

Micro-macro linkage to assess the distributive impacts of carbon taxation on French households

From Factor-Four Mitigation to Zero-Net Emissions: is a fair transition possible? Evidence from French Low carbon strategy

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- Impacts de mesures de transition énergétique sur les ménages Analyse économique et sociologique

- 1. Context
- 2. Methods
- 3. Model
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- 5. Results
 - A. With no rebating of carbon tax revenus
 - B. With various rebating schemes of carbon tax revenues

2050 carbon neutrality in Europe : one objective but 450 million target households

The distributional impacts of multi-policy environmental plans have yet to be quantified



In December 2019, EU announced the objective of zero net emissions of greenhouse gases by 2050.



France unveiled its 2050 roadmap (SNBC) *SNBC 2015* Factor 4 policies package *SNBC 2020* Zero Net Emissions in 2050

Our paper contributes to assessing the distributive consequences of the energy transition proposition of France. Could a more stringent strategy be fairer to the public ?

Motivation

1.

Level of commitment implies major shifts of public policies 2.

Decision-makers cannot turn to examples from the past to anticipate impacts 3.

Social acceptability of environmental reforms is closely linked to fairness

Published analyses closest to our own are Rausch et al. (2011) and Douenne (2020).

Methods

Policy signals and their propagations in the economic system

We designed a 14-sector Input-Output framework with feedback effects from households' expenditures survey



Policy signals and their propagations in the economic system

We designed a 14-sector Input-Output framework with feedback effects from consumers expenditures survey



Disruptive technologies to reduce energy consumption

Largest energy consumers benefit from energy-efficiency policies to bridge inequality gaps

- Price and income elasticities specific to 10 deciles of living standards x 4 classes of economic vulnerability = 40 classes of households, for 14 consumption items including 4 energies
 - Historic long term elasticities cannot illustrate trend-breaking technologies

Methodology of distribution of national objectives for renovation and car electrification across households

• Impacts on energy consumption and savings behaviour





New housing construction



Electric Vehicles

- 1. Switching to electric mobility the eligible trips targeted at the most/median/least energy-intensive households, under credit condition
- 2. Switching the most/median/least energy-intensive households to more energy-efficient housing, under credit conditions and with priority given to households (1) that own their own home (2) that are public sector tenants (3) that are private sector tenants



We base our simulations on French Environmental Agency trajectories

ThreeME model has provided us with macro-economic and technical data up to 2035

Input of our model from SNBC and ThreeME simulations		Factor Four (F4)	Zero Net Emissions (ZNE)		
 Input-output matrices : 14 sectors With technical coefficient evolution from 2010 to 2035 	Carbon tax 2035 (€ 2019)	€44.6 /tCO2	€246/tCO2		
 Energy mix Carbon price Annual projection of household 	Thermal retrofit (2010-2035)	500 million m2	1 billion m2		
investments in energy efficiency: nature (EV, retrofit, building), volume, price,	retrofits/year Subsidies	220 000/year	700 000/year		
expected energy savings	(2010-2035)	7 €bn	15 €bn		
	EV (share of car sales in 2035)	24%	49%		

Bonus for EV

€0 /EV

€4600/EV



Combining General Equilibrium modelling and Micro-simulation

Macro-micro articulation to project the economy at three horizons : 2025, 2030, 2035

MACRO IMACLIM model

- Static computable general equilibrium model
- 24 goods and consumer services
- Input-output matrix issued by ThreeME and French Environmental Agency (taking into account carbon price trajectory, etc)

MICRO

2010 French Households' Expenditures Survey

- **10 289** Households (hundreds of socio-economics data)
 - **1120** Long Term elasticities for 40 classes of households

5-step Macro-micro articulation to ensure consistency in modelling

Iterations until convergence of micro and macro representations of the economy



Results With no recycling of carbon tax revenus

Household behaviour have significant impact on macroeconomic trajectories

Low-carbon investments have a multiplier effect on activity and increase household savings

- Emissions reductions investments are growth enhancing thanks to multiplier effect of low-carbon investments
 - ZNE induces in 2035 a GDP 3.2% higher and an unemployment rate 1.7 points lower than F4
 - ZNE also induces a rise in the household savings rate of 0.8 points due to the profitability of electric vehicles and thermal renovations.
- ... but a 2-3 years delay years in the decarbonisation trajectory compared to the objectives, despite the targeting of the most energy-intensive
 - In 2035, national emissions 53.2% lower than in 2010, not 68%.
- Capital income growth are higher than social transfers, which are higher than wages and unemployment

