

Supplementary materials

Supplementary Table 2. Overview parameters and statistical results

Parameter group	Parameter	Min	Max	Average	CV (%)	% Var in/tot	Role	
Measures	Length (mm)	69	99	85	8	56	large	
	Diameter (mm)	5.4	8.3	7.7	7	28	.	
	Weight (mg)	513	1078	859	11	33	.	
	TobaccoWeight (mg)	354	810	615	13	47	large	
Filter ventilation	FilterLength (mm)	0	30	24	22	61	large	
	FilterVentilation (%)	0	90	39	44	56	large	
	FilterDropPressureClosed	50	243	122	34	27	.	
TNCO	FilterDropPressureOpen (mmH2O)	40	286	91	28	78	large	
	Tar (mg)	1.0	10.0	7.8	31	66	large	
Tobacco composition	Nicotine (mg)	0.1	1.0	0.6	30	63	large	
	CO (mg)	1.0	10.0	8.2	29	58	large	
	part type: Tobacco leaf	8	100	58	35	17	small	
Number of additives by category	part type: Cut stems	0	73	20	66	42	.	
	part type: Reconstituted tobacco	0	31	6	101	23	.	
	part type: Expanded tobacco	0	63	16	92	23	.	
	part type: Other/Unspecified	0	7	0	714	0	small	
	leaf type: Virginia	11	95	59	31	25	.	
	leaf type: Burley	0	42	19	50	30	.	
	leaf type: Oriental	0	18	7	61	33	.	
	leaf type: Kentucky	0	4	0	1015	84	.	
	leaf type: Dark	0	43	1	713	81	.	
	leaf type: Other	0	75	10	183	4	small	
	leaf type: Unspecified	0	31	4	154	8	small	
	cure method: Air	0	77	22	60	41	.	
	cure method: Fire	0	4	0	1015	84	.	
	cure method: Sun	0	18	6	79	17	small	
	cure method: Flue	11	95	59	30	26	.	
	cure method: Other	0	75	13	139	6	small	
	Number of additives by function	Grand Total	14	115	61.9	40	27	.
		tobacco (burnt)	0	72	21.7	86	25	.
		paper (burnt)	4	13	6.3	36	16	small
		side seam adhesive (burnt)	0	5	2.4	50	33	.
inks used on cigarette paper (burnt)		0	12	2.0	150	46	large	
filtration material (unburnt)		0	9	3.9	48	10	small	
filter overwrap (unburnt)		0	10	4.9	40	48	large	
filter adhesive (unburnt)		0	14	5.5	56	22	.	
tipping paper and tipping paper inks		0	30	15.0	36	57	large	
adhesive (unburnt)		0	3	0.3	279	0	small	
adhesive (burnt)		0	1	0.0	714	0	small	
Adhesive		0	11	3.6	70	32	.	
Binder		2	19	8.1	44	32	.	
Carrier		0	6	1.2	129	9	small	
Colour		0	16	5.1	98	23	.	
Combustion Modifier		0	3	1.2	69	36	.	
Casing		0	5	0.7	246	15	small	
Fibre		0	5	2.7	54	17	small	
Filler		2	30	7.2	76	34	.	
Filter Component		0	1	0.1	325	0	small	
Filtration Material	0	2	0.8	67	20	.		
Flavour and/or Taste Enhancer	0	67	13.7	118	25	.		
Humectant	0	5	2.2	57	37	.		
Plasticiser	0	5	2.1	62	21	.		
Preservative	0	11	0.8	251	69	large		
Solvent - Processing Aid	0	19	3.9	123	2	small		
Reduced Ignition Propensity Agent	0	1	0.1	291	34	.		
Sizing Agent	0	5	1.6	77	49	large		
Water-Wetting Agents	0	1	0.0	500	0	small		
Viscosity Modifier	0	2	0.1	368	71	large		
Other	0	52	6.6	222	23	.		

For each parameter, we determined summary statistics such as minimum, maximum, average and coefficient of variation (CV) over the set of 103 cigarettes. Using analysis of variance (ANOVA), we determined for each parameter the total variation and extent to which this could

be attributed to within-brand variation. If this value ($\%Var\ in/tot$) was more than 45% and at least three brands showed within-brand variation, we considered that *within*-brand variations played a large role in explaining total market variation with regard to manufacturers and/or consumers. On the other hand, if it was less than 20%, we considered the role of brand variations as small because product varieties were mainly attributable to variation *between* brands.

