
Dependent Mean	1132.44333	**Adj R-Sq**	0.96427
Coeff Var	12.27367		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variable Label
Intercept	1	-743.241	405.1866	-1.83	0.0823	Intercept
LHREMGSI	1	0.015533	0.018334	0.85	0.4074	Harga Riil Ekspor Minyak Goreng Sawit Indonesia tahun t-1 (US$/ton)
PIMGI	1	0.198260	0.086347	2.30	0.0332	Produksi Minyak Goreng Indonesia (000 ton)
NTRTD	1	0.070176	0.045496	1.54	0.1395	Nilai Tukar Rupiah terhadap Dollar (Rp/US$)
LEMGSID	1	0.374495	0.224806	1.67	0.1121	Ekspor Minyak Goreng Sawit Indonesia ke Dunia tahun t-1 (000 ton)

Durbin-Watson	2.125271
Number of Observations	24
First-Order Autocorrelation	-0.1282

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	PdMI
Dependent Variable	PdMI
Label	Permintaan Margarin Indonesia (000 ton)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	74.82087	24.94029	1.77	0.1847
Error	20	281.3325	14.06662		
Corrected Total	23	356.1533			

Root MSE	3.75055	**R-Square**	0.21008
Dependent Mean	14.45833	**Adj R-Sq**	0.09159
Coeff Var	25.94040		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variable Label
Intercept	1	-16.1433	17.82382	-0.91	0.3759	Intercept
HRDMI	1	-0.00027	0.000228	-1.20	0.2452	Harga Riil Domestik Margarin Indonesia (Rp/ton)
POPI	1	0.140490	0.098393	1.43	0.1688	Populasi Indonesia (juta jiwa)
LPdMI	1	0.312810	0.206846	1.51	0.1461	Permintaan Margarin Indonesia tahun t-1 (000 ton)

Durbin-Watson	2.088756
Number of Observations	24
First-Order Autocorrelation	-0.05608

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	HRDMI
Dependent Variable	HRDMI
Label	Harga Riil Domestik Margarin Indonesia (Rp/ton)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	5	1.6551E9	3.3102E8	62.41	<.0001
Error	18	95466967	5303720		
Corrected Total	23	1.7505E9			

Root MSE	2302.98076	**R-Square**	0.94546
Dependent Mean	30458.4075	**Adj R-Sq**	0.93032
Coeff Var	7.56107		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variable Label
Intercept	1	665.8955	4394.349	0.15	0.8812	Intercept
PdMI	1	13.96832	137.5371	0.10	0.9202	Permintaan Margarin Indonesia (000 ton)
PsMI	1	-22.3109	25.29447	-0.88	0.3894	Penawaran Margarin Indonesia (000 ton)
HREMI	1	0.400782	3.465194	0.12	0.9092	Harga Riil Ekspor Margarin Indonesia (US$/ton)
TREN	1	508.1949	320.5173	1.59	0.1303	Tren Waktu
LHRDMI	1	0.845275	0.195109	4.33	0.0004	Harga Riil Domestik Margarin Indonesia tahun t-1 (Rp/kg)

Durbin-Watson	1.701791
Number of Observations	24
First-Order Autocorrelation	0.120612

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	EMID
Dependent Variable	EMID
Label	Ekspor Margarin Indonesia (000 ton)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	5	4231.993	846.3985	9.20	0.0002
Error	18	1656.347	92.01928		
Corrected Total	23	5888.340			

Root MSE	9.59267	**R-Square**	0.71871
Dependent Mean	91.76833	**Adj R-Sq**	0.64057
Coeff Var	10.45314		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variable Label
Intercept	1	15.46071	15.89464	0.97	0.3436	Intercept
DHREMI	1	0.016583	0.015923	1.04	0.3115	Selisih Harga Riil Ekspor Margarin Indonesia tahun t dan tahun t-1 (US$/ton)
PIMI	1	0.173204	0.096881	1.79	0.0907	Produksi Margarin Indonesia (000 ton)
TREN	1	-2.40968	1.210851	-1.99	0.0620	Tren Waktu
NTRTD	1	0.002780	0.002273	1.22	0.2372	Nilai Tukar Rupiah terhadap Dollar (Rp/US$)
LEMID	1	0.492201	0.169878	2.90	0.0096	Ekspor Margarin Indonesia tahun t-1 (000 ton)

Durbin-Watson	2.082065
Number of Observations	24
First-Order Autocorrelation	-0.09112

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	PdSI
Dependent Variable	PdSI
Label	Permintaan Sabun Indonesia (000 ton)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	1342054	671027.1	50.33	<.0001
Error	21	279997.1	13333.20		
Corrected Total	23	1622051			

Root MSE	115.46946	**R-Square**	0.82738
Dependent Mean	443.93417	**Adj R-Sq**	0.81094
Coeff Var	26.01049		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variable Label
Intercept	1	-28.1595	61.41356	-0.46	0.6513	Intercept
DHRDSI	1	-0.00660	0.099935	-0.07	0.9480	Selisih Harga Riil Domestik Sabun Indonesia tahun t dengan tahun t-1 (Rp/ton)
GDP_POP	1	0.178004	0.019724	9.02	<.0001	Rata-rata Pendapatan per Kapita Indonesia (juta US$/juta jiwa)

Durbin-Watson	0.849939
Number of Observations	24
First-Order Autocorrelation	0.552246

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	HRDSI
Dependent Variable	HRDSI
Label	Harga Riil Domestik Sabun Indonesia (Rp/ton)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	7630325	2543442	45.60	<.0001
Error	20	1115629	55781.46		
Corrected Total	23	8745955			