ZNE more ambitious pathway worsen inequalities

Green growth does no appear to be inclusive as it increases gaps between households





in ZN

+0.05%





Increase in the number of poor people due to demographic trends

ZNE does not aggrave carbon tax regressivity

Social acceptability is clearly linked with perceived fairned of the carbon tax



TWO (PARTIAL) CONCLUSIONS

- 1. ZNE does not aggravate vertical inequalities but increase carbon tax bills
- Household adaptation through elasticities and low-carbon technologies cannot overcome carbon tax regressivity

ZNE more ambitious strategy deepens horizontal inequalities

Rural and small cities inhabitants had a central role in the Yellow Vests protests



Urban unit

Size of urban unit and type of dwelling are the main factors of horizontal inequalities

Low-income deciles cumulate liabilities

Size of urban unit Rural Urban 2k to 100k inhab. Urban >100k inhab.



Type of dwelling 2019 Individual housing Collective housing t of consumption 009 unit 1 ∋ec > 200 -Carbon tax payments 0 D2 D3 D4 D5 D7 D8 D9 D1 D6 D10 Region Paris region Mediterranean region North East West 600 400 200 0 D1 D2 D3 D4 D5 D6 D7 D8 D9 D10

AGGRAVATED URBAN-RURAL DIVIDE

Divide aggravated especially for low-income deciles +75% on carbon tax payments for rural D1-D3 households versus urban

URBAN UNIT SIZE AND HOUSING TYPE DRIVE HORIZONTAL INEQUALITIES

The size of the urban unit and the type of dwelling are largely correlated and have significant influence on households vulnerability and social acceptability \Rightarrow They are the best indicator of horizontal inequalities

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Electric vehicle and renovation subsidies distribution mitigates rural-urban divide

But they have only second-order effect of income distribution

Energy efficiency distributive effects depends directly on the model selection of beneficiaries

Between Maximum energy savings and minimum energy savings households



EQUITY-EFFICIENCY TRADE-OFF

- Selecting largest energy consumers reduce emissions and carbon tax payments
- Reduces horizontal inequalities

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 But increases vertical inequalities (smoothing of carbon tax bills irrespective of income)

Technological incentives play their role in the medium-long term

2025-2030 is a critical period for social acceptability of reforms as technologies are effective after 2030







EV benefits mostly middle income classes (D4-D7) and have clear influence on cutting emissions (-20%)

33% households pay less carbon tax in 2035 than 2030

100% of them have benefited from technological incentives



Thermal renovation target mostly lowincome households but are not fully profitable New building target well-off home owners

ZNE package is less fair than F4 policy

Constant vertical inequalities but increased gap between urban and rural



We modelled Zero Net emissions packages beyond carbon tax, but electric vehicles and thermal renovation are not enough to make the transition fair to the low-income deciles and aggravates the burden on rural households



In the medium-long term, energy-efficient technologies can force down carbon tax payments solving all equity issues



Rebating of carbon tax revenus should complement incentives on the short term to enhance social justice

Results With targeted rebating of carbon tax revenus

Rebating €18 billion carbon tax revenues to household can make the tax progressive

Income-related retrocession cannot solve heterogenity in households' carbon tax payments



SOCIALLY ACCEPTABLE SOLUTION

Carbon tax rebates should actively target low-income households to make the full package progressive

TARGETING RURAL HOUSEHOLDS

Rural targeted rebate concentrates compensation on a small number of middle-income households

82% of D1-D3 are over-compensated by the poverty-targeted rebate

Social acceptability comes at the price of a small rebound effect in emissions

Overcompensated households per income decile

	Living standard rebate	Per-capita rebate	Poverty- targeted rebate	Rural-targeted rebate				
D1	62%	74%	91%	49%				
D2	62%	70%	84%	52%				
D3	55%	65%	71%	47%				
D4	59%	63%	65%	44%				
D5	61%	63%	62%	44%				
D6	60%	61%	58%	43%				
D7	57%	56%	50%	42%				
D8	64%	61%	49%	38%				
D9	63%	56%	37%	37%				
D10	78%	58%	0%	30%				

