Econometrie II : Transports

Rapport

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Contents

1 Introduction

#Présentation des données

Table 1: Consommation de gazole des camions

Année	Quantité transportée par routes	Quantité transportée par train	Prix du disel (euros/litre de diesel)	Quantité de diesel consommé (en milliers de tonnes)	PIB en monnaie constante (base 100=2014)	Indice des prix à la consommation (base 100=2015)	Quantité de diesel consommé des camions (en milliers de tonnes)	PIB en volume (en milliards d'euros 2014)
1985	128.42	56.06	0.60	11467	7.576890e+11	61.28	7999.56	1253.77
1986	134.60	52.69	0.52	12364	8.145960e+11	62.83	8378.00	1283.07
1987	144.52	52.71	0.50	13309	8.559830e+11	64.90	8874.91	1315.94
1988	161.11	52.95	0.49	14903	9.252150e+11	66.65	10083.36	1378.36
1989	168.64	53.71	0.52	16472	9.971210e+11	68.98	11026.46	1438.23
1990	197.02	52.24	0.54	17908	1.053546e+12	71.19	12847.49	1480.29
1991	202.67	52.43	0.55	18729	1.091705e+12	73.48	13088.60	1495.80
1992	208.34	51.18	0.53	19824	1.130983e+12	75.21	13520.35	1519.72
1993	204.24	45.58	0.56	20711	1.142119e+12	76.80	13736.33	1510.17
1994	219.27	48.87	0.59	21735	1.179867e+12	78.07	13944.66	1545.79
1995	234.50	48.27	0.59	22869	1.218273e+12	79.47	14175.76	1578.35
1996	238.55	50.11	0.65	23489	1.252266e+12	81.04	14106.16	1600.65
1997	246.95	54.25	0.68	24566	1.292777e+12	82.02	14718.88	1638.05
1998	257.65	54.10	0.64	25667	1.351896e+12	82.55	15658.43	1696.83
1999	266.86	54.54	0.69	26667	1.400999e+12	83.00	16588.18	1754.89
2000	276.86	57.73	0.85	27355	1.478585e+12	84.39	16920.64	1823.74
2001	290.43	51.72	0.80	28684	1.538200e+12	85.77	16846.18	1859.92
2002	293.38	51.29	0.77	29670	1.587829e+12	87.42	17155.59	1881.04
2003	296.99	48.06	0.79	30081	1.630666e+12	89.25	17034.63	1896.53
2004	314.90	46.35	0.88	30762	1.704019e+12	91.16	17539.55	1950.19
2005	314.15	40.70	1.03	31048	1.765905e+12	92.76	17707.32	1982.63
2006	327.61	41.18	1.07	31891	1.848151e+12	94.31	18073.35	2031.19
2007	339.95	42.61	1.09	32958	1.941360e+12	95.71	17911.82	2080.44
2008	327.44	40.44	1.27	32827	1.992380e+12	98.41	17474.79	2085.74
2009	284.40	32.13	1.00	32881	1.936422e+12	98.49	16954.37	2025.81
2010	300.40	29.96	1.15	33588	1.995289e+12	100.00	17245.84	2065.31
2011	300.16	34.18	1.34	34049	2.058369e+12	102.11	17561.67	2110.59
2012	283.45	32.55	1.40	34120	2.088804e+12	104.11	17591.77	2117.20
2013	292.00	32.00	1.35	34272	2.117189e+12	105.01	17653.77	2129.40
2014	288.50	32.20	1.28	34407	2.149765e+12	105.54	17703.04	2149.76
2015	281.50	34.30	1.15	34803	2.198432e+12	105.58	17757.19	2173.69
2016	287.70	32.60	1.11	34777	2.234129e+12	105.77	17809.40	2197.50
2017	307.70	33.42	1.23	34690	2.297242e+12	106.86	18328.21	2247.86
2018	317.30	31.98	1.44	33626	2.363306e+12	108.84	17270.02	2289.78
2019	322.30	31.58	1.44	32770	2.437635e+12	110.05	16344.30	2331.98