Root MSE	236.18099	**R-Square**	0.87244
Dependent Mean	2562.03458	**Adj R-Sq**	0.85331
Coeff Var	9.21849		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variable Label
Intercept	1	345.4910	321.0143	1.08	0.2946	Intercept
PdSI	1	0.133628	0.332274	0.40	0.6918	Permintaan Sabun Indonesia (000 ton)
PsSI	1	-0.07643	0.633023	-0.12	0.9051	Penawaran Sabun Indonesia (000 ton)
LHRDSI	1	0.817023	0.089420	9.14	<.0001	Harga Riil Domestik Sabun Indonesia tahun t-1 (Rp/ton)

Durbin-Watson	2.04974
Number of Observations	24
First-Order Autocorrelation	-0.25136

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	ESID
Dependent Variable	ESID
Label	Ekspor Sabun Indonesia ke Dunia (000 ton)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	9536.913	4768.457	1.03	0.3750
Error	21	97412.89	4638.709		
Corrected Total	23	106949.8			

Root MSE	68.10807	**R-Square**	0.08917
Dependent Mean	201.65875	**Adj R-Sq**	0.00243
Coeff Var	33.77392		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variable Label
Intercept	1	114.5284	84.02252	1.36	0.1873	Intercept
PISI	1	0.046207	0.282518	0.16	0.8716	Produksi Sabun Indonesia (000 ton)
NTRTD	1	0.006637	0.013831	0.48	0.6363	Nilai Tukar Rupiah terhadap Dollar (Rp/US$)

Durbin-Watson	0.214022
Number of Observations	24
First-Order Autocorrelation	0.834232

Lampiran 4. Program validasi model permintaan dan penawaran minyak sawit (CPO) dan produk turunan indonesia di pasar domestik dan dunia

