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# Do We Approve? New Models for Assessing Approval Plans

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## Introduction

Approval plans are an important part of Yale University Library's collection development strategy for monographs. The library contracts with approval plan vendors and develops approval profiles to acquire books from hundreds of publishers, from several countries, in many languages, and across a wide range of subject areas.

Approval plan assessment has been a topic in library literature for several decades (Case, 1996). Many articles discuss methods for evaluating vendor performance (McClure, 2009; Alan, Chrzastowski, German, & Wiley, 2010). Circulation statistics are a traditional and often-used measure of whether an approval plan is meeting its community's needs (Kingsley, 1996; Brush, 2007; Tucker, 2009). Cost data is another common metric, particularly for assessing the cost-effectiveness of approval plans within a library's overall collections budget (Entlich & Morris, 2009). As patron-driven acquisitions (PDA) became important to many libraries' collection development strategies, librarians undertook comparative assessments of PDA and approval plans (Tyler, Falci, Melvin, Epp, & Kreps, 2013).

Yale Library's Collection Development Department and Assessment Librarian teamed up to build an approval plan assessment model that builds on traditional approaches to add new assessment tools and ask new questions, and particularly to consider approval plans not in their silo but in the broader ecosystem of monograph collection and use within Yale Library and in its primary resource-sharing network, Borrow Direct. This short paper describes key aspects of this project, which is a work in progress, as well as possible future directions for approval plan assessment.

## Methods

The approval plan analysis was performed with data from the Voyager Integrated Library System, which was implemented at Yale in 2002. The data includes bibliographic and holdings information (what we bought), acquisitions data (how we bought it, who we bought it from, and how much we paid), and circulation information (was it used and who used it). We designed the model to capture many aspects of the acquisitions workflow and include circulation data, which is the most consistent measure of usage in the system.

### 1. Getting the data

The data in the Voyager system is in an Oracle database. Using the Oracle SQL developer reporting tool, queries were developed and refined to capture the dataset used to perform this analysis.

Data retrieval was done in stages:

Stage 1 - Orders: The acquisitions query retrieves all the purchase order line items identified as "Approval" or "Firm." The data includes detailed information including vendor, account code, order date, price, and receipt date.

Stage 2 - Bibliographic, Holdings, and Item Records: The query captures the bibliographic data (title, author, bibliographic format, language, publisher, publication date, and country of publication) and holdings data (library, collection, and call number) for all the approval and firm orders. The items data includes the item ID/barcode field that is necessary to connect to the circulation system.

Stage 3 - Circulation: The circulation query filters through the log of circulation transactions finding the items that match the orders/bibliographic records already captured. The query captures the circulation date/time as well as the demographic information about the patron that borrowed the material.

monitor activities over time, so building in a mechanism to update the data is crucial to the success of the project.

### Data Analysis and Visualizations

Because several Yale librarians have responsibility for monograph collection development in their assigned subject areas, it is important to summarize and communicate the results of the approval plan assessment data analysis with a wide range of stakeholders. The charts shown here are examples of data visualizations shared within Yale Library to help inform collection development decision-making, to elicit questions and suggestions for further assessment work, and to foster a culture of assessment.

#### 2. Preparing the data

Once the three queries were run, the resulting datasets were brought together to create a single dataset optimized for analysis. The goal for the project was to build a dashboard that can be used to

