

The Impact of Online Affiliate Marketing on Web Search



**Janek
Bevendorff**



**Matti
Wiegmann**



**Martin
Potthast**



**Benno
Stein**

¹Bauhaus-Universität Weimar ²Leipzig University

webis.de

The Impact of Online Affiliate Marketing on Web Search

Motivation

Online Affiliate Marketing (AM):

- ❑ An affiliate partner refers customers to a seller and earns a commission on sales.
- ❑ Referrals are tracked via specially crafted and identifiable product links
- ❑ The commission depends on clicks and click-to-sale paths.

<https://www.amazon.com/dp/B098FKXT8L?tag=p00935-20&ascsubtag=06iFiW...>

AM is on the rise.

- ❑ Suited to finance free online content.
- ❑ Responsible for some 14 % of all German online sales in 2019 (BVDW)
- ❑ Projected 8 billion USD sales volume in the US in 2022 (businessinsider)

The Impact of Online Affiliate Marketing on Web Search

Motivation

AM can be a good way finance content. It is less obstructive than advertisement or paywalls.

But: We increasingly observe **affiliate marketing abuse**, maximizing conversions over quality:

Less High-quality, unbiased reviews

More Mass affiliate spam

Search-engine-optimized low-quality content (“thin affiliates”)

Deceptive reviews, hard to detect even for large search engines

The Impact of Online Affiliate Marketing on Web Search

Motivation

We hypothesize that affiliate abuse increases because:

- ❑ Revenue only depends on conversions from referrals, not on the quality of the content (unlike donations/ads)
- ❑ Content creators optimize against the search engine: instead of user-centric content, they create search-engine-centric content.

The Impact of Online Affiliate Marketing on Web Search Contributions

We study the impact of online affiliate marketing on web search by:

1. We conduct an exploratory study to identify affiliate websites with potentially abusive design and behavior.
2. We introduce a categorization of affiliate websites into seven sub-genres, based on the websites' usage of affiliate links and design goals.

The Impact of Online Affiliate Marketing on Web Search Contributions

We study the impact of online affiliate marketing on web search by:

1. We conduct an exploratory study to identify affiliate websites with potentially abusive design and behavior.
2. We introduce a categorization of affiliate websites into seven sub-genres, based on the websites' usage of affiliate links and design goals.

Our study is based on

- Affiliate (Amazon) Websites from four Common Crawls.
- 28 efficiently computable surface-level quality measures inspired by Google's web quality and SEO guidelines.

The Impact of Online Affiliate Marketing on Web Search

Operationalizing Page Quality

We operationalized Google's guidelines in a 5-step process:

1. Rephrase free-text recommendations into plain, imperative statements.
“avoid keyword stuffing anchor texts”
2. Removal non-surface level statements.
“avoid interstitial popups” (requires JS)
“avoid distracting advertisements” (not in the Common Crawl)
3. Remove expensive statements.
“avoid grammar and spelling mistakes”
“avoid complex navigation patterns”
4. Remove irrelevant statements
“use explicit image filenames”
5. Engineer numeric or boolean features for the remaining statements.

The Impact of Online Affiliate Marketing on Web Search

Final Page Quality Measures

Element Descriptions

 FWR

 TTR

 word (avg.)

<a> FWR

<a> TTR

<a> words (avg.)

<meta> FWR

<meta> TTR

<meta> words (w/o 0)

<h1> FWR

<h1> TTR

<h1> words (w/o 0)

<title> length

- ❑ Length of <a> anchor and alt texts, <meta> descriptions, and <h1> headings
- ❑ Type-token ratio (TTR) and function word ratio (FWR) (lexical diversity).

The Impact of Online Affiliate Marketing on Web Search

Final Page Quality Measures

Page Structure

<h1> count

<h2> count

<p>+<h[1-6]> ratio

 count

<a> count

Data-element count

- ❑ Number of <h1>, <h2>, , <a> (structuredness).
- ❑ Ratio of <p> + <h[1-6]> to main content words.
- ❑ Number of Open Graph or JSON linked data (JSON-LD).