- ZNE Poverty-target rebate reduce Gini index the most at the F4 level
 - With the right rebate, ZNE does not aggraves income inequalities
- Poverty-target rebate reduce poverty rate by 1.8pts.
- Only poverty-targeted rebate ensure justice for the low-income rebates
 - But fail to compensate for the rural households on the short term

Recycling induce moderate recovery effects

Low-income deciles have higher propensity to consumption

- Limited recovery effect in activity (+0.2 to +1.1 pts in GDP) and -0.7pts in unemployment
 - Savings rate down by 1.8 percentage points and real consumption income up by 3.1pts
- Limited effect on government deficit
- The increase in activity leads to an increase in emissions of 3.1% the reduction in emissions compared to 2010 is only 51.7%.

Main Results : Flexible model for distributive evaluation of prospective policies

Recycling of carbon tax revenues is essential to ensure a fairer and more acceptable transition.



Innovative methodology producing outlooks of the effects of climate policies at both the *macro*- and *micro*-economic levels using micro-simulation and CGE

- Full account of the rebound effect
- Explicit distribution of energy-efficient technologies
- Vertical and Horizontal inequalities
- Several retrocession schemes

Main Results : Flexible model for distributive evaluation of prospective policies

Recycling of carbon tax revenues is essential to ensure a fairer and more acceptable transition.



- Raising mitigation ambition from Factor-4 to Zero Net Emissions prompts increased horizontal inequality, thus threatening social acceptability.
- 2. Technological incentives and carbon tax recycling can make a more ambitious strategy fairer to the public



Thank you for your attention

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WP: http://www.centre-cired.fr/fr/cired-wp-2020-84-ravigne-ghersi-nadaud/



Carbon tax trajectory



Productive sector emissions in the AME and AMS scenarios



Changes in the private vehicle fleet in the AME and AMS scenarios



Bonus/Malus

Euros 2020	2010	2025	2030	2035		
AME						
Bonuses for electric vehicles	6 108 €	0€	0€	0€		
Bonus/malus for class A combustion vehicles	1 222 €	591€	532€	483€		
Bonus/malus for Class G internal combustion vehicles	-3 176€	-6 303 €	-5 678 €	-5 149€		
AMS						
Bonuses for electric vehicles	5 950 €	6 086 €	5 193€	4 576 €		
Bonus/malus for class A combustion vehicles	1 190 €	-153€	-1 324€	-2 679 €		
Bonus/malus for Class G internal combustion vehicles	-3 094 €	-6 838€	-7 029€	-7 706 €		

Composition of the residential stock by energy performance diagnostic class in 2010 and 2035 in the AME and AMS scenarios