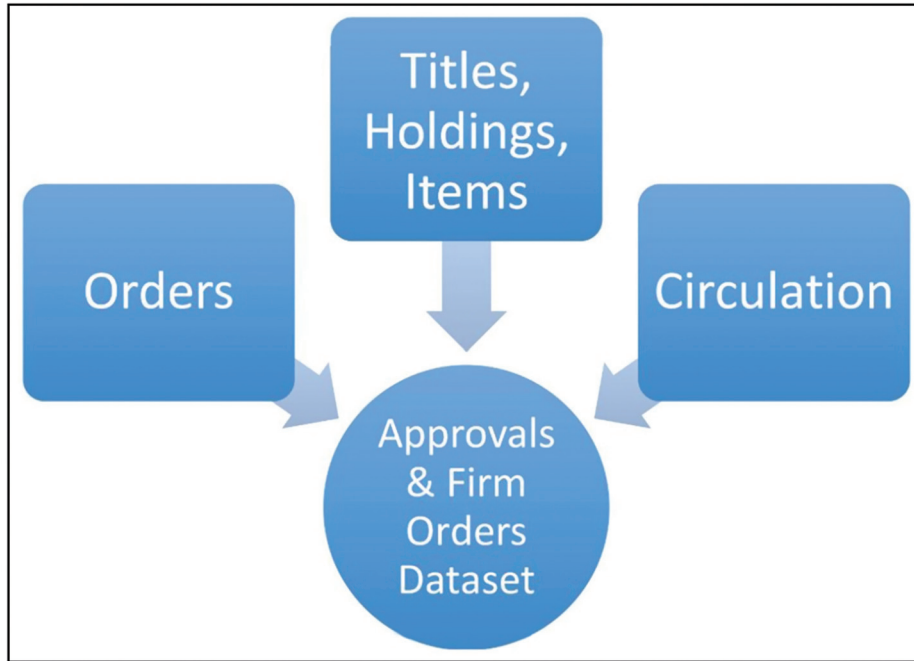


Figure 1. Gathering data for analysis.

Example:

Here is an example of the unified dataset with key fields from the three queries used to build out the dataset.

Title	Call#	Vendor	Order Date	Circulation	Order Type	Query Date
Title 1	P 323	Amazon	7/15/2005	5	FIRM	6/30/2016
Title 2	HV 424	Yankee	8/15/2007	NULL	APPROVAL	6/30/2016
Title 3	B 456	Harrassowitz	9/15/2014	NULL	APPROVAL	6/30/2016

This chart shows not only how the collections have grown over the past 14 years, but also how balance has shifted between the two primary methods of acquisition: Firm order and approval. The next chart illustrates that shift even more starkly, with snapshots from the earliest and latest years in the timeline. Yale Library now uses approval orders for 88% of its monographic acquisitions

When the circulation data is combined with the holdings data for approval items, the circulation activity starts to tell an interesting story.

These patterns appear to align with other institutions' analyses of circulation shelf life (Ladwig & Miller, 2013; Cheung, Chung, & Nesta, 2011). The percentage of material that has been used by a patron is less than half, even when the books have been on the shelf for a significant period of time. This chart is a high-level view—all approval vendors, all subject areas.

The detailed dataset allows us to isolate and explore specific pieces of the overall approval plan acquisitions program. This chart shows the circulation trends of books acquired from Western European vendors. While circulation is generally low—well under 50%—for both firm orders and approvals, it is clear that firm-ordered books consistently enjoy a higher circulation rate than approval books. The reasons for the difference are not explained by the data here but can spark useful questions, such as: Are the firm orders generated by patron requests and, therefore, more likely to circulate immediately?

Approvals from U.S./U.K. and Canadian vendors show a different usage story. Nearly 70% of the material added to the collection via approval plan in 2005 has circulated. The butterfly chart shows near symmetry of circulation percentages of approval books and firm-ordered books.

Interactive Tableau dashboards allow collection development librarians to go beyond static visualizations to engage with the data. By developing interactive tools, the assessment librarian promotes a culture of assessment in which all librarians are expected to use data to inform decision-making and to apply critical thinking to the data.

The dashboard shown here allows librarians to explore a variety of metrics in a compact and

interactive presentation. Selection and filter options include purchase order type (approval or firm order), library (all or specific library), and fiscal year. When selections are made, the display refreshes to show holdings, expenditure, and vendor-specific data.

The rich dataset and the Tableau dashboards allow for deep and detailed assessment of approval plans. Yale Library is also assessing its approval plans in a broad context as the impetus for collaborative collections accelerates.

Yale Library's primary resource-sharing network is called Borrow Direct. It is a service of 12 "Ivy Plus" libraries.<sup>1</sup> Borrow Direct is popular with students and faculty because the turnaround time is fast and because users can request books that Yale holds if Yale's copies are missing or checked out.

Indeed, the data show that more than half of Yale's use of Borrow Direct is to obtain copies of books already held at Yale; to put it another way, Borrow Direct is a "second copy" service.

That overall pattern holds true in broad subject areas. In literature, the social sciences, fine arts, and other subjects, more than half the books borrowed through Borrow Direct are also held at Yale.

