



# Does Urquhart's Law Hold for Consortial Use of Electronic Journals?

**Yaşar Tonta & Yurdagül Ünal**  
Department of Information Management  
Hacettepe University  
Ankara, Turkey  
{tonta, yurdagul}@hacettepe.edu.tr



- ❑ Background
- ❑ Research question and hypotheses
- ❑ Data sources and method
- ❑ Findings
- ❑ Conclusion



- ❑ Intra-, inter- and supralibrary use
- ❑ Donald J. Urquhart and SML
  - ❑ “the interlibrary loan demand for a periodical is as a rule a measure of its total use”
  - ❑ BUCOP
  - ❑ Newcastle, NLM & BLLD studies
- ❑ Urquhart’s Law in the Digital Age



- Does the frequency of the use of both print and e-journals in a central library reflect their overall use by the patrons of a consortium of academic libraries having electronic access to the same journals?



- **Interlibrary use:** the number of
  - in-house use of a print journal;
  - its use for document delivery purposes; and
  - downloads from its electronic copyby the users of a central library (cf. intralibrary use)
- **Intralibrary use:** consortial use of a given journal by the users of a specific consortium member (cf. supralibrary use)
- **Total use:** consortial use of a given journal by all consortium members



- Interlibrary use of a print journal is positively correlated with
  - the total use of its electronic version by all consortium members;
  - its intralibrary use by each member of a consortium.
- Interlibrary use of an e-journal (downloads) by a central library's on-site users is positively correlated with the cumulative number of downloads by all the users of all members of a consortium (total use).



# Data Sources and Method

- ❑ 148 Turkish universities, 2.5M students, 80K faculty
- ❑ The Turkish Academic Network and Information Center (ULAKBİM) ([www.ulakbim.gov.tr](http://www.ulakbim.gov.tr))
- ❑ The Consortium of Anatolian University Libraries (ANKOS) ([www.ankos.gen.tr](http://www.ankos.gen.tr))
- ❑ 150,000 interlibrary use data of print journals at ULAKBİM (e-versions were also available through ScienceDirect OnSite, SpringerLink and Wiley InterScience e-journal databases;
- ❑ More than 500,000 full-text articles download data from the same databases by ULAKBİM's on-site users;
- ❑ Intralibrary use data of 12 million full-text articles downloaded from ScienceDirect, SpringerLink and Wiley InterScience e-journal databases by ANKOS members