Renovated residential areas in the AME and AMS scenarios



De	cile	Class	Foc	od	Electi	ricity	Ga	S	Oth resider ener	er ntial gv	Constru	uction	First I vehic	Hand cles	Vehicle	s fuels	Air & trans	: rail port	Road & trans	e water port	Leisu servio	ire ces	Other se	ervices	Other g	goods	Housing	g rents	Second vehic	hand les
			Income	Price	Income	Price	Income	Price	Income	Price	Income	Price	Income	Price	Income	Price	Income	Price	Income	Price	Income	Price	Income	Price	Income	Price	Income	Price	Income	Price
	1	1	0.28	-0.17	0.46	-0.70	1.35	-0.21	0.86	-0.43	1.86	-0.67	2.49	-2.15	0.69	-0.37	1.31	-0.17	1.39	-0.68	1.58	-0.34	1.15	-0.43	1.39	-0.56	0.56	-0.73	1.93	-0.54
	1	2	0.42	-0.16	0.57	-0.57	1.29	-0.17	0.86	-0.43	2.07	-0.82	2.49	-2.15	0.69	-0.37	1.38	-0.19	1.45	-0.78	1.80	-0.37	1.15	-0.43	1.44	-0.59	0.56	-0.73	1.99	-0.55
	1	3	0.45	-0.16	0.61	-0.51	1.46	-0.26	0.86	-0.43	1.26	-0.26	2.49	-2.15	0.82	-0.24	1.44	-0.22	1.54	-0.94	1.52	-0.33	1.13	-0.43	1.37	-0.55	0.56	-0.73	3.23	-0.97
	1	4	0.51	-0.16	0.67	-0.43	1.27	-0.17	0.86	-0.43	1.27	-0.26	2.49	-2.15	0.77	-0.29	1.56	-0.27	1.57	-0.98	1.79	-0.37	1.12	-0.43	1.43	-0.59	0.56	-0.73	2.91	-0.86
	2	1	0.28	-0.17	0.44	-0.72	1.32	-0.19	0.88	-0.39	1.55	-0.45	2.33	-1.93	0.78	-0.28	1.45	-0.22	1.50	-0.87	1.54	-0.33	1.15	-0.43	1.36	-0.55	0.55	-0.75	1.96	-0.55
	2	2	0.45	-0.16	0.59	-0.54	1.25	-0.16	0.88	-0.39	1.56	-0.45	2.33	-1.93	0.71	-0.35	1.55	-0.27	1.63	-1.10	1.86	-0.38	1.14	-0.43	1.44	-0.60	0.55	-0.75	2.35	-0.67
	2	3	0.39	-0.16	0.55	-0.59	1.33	-0.20	0.88	-0.39	1.34	-0.31	2.33	-1.93	0.82	-0.24	1.53	-0.26	1.61	-1.05	1.52	-0.33	1.14	-0.43	1.35	-0.54	0.55	-0.75	2.17	-0.61
	2	4	0.55	-0.17	0.70	-0.40	1.22	-0.14	0.88	-0.39	1.22	-0.24	2.33	-1.93	0.78	-0.27	2.38	-0.62	1.79	-1.37	2.04	-0.41	1.12	-0.44	1.46	-0.61	0.55	-0.75	3.96	-1.23
	3	1	0.26	-0.18	0.40	-0.78	1.30	-0.18	0.88	-0.38	1.61	-0.49	2.16	-1.68	0.79	-0.27	1.49	-0.24	1.54	-0.93	1.54	-0.33	1.16	-0.43	1.36	-0.55	0.52	-0.79	1.92	-0.53
	3	2	0.46	-0.16	0.61	-0.52	1.21	-0.13	0.88	-0.38	1.41	-0.35	2.16	-1.68	0.69	-0.37	1.75	-0.35	1.74	-1.28	1.92	-0.39	1.14	-0.43	1.43	-0.59	0.52	-0.79	2.23	-0.63
	3	3	0.41	-0.16	0.56	-0.57	1.33	-0.20	0.88	-0.38	1.29	-0.28	2.16	-1.68	0.83	-0.23	1.68	-0.32	1.75	-1.30	1.51	-0.33	1.14	-0.43	1.35	-0.54	0.52	-0.79	2.43	-0.69
	3	4	0.52	-0.16	0.69	-0.41	1.22	-0.14	0.88	-0.38	1.19	-0.23	2.16	-1.68	0.80	-0.26	3.95	-1.30	1.81	-1.39	1.91	-0.39	1.11	-0.44	1.44	-0.59	0.52	-0.79	4.44	-1.40
	4	1	0.23	-0.18	0.39	-0.79	1.30	-0.18	0.86	-0.44	1.55	-0.44	2.01	-1.47	0.78	-0.28	1.48	-0.23	1.54	-0.93	1.52	-0.33	1.16	-0.43	1.35	-0.54	0.50	-0.84	1.94	-0.54