Analysis of the 46% of borrowed materials not held at Yale can provide another lens on approval plan performance. For example, some of the books not held at Yale when they are borrowed through Borrow Direct are simply *not yet* at Yale—that is, another Ivy Plus library has received and cataloged the book sooner than Yale has.

As the Ivy Plus Libraries work "toward fulfilling a vision of collection development and management that recognizes the partners' preeminent academic research and special collections as one great collection," Yale and the other Ivy Plus partners will want to understand overlap and divergence among their monograph collections, use of those collections locally and throughout the network, and how approval plans can be optimized to develop "collective collections" (Yale University Library, 2016, July 15).

Further directions for assessing approval plans include:

- Analysis of patron purchase requests. Like circulation statistics, whether local or inter-institution, purchase requests are a direct expression of patron needs and expectations. Many patron requests are for very new books—in some cases, for books announced but not yet published. Rush requests take us out of our approval plan workflow into a more manual workflow. The effect of Amazon, not only as an enormous metadata source but also in shaping expectations about rapid fulfillment, might be an environmental factor that pushes us to think differently about the role of approval plans in our collection development toolkit. Are there patterns in these requests that can inform approval plan modifications or adjustments to library workflows?
- Evaluation of the impact of e-preferred approval models. As Yale Library shifts some of its approval acquisitions to an
- E-preferred model, to what extent can the existing approval plan assessment model incorporate those materials, and what new or different metrics should be applied?
- Development of a predictive model for monograph circulation. Is it worth developing and testing models that would inform changes to approval plan profiles?
- Further analysis of the unique features of approval plans for foreign vendors. The approval plan assessment described here has focused on books and vendors in the United States, United Kingdom, Canada, and Western Europe. Do these models make sense for approval plans in other countries and regions, or for plans that are more tailored to a particular subject? What other metrics might be useful for such plans?

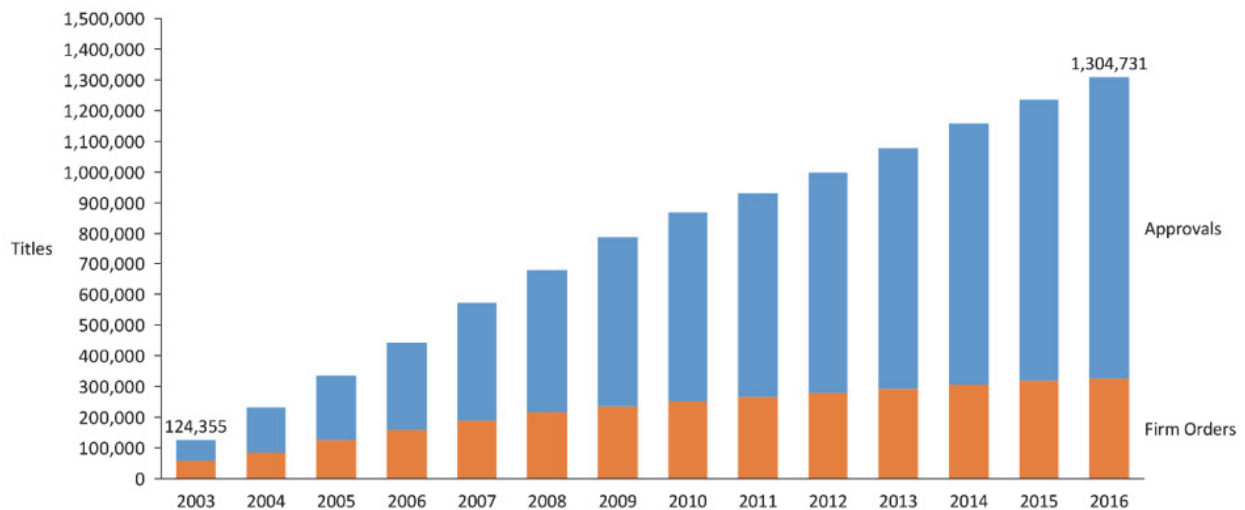
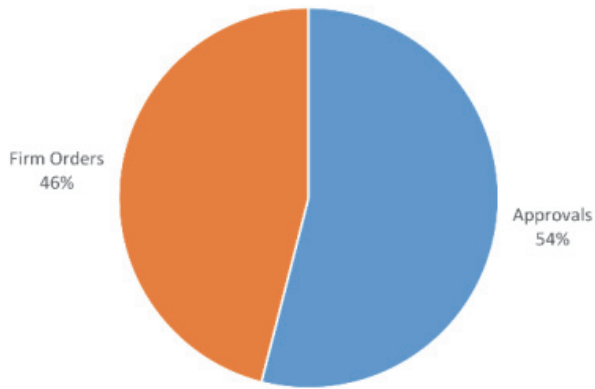


