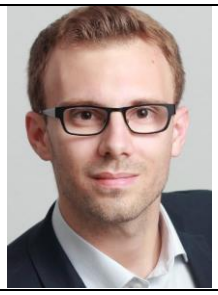
Web appendix

An Inter- and Intra-format Perspective on Transfer and Perception of Retail Formats

By *Bernhard Swoboda, Lukas Morbe* and *Dan-Cristian Dabija*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Content

Web appendix A. Sample Selection

In line with the described sampling procedure Table A.1 shows European and Asian emerging countries (according to IMF, 2013; 2015). In each country the Western retailers from the three most important grocery formats are listed, which operate in these countries (i.e. hypermarkets, supermarkets, and discounters; Planet Retail, 2013).

Countries	**Western hypermarket brands**	**… discount brands**	**… supermarket brands**
Albania	Carrefour (FR)	-	Euromax (FR)
Bosnia & Herze-govina	-	Tempo Express (BE)	InterEx (FR)
Bulgaria	Carrefour (FR), Kaufland (DE)	Lidl, Penny (DE)	Billa (GE), Carrefour Market (FR), Pica-dilly (BE)
Croatia	Kaufland (DE), Interspar (AT)	Lidl (DE)	Billa (GE), Spar (AT)
Hungary	Auchan (FR), Interspar (AT), Tesco (UK)	Aldi, Lidl, Penny (DE)	Billa, Kaiser's (DE), Tesco (GB), Spar (AT)
Macedonia	Carrefour (FR)	-	-
Poland	Auchan, Carrefour, Leclerc (FR), Kaufland, Real (DE), Tesco (GB)	Aldi, Lidl, Netto (DE)	Carrefour Market, Leclerc, Atak, Simply, Elea (FR), Tesco Supermarket (GB)
Romania	Carrefour, Auchan (FR), Kaufland, Real (DE), Cora (BE)	Lidl, Penny (DE)	Billa (GE), Carrefour Market (FR), Mega-Image, Red Market (BE), InterEx (FR)
Russia	Auchan (FR), Globus, Real (DE)	-	Billa (GE), Atak (FR)
Serbia	-	-	InterEx (FR)
Turkey	Carrefour (FR), Real (DE)	Dia (ES)	Carrefour Express (FR)
Ukraine	Auchan (FR), Real (GE)	-	Billa (GE)
China	Carrefour (FR), Wal-Mart, (US) etc.	Dia (ES)	Walmart Neighborhood Market, Smart Choice (US)
India	Carrefour (FR), Wal-Mart (US) etc.	-	-
Indonesia	Carrefour (FR)	-	Carrefour Express (FR), Super Indo (BE)
Malaysia	Tesco (GB)	-	Carrefour Market (FR)
Pakistan	Metro (DE)	-	-
Vietnam	Carrefour, Big-C (FR)	-	Casino, New Cho (FR)

Note: Further countries without presence of western grocery retailers: Belarus, Kosovo, Moldova, Montenegro.

Tab. A.1: Emerging countries with presence of Western European retailers

Web appendix B. Measurement

Construct	Item		Source
Loyalty	SL1	I am likely to visit retailer X the next time I buy groceries.	Adapted from Chaudhuri and Holbrook (2001); Harris and Goode (2004)
	SL2	I intend to continue purchasing at retailer X.	
	SL3	I will always choose store X over competing retailers.	
Retail Brand Equity	RBE1	Retailer X is a well-known brand	Verhoef *et al.* (2007)
	RBE2	Retailer X is a strong brand.	
	RBE3	Retailer X is a unique brand.	
	RBE4	Retailer X is an attractive brand.	
Price	Pri1	The prices of retailer X are fair.	Adapted from Grewal *et al.* (1998); Yoo *et al.* (2000)
	Pri2	The prices of retailer X are constantly good.	
	Pri3	Prices at retailer X are lower than prices of competing retailers.	
Assortment	Ass1	Retailer X has a good variety of products.	Adapted from Chowdhury *et al.* (1998)
	Ass2	Everything I need is at retailer X.	
	Ass3	Retailer X offers a good variety of store brands.	
Location	Loc1	Retailer X is in an optimal location.	Adapted from Oppewal and Timmermans (1997); Anselmsson (2006)
	Loc2	The location of retailer X is easy to reach.	
	Loc3	I can get to retailer X quickly.	
Store Layout	StLay1	Retailer X's layout allows for convenient and easy shopping	Adapted from Chowdhury *et al.* (1998)
	StLay2	Retailer X has a welcoming atmosphere.	
	StLay3	The appearance of retailer X is appealing.	
Service	Serv1	The employees at retailer X are friendly and helpful.	Adapted from Sirdeshmukh *et al.* (2002); Chowdhury *et al.* (1998)
	Serv2	At retailer X my requests are treated with respect.	
	Serv3	I am pleased with the service I receive at retailer X	

