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STATISTICS IN CYBERSPACE: HOW HAS THE INTERNET CHANGED THE U.S. BUREAU OF LABOR STATISTICS?

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Summary

Introduction

1. The history of new media is a history of transformation. Books are both more and less than verbal accounts captured on paper. Recordings are both more and less than concerts captured on CDs. Movies are both more and less than theater captured on film. In each of these cases a new medium allowed content to be experienced by a significantly expanded audience and concurrently changed the nature of what was being presented.
2. The very first movies were straightforward recordings of live theater. As cinema matured, however, filmmakers discovered and exploited possibilities impossible or impractical to render on stage. Effects ranging from close-ups and point-of-view photography to slow motion, animation, and computer-generated imagery revolutionized the vocabulary of artistic expression. At the same time the spontaneity and intimacy of live performances was lost.
3. Today, the Internet gives statistical agencies an unprecedented capacity to reach a huge audience very quickly. The Internet is, however, more than simply an effective broadcast mechanism. It is an entirely new communications medium.

4. Over the past 10-15 years statistical agencies have moved their data dissemination activities from being primarily paper-based to being primarily Web-based. Paper is fundamentally different from a computer screen. Thus it is worth asking if, and how, this change in medium is affecting the statistical products themselves, and the agencies that produce them. This paper will examine the economic and statistical outputs created by the U.S. Bureau of Labor Statistics (BLS), looking for changes that have developed since BLS went online, in an attempt to begin answering this question.

Core Function of the Agency

5. The adoption of Internet technologies has not changed the essential nature of BLS. As it has since 1884, BLS collects data from individual respondents, aggregates this microdata into higher-level estimates, and publishes the results. No surveys have been added or dropped due to the Web.

More Information

6. Perhaps the most obvious effect of the Internet on BLS products is that the agency publishes much more information than it ever did before. This is due primarily to the relative ease and negligible marginal cost of adding one more item to our online offerings. Products such as working tables originally intended primarily for internal use, and research papers previously available to the public only on demand, are now routinely posted to the Web site.

Communication with Customers

7. The content and style of interactions with data users has changed quite radically. The nature of customer inquiries has shifted from “What is the number?” to “What does the number mean?” or “I’m trying to answer this question – how can you help me?” In other words, the information content has become considerably more sophisticated, requiring subject-matter expertise rather than clerical acumen.

8. Whereas in the past most communication took place either by mail or over the telephone, today the overwhelming majority of inquiries are handled via e-mail. E-mail is much more efficient than the postal service and avoids both after-hours unavailability and customers fuming on hold during high-volume periods. But it is harder for knowledgeable BLS analysts to guide users, and a less personal style of communication distances the agency from its customers.

Educational Materials

9. Closely related to the previous two points, BLS has greatly expanded its offering of explanatory and educational materials. These range from *The Editor’s Desk* (a daily publication which highlights specific BLS data by focusing on one or two special points of a report rather than presenting a general summary, and provides links to further analysis) to a Career Information for Kids sub-site aimed at middle and high school students.

10. In addition, a great deal of organizational material (agency mission and strategic plan, listings of senior management officials and advisory bodies, guidelines on information quality

and methodology, etc.) that was previously available only upon request, if at all, has now been posted to the Website.

Theoretically Possible but not Previously Practical

11. BLS now makes its full database of all estimates meeting publication standards since 1913 (over 175 million data rows) directly available to the public through a range of query tools. These tools not only retrieve the estimates, but also permit the user to graph time series and, in some cases, generate choropleth maps.

Analytic Tools

12. BLS has developed a number of systems, including an inflation calculator, a location quotient calculator, and an illness and injuries rate calculator, which permit end users to perform economic or statistical analysis directly from the Web site. A wage calculator also adds the ability to generate model-based estimates to supplement aggregates tabulated directly from the collected respondent data.

Cross-Survey Tables

13. A centralized data store and common distribution point have made possible cross-survey tabulations organized around geography, industry, and occupation. Most of these are general compilations, but some have been created in response to breaking events such as the Katrina hurricane in the fall of 2005.

Accommodating Perceptual Differences in Media

14. A usability test conducted by BLS in the mid-1990s showed that users have more difficulty following a horizontal arrangement of numbers on a computer screen than they do on paper. Since then, BLS tables intended for distribution over the Web use shading on alternate rows to facilitate comprehension.

Internal Processes

15. Though not the focus of this paper, it is worth mentioning that the business processes used to collect, estimate, and publish economic data, as well as those used to administer the workings of the agency, have changed extensively due to increasingly Web-based automation.

Conclusion

16. To date, BLS finds itself closer to the early days of film than to a mature cinematographic industry. Internet-related changes in statistical outputs are primarily ones of volume rather than essence.

17. Nonetheless, a few qualitative differences are beginning to appear. Though in most respects utterly trivial, the introduction of shaded rows in wide tables marks the first explicit

recognition that a computer screen displaying a Web page requires an approach that takes a different set of human factors into account.

18. More significant is an increasing and absolutely fundamental shift in the focus of control. Whereas previously the source agency determined which data would be readily available, defined how its data appeared, and acted as the gatekeeper of expert knowledge, the Web has moved more and more detail, information, and analytic capacity into the hands of our customers.

19. Accompanying the steep rise in the number of data users is a considerable decline in direct, personal contact between BLS staff and our customers. Such a change in organizational culture carries with it the loss of a valuable source of immediate feedback.

20. BLS is no longer a solitary author telling the story inherent in the numbers. Instead BLS is working to help users find the stories for themselves.