PANDUAN VALIDASI

```
OPTION NODATE NONUMBER;

/*
Libname Latih 'D:\MAGISTER';
*/

/*PROC IMPORT DATAFILE="D:\ASIFA\DATA PENELITIAN ASIFA.xls" OUT=DATA
REPLACE;
SHEET="DATA";
GETNAMES=YES;
run;
*/

DATA VALIDASI;
SET DATA;

/*Merespesifikasikan variabel*/
/*Minyak Sawit*/
PIMSI = LAMMSI * PMSI;
TPdMSIN = PdMSIMG + PdMSIM + PdMSIS + PdMSIL;
PsDMSI = PIMSI - EMSI + LSMSI;
PDEMSI = EMSI * HREMSI * NTRTD;
/*Minyak Goreng*/
PIMGI   = PdMSIMG * FKMSMMG;
PsMGSI = PIMGI - EMGSID;
PDEMGSI = EMGSID * HREMGSI * NTRTD;
/*Margarin*/
PIMI = PdMSIM * FKMSMM;
PsMI = PIMI - EMID;
PDEMI = EMID * HREMI * NTRTD;
/*Sabun*/
PISI = PdMSIS * FKMSMS;
PsSI = PISI - ESID;
PDESI = ESID * HRESI * NTRTD;

PROC SIMNLIN DATA=VALIDASI STAT OUTPREDICT THEIL OUT=HASIL;

ENDOGENOUS
LAMMSI PMSI   PIMSI   PsDMSI  TPdMSIN PdMSIMG PdMSIM PdMSIS HRDMSI EMSI
PIMGI PsMGSI PdMGSI HRDMGSI EMGSID
PIMI PsMI   PdMI   HRDMI   EMID
PISI PsSI   PdSI   HRDSI   ESID   ;

INSTRUMENTS
HRDKI SBRBI HPUD CUHUJI KPMGI KPMI KPSI HRBD LSMSI NTRTD PEMSI
FKMSMMG FKMSMM GDPI POPI
HREMGSI HREMI FKMSMS HRESI LLAMMSI LPMSI
LPdMSIM LPdMSIS LHRDMSI LHREMSI LPdMGSI LHRDMGSI LEMGSID LPdMI
LHRDMI LEMID LPdSI LHRDSI LESID;

LHRDMSI = LAG(HRDMSI);
LLAMMSI = LAG(LAMMSI);
LHRDMGSI = LAG(HRDMGSI);
LPdMSIMG = LAG(PdMSIMG);
```

```
LPdMSIM = LAG(PdMSIM);
LPdMSIS = LAG(PdMSIS);
LEMSI = LAG(EMSI);
LPdMGSI = LAG(PdMGSI);
LEMGSID = LAG(EMGSID);
LPdMI = LAG(PdMI);
LHRDMI = LAG(HRDMI);
LEMID = LAG(EMID);
LHRDSI = LAG(HRDSI);
LESID = LAG(ESID);
LHREMSI = LAG(HREMSI);
LHREMI = LAG(HREMI);
LPISI = LAG(PISI);
LHREMGSI=LAG(HREMGSI);
LPsMGSI=LAG(PsMGSI);
LTPdMSIN = LAG(TPdMSIN);

PARM

a0 1634.877 a1 0.022412 a2 -0.03389 a3 -51.8957 a4 -0.13566 a5 0.942767
b0 1.800172 b1 0.000013 b2 0.057078
c0 -62.0639 c1 0.014940 c2 0.066305 c3 -0.00651 c4 0.710437
d0 -63.4760 d1 0.002788 d2 0.182551 d3 -0.00167 d4 0.575092
e0 14.54255 e1 0.018900 e2 0.051028 e3 -0.00062 e4 -1.12177 e5 0.782283
f0 4201.825 f1 0.264401 f2 -0.19745 f3 7.174009 f4 0.004200
g0 1724.758 g1 0.017274 g2 6.873881 g3 -142.199
h0 -917.713 h1 -0.00468 h2 8.601519 h3 0.499468
i0 6174.879 i1 -0.13408 i2 354.2447
j0 -743.241 j1 0.015533 j2 0.198260 j3 0.070176 j4 0.374495
k0 -16.1433 k1 -0.00027 k2 0.140490 k3 0.312810
l0 665.8955 l1 13.96832 l2 -22.3109 l3 0.400782 l4 508.1949 l5 0.845275
m0 15.46071 m1 0.016583 m2 0.173204 m3 -2.40968 m4 0.002780 m5 0.492201
n0 -28.1595 n1 -0.00660 n2 0.178004
o0 345.4910 o1 0.133628 o2 -0.07643 o3 0.817023
p0 114.5284 p1 0.046207 p2 0.006637;

LAMMSI = a0+ a1*LAG(HRDMSI) + a2*HRDKI + a3*SBRBI + a4*HPUD +
a5*LAG(LAMMSI);
PMSI = b0+ b1*(HRDMSI-LAG(HRDMSI)) + b2*TREN;
PdMSIMG = c0+ c1*HRDMGSI + c2*KPMGI + c3*LAG(HRDMSI) + c4*LAG(PdMSIMG);
PdMSIM = d0+ d1*HRDMI + d2*KPMI + d3*HRDMSI + d4*LAG(PdMSIM);
PdMSIS = e0+ e1*HRDSI + e2*KPSI + e3*LAG(HRDMSI) + e4*SBRBI +
e5*LAG(PdMSIS);
HRDMSI = f0 + f1*LAG(TPdMSIN) + f2*PsDMSI + f3*HREMSI + f4*LAG(HRDMSI);
EMSI = g0 + g1*PIMSI + g2*HREMSI + g3*PEMSI;
PdMGSI = h0 + h1*HRDMGSI + h2*POPI + h3*LPdMGSI;
HRDMGSI = i0 + i1*(PsMGSI-LAG(PsMGSI)) + i2*TREN;
EMGSID = j0 + j1*LAG(HREMGSI) + j2*PIMGI + j3*NTRTD + j4*LAG(EMGSID);
PdMI = k0 + k1*HRDMI + k2*POPI + k3*LAG(PdMI);
HRDMI = l0 + l1*PdMI + l2*PsMI + l3*HREMI + l4*TREN + l5*LAG(HRDMI);
EMID = m0 + m1*(HREMI-LAG(HREMI)) + m2*PIMI + m3*TREN + m4*NTRTD +
m5*LAG(EMID);
PdSI = n0 + n1*(HRDSI-LAG(HRDSI)) + n2*(GDPI/POPI);
HRDSI = o0 + o1*PdSI + o2*PsSI + o3*LAG(HRDSI);
ESID = p0 + p1*PISI + p2*NTRTD;

/*Persamaan Identitas*/
PIMSI = LAMMSI * PMSI;
```

```
TPdMSIN = PdMSIMG + PdMSIM + PdMSIS + PdMSIL;
PsDMSI = PIMSI - EMSI + LSMSI;
PIMGI = PdMSIMG * FKMSMMG;
PsMGSI = PIMGI - EMGSID;
PIMI = PdMSIM * FKMSMM;
PsMI = PIMI - EMID;
PISI = PdMSIS * FKMSMS;
PsSI = PISI - ESID;

RANGE TAHUN=2018 TO 2022;

RUN;

/* TAHAP HITUNG PENERIMAAN DEVISA CPO, MINYAK GORENG, MARGARIN, DAN
SABUN,
BERDASARKAN HASIL ESTIMASI EMSI, EMGSI, EMID DAN ESID*/

DATA HITUNG;
SET HASIL;

PDEMSI = EMSI * HREMSI * NTRTD;
PDEMGSI = EMGSID * HREMGSI * NTRTD;
PDEMI = EMID * HREMI * NTRTD;
PDESI = ESID * HRESI * NTRTD;

RUN;

DATA GABUNG;
MERGE HASIL HITUNG;
RUN;

DATA EXPORT_VAL;
SET GABUNG;

KEEP

TAHUN LAMMSI PMSI  PIMSI  PsDMSI  TPdMSIN PdMSIMG PdMSIM PdMSIS HRDMSI
EMSI PDEMSI
PIMGI PsMGSI PdMGSI HRDMGSI EMGSID  PDEMGSI
PIMI  PsMI   PdMI   HRDMI   EMID    PDEMI
PISI  PsSI   PdSI   HRDSI   ESID    PDESI;

RUN;

PROC EXPORT DATA=EXPORT_VAL OUTFILE='D:\ASIFA\VAL_SIM_090125.xlsx'
DBMS=EXCEL REPLACE;
SHEET='VAL_200125';

RUN;
```

Lampiran 5. Hasil validasi model permintaan dan penawaran minyak sawit (CPO) dan produk turunan indonesia di pasar domestik dan dunia

The SAS System

The SIMNLIN Procedure

Model Summary	
Model Variables	25
Endogenous	25
Parameters	72
Range Variable	TAHUN
Equations	25
Number of Statements	45
Program Lag Length	1

The SAS System
The SIMNLIN Procedure
Dynamic Simultaneous Simulation

Data Set Options	
DATA=	VALIDASI
OUT=	HASIL

Solution Summary	
Variables Solved	25
Simulation Lag Length	1
Solution Range	TAHUN
First	2018
Last	2022
Solution Method	NEWTON
CONVERGE=	1E-8
Maximum CC	2.15E-16
Maximum Iterations	2
Total Iterations	10
Average Iterations	2