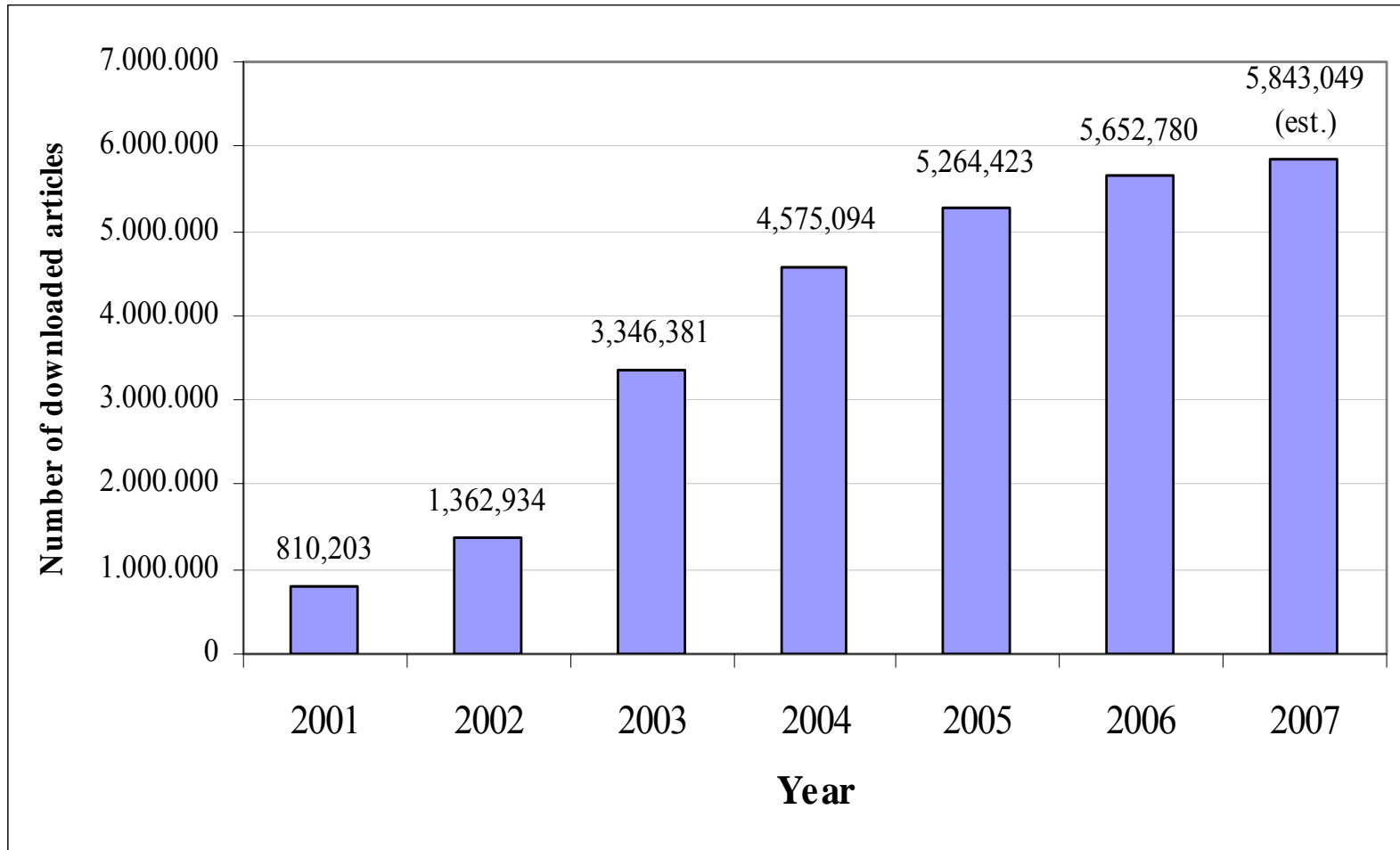


# Findings

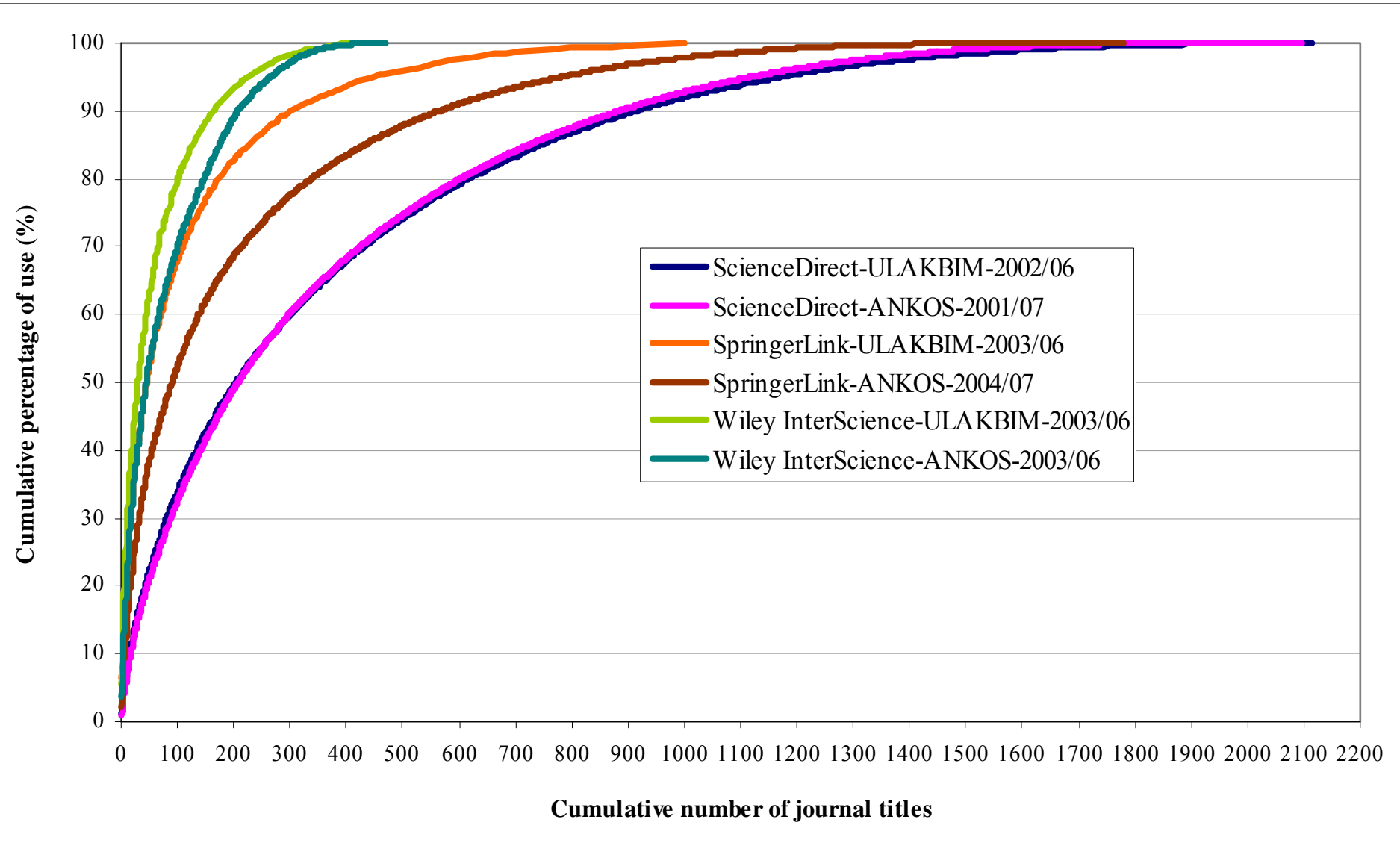


Electronic journal database	Downloads by ULAKBIM on-site users			Downloads by ANKOS consortium users		
	# of journals used	N	%	# of journals used	N	%
ScienceDirect	2,115	483,140	88.1	2,097	25,145,293	90.1
SpringerLink	1,001	38,700	7.1	1,779	1,715,164	6.1
Wiley InterScience	440	26,606	4.8	470	1,055,741	3.8
<b>Total</b>	<b>3,556</b>	<b>548,446</b>	<b>100.0</b>	<b>4,346</b>	<b>27,916,198</b>	<b>100.0</b>

# Full-text downloads from ScienceDirect e-journals (2001-2007)



# Distribution of download requests to e-journals



# Comparison of print and electronic (consortial) use of journals



Journals	Time period	Print use at ULAKBİM			Electronic use by ANKOS			Spearman's <i>r</i>
		# of journals used	N	%	# of journals used	N	%	
ScienceDirect	Jun. 2002-Jun. 2005	1,384	123,893	80.5	1,864	11,450,647	93.8	.489
SpringerLink	Jan. 2004-Jun. 2005	282	12,151	7.9	491	367,388	3.0	.656
Wiley InterScience	Jan. 2003-Dec. 2004	215	17,895	11.6	390	391,973	3.2	.568
<b>Total</b>		<b>1,881</b>	<b>153,939</b>	<b>100.0</b>	<b>2,764</b>	<b>12,210,008</b>	<b>100.0</b>	

Urquhart Law validated: The use of a print journal at ULAKBİM can to a certain extent be used as an indicator of the consortial value of its electronic version to all users of ANKOS members (total use)



- Positive correlation between ScienceDirect OnSite use at ULAKBIM and total use by all ANKOS Consortium members (Spearman's  $\rho = 0,833$ ,  $N = 1702$ )