Supplementary Table 3: Laboratory results compared to EU-CEG data (in this table the results lower than the EU-CEG data are presented in different shades of blue, the higher results in red, with increasing intensities related to larger differences)

Product ID	EU-CEG data					Measured results				
	Nicotine (mm/cig)	Filter length (mm)	Filter Drop Pressure Closed (mmWg)	Filter Drop Pressure Open (mmWg)	Filter Ventilation (%)	Filter wrapper length (mm)	Filter length (mm)	Filter Drop Pressure Closed (mmWg)	Filter Drop Pressure Open (mmWg)	Filter Ventilation (%)
TP-2020-01	0.9	27	124	85	38	32	26	108	77	37
TP-2020-02	0.6	30	243	137	50	35	30	241	143	56
TP-2020-03	0.6	27	137	107	28	31	27	131	99	28
TP-2020-04	0.8	22	120	97	27	27	22	117	95	27
TP-2020-05	0.6	27	72	89	31	33	26	118	92	25
TP-2020-06	0.8	27	131	87	44	26	21	129	103	28
TP-2020-07	0.8	27	113	93	17	32	27	108	92	18
TP-2020-08	0.6	30	210	130	42	35	30	170	139	41
TP-2020-09	0.7	21	73	100	25	26	21	94	69	37
TP-2020-10	0.6	27	136	96	35	33	27	131	98	35
TP-2020-11	0.7	21	56	74	42	25	21	119	96	26
TP-2020-12	0.7	27	120	91	27	33	27	137	99	37
TP-2020-13	0.7	27	72	90	39	33	27	120	83	40
TP-2020-14	0.5	27	131	92	46	25	21	102	85	24
TP-2020-15	0.1	27	204	83	77	32	28	203	82	79
TP-2020-16	0.6	27	110	77	37	32	27	125	89	37
TP-2020-17	0.7	27	60	75	35	32	28	105	82	27
TP-2020-18	0.3	27	210	105	74	31	27	214	97	76
TP-2020-19	0.6	27	60	80	42	32	28	122	93	28
TP-2020-20	0.8	21	105	85	30	25	21	109	86	29
TP-2020-21	0.6	27	137	89	38	32	28	138	94	38
TP-2020-22	0.8	22	97	85	30	33	28	116	70	43
TP-2020-23	0.8	21	109	86	28	25	21	100	80	27
TP-2020-24	0.4	27	167	45	76	32	27	160	43	78
TP-2020-26	0.7	27	119	85	43	25	21	111	90	26
TP-2020-27	0.6	27	80	80	90	33	27	124	93	34
TP-2020-28	0.3	27	165	85	73	32	27	165	87	69
TP-2020-30	0.6	27	136	103	32	33	27	133	96	33
TP-2020-31	0.7	21	56	77	37	25	21	125	93	30
TP-2020-32	0.6	27	210	120	60	32	27	212	128	56
TP-2020-33	0.8	21	105	85	30	25	21	109	87	28
TP-2020-34	0.5	27	180	43	78	32	27	168	58	74
TP-2020-37	0.7	21	106	76	37	33	27	134	102	28
TP-2020-38	0.6	27	72	91	33	32	28	115	86	30
TP-2020-39	0.1	27	210	80	80	32	27	218	69	83
TP-2020-40	0.6	30	230	150	39	36	30	165	157	39
TP-2020-41	0.4	27	146	88	53	33	27	143	85	54
TP-2020-42	0.1	27	197	59	83	32	27	150	77	69
TP-2020-43	0.7	27	125	100	26	33	27	128	103	25
TP-2020-44	0.7	27	60	83	33	33	26	134	96	35
TP-2020-45	0.7	27	136	104	29	33	27	131	98	31
TP-2020-46	0.8	21	107	83	30	25	21	131	96	34
TP-2020-47	0.6	27	136	103	32	32	27	125	95	30
TP-2020-48	0.5	27	130	79	51	32	27	130	81	52
TP-2020-49	0.8	22	98	85	29	27	22	105	79	34
TP-2020-50	0.9	21	115	95	24	25	22	123	101	25
TP-2020-51	0.6	27	123	81	42	31	27	127	84	44
TP-2020-52	0.5	27	130	95	42	33	27	140	98	41
TP-2020-53	0.7	27	118	79	40	32	27	131	93	37
TP-2020-54	0.8	27	120	91	25	31	26	122	98	25
TP-2020-55	0.3	27	210	105	74	32	27	213	102	74
TP-2020-56	0.9	21	165	110	47	25	21	161	119	39
TP-2020-57	0.4	27	137	107	55	33	27	151	83	53
TP-2020-58	0.1	27	98	63	83	33	27	178	70	84
TP-2020-59	0.7	27	120	95	29	33	27	130	101	29
TP-2020-60	0.8	22	116	85	36	26	22	128	93	37