Figure 2. Monograph collection growth—Approval and firm orders.

2003



2016

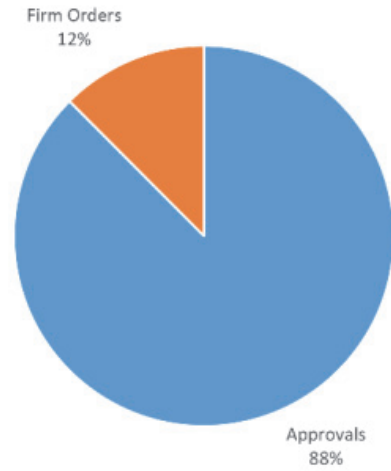


Figure 3. Shift in buying patterns.

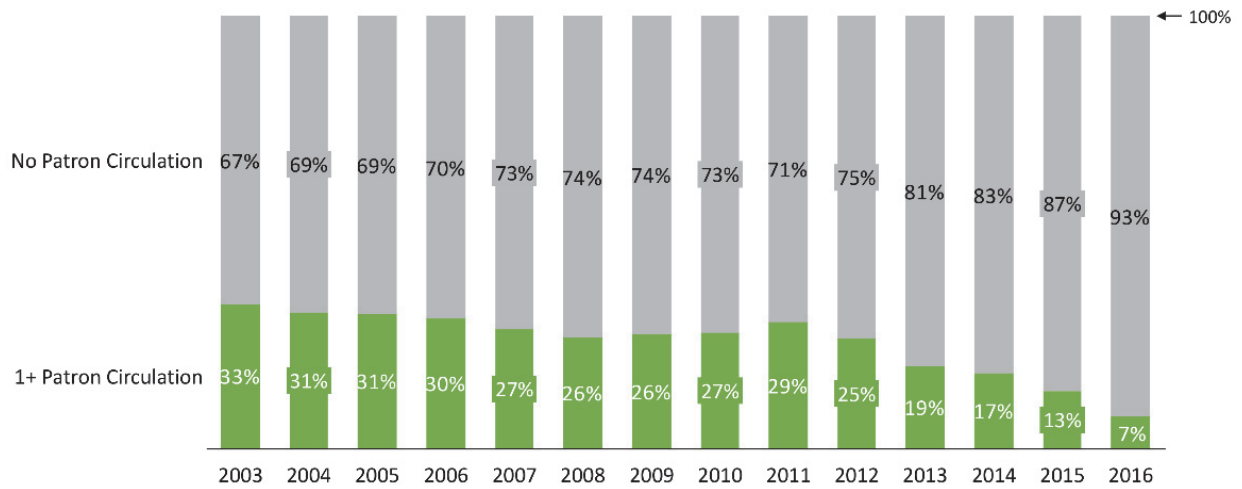


Figure 4. Circulation frequency—Approval orders.