The Impact of Online Affiliate Marketing on Web Search

Final Page Quality Measures

Main Content

Content word count

Content FWR

Content TTR

Content Flesch score

Anchor-to-content ratio

- ❑ Length of the main content.
- ❑ FWR and TTR of the main content (diversity).
- ❑ Flesh-Kincaid score of the main content (readability).
- ❑ Ratio of words in affiliate link anchors to main content words (link spam).

The Impact of Online Affiliate Marketing on Web Search

Final Page Quality Measures

URL Structure

URL path depth
URL path length
URL number of digits
URL hyphen ratio

- ❑ Length of the page URLs.
- ❑ Structure of the page URLs.

The Impact of Online Affiliate Marketing on Web Search

Data and Analytical Framework

We used three Common Crawls from 2022, 2021, and 2020 and

- extracted pages with *Amazon Associates* links (English, 500+ words) and
- aggregated domains using Mozilla's Public Suffix List (PSL).

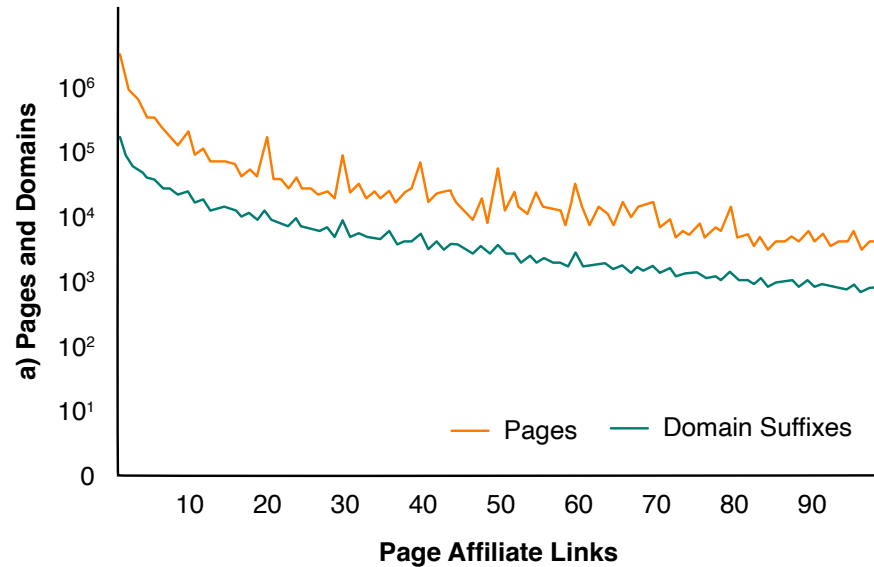
CC Name	Total		With Affiliate Links		
	Pages	Domains	Pages	Domains	Suffixes
CC-2022-05	2.9B	35.5M	3.5M	160k	153k
CC-2021-04	3.3B	35.3M	3.8M	167k	159k
CC-2020-10	2.6B	36.1M	3.2M	152k	143k
CC-2015-11	1.7B	14.9M	4.7M	165k	121k

(CC 2015 excluded due to too many spam websites.)

The Impact of Online Affiliate Marketing on Web Search

Explorative Analysis of Affiliate Marketing Websites

Number of individual pages and domain suffixes (log-scaled).