Présentation des variables

Fig. 1 Quantités transportées par route

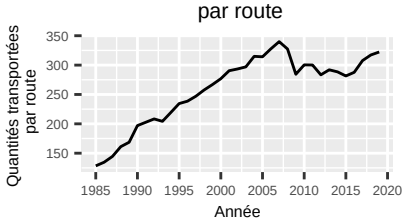


Fig. 2 Quantités transportées par train

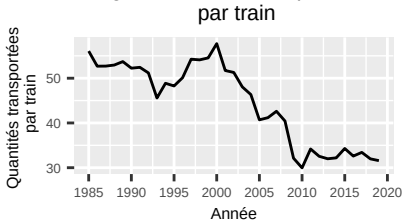


Fig. 3 Prix du diesel

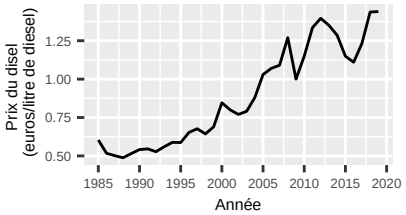


Fig. 4 Produit intérieur brut

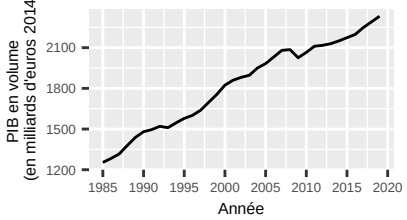


Fig. 5 Quantité totale de diesel consommé

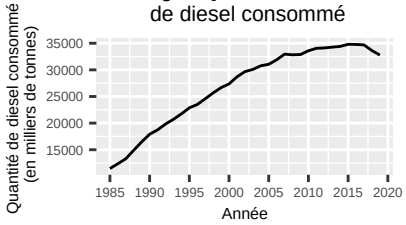


Fig. 6 Quantité de diesel consommé par le transport par cami

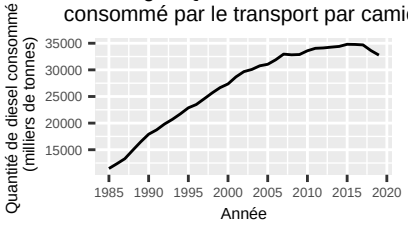
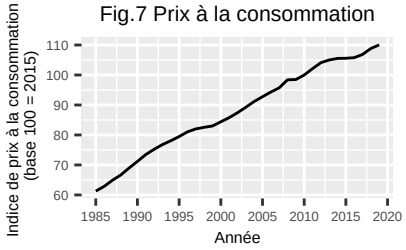


Fig.7 Prix à la consommation

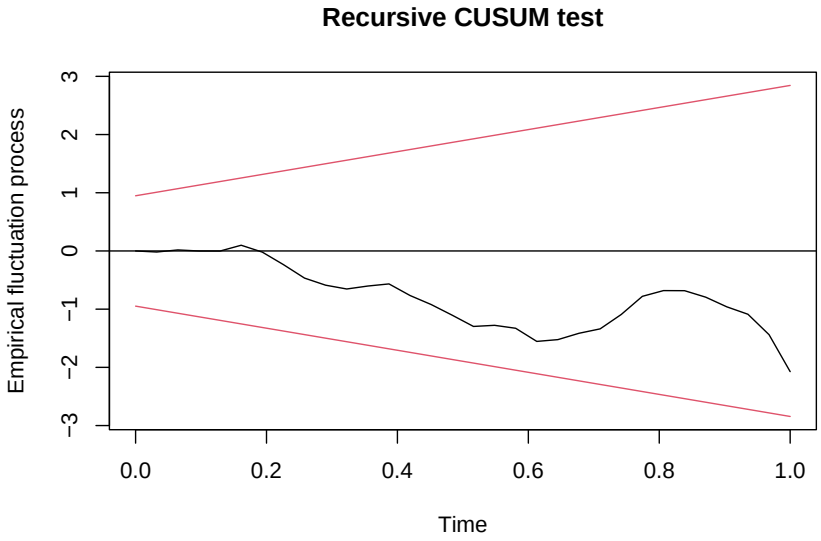


	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	1767	790.8	2.235	0.03277
x1	-378013	120267	-3.143	0.003667
x2	4.242	1.423	2.98	0.005559
x3	36.89	5.615	6.57	2.449e-07