Observations Processed	
Read	6
Lagged	1
Solved	5
First	21
Last	25

Variables Solved For LAMMSI PMSI PIMSI PsDMSI TPdMSIN PdMSIMG PdMSIM PdMSIS HRDMSI EMSI PIMGI PsMGSI PdMGSI HRDMGSI EMGSID PIMI PsMI PdMI HRDMI EMID PISI PsSI PdSI HRDSI ESID

The SAS System
The SIMNLIN Procedure
Dynamic Simultaneous Simulation

Solution Range TAHUN = 2018 To 2022

Descriptive Statistics

Variable	N Obs	N	Actual		Predicted	
			Mean	Std Dev	Mean	Std Dev
LAMMSI	5	5	14666.0	393.6	13958.1	815.5
PMSI	5	5	3.1060	0.1021	3.1153	0.0994
PIMSI	5	5	45546.0	1701.3	43546.7	3884.0
PsDMSI	5	5	40133.4	2913.3	37348.3	4689.1
TPdMSIN	5	5	16210.5	2164.9	16471.1	2184.9
PdMSIMG	5	5	5601.2	410.5	5902.3	467.8
PdMSIM	5	5	471.7	45.9452	454.0	34.5457
PdMSIS	5	5	747.7	75.7974	724.7	50.0189
HRDMSI	5	5	5662.6	1911.0	6218.9	1786.8
EMSI	5	5	5417.4	2271.8	6203.3	2133.8
PIMGI	5	5	5041.1	369.4	5312.1	421.1
PsMGSI	5	5	2929.8	359.3	3084.8	277.3
PdMGSI	5	5	2668.2	107.4	2689.5	25.5715
HRDMGSI	5	5	15102.7	3552.3	14302.5	554.0
EMGSID	5	5	2111.3	154.1	2227.3	145.3
PIMI	5	5	330.2	32.1617	317.8	24.1820
PsMI	5	5	215.0	32.9394	208.7	20.5931
PdMI	5	5	14.5440	0.5218	17.2925	2.1723
HRDMI	5	5	43493.1	4638.0	40520.6	3617.8
EMID	5	5	115.2	6.6862	109.1	3.8742
PISI	5	5	486.0	49.2683	471.1	32.5123
PsSI	5	5	308.5	90.1880	239.8	30.9466
PdSI	5	5	817.2	84.2584	723.0	67.8286
HRDSI	5	5	2298.5	58.9425	2298.8	8.1373
ESID	5	5	177.5	43.8676	231.3	2.0359

Statistics of fit

Variable	N	Mean Error	Mean % Error	Mean Abs Error	Mean Abs % Error	RMS Error	RMS % Error	R-Square
LAMMSI	5	-707.9	-4.8767	707.9	4.8767	839.2	5.8169	-4.681
PMSI	5	0.00934	0.3854	0.1011	3.2156	0.1287	4.0688	-.9862
PIMSI	5	-1999.2	-4.4218	3024.0	6.6512	3579.8	7.8438	-4.534
PsDMSI	5	-2785.1	-7.1113	3451.8	8.6501	3724.3	9.3158	-1.043
TPdMSIN	5	260.6	1.6196	260.6	1.6196	262.5	1.6325	0.9816
PdMSIMG	5	301.2	5.3431	301.2	5.3431	306.7	5.3920	0.3020
PdMSIM	5	-17.6491	-3.5812	17.6491	3.5812	20.4146	4.0351	0.7532
PdMSIS	5	-22.9065	-2.8092	25.4650	3.2000	32.6152	3.9726	0.7686
HRDMSI	5	556.3	11.4738	556.3	11.4738	764.0	16.8669	0.8002
EMSI	5	785.9	43.5331	1798.1	59.9078	2986.4	76.2	-1.160
PIMGI	5	271.1	5.3431	271.1	5.3431	276.1	5.3920	0.3020
PsMGSI	5	155.0	5.7390	189.9	6.8457	213.3	7.8812	0.5594
PdMGSI	5	21.3258	0.9012	69.6733	2.6089	80.4836	2.9971	0.2978
HRDMGSI	5	-800.3	-0.5436	2474.2	18.3102	2834.1	23.1778	0.2044
EMGSID	5	116.0	5.8430	140.5	6.9801	196.0	9.8691	-1.023
PIMI	5	-12.3544	-3.5812	12.3544	3.5812	14.2902	4.0351	0.7532
PsMI	5	-6.2667	-2.2747	10.1065	4.2450	13.7821	5.5105	0.7812
PdMI	5	2.7485	18.6138	2.7485	18.6138	3.1331	20.9394	-44.07
HRDMI	5	-2972.6	-6.6955	2972.6	6.6955	3117.6	6.8658	0.4352
EMID	5	-6.0877	-5.0452	7.5490	6.3754	9.1810	7.5172	-1.357
PISI	5	-14.8892	-2.8092	16.5523	3.2000	21.1999	3.9726	0.7686
PsSI	5	-68.7135	-18.1340	78.8690	23.9273	87.2889	24.7584	-.1709
PdSI	5	-94.1899	-11.3353	94.1899	11.3353	102.3	12.1912	-.8410
HRDSI	5	0.3905	0.0651	43.8760	1.9132	48.3404	2.1120	0.1592
ESID	5	53.8243	36.0394	62.3168	39.4322	67.3716	44.5820	-1.948