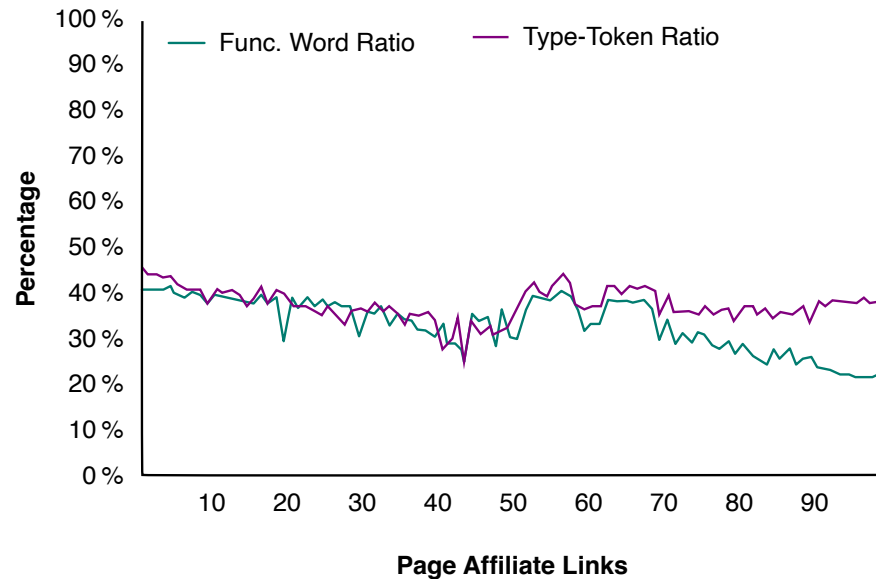


- We focus on pages with ≤ 35 affiliate links (10^5 pages and 10^4 domains).
- About one in 900 pages and one in 300 domains contain Amazon affiliate links.

The Impact of Online Affiliate Marketing on Web Search

Explorative Analysis of Affiliate Marketing Websites

Main content TTR and FWR.

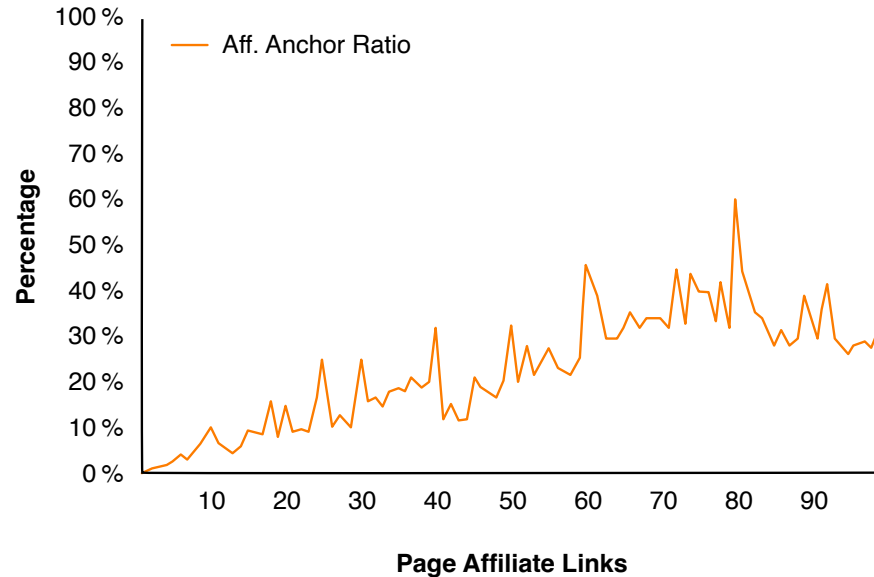


- ❑ Overall strongest measure of quality is TTR.
- ❑ FWR / TTR decrease for main content and `<a>` anchors.
→ Synthetic + repetitive text
- ❑ TTR of (invisible) `` alternative texts increases:
→ Keyword stuffing.

The Impact of Online Affiliate Marketing on Web Search

Explorative Analysis of Affiliate Marketing Websites

Ratio of affiliate anchor words to main content words.