Tab. B.1: Constructs, Items and Sources

Web appendix C. Reliability and validity testing

	Germany (N=1,031)						France (N=452)						Romania (N=1,752)					
Item	**FL**	**KMO**	**ItTC**	**α**	**CR**	**λ**	**FL**	**KMO**	**ItTC**	**α**	**CR**	**λ**	**FL**	**KMO**	**ItTC**	**α**	**CR**	**λ**
Loyalty																		
Loy1	.897		.830			.897	.853		.739			.865	.824		.758			.830
Loy2	.888	.753	.824	.908	.909	.888	.920	.682	.780	.840	.848	.910	.927	.728	.825	.883	.885	.920
Loy3	.841		.792			.844	.646		.607			.657	.798		.744			.801
RBE																		
RBE1	-		-			-	-		-			-	-		-			-
RBE2	.661		.566			.689	.553		.503			.586	.713		.621			.742
RBE3	.668	.676	.577	.769	.776	.670	.867	.655	.702	.787	.811	.842	.712	.695	.627	.802	.801	.690
RBE4	.864		.677			.841	.841		.678			.839	.875		.717			.846
Price																		
Pri1	.857		.747			.854	.827		.739			.835	.866		.780			.855
Pri2	.824	.723	.725	.847	.850	.852	.934	.690	.801	.852	.858	.901	.897	.728	.802	.877	.881	.882
Pri3	.744		.677			.756	.684		.638			.708	.763		.713			.793
Assort-ment																		
Ass1	.882		.718			.864	.886		.764			.878	.835		.681			.861
Ass2	.764	.674	.655	.790	.807	.755	.806	.716	.730	.848	.849	.800	.852	.660	.686	.783	.801	.795
Ass3	.613		.548			.657	.734		.667			.744	.562		.512			.599
Location																		
Loc1	.887		.835			.889	.841		.760			.841	.777		.714			.801
Loc2	.890	.763	.838	.919	.919	.885	.835	.742	.757	.871	.866	.836	.887	.730	.786	.868	.870	.865
Loc3	.895		.841			.893	.826		.749			.817	.824		.747			.825
Store Lay-out																		
Lay1	.727		.654			.740	.777		.702			.796	.808		.747			.823
Lay2	.910	.696	.760	.830	.841	.888	.879	.724	.769	.855	.854	.839	.930	.724	.824	.881	.885	.897
Lay3	.734		.663			.752	.789		.712			.807	.799		.744			.823
Service																		
Serv1	.852		.772			.850	.809		.740			.806	.856		.801			.862
Serv2	.841	.744	.766	.877	.877	.844	.870	.738	.774	.872	.864	.869	.910	.751	.837	.906	.906	.904
Serv3	.828		.757			.823	.820		.746			.800	.856		.801			.854
Model Fit	CFI .970; TLI .962; RMSEA .048; SRMR.034; $\chi^2(168) = 571.506$						CFI .969; TLI .961; RMSEA .049; SRMR.043; $\chi^2(168) = 358.049$						CFI .969; TLI .961; RMSEA .051; SRMR.036; $\chi^2(168) = 937.013$					

Notes: FL= Factor loadings (exploratory factor analysis); KMO=Kaiser-Meyer-Olkin criterion (≥.500); ItTC=Item-to-total correlation (≥.300); α=Cronbach's alpha (≥.700); CR=Composite reliability (≥.600): λ=Standardized factor loadings (confirmatory factor analysis) (≥.500); Loy=loyalty; RBE=retail brand equity; Pri=price; Ass=assortment; Loc=location; Lay=store layout; Ser=service.