# Print vs. e-journal use (SpringerLink)

total # of downloads by Consortium members			# of journals used by both ULA KBİM on-site users and Consortium members			total # of downloads by Consortium members			# of journals used by both ULA KBİM on-site users and Consortium members		
Member	N	%	Member	N	%	Member	N	%	Member	N	%
K1	61	0.0	8	.814		N	4,573	1.2	188	.465	
H1	35,915	9.8	222	.684		M	21,488	5.8	216	.431	
B1	23,368	6.4	215	.672		M1	1,063	0.3	86	.419	
Y1	9,484	2.6	206	.669		Z	2,006	0.5	156	.389	
Y	17,564	4.8	219	.664		P2	1,055	0.3	111	.261	
O1	14,711	4.0	160	.659		R2	766	0.2	123	.230	
C1	10,545	2.9	208	.646		J	892	0.2	65	.209	
C	13,300	3.6	218	.643		V1	1,175	0.3	129	.154	
L	4,002	1.1	170	.643		K2	783	0.2	162	.133	
S	22,212	6.0	223	.638		A2	964	0.3	100	.132	
Z1	8,277	2.3	191	.598		H2	173	0.0	28	.123	
P	21,231	5.8	218	.594		D1	256	0.1	26	.116	
B	2,919	0.8	156	.586		I	3,588	1.0	188	.06	
D	7,883	2.1	200	.578		T1	10,695	2.9	217	.045	
J2	3,535	1.0	167	.576		A1	1,578	0.4	106	.016	
A	9,418	2.6	189	.576		K	41	0.0	8	.015	
I2	10,773	2.9	210	.573		J1	1,707	0.5	120	.002	
G	11,386	3.1	164	.569		E2	26	0.0	5	.000	
N1	6,479	1.8	178	.561		E	116	0.0	20	-.001	
R1	4,188	1.1	186	.556		H	1,371	0.4	118	-.047	
U	9,344	2.5	207	.554		F1	57	0.0	15	-.052	
N2	8,626	2.3	181	.552		M2	2,320	0.6	104	-.102	
S1	2,751	0.7	158	.548		B2	106	0.0	36	-.166	
C2	9,917	2.7	208	.547		V	127	0.0	20	-.202	
O	5,029	1.4	184	.533		U1	431	0.1	62	-.241	
F2	6,014	1.6	193	.532		G1	6,801	1.9	176	-.28	
D2	7,445	2.0	210	.483		R	595	0.2	52	-.315	
L1	8,944	2.4	208	.476		L2	13	0.0	4	-.316	
T	3,174	0.9	156	.475		I1	76	0.0	7	-.482	
O2	3,876	1.1	136	.466		E1	175	0.0	3	-.866	
						<b>Total/Avg</b>	<b>367,388</b>	<b>99.6</b>	<b>137</b>		

Positive correlation for 47 out of 60 consortium members  
 26 members with corr. coeff. .5 and above downloaded 75% of the total use



# Print vs. e-journal use (Wiley InterScience)

total # of downloads by Consortium members			# of journals used by both ULAKBIM on-site users and Consortium members		Spearman's <i>r</i>
Member	N	%			
U	11,820	3.0	153	.664	
O	26,908	6.9	208	.650	
II	9,119	2.3	196	.607	
F	36,673	9.4	199	.578	
V	31,986	8.2	208	.562	
N	47,018	12.0	207	.557	
J	2,427	0.6	152	.516	
S	14,990	3.8	202	.504	
T1	15,860	4.0	205	.497	
P	16,579	4.2	202	.448	
A2	10,510	2.7	200	.445	
N1	6,047	1.5	181	.418	
S1	15,617	4.0	190	.412	
L1	58,792	15.0	208	.399	
G1	7,155	1.8	189	.391	
Z	5,509	1.4	168	.381	
F1	9,763	2.5	195	.354	
P1	201	0.1	49	.224	
Y	2,647	0.7	138	.153	
H	6,860	1.8	174	.135	
H1	2,813	0.7	169	.092	
A1	10,781	2.8	195	.076	
Z1	367	0.1	53	.064	
O1	4,471	1.1	160	.033	
M	3,837	1.0	139	-.074	
E1	5,338	1.4	155	-.123	
G	3,068	0.8	138	-.132	
D1	24,817	6.3	195	-.200	
<b>Total/Avg</b>	<b>391,973</b>	<b>99.9</b>	<b>172</b>		

Positive correlation for 24 out of 28 consortium members

8 members with corr. coefficient .5 and above downloaded 45% of the total use



Urquhart Law validated:  
The use of a print journal at ULAKBIM  
can to a certain extent be used as  
an indicator of the consortial value of  
its electronic version to each  
ANKOS member (intralibrary use)



- Positive correlation between on-site use of ScienceDirect, Springer and Wiley e-journals at ULAKBIM and their total electronic use by all ANKOS Consortium members
  - ScienceDirect Spearman's  $\rho = 0,833$ ,  $N = 1,702$ )
  - Springer Spearman's  $\rho = 0,724$ ,  $N = 1,001$ )
  - Wiley Spearman's  $\rho = 0,758$ ,  $N = 440$ )



**Urquhart Law validated:  
The use of an e-journal at ULAKBIM  
can to a certain extent be used as  
an indicator of its total value within  
ANKOS.**



- ❑ The Urquhart Law holds for the consortial use of electronic journals.
- ❑ The higher the local use of a print journal, the higher the consortial use of its electronic version by all consortium members
- ❑ The higher the on-site use of an e-journal, the higher the consortial use of its electronic version by all consortium members as well as by each consortium member.



# Does Urquhart's Law Hold for Consortial Use of Electronic Journals?

**Yaşar Tonta & Yurdagül Ünal**  
Department of Information Management  
Hacettepe University  
Ankara, Turkey  
{tonta, yurdagul}@hacettepe.edu.tr