Theil Forecast Error Statistics

Variable	N	MSE	Corr (R)	MSE Decomposition Proportions					Inequality Coef	
				Bias (UM)	Reg (UR)	Dist (UD)	Var (US)	Covar (UC)	U1	U
LAMMSI	5	704248	0.88	0.71	0.25	0.04	0.20	0.09	0.0572	0.0293
PMSI	5	0.0166	-0.01	0.01	0.49	0.50	0.00	0.99	0.0414	0.0207
PIMSI	5	12815137	0.53	0.31	0.56	0.13	0.30	0.39	0.0786	0.0401
PsDMSI	5	13870371	0.84	0.56	0.29	0.15	0.18	0.26	0.0926	0.0479
TPdMSIN	5	68922.1	1.00	0.99	0.00	0.01	0.00	0.01	0.0161	0.0080

Theil Forecast Error Statistics

Variable	N	MSE	Corr (R)	MSE Decomposition Proportions					Inequality Coef	
				Bias (UM)	Reg (UR)	Dist (UD)	Var (US)	Covar (UC)	U1	U
PdMSIMG	5	94090.2	1.00	0.96	0.03	0.01	0.03	0.01	0.0546	0.0266
PdMSIM	5	416.8	1.00	0.75	0.25	0.00	0.25	0.00	0.0431	0.0220
PdMSIS	5	1063.8	1.00	0.49	0.50	0.01	0.50	0.01	0.0434	0.0221
HRDMSI	5	583755	0.95	0.53	0.00	0.47	0.02	0.45	0.1292	0.0619
EMSI	5	8918761	-0.07	0.07	0.47	0.46	0.00	0.93	0.5162	0.2433
PIMGI	5	76213.0	1.00	0.96	0.03	0.01	0.03	0.01	0.0546	0.0266
PsMGSI	5	45497.6	0.90	0.53	0.04	0.44	0.12	0.35	0.0724	0.0353
PdMGSI	5	6477.6	0.85	0.07	0.53	0.40	0.83	0.10	0.0301	0.0150
HRDMGSI	5	8032046	0.94	0.08	0.77	0.15	0.90	0.02	0.1836	0.0953
EMGSID	5	38413.1	0.31	0.35	0.20	0.45	0.00	0.65	0.0926	0.0451
PIMI	5	204.2	1.00	0.75	0.25	0.00	0.25	0.00	0.0431	0.0220
PsMI	5	189.9	0.97	0.21	0.55	0.24	0.64	0.15	0.0635	0.0323
PdMI	5	9.8164	0.95	0.77	0.23	0.00	0.22	0.01	0.2153	0.0981
HRDMI	5	9719448	1.00	0.91	0.08	0.01	0.09	0.01	0.0714	0.0370
EMID	5	84.2909	0.01	0.44	0.14	0.42	0.08	0.49	0.0796	0.0409
PISI	5	449.4	1.00	0.49	0.50	0.01	0.50	0.01	0.0434	0.0221
PsSI	5	7619.3	0.98	0.62	0.35	0.03	0.37	0.01	0.2737	0.1558
PdSI	5	10455.8	0.85	0.85	0.00	0.15	0.02	0.13	0.1246	0.0661
HRDSI	5	2336.8	0.65	0.00	0.31	0.69	0.88	0.12	0.0210	0.0105
ESID	5	4538.9	-0.69	0.64	0.19	0.18	0.31	0.05	0.3707	0.1631

Theil Relative Change Forecast Error Statistics

Variable	Relative Change			MSE Decomposition Proportions					Inequality Coef	
	N	MSE	Corr (R)	Bias (UM)	Reg (UR)	Dist (UD)	Var (US)	Covar (UC)	U1	U
LAMMSI	5	0.00405	0.79	0.67	0.01	0.32	0.09	0.24	0.8633	0.5614
PMSI	5	0.00179	0.53	0.00	0.02	0.97	0.15	0.84	0.8120	0.4696
PIMSI	5	0.00786	0.63	0.33	0.01	0.66	0.09	0.58	0.7855	0.4925
PsDMSI	5	0.0114	0.80	0.59	0.00	0.41	0.07	0.34	0.7110	0.4501
TPdMSIN	5	0.000323	1.00	0.98	0.02	0.00	0.02	0.01	0.1821	0.0835
PdMSIMG	5	0.00310	0.97	0.98	0.00	0.02	0.00	0.02	1.2547	0.4041
PdMSIM	5	0.00184	-0.06	0.79	0.12	0.09	0.00	0.21	0.7325	0.5206
PdMSIS	5	0.00179	-0.40	0.50	0.45	0.05	0.12	0.38	0.6814	0.4153
HRDMSI	5	0.0260	0.97	0.44	0.00	0.56	0.00	0.56	0.3187	0.1560
EMSI	5	0.1797	-0.24	0.04	0.34	0.62	0.17	0.79	1.2269	0.8188

Theil Relative Change Forecast Error Statistics

Variable	Relative Change			MSE Decomposition Proportions					Inequality Coef	
	N	MSE	Corr (R)	Bias (UM)	Reg (UR)	Dist (UD)	Var (US)	Covar (UC)	U1	U
PIMGI	5	0.00310	0.97	0.98	0.00	0.02	0.00	0.02	1.2547	0.4041
PsMGSI	5	0.00577	0.91	0.53	0.14	0.33	0.25	0.22	0.6532	0.3148
PdMGSI	5	0.000928	0.76	0.07	0.01	0.92	0.22	0.71	0.6743	0.3917
HRDMGSI	5	0.0366	0.73	0.05	0.02	0.93	0.06	0.88	0.6680	0.3723
EMGSID	5	0.00815	0.78	0.34	0.02	0.64	0.16	0.50	0.7665	0.4017
PIMI	5	0.00184	-0.06	0.79	0.12	0.09	0.00	0.21	0.7325	0.5206
PsMI	5	0.00383	0.23	0.19	0.11	0.70	0.11	0.70	0.6195	0.3724
PdMI	5	0.0239	0.98	0.93	0.01	0.06	0.01	0.06	0.7266	0.4067
HRDMI	5	0.00546	0.94	0.96	0.02	0.02	0.01	0.03	0.8370	0.5708
EMID	5	0.00672	0.58	0.44	0.01	0.55	0.21	0.35	1.0824	0.6109
PISI	5	0.00179	-0.40	0.50	0.45	0.05	0.12	0.38	0.6814	0.4153
PsSI	5	0.0909	0.70	0.53	0.29	0.18	0.13	0.34	0.9647	0.5014
PdSI	5	0.0170	0.63	0.87	0.13	0.00	0.11	0.02	1.7979	0.9005
HRDSI	5	0.000445	0.34	0.00	0.26	0.74	0.01	0.99	1.0492	0.5502
ESID	5	0.1646	0.60	0.63	0.32	0.05	0.20	0.17	2.5264	0.7712