Tab. C.1: Reliability and validity scores for all three countries

Web appendix D. Weighting adjustment to test for the threat of non-response bias

As non-response bias could have affected our data we apply weighting class adjustment (WCA) to test whether sample-estimated values match previously determined population values. The procedure corrects for over- and underrepresentation of specific groups (Groves, 2006). We choose to use post-stratification weighting, as it is known to be conditionally unbiased and as it leads to efficiency gains (Holt and Elliot, 1991). In a first step we calculated the adjustment weights for each case by the use of census data. The second step consists of the estimation using the weighted instead of the unweighted values (see Table 1). The parameter estimates are compared by a t-test. Because the unweighted and weighted parameter estimates are not statistically distinct we conclude, that non-response bias is not an issue in our data.

	Unweighted sample CFA		Weighted sample CFA		Parameter comparison
Item	Λ	λ	Λ	λ	t-value
Loy1	1.308	.873	1.320	.869	-.129
Loy2	1.351	.912	1.358	.921	-.078
Loy3	1.332	.817	1.330	.821	.025
RBE2	.853	.704	.833	.686	.445
RBE3	1.099	.732	.980	.686	1.364
RBE4	1.122	.869	1.110	.874	.662
Pri1	.982	.850	.949	.831	.487
Pri2	.989	.875	.995	.896	-.153
Pri3	.937	.774	.933	.764	.102
Ass1	1.029	.865	1.011	.872	.578
Ass2	1.049	.791	1.005	.785	.820
Ass3	.780	.626	.799	.649	-.613
Loc1	1.279	.846	1.333	.852	-.570
Loc2	1.281	.864	1.463	.907	-1.860
Loc3	1.414	.857	1.618	.886	-1.702
Lay1	1.000	.797	.967	.782	1.342
Lay2	1.256	.891	1.204	.897	1.271
Lay3	1.118	.802	1.082	.814	1.125
Serv1	1.039	.849	1.048	.864	-.380
Serv2	1.056	.886	1.075	.900	-.836
Serv3	1.055	.845	1.077	.864	-.898

Confirmatory model fit (unweighted sample): CFI .972; TLI .965; RMSEA .042; SRMR .032; $\chi^2(168) = 1132.792$.
Confirmatory model fit (weighted sample): CFI .942; TLI .927; RMSEA .040; SRMR .043; $\chi^2(168) = 1041.837$.
Notes: CFA=confirmatory factor analysis; Loy=loyalty; RBE=retail brand equity; Pri=price; Ass=assortment; Loc=location; Lay=store layout; Ser=service; Λ=unstandardized factor loadings; λ=standardized factor loadings.

Tab. D.1: Unweighted and weighted sample CFA comparison

Web appendix E. Common method variance testing

We reduce the threat of common method variance (CMV) by using an appropriate questionnaire design a priori as well as a posteriori by a single-factor test (Podsakoff *et al.*, 2003) and additionally by the marker variable technique and income as marker variable (Lindell and Whitney, 2001; Williams *et al.*, 2010). The technique consists of three successive phases (see Table E.2). The results of the model comparisons (phase I) point out that the correlations between the latent constructs are not biased through the presence of the marker variable (Method-U vs. -R). The results of the following reliability decomposition (phase II) indicate that the amount of method variance, associated with the measurement of the substantive latent constructs, is less than 8 %. As the impact of method variance in the study of (Williams *et al.*, 2010) was above 12.5 percent, we found that the present results are satisfactory. The results of the sensitivity analysis (phase III) show that marker-based method variance has a very low effect on construct correlations.

	CFI	TLI	RMSEA	SRMR	χ^2 (df)	$\Delta\chi^2$ (df)	p
Proposed model	.974	.968	.047	.030	1347.309 (168)		
Single factor model	.661	.624	.158	.088	15565.285 (189)	14217.976 (20)	***

Tab E.1: Single factor test

Phase I – Results of the model comparisons

Model	χ^2	df	CFI	TLI	RMSEA	SRMR
CFA	1034.139	181	.973	.965	.046	.031
Baseline	1041.367	190	.973	.967	.045	.031
Method-C	1041.343	189	.973	.967	.045	.031
Method-U	1009.685	169	.973	.963	.048	.031
Method-R	1009.852	190	.974	.968	.044	.031
ΔModels	$\Delta\chi^2$	Δdf	p			
Baseline with Method-C	.024	1	ns			
Method-C with Method-U	31.658	20	*			
Method-U with Method-R	.167	21	ns			