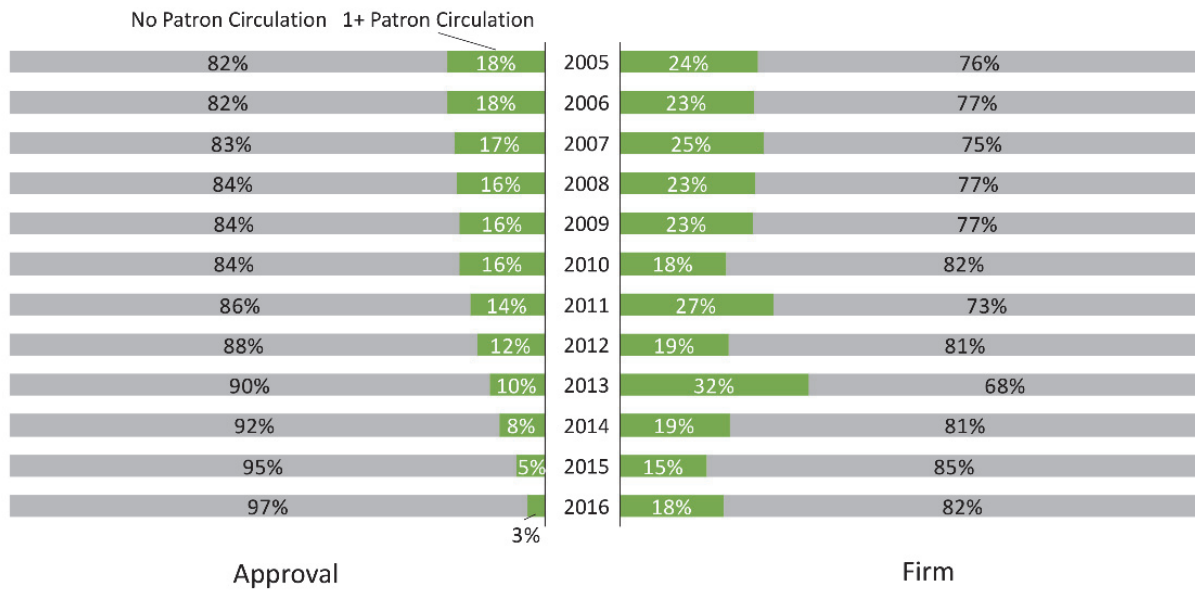


Figure 5. Approvals and firm orders: Western Europe.

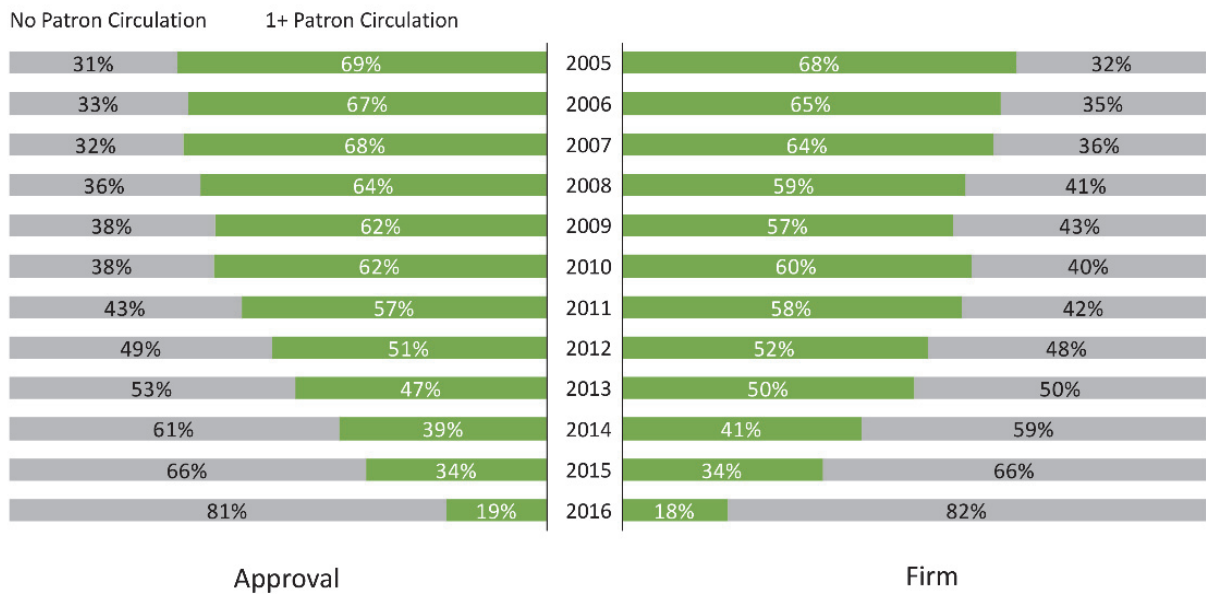


Figure 6. Approvals and firm orders: United States, U.K., and Canada.