Lampiran 6. Program simulasi model (contoh: skenario simulasi tunggal penerapan pajak ekspor CPO sebesar 43.95 persen)

```
OPTION NODATE NONUMBER;

/*
Libname Latih 'D:\MAGISTER';
*/

/*PROC IMPORT DATAFILE="D:\ASIFA\DATA PENELITIAN ASIFA.xls" OUT=DATA
REPLACE;
SHEET="DATA";
GETNAMES=YES;
run;
*/

DATA VALIDASI;
SET DATA;

/*Merespesifikasikan variabel*/
/*Minyak Sawit*/
PIMSI = LAMMSI * PMSI;
TPdMSIN = PdMSIMG + PdMSIM + PdMSIS + PdMSIL;
PsDMSI = PIMSI - EMSI + LSMSI;
PDEMSI = EMSI * HREMSI * NTRTD;
/*Minyak Goreng*/
PIMGI   = PdMSIMG * FKMSMMG;
PsMGSI = PIMGI - EMGSID;
PDEMGSI = EMGSID * HREMGSI * NTRTD;
/*Margarin*/
PIMI = PdMSIM * FKMSMM;
PsMI = PIMI - EMID;
PDEMI = EMID * HREMI * NTRTD;
/*Sabun*/
PISI = PdMSIS * FKMSMS;
PsSI = PISI - ESID;
PDESI = ESID * HRESI * NTRTD;

/*SIMULASI PAJAK EKSPOR NAIK 2543%*/
PEMSI=1.4395*PEMSI;
RUN;

PROC SIMNLIN DATA=VALIDASI STAT OUTPREDICT THEIL OUT=HASIL;

ENDOGENOUS
LAMMSI PMSI   PIMSI   PsDMSI  TPdMSIN PdMSIMG PdMSIM PdMSIS HRDMSI EMSI
PIMGI PsMGSI PdMGSI HRDMGSI EMGSID
PIMI  PsMI   PdMI   HRDMI   EMID
PISI  PsSI   PdSI   HRDSI   ESID   ;

INSTRUMENTS
HRDKI SBRBI HPUD CUHUJI KPMGI KPMI KPSI HRBD LSMSI NTRTD PEMSI FKMSMMG
FKMSMM GDPI POPI
HREMGSI HREMI FKMSMS HRESI LLAMMSI LPMSI
LPdMSIM LPdMSIS LHRDMSI LHREMSI LPdMGSI LHRDMGSI LEMGSID LPdMI LHRDMI
LEMID LPdSI LHRDSI LESID;

LHRDMSI = LAG(HRDMSI);
```

```
LLAMMSI = LAG(LAMMSI);
LHRDMGSI = LAG(HRDMGSI);
LPdMSIMG = LAG(PdMSIMG);
LPdMSIM = LAG(PdMSIM);
LPdMSIS = LAG(PdMSIS);
LEMSI = LAG(EMSI);
LPdMGSI = LAG(PdMGSI);
LEMGSID = LAG(EMGSID);
LPdMI = LAG(PdMI);
LHRDMI = LAG(HRDMI);
LEMID = LAG(EMID);
LHRDSI = LAG(HRDSI);
LESID = LAG(ESID);
LHREMSI = LAG(HREMSI);
LHREMI = LAG(HREMI);
LPISI = LAG(PISI);
LHREMGSI=LAG(HREMGSI);
LPsMGSI=LAG(PsMGSI);
LTPdMSIN = LAG(TPdMSIN);

PARM

a0 1634.877 a1 0.022412 a2 -0.03389 a3 -51.8957 a4 -0.13566 a5 0.942767
b0 1.800172 b1 0.000013 b2 0.057078
c0 -62.0639 c1 0.014940 c2 0.066305 c3 -0.00651 c4 0.710437
d0 -63.4760 d1 0.002788 d2 0.182551 d3 -0.00167 d4 0.575092
e0 14.54255 e1 0.018900 e2 0.051028 e3 -0.00062 e4 -1.12177 e5 0.782283
f0 4201.825 f1 0.264401 f2 -0.19745 f3 7.174009 f4 0.004200
g0 1724.758 g1 0.017274 g2 6.873881 g3 -142.199
h0 -917.713 h1 -0.00468 h2 8.601519 h3 0.499468
i0 6174.879 i1 -0.13408 i2 354.2447
j0 -743.241 j1 0.015533 j2 0.198260 j3 0.070176 j4 0.374495
k0 -16.1433 k1 -0.00027 k2 0.140490 k3 0.312810
l0 665.8955 l1 13.96832 l2 -22.3109 l3 0.400782 l4 508.1949 l5 0.845275
m0 15.46071 m1 0.016583 m2 0.173204 m3 -2.40968 m4 0.002780 m5 0.492201
n0 -28.1595 n1 -0.00660 n2 0.178004
o0 345.4910 o1 0.133628 o2 -0.07643 o3 0.817023
p0 114.5284 p1 0.046207 p2 0.006637;

LAMMSI = a0+ a1*LAG(HRDMSI) + a2*HRDKI + a3*SBRBI + a4*HPUD +
a5*LAG(LAMMSI);
PMSI = b0+ b1*(HRDMSI-LAG(HRDMSI)) + b2*TREN;
PdMSIMG = c0+ c1*HRDMGSI + c2*KPMGI + c3*LAG(HRDMSI) + c4*LAG(PdMSIMG);
PdMSIM = d0+ d1*HRDMI + d2*KPMI + d3*HRDMSI + d4*LAG(PdMSIM);
PdMSIS = e0+ e1*HRDSI + e2*KPSI + e3*LAG(HRDMSI) + e4*SBRBI + e5*LAG(PdMSIS);
HRDMSI = f0 + f1*LAG(TPdMSIN) + f2*PsDMSI + f3*HREMSI + f4*LAG(HRDMSI);
EMSI = g0 + g1*PIMSI + g2*HREMSI + g3*PEMSI;
PdMGSI = h0 + h1*HRDMGSI + h2*POPI + h3*LPdMGSI;
HRDMGSI = i0 + i1*(PsMGSI-LAG(PsMGSI)) + i2*TREN;
EMGSID = j0 + j1*LAG(HREMGSI) + j2*PIMGI + j3*NTRTD + j4*LAG(EMGSID);
PdMI = k0 + k1*HRDMI + k2*POPI + k3*LAG(PdMI);
HRDMI = l0 + l1*PdMI + l2*PsMI + l3*HREMI + l4*TREN + l5*LAG(HRDMI);
EMID = m0 + m1*(HREMI-LAG(HREMI)) + m2*PIMI + m3*TREN + m4*NTRTD +
m5*LAG(EMID);
PdSI = n0 + n1*(HRDSI-LAG(HRDSI)) + n2*(GDPI/POPI);
HRDSI = o0 + o1*PdSI + o2*PsSI + o3*LAG(HRDSI);
ESID = p0 + p1*PISI + p2*NTRTD;
```

```
/*Persamaan Identitas*/
PIMSI = LAMMSI * PMSI;
TPdMSIN = PdMSIMG + PdMSIM + PdMSIS + PdMSIL;
PsDMSI = PIMSI - EMSI + LSMSI;
PIMGI = PdMSIMG * FKMSMMG;
PsMGSI = PIMGI - EMGSID;
PIMI = PdMSIM * FKMSMM;
PsMI = PIMI - EMID;
PISI = PdMSIS * FKMSMS;
PsSI = PISI - ESID;

RANGE TAHUN=2018 TO 2022;

RUN;

/* TAHAP HITUNG PENERIMAAN DEVISA CPO, MINYAK GORENG, MARGARIN, DAN SABUN,
BERDASARKAN HASIL ESTIMASI EMSI, EMGSI, EMID DAN ESID*/

DATA HITUNG;
SET HASIL;

PDEMSI = EMSI * HREMSI * NTRTD;
PDEMGSI = EMGSID * HREMGSI * NTRTD;
PDEMI = EMID * HREMI * NTRTD;
PDESI = ESID * HRESI * NTRTD;

RUN;

DATA GABUNG;
MERGE HASIL HITUNG;
RUN;

DATA EXPORT_VAL;
SET GABUNG;

KEEP

TAHUN LAMMSI PMSI   PIMSI   PsDMSI  TPdMSIN PdMSIMG PdMSIM PdMSIS HRDMSI EMSI PDEMSI
PIMGI PsMGSI PdMGSI HRDMGSI EMGSID PDEMGSI
PIMI  PsMI   PdMI   HRDMI   EMID   PDEMI
PISI  PsSI   PdSI   HRDSI   ESID   PDESI;

RUN;

PROC EXPORT DATA=EXPORT_VAL OUTFILE='D:\ASIFA\VAL_SIMPAJAK_090125.xlsx'
DBMS=EXCEL REPLACE;
SHEET='SIM_PAJAK_200125';

RUN;
```