Phase II – Reliability decomposition

	Reliability baseline model	Decomposed reliability from Method-U-Model		
Latent variable	Total reliability	Substantive reliability	Method reliability	% reliability marker variable
Loyalty	.901	.847	.054	5.6%
Retail brand equity	.815	.759	.056	6.9%
Price	.874	.820	.054	6.2%
Assortment	.801	.741	.060	7.5%
Location	.885	.832	.053	6.0%
Store Layout	.881	.827	.061	6.9%
Service	.898	.846	.052	6.8%

Phase III – Sensitivity analysis

Construct correlations	CFA	Baseline	Method-U	Method-S (0.05)	Method-S (0.01)
Loyalty with retail brand equity	.694	.694	.694	.692	.692
Loyalty with price	.552	.552	.553	.559	.561
Loyalty with assortment	.595	.595	.598	.607	.611
Loyalty with location	.448	.448	.448	.449	.449
Loyalty with store layout	.572	.572	.572	.573	.573
Loyalty with service	.550	.550	.549	.548	.547
Retail brand equity with price	.656	.656	.658	.665	.667
Retail brand equity with assortment	.741	.741	.745	.757	.761
Retail brand equity with location	.403	.402	.403	.404	.404
Retail brand equity with store layout	.717	.717	.718	.719	.720
Retail brand equity with service	.681	.681	.681	.680	.680
Price with assortment	.666	.666	.666	.665	.664
Price with location	.500	.500	.500	.500	.500
Price with store layout	.581	.581	.580	.581	.581
Price with service	.616	.616	.616	.619	.620
Assortment with location	.413	.413	.414	.415	.415
Assortment with store layout	.748	.748	.749	.750	.751
Assortment with service	.648	.648	.650	.656	.657
Location with store layout	.382	.382	.382	.381	.380
Location with service	.417	.417	.417	.416	.416
Store layout with service	.646	.646	.646	.645	.645
Income with loyalty	.024	.000	.000	.000	.000
Income with retail brand equity	.034	.000	.000	.000	.000
Income with price	-.020	.000	.000	.000	.000
Income with assortment	-.043	.000	.000	.000	.000
Income with location	-.001	.000	.000	.000	.000
Income with store layout	-.004	.000	.000	.000	.000
Income with service	.016	.000	.000	.000	.000

Tab. E.2: Marker variable technique

Web appendix F. Measurement invariance testing

To test whether the measurements are equivalent across all countries in focus we test for measurement invariance by the use of CFA, observing the changes of three fit indices for each level of invariance and referring to the thresholds for unequal sample sizes (metric: ΔCFI <.005; ΔSRMR <.025; ΔRMSEA <.010; scalar: ΔCFI <.005; ΔSRMR <.005; ΔRMSEA <.010) according to Chen (2007). Because full metric and scalar invariance was not attained, partial invariance was ascertained by freely estimating some intercepts and factor loadings while retaining at least two intercepts and loadings fixed across nations for each variable (Byrne *et al.*, 1989).

	Hypermarkets			**Discounter**		
Model	**CFI (ΔCFI)**	**SRMR (ΔSRMR)**	**RMSEA (ΔRMSEA)**	**CFI (ΔCFI)**	**SRMR (ΔSRMR)**	**RMSEA (ΔRMSEA)**
Model 1: Configural invariance	.967 (-)	.058 (-)	.052 (-)	.963 (-)	.035 (-)	.055 (-)
Model 2: Full metric invariance	.961 (.006)	.081 (.023)	.054 (.002)	.957 (.006)	.035 (.035)	.057 (.002)
Model 3: Partial metric invariance[a]	.965 (.002)	.069 (.011)	.053 (.001)	.961 (.002)	.051 (.016)	.055 (.000)
Model 4: Partial metric and full scalar invariance	.957 (.008)	.071 (.002)	.056 (.003)	.943 (.018)	.063 (.012)	.065 (.010)
Model 5: Partial metric and partial scalar invariance[b]	.963 (.002)	.069 (.000)	.053 (.000)	.959 (.002)	.054 (.003)	.056 (.001)

[a] Factor loadings are freed for items: Hypermarkets: Loy1, RBE1, Lay2, Loc1, Pri2, Serv2; Discounter: Loy1, RBE2, Lay2, Ass3, Loc1, Pri3, Serv2.