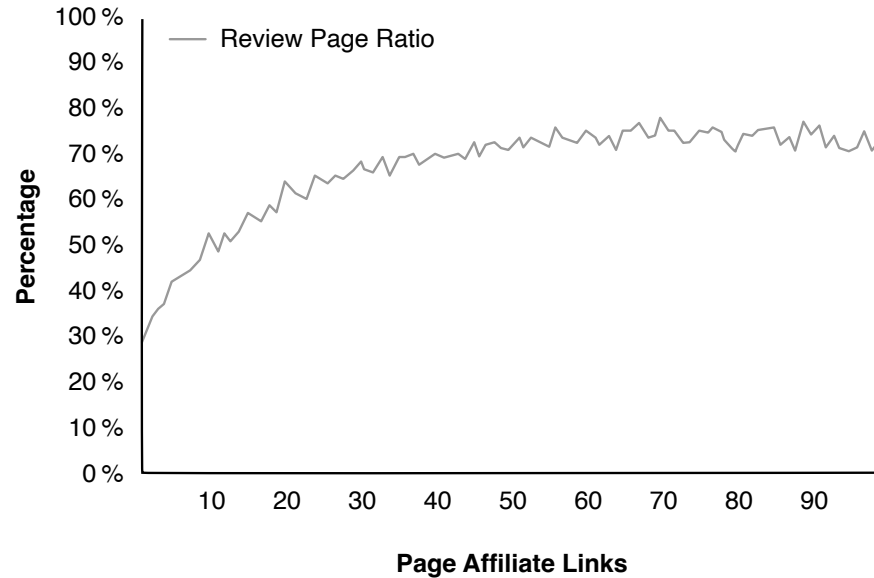


- ❑ Number of links on a page negatively correlates with number of affiliate links.
- ❑ Anchor-to-content ratio increases
→ Links become main content
- ❑ Pages with many affiliate links excessively list product titles and specifications.

The Impact of Online Affiliate Marketing on Web Search

Explorative Analysis of Affiliate Marketing Websites

Ratio of pages classified as “review page.”



- ❑ Majority of pages are “reviews” beyond 10–20 links.
- ❑ Few “reviews” are actually high-quality content.

The Impact of Online Affiliate Marketing on Web Search

Classification of Affiliate Sites

Quantitative Analysis

- ❑ Websites with approx. 40+ affiliate links are often synthetic, spam, or thin affiliates.
- ❑ Websites with 10–40 links are increasingly low-quality, affiliate-centric review websites.

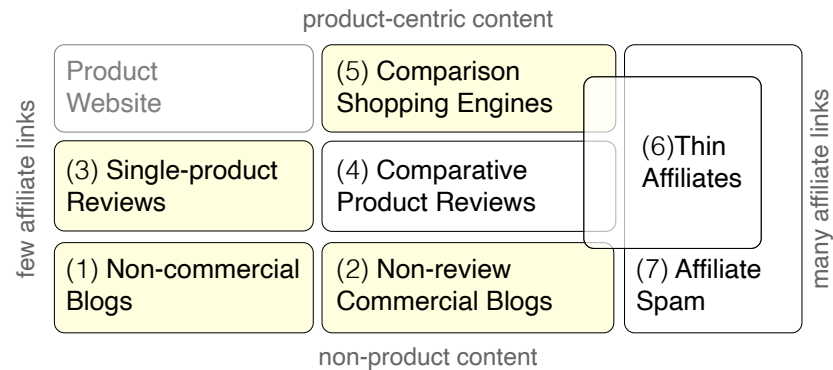
Qualitative Analysis

- ❑ Pages with many links are indeed spam.
- ❑ Pages with few links use them like ads (sponsor sections, sidebars, footers, about pages).
- ❑ Low-affiliate count content is often not related to the linked products.

The Impact of Online Affiliate Marketing on Web Search

Classification of Affiliate Sites

We suggest to classify affiliate link usage patterns based on **quantitative** (how many links) and their **qualitative** (depth of integration in the content) use of affiliate marketing (AM).