Lampiran 7. Hasil simulasi model (simulasi tunggal S1: penerapan pajak ekspor CPO sebesar 43.95 persen)

VARIABEL	NILAI DASAR	NILAI AKHIR	PERUBAHAN	% PERUBAHAN
LAMMSI	13958.074293	13957.706078	-0.368216	-0.002638
PMSI	3.115337	3.113972	-0.001364	-0.043796
PIMSI	43546.743595	43525.218523	-21.525072	-0.049430
PsDMSI	37348.257691	37962.693447	614.435755	1.645152
TPdMSIN	16471.094693	16471.421389	0.326697	0.001983
PdMSIMG	5902.348296	5902.455097	0.106801	0.001809
PdMSIM	454.000871	454.210590	0.209719	0.046193
PdMSIS	724.745525	724.755702	0.010177	0.001404
HRDMSI	6218.943345	6097.561005	-121.382340	-1.951816
EMSI	6203.251303	5567.290476	-635.960827	-10.252056
PIMGI	5312.113466	5312.209587	0.096121	0.001809
PsMGSI	3084.819987	3084.897051	0.077064	0.002498
PdMGSI	2689.533839	2689.533888	0.000048	0.000002
HRDMGSI	14302.453973	14302.443640	-0.010333	-0.000072
EMGSID	2227.293479	2227.312536	0.019057	0.000856
PIMI	317.800610	317.947413	0.146803	0.046193
PsMI	208.710307	208.830102	0.119795	0.057398
PdMI	17.292462	17.293288	0.000825	0.004771
HRDMI	40520.556977	40517.607743	-2.949233	-0.007278
EMID	109.090303	109.117311	0.027008	0.024757
PISI	471.084591	471.091206	0.006615	0.001404
PsSI	239.792303	239.798612	0.006309	0.002631
PdSI	722.970079	722.970082	0.000003	0.0000004
HRDSI	2298.846463	2298.845981	-0.000482	-0.000021
ESID	231.292288	231.292594	0.000306	0.000132
PDEMSI	67558.029889	58538.517127	-9019.512762	-13.350763
PDEMGSI	257975.653137	257978.711394	3.058257	0.001185
PDEMI	1312.979928	1313.409602	0.429674	0.032725
PDESI	4446.385803	4446.393341	0.007537	0.000170