	4	2	0.42	-0.16	0.58	-0.55	1.22	-0.14	0.86	-0.44	1.34	-0.31	2.01	-1.47	0.68	-0.38	1.70	-0.32	1.75	-1.30	1.77	-0.36	1.13	-0.43	1.41	-0.57	0.50	-0.84	2.46	-0.70
	4	3	0.37	-0.16	0.55	-0.59	1.36	-0.21	0.86	-0.44	1.25	-0.25	2.01	-1.47	0.84	-0.22	1.70	-0.33	1.70	-1.20	1.47	-0.33	1.14	-0.43	1.34	-0.54	0.50	-0.84	2.60	-0.75
	4	4	0.50	-0.16	0.67	-0.44	1.23	-0.14	0.86	-0.44	1.19	-0.23	2.01	-1.47	0.79	-0.27	2.73	-0.76	1.87	-1.50	1.80	-0.37	1.12	-0.44	1.42	-0.58	0.50	-0.84	4.97	-1.60
	5	1	0.23	-0.18	0.40	-0.78	1.32	-0.19	0.85	-0.48	1.42	-0.36	1.93	-1.36	0.80	-0.26	1.50	-0.24	1.56	-0.97	1.49	-0.33	1.15	-0.43	1.34	-0.54	0.48	-0.87	2.05	-0.57
	5	2	0.39	-0.16	0.57	-0.56	1.22	-0.14	0.85	-0.48	1.30	-0.28	1.93	-1.36	0.67	-0.40	1.66	-0.31	1.69	-1.18	1.73	-0.36	1.13	-0.43	1.40	-0.57	0.48	-0.87	2.68	-0.78
	5	3	0.38	-0.16	0.56	-0.58	1.32	-0.19	0.85	-0.48	1.24	-0.25	1.93	-1.36	0.84	-0.22	1.77	-0.35	1.73	-1.26	1.47	-0.33	1.14	-0.43	1.33	-0.53	0.48	-0.87	2.42	-0.69
	5	4	0.50	-0.16	0.67	-0.44	1.21	-0.14	0.85	-0.48	1.19	-0.23	1.93	-1.36	0.79	-0.26	3.15	-0.95	1.92	-1.58	1.77	-0.36	1.12	-0.44	1.40	-0.57	0.48	-0.87	3.82	-1.18
	6	1	0.19	-0.19	0.37	-0.82	1.31	-0.19	0.82	-0.57	1.41	-0.35	1.85	-1.25	0.78	-0.27	1.48	-0.23	1.54	-0.94	1.48	-0.33	1.15	-0.43	1.34	-0.54	0.45	-0.92	2.01	-0.56
	6	2	0.35	-0.16	0.53	-0.61	1.21	-0.14	0.82	-0.57	1.32	-0.29	1.85	-1.25	0.60	-0.48	1.59	-0.28	1.72	-1.25	1.69	-0.35	1.13	-0.43	1.38	-0.56	0.45	-0.92	2.45	-0.70
	6	3	0.36	-0.16	0.54	-0.60	1.34	-0.20	0.82	-0.57	1.23	-0.24	1.85	-1.25	0.84	-0.22	1.71	-0.33	1.80	-1.39	1.45	-0.33	1.14	-0.43	1.32	-0.53	0.45	-0.92	2.56	-0.74
	6	4	0.47	-0.16	0.66	-0.45	1.22	-0.14	0.82	-0.57	1.18	-0.22	1.85	-1.25	0.79	-0.27	2.83	-0.81	1.88	-1.52	1.70	-0.35	1.11	-0.44	1.39	-0.56	0.45	-0.92	3.95	-1.22
	7	1	0.20	-0.19	0.36	-0.83	1.34	-0.20	0.78	-0.69	1.34	-0.31	1.78	-1.15	0.78	-0.28	1.48	-0.24	1.62	-1.08	1.46	-0.33	1.15	-0.43	1.33	-0.53	0.42	-0.97	2.36	-0.67
	7	2	0.31	-0.17	0.51	-0.63	1.22	-0.14	0.78	-0.69	1.29	-0.28	1.78	-1.15	0.60	-0.47	1.55	-0.26	1.68	-1.17	1.63	-0.34	1.13	-0.43	1.37	-0.55	0.42	-0.97	2.55	-0.73
	7	3	0.31	-0.17	0.50	-0.65	1.33	-0.19	0.78	-0.69	1.23	-0.25	1.78	-1.15	0.83	-0.23	1.66	-0.31	1.78	-1.35	1.43	-0.33	1.14	-0.43	1.31	-0.53	0.42	-0.97	2.44	-0.70
	7	4	0.41	-0.16	0.62	-0.49	1.22	-0.14	0.78	-0.69	1.17	-0.22	1.78	-1.15	0.77	-0.28	2.17	-0.53	1.85	-1.47	1.59	-0.34	1.11	-0.44	1.36	-0.55	0.42	-0.97	3.24	-0.97
	8	1	0.11	-0.21	0.28	-0.94	1.36	-0.21	0.73	-0.84	1.33	-0.30	1.72	-1.06	0.76	-0.30	1.42	-0.21	1.61	-1.06	1.42	-0.33	1.15	-0.43	1.32	-0.53	0.38	-1.04	2.38	-0.68
	8	2	0.22	-0.18	0.48	-0.68	1.23	-0.14	0.73	-0.84	1.24	-0.25	1.72	-1.06	0.66	-0.41	1.56	-0.27	1.62	-1.07	1.54	-0.33	1.12	-0.43	1.35	-0.54	0.38	-1.04	2.39	-0.68