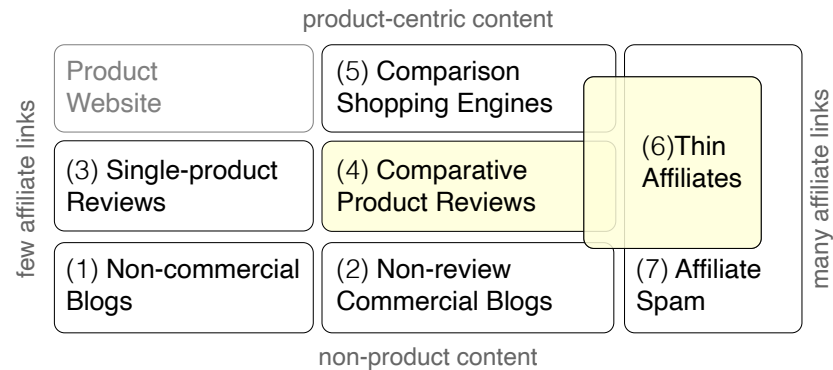


- ❑ Generally unproblematic use.
- ❑ **(1) Non-commercial blogs** use AM to pay for expenses.
- ❑ **(2) Commercial non-review blogs and news sites** make at least part of their regular revenue from AM.
- ❑ **(3) Single-product reviews** review individual products.
- ❑ **(5) Comparison shopping engines.**

The Impact of Online Affiliate Marketing on Web Search

Classification of Affiliate Sites

We suggest to classify affiliate link usage patterns based on **quantitative** (how many links) and their **qualitative** (depth of integration in the content) use of affiliate marketing (AM).

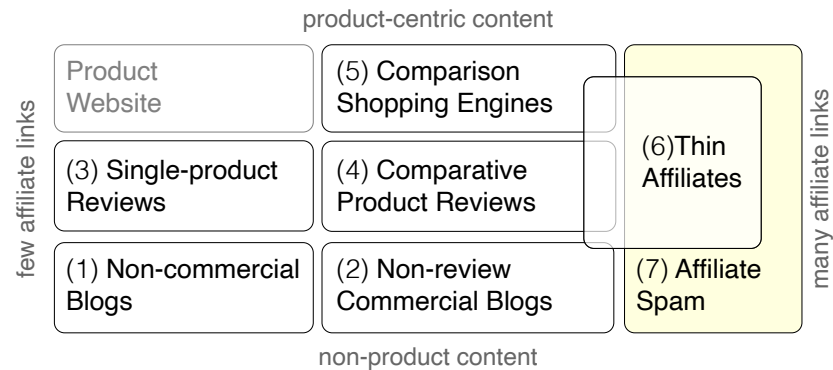


- ❑ **(4) Comparative reviews** review product ranges.
- ❑ **(6) Thin affiliate sites** pretend to publish genuine, high-quality content.
→ Referrals with fake or low-effort editorials.
- ❑ **Problematic:** Gray area between review websites, low-effort, low-quality reviews, and thin affiliates.
→ Detection is an open challenge.

The Impact of Online Affiliate Marketing on Web Search

Classification of Affiliate Sites

We suggest to classify affiliate link usage patterns based on **quantitative** (how many links) and their **qualitative** (depth of integration in the content) use of affiliate marketing (AM).



- ❑ **(7) Affiliate spam** are automatically generated product listings without actual content.
- ❑ **Easy:** Pages with 40+ links are almost always spam.
- ❑ **Hard:** Other genres difficult to distinguish by our surface features alone.

The Impact of Online Affiliate Marketing on Web Search

Conclusions

- ❑ Many quality measures indicate a decline for increasing affiliate link counts.
- ❑ Websites with many affiliate links are spammier, more repetitive, and more synthetic.
- ❑ With 20–30 affiliate links most affiliate pages are *product reviews*.
- ❑ Above 40 links, most pages are spam.

The Impact of Online Affiliate Marketing on Web Search

Conclusions

- ❑ Many quality measures indicate a decline for increasing affiliate link counts.
- ❑ Websites with many affiliate links are spammier, more repetitive, and more synthetic.
- ❑ With 20–30 affiliate links most affiliate pages are *product reviews*.
- ❑ Above 40 links, most pages are spam.

Search engines must take action against affiliate marketing abuse (which is difficult even for the big players apparently).

The Impact of Online Affiliate Marketing on Web Search

Conclusions

- ❑ Many quality measures indicate a decline for increasing affiliate link counts.
- ❑ Websites with many affiliate links are spammier, more repetitive, and more synthetic.
- ❑ With 20–30 affiliate links most affiliate pages are *product reviews*.
- ❑ Above 40 links, most pages are spam.

Search engines must take action against affiliate marketing abuse (which is difficult even for the big players apparently).

Thanks!