Lampiran 8. Hasil simulasi model (simulasi tunggal S2: peningkatan kapasitas produksi industry minyak goreng 61.25 persen, industry margarin 21.32 persen, dan industry sabun 1.02 persen)

VARIABEL	NILAI DASAR	NILAI AKHIR	PERUBAHAN	% PERUBAHAN
LAMMSI	13958.074293	13968.552842	10.478548	0.075072
PMSI	3.115337	3.116082	0.000745	0.023922
PIMSI	43546.743595	43589.567282	42.823687	0.098340
PsDMSI	37348.257691	38025.930645	677.672954	1.814470
TPdMSIN	16471.094693	18948.415561	2477.320868	15.040414
PdMSIMG	5902.348296	8186.381936	2284.033640	38.697033
PdMSIM	454.000871	549.777040	95.776168	21.096032
PdMSIS	724.745525	822.256585	97.511060	13.454524
HRDMSI	6218.943345	6548.706269	329.762923	5.302556
EMSI	6203.251303	5568.402037	-634.849267	-10.234137
PIMGI	5312.113466	7367.743742	2055.630276	38.697033
PsMGSI	3084.819987	4593.864418	1509.044431	48.918395
PdMGSI	2689.533839	2689.997326	0.463487	0.017233
HRDMGSI	14302.453973	14244.489991	-57.963982	-0.405273
EMGSID	2227.293479	2773.879324	546.585845	24.540360
PIMI	317.800610	384.843928	67.043318	21.096032
PsMI	208.710307	257.928671	49.218364	23.582143
PdMI	17.292462	18.135086	0.842623	4.872778
HRDMI	40520.556977	38030.695265	-2489.861711	-6.144688
EMID	109.090303	126.915257	17.824954	16.339632
PISI	471.084591	534.466781	63.382189	13.454524
PsSI	239.792303	300.245791	60.453488	25.210771
PdSI	722.970079	722.993510	0.023432	0.003241
HRDSI	2298.846463	2289.464370	-9.382093	-0.408122
ESID	231.292288	234.220989	2.928701	1.266234
PDEMSI	67558.029889	58552.448449	-9005.581440	-13.330142
PDEMGSI	257975.653137	327895.784759	69920.131622	27.103384
PDEMI	1312.979928	1541.014183	22.8034256	17.367688
PDESI	4446.385803	4506.120661	59.734858	1.343447

Lampiran 9. Hasil simulasi model (simulasi kombinasi S3: kombinasi S1 peningkatan pajak ekspor 43.95 persen serta S2: peningkatan kapasitas produksi industry minyak goreng 61.25 persen, industry margarin 21.32 persen, dan industry sabun 1.02 persen)

VARIABEL	NILAI DASAR	NILAI AKHIR	PERUBAHAN	% PERUBAHAN
LAMMSI	13958.074293	13968.552842	10.478548	0.075072
PMSI	3.115337	3.116082	0.000745	0.023922
PIMSI	43546.743595	43589.567282	42.823687	0.098340
PsDMSI	37348.257691	38025.930645	677.672954	1.814470
TPdMSIN	16471.094693	18948.415561	2477.320868	15.040414
PdMSIMG	5902.348296	8186.381936	2284.033640	38.697033
PdMSIM	454.000871	549.777040	95.776168	21.096032
PdMSIS	724.745525	822.256585	97.511060	13.454524
HRDMSI	6218.943345	6548.706269	329.762923	5.302556
EMSI	6203.251303	5568.402037	-634.849267	-10.234137
PIMGI	5312.113466	7367.743742	2055.630276	38.697033
PsMGSI	3084.819987	4593.864418	1509.044431	48.918395
PdMGSI	2689.533839	2689.997326	0.463487	0.017233
HRDMGSI	14302.453973	14244.489991	-57.963982	-0.405273
EMGSID	2227.293479	2773.879324	546.585845	24.540360
PIMI	317.800610	384.843928	67.043318	21.096032
PsMI	208.710307	257.928671	49.218364	23.582143
PdMI	17.292462	18.135086	0.842623	4.872778
HRDMI	40520.556977	38030.695265	-2489.861711	-6.144688
EMID	109.090303	126.915257	17.824954	16.339632
PISI	471.084591	534.466781	63.382189	13.454524
PsSI	239.792303	300.245791	60.453488	25.210771
PdSI	722.970079	722.993510	0.023432	0.003241
HRDSI	2298.846463	2289.464370	-9.382093	-0.408122
ESID	231.292288	234.220989	2.928701	1.266234
PDEMSI	67558.029889	58552.448450	-9005.581440	-13.330142
PDEMGSI	257975.653137	327895.784759	69920.131622	27.103384
PDEMI	1312.979928	1541.014184	228.034256	17.367688
PDESI	4446.385803	4506.120661	59.734858	1.343447