[b] Intercepts are freed for items: Hypermarkets Loy3, RBE1, Lay2, Ass3, Loc2, Pri3, Serv3; Discounter: Loy3, RBE1, Lay2, Ass2, Loc1, Pri3, Serv3.

Thresholds for unequal sample sizes according to Chen (2007): Metric: ΔCFI<0.005; ΔSRMR<.025; ΔRMSEA<.010 Scalar: ΔCFI<.005; ΔSRMR<.005; ΔRMSEA<.010.

Tab. F.1: Changes in fit-indices for invariance tests

Web appendix G. Rival models

Rival Models I and II	Discounter GE (N=487)			Discounter RO (N=513)			Hypermarkets GE (N=544)			Hypermarkets FR (N=452)			Hypermarkets RO (N=1,241)		
Effects	b	β	p	b	β	p	b	β	p	b	β	p	b	β	p
PRI→RBE	.829	.391	***	.682	.319	***	.163	.092	†	.127	.070	ns	.322	.179	***
ASS→RBE	.679	.320	**	.591	.276	**	.504	.285	***	.635	.352	***	.605	.337	***
LOC→RBE	.217	.102	**	.334	.156	**	.126	.071	†	.077	.043	ns	-.016	-.009	ns
LAY→RBE	.333	.157	**	.283	.132	**	.676	.325	***	.543	.301	**	.431	.240	***
SER→RBE	.223	.105	†	.281	.131	*	.432	.244	***	.348	.193	**	.320	.178	***
RBE→LOY	.543	.754	***	.528	.747	***	.653	.755	***	.549	.703	***	.496	.665	***
Gender	.007	.002	ns	.044	.015	ns	-.042	-.014	ns	.089	.035	ns	.106	.040	ns
Age	-.002	-.022	ns	.006	.069	*	.006	.074	*	-.002	-.021	ns	-.002	-.031	ns
Model Fit	CFI 0.946; TLI 0.939; RMSEA 0.057; SRMR 0.074; $\chi^2(447)$ =1183.055; $\Delta\chi^2$ to proposed model = 73.864 (10); $p < 0.001$						CFI 0.958; TLI 0.953; RMSEA 0.051; SRMR 0.071; $\chi^2(683)$ =2009.635; $\Delta\chi^2$ to proposed model = 111.840 (15); $p < 0.001$								
Rival Models III and IV															
RBE→PRI	1.465	.826	***	1.659	.856	***	.820	.634	***	1.100	.740	***	1.145	.753	***
RBE→ASS	1.972	.892	***	2.121	.904	***	1.378	.809	***	1.778	.872	***	2.015	.896	***
RBE→LOC	.339	.370	***	.717	.583	***	.578	.500	***	.495	.444	***	.664	.553	***
RBE→LAY	.849	.647	***	.866	.655	***	1.570	.844	***	1.649	.855	***	1.783	.872	***
RBE→SER	1.123	.747	***	1.198	.768	***	1.142	.752	***	1.151	.755	***	1.061	.728	***
PRI→LOY	.254	.315	***	.199	.266	***	.144	.131	**	.122	.140	***	.081	.092	ns
ASS→LOY	.165	.255	*	.126	.204	*	.174	.208	**	.193	.304	***	.239	.399	***
LOC→LOY	.339	.256	***	.271	.231	***	.194	.157	***	.136	.118	***	.087	.077	ns
LAY→LOY	.131	.120	*	.091	.083	†	.208	.273	***	.073	.109	*	.061	.093	ns
SER→LOY	-.038	-.040	ns	.088	.095	ns	.116	.124	*	.089	.105	**	.104	.113	†
Gender	.013	.005	ns	.002	.001	ns	-.151	-.053	ns	.077	.030	ns	.078	.029	ns
Age	.000	.004	ns	.003	.039	ns	.003	.040	ns	-.002	-.027	ns	.000	.002	ns
Model Fit	CFI .934; TLI .927; RMSEA .063; SRMR .083; $\chi^2(459)$ = 1,362.853; $\Delta\chi^2$ to proposed model = 253.662 (22); $p < .001$.						CFI .940; TLI .935; RMSEA .060; SRMR .068; $\chi^2(701)$ =25,9.320; $\Delta\chi^2$ to proposed model = 692.525 (13); $p < .001$.								