Table 3: Fitting linear model: y ~ x

Observations	Residual Std. Error	R^2	Adjusted R^2
35	721.2	0.9475	0.9424

```
##           [,1]
## [1,] 0.5667082
```



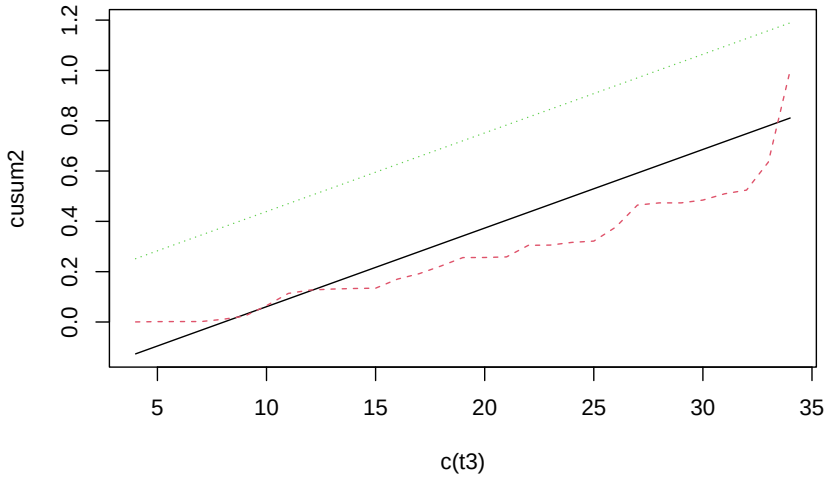


Table 4: Test de Chow de 1999 à 2003

	statistic	p.value	method	data.name
1999	c(F = 10.7641179888783)	c(F = 2.38893676115515e-05)	Chow test	y ~ x
2000	c(F = 11.17276760355)	c(F = 1.77208419261943e-05)	Chow test	y ~ x
2001	c(F = 11.3979272051564)	c(F = 1.50725877964275e-05)	Chow test	y ~ x
2002	c(F = 10.5854028432303)	c(F = 2.72788003993218e-05)	Chow test	y ~ x
2003	c(F = 10.0026924784759)	c(F = 4.24242733156888e-05)	Chow test	y ~ x

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	117.4	1670	0.07026	0.9445

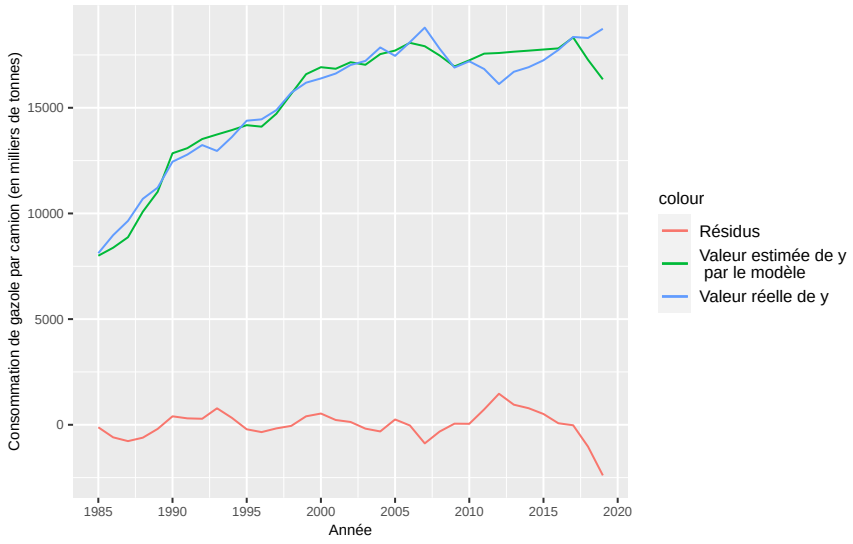
	Estimate	Std. Error	t value	Pr(>|t|)
x1	-294623	141025	-2.089	0.04528
x2	-365083	120331	-3.034	0.004947
x3	4.871	1.525	3.195	0.003283
x4	37.35	5.607	6.661	2.231e-07