Measured result < 95% EU-CEG data

Measured result < 90% EU-CEG data

Measured result < 85% EU-CEG data

Measured result < 80% EU-CEG data

Measured result < 50% EU-CEG data

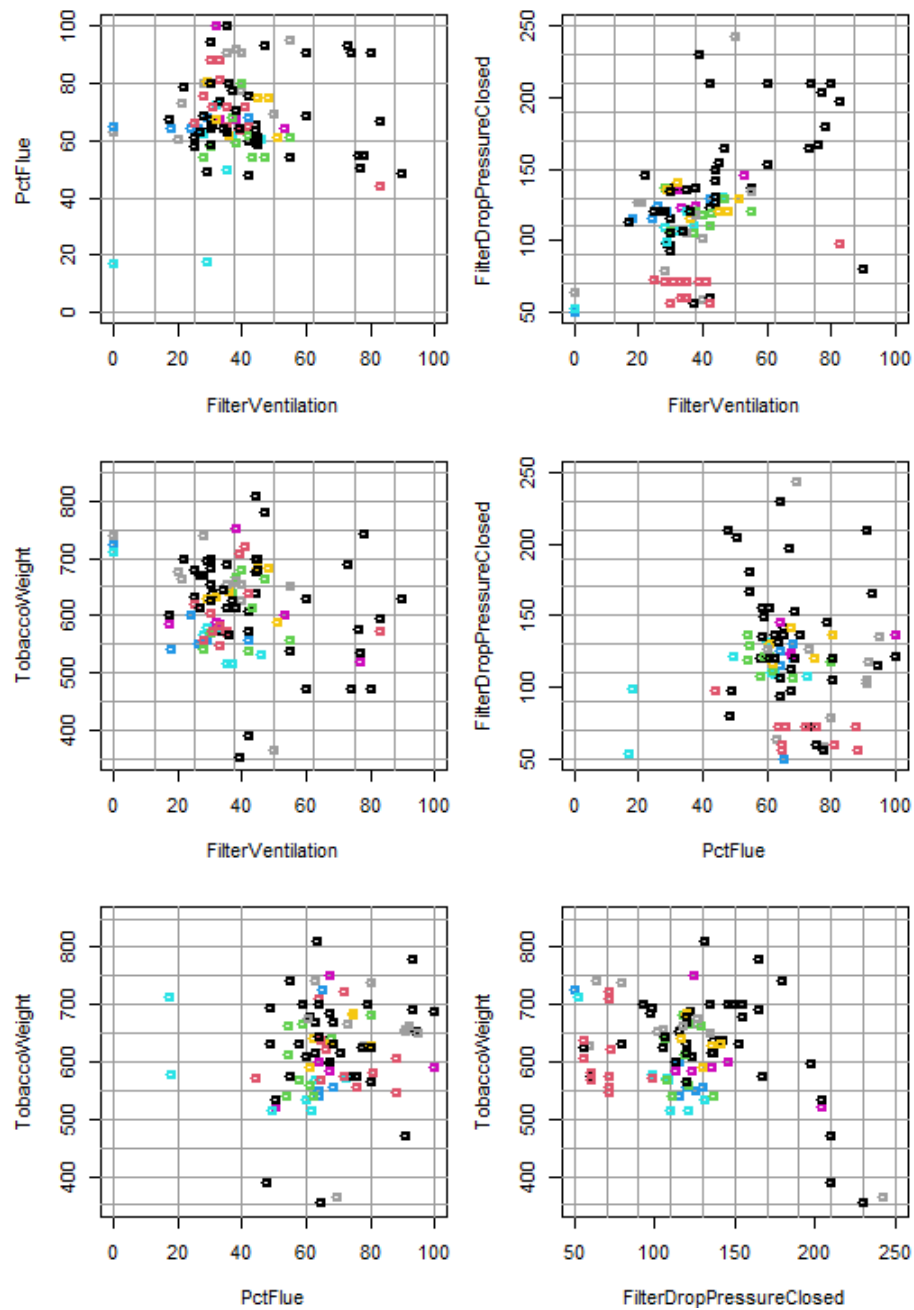
Measured result > 105% EU-CEG data

Measured result > 110% EU-CEG data

Measured result > 115% EU-CEG data

Measured result > 120% EU-CEG data

Measured result > 150% EU-CEG data



Supplementary Figure 1: Product characteristics plots. Colored dots indicate different brands with five or more varieties, black dots brands with two to four varieties, grey dots brands with a single variety. Grey lines are spaced by consumer discrimination thresholds.