Notes: LOY=loyalty; RBE=retail brand equity; PRI=price; ASS=assortment; LOC=location; LAY=store layout; SER=service; b=unstandardized coefficient; β=standardized coefficient; p=level of significance; GE=Germany; RO=Romania.
***p<.001; **p<.010; *p<.050; †p<.100; ns=not significant.

Tab. G.1: Rival models I to IV and χ^2-differences to proposed model

As in the inter-format model for hypermarkets the samle sizes across the three nations are unbalanced, possible biases from unequal group sizes in the multi-group models may occur. In rival model V we therefore include WCA to simulate equal group sizes across the three countries (as recommended e.g., by Bou and Satorra, 2010). As table G.2 shows, despite for the controls, no significant differences between the weighted and unweighted models occur.

	Hypermarkets GE unweighted			Hypermarkets GE weighted			Comparison
Effects	b	β	p	b	β	p	t-value
PRI→RBE	.096	.057	ns	.147	.087	ns	ns
ASS→RBE	.490	.294	***	.500	.294	***	ns
LOC→RBE	.057	.034	ns	.062	.037	ns	ns
LAY→RBE	.535	.321	***	.589	.351	***	ns
SER→RBE	.424	.254	***	.330	.194	**	ns
PRI→LOY	.191	.125	*	.183	.120	*	ns
ASS→LOY	.016	.011	ns	-.020	-.013	ns	ns
LOC→LOY	.218	.143	***	.232	.152	***	ns
LAY→LOY	.107	.070	ns	.079	.052	ns	ns
SER→LOY	.003	.002	ns	.057	.037	ns	ns
RBE→LOY	.507	.554	***	.492	.550	***	ns
Gender	-.079	-.026	ns	-.197	-.065	ns	†
Age	.004	.046	ns	.001	.009	ns	†
	Hypermarkets FR unweighted			Hypermarkets FR weighted			
PRI→RBE	.106	.080	ns	.098	.056	ns	ns
ASS→RBE	.535	.307	***	.584	.335	**	ns
LOC→RBE	.045	.030	ns	.027	.016	ns	ns
LAY→RBE	.574	.322	**	.588	.337	*	ns
SER→RBE	.318	.187	**	.330	.189	**	ns
PRI→LOY	.081	.062	ns	.137	.097	ns	ns
ASS→LOY	.250	.148	†	.287	.203	ns	ns
LOC→LOY	.107	.092	ns	.044	.031	ns	ns
LAY→LOY	-.154	-.060	ns	-.183	-.130	ns	ns
SER→LOY	.069	.047	ns	.023	.016	ns	ns
RBE→LOY	.430	.489	***	.466	.575	***	ns
Gender	.073	.103	*	.058	.020	ns	ns
Age	-.001	.010	ns	-.003	-.029	ns	ns
	Hypermarkets RO unweighted			Hypermarkets RO weighted			
PRI→RBE	.290	.171	***	.291	.171	***	ns
ASS→RBE	.537	.318	***	.538	.316	***	ns
LOC→RBE	-.055	-.033	ns	-.054	-.032	ns	ns
LAY→RBE	.427	.253	***	.433	.255	***	ns
SER→RBE	.298	.176	***	.301	.177	***	ns
PRI→LOY	.115	.086	†	.116	.086	†	ns
ASS→LOY	.242	.180	*	.246	.182	*	ns
LOC→LOY	.172	.127	***	.170	.126	***	ns
LAY→LOY	.004	.003	ns	.002	.001	ns	ns
SER→LOY	.083	.062	ns	.084	.062	ns	ns
RBE→LOY	.268	.336	***	.272	.341	***	ns
Gender	.083	.031	ns	.083	.031	ns	ns
Age	-.002	-.027	†	-.002	-.026	ns	ns
Model Fit	CFI .961; TLI .955; RMSEA .050; SRMR .067; $\chi^2(668) = 1{,}897.795$.			CFI .959; TLI .954; RMSEA .044; SRMR .072; $\chi^2(668) = 1{,}617.42$.			

Notes: LOY=loyalty; RBE=retail brand equity; PRI=price; ASS=assortment; LOC=location; LAY=store layout; SER =service; b=unstandardized coefficient; β=standardized coefficient; p=level of significance; GE=Germany; RO=Romania.

***p<.001; **p<.010; *p<.050; †p<.100; ns=not significant.

Tab. G.2: Rival model V with weighted samples and parameter comparisons

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