Table 6: Fitting linear model: y ~ x

Observations	Residual Std. Error	R^2	Adjusted R^2
35	718.3	0.9496	0.9429

```
##           [,1]
## [1,] 0.5232029
```

Fig.8 Comparaison des résidus et des valeurs estimées par le modèle 1



	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	-2808	1188	-2.363	0.0253
x1	-194890	93923	-2.075	0.04729
x2	-330704	79145	-4.178	0.0002599
x3	6.94	1.049	6.613	3.572e-07
x4	32.37	3.754	8.625	2.268e-09

Table 8: Fitting linear model: y ~ x

Observations	Residual Std. Error	R^2	Adjusted R^2
33	470.3	0.9795	0.9766

```
##           [,1]
## [1,] 0.7389764
```

Fig.9 Comparaison des résidus et des valeurs estimées par le modèle 2

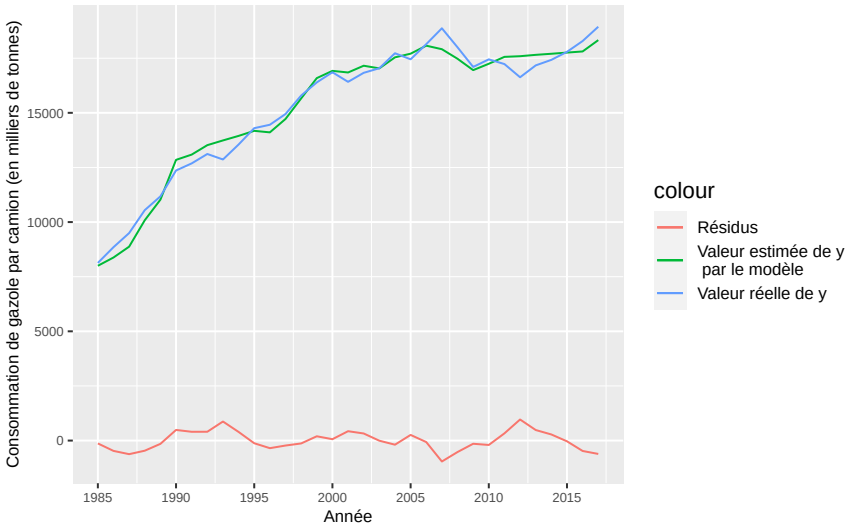


Table 9: Breusch-Godfrey test for serial correlation of order up to 2: `y ~ x`

Test statistic	df	P value
15.81	2	0.0003685 * * *

Table 10: Jarque Bera Test: `res`

Test statistic	df	P value
0.2348	2	0.8892

statistic	p.value	parameter	method	alternative
10.25	0.2477	8	White's Test	greater

Table 12: studentized Breusch-Pagan test: `y ~ x`

Test statistic	df	P value
2.284	4	0.6836

```
## Valeur de l'erreur quadratique moyenne RMSE (sur les années 2018 et 2019) : 2529.973
```

Table 13: Tableau des prévisions de 2017 à 2025

Année	Valeur de la prévison	Borne inférieure	Borne supérieure	Ecart-type de prévision
2018	18988.78	17975.96	20001.61	495.9313
2019	19482.35	18456.25	20508.46	502.4317
2020	19858.63	18795.74	20921.52	520.4458
2021	21008.34	19703.37	22313.30	638.9760
2022	22111.04	20643.57	23578.52	718.5499
2023	22885.86	21488.09	24283.63	684.4200
2024	22927.70	21603.50	24251.89	648.3924
2025	23390.82	22030.94	24750.69	665.8657