	8	3	0.27	-0.18	0.47	-0.69	1.35	-0.20	0.73	-0.84	1.22	-0.24	1.72	-1.06	0.82	-0.24	1.59	-0.28	1.81	-1.39	1.40	-0.33	1.14	-0.43	1.30	-0.52	0.38	-1.04	2.66	-0.77
	8	4	0.40	-0.16	0.61	-0.51	1.20	-0.13	0.73	-0.84	1.18	-0.22	1.72	-1.06	0.75	-0.31	2.16	-0.52	1.92	-1.59	1.59	-0.34	1.11	-0.44	1.35	-0.54	0.38	-1.04	2.78	-0.81
	9	1	0.03	-0.24	0.22	-1.01	1.38	-0.22	0.75	-0.78	1.28	-0.27	1.67	-0.99	0.76	-0.30	1.41	-0.21	1.63	-1.09	1.39	-0.33	1.14	-0.43	1.30	-0.52	0.33	-1.11	2.55	-0.73
	9	2	0.14	-0.20	0.43	-0.74	1.23	-0.14	0.75	-0.78	1.22	-0.24	1.67	-0.99	0.63	-0.44	1.52	-0.25	1.00	-1.13	1.48	-0.33	1.12	-0.43	1.32	-0.53	0.33	-1.11	2.47	-0.71
	9	3	0.25	-0.18	0.47	-0.69	1.35	-0.20	0.75	-0.78	1.20	-0.23	1.0/	-0.99	0.82	-0.24	1.00	-0.29	1.81	-1.40	1.59	-0.33	1.13	-0.43	1.30	-0.52	0.33	-1.11	2.94	-0.8/
	9	4	0.29	-0.17	0.50	-0.57	1.21	-0.14	0.75	-0.78	1.18	-0.22	1.0/	-0.99	0.74	-0.32	1.80	-0.37	1.08	-1.1/	1.32	-0.33	1.11	-0.44	1.33	-0.55	0.33	-1.11	2.30	-0.74
	10	1	-0.45	-0.39	-0.14	-1.49	1.48	-0.27	0.59	-1.25	1.21	-0.25	1.50	-0.85	0.75	-0.55	1.34	-0.18	1.59	-1.02	1.32	-0.34	1.14	-0.45	1.27	-0.51	0.18	-1.38	3.75 2.21	-1.15
	10	2	-0.55	-0.30	0.24	-0.98	1.24	-0.15	0.59	-1.25	1.10	-0.22	1.50	-0.83	0.03	-0.44	1.43	-0.22	1.51	-0.88	1.39	-0.33	1.11	-0.44	1.29	-0.52	0.18	-1.38	2.51	-0.05
	10	د ۸	0.10	0.22	0.34	-0.60	1.30	-0.22	0.59	1.25	1.10	0.22	1.50	0.83	0.72	0.24	1.40	0.20	1.01	-1.40	1.34	0.34	1.15	0.44	1.20	0.52	0.18	1.30	2.22	-0.77
	10	4	0.10	-0.21	0.40	-0.08	1.21	-0.14	0.59	-1.23	1.10	-0.22	1.50	-0.85	0.72	-0.34	1.04	-0.50	1.04	-1.12	1.43	-0.55	1.11	-0.44	1.50	-0.52	0.18	-1.30	2.32	-0.00

Table 1 Long-term price and income elasticities of French households by decile and economic vulnerability.

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Figure 1: Distribution of income quintiles across housing Energy Performance Certificates in 2010



Table 2: Goods and services disaggregation of the micro-simulation procedure

Source: Sectoral aggregation follows Nadaud et al (2020), see it for detailed aggregation from the Classification of Individual Consumption by Purpose (COICOP).

- Code Description
- A01 Food
- A02 Electricity
- A03 Gas (natural and biogas)
- A04 Other residential energy
- A05 Construction and construction services
- A06 First-hand vehicles
- A07 Vehicle fuels and lubricants
- A08 Rail and air transport
- A09 Road and water transport
- A10 Leisure services
- A11 Other services
- A12 Other consumption/equipment goods
- A13 Housing rents
- A14 Second-hand vehicles

Figure 2: Average income structure by living-standard decile Source: *Budget des Familles* survey 2010-2011, INSEE.