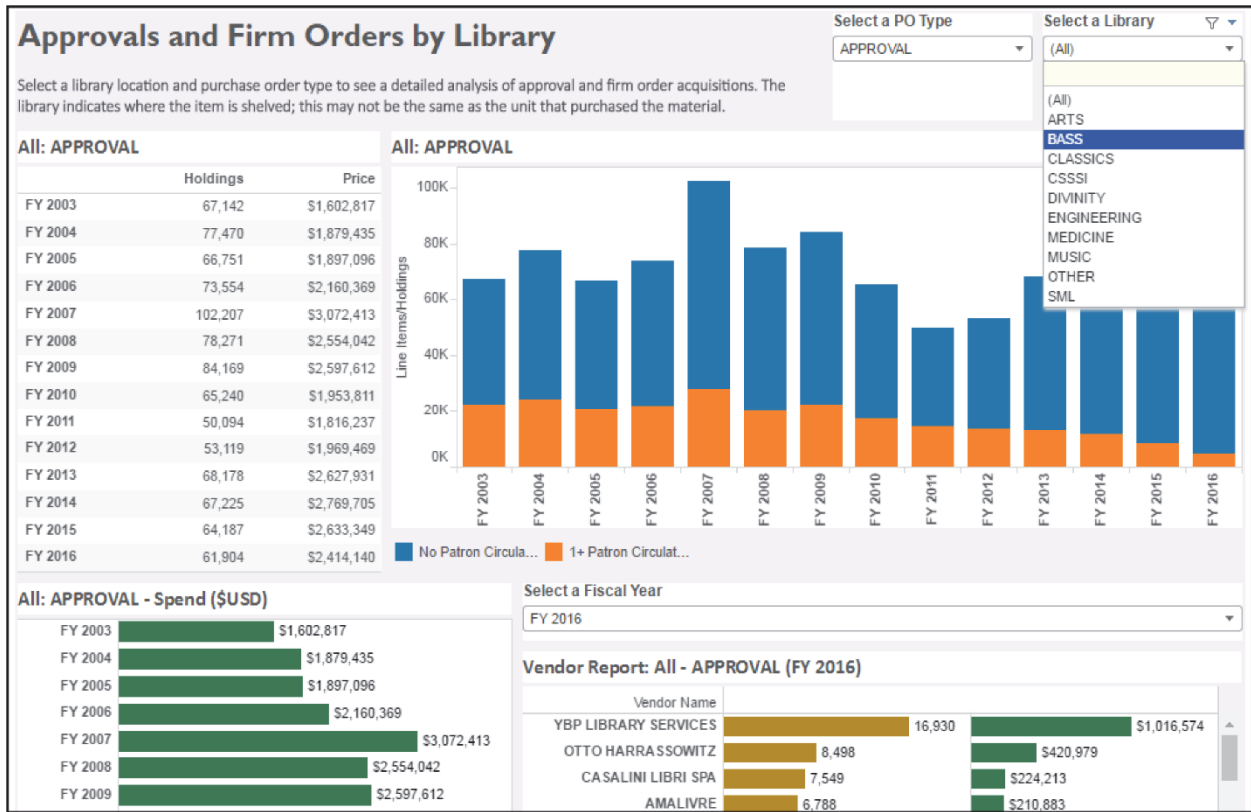


Figure 7. Tableau dashboard for purchases.

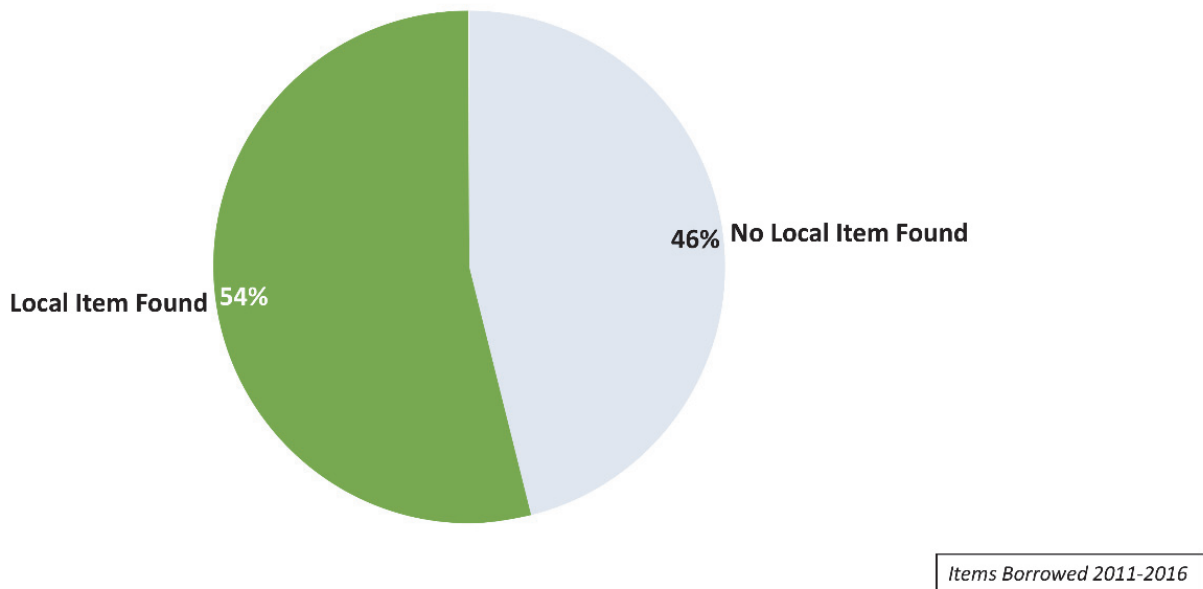


Figure 8. Borrow Direct: Item availability.



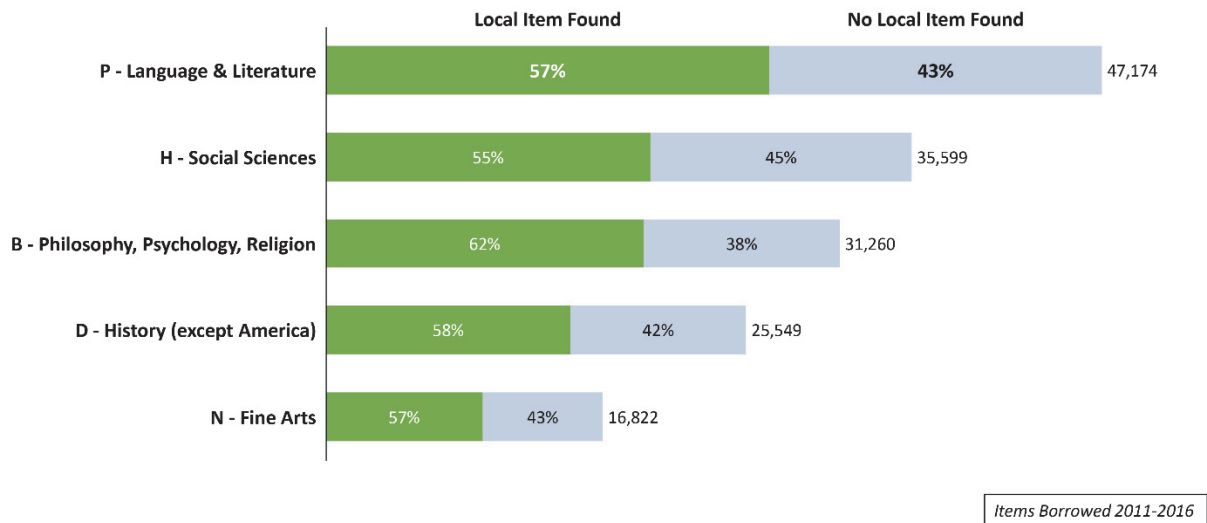


Figure 9. Borrow Direct: Item availability for popular subjects.

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<sup>1</sup> As of this writing, the 12 Ivy Plus institutions that participate in Borrow Direct are: Cornell, Columbia, Harvard, Yale, University of Pennsylvania, Princeton, Brown, Dartmouth, Duke, Johns Hopkins, University of Chicago, and MIT. For an overview and history of the Borrow Direct service, see [www.borrowdirect.org](http://www.borrowdirect.org). Stanford has joined the Ivy Plus Libraries but is not yet included in the Borrow Direct service.