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Impact of DIY home manufacturing with 3D printing on the toy and game market

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The 2020 toy and game market is projected to be US$135 billion. To determine if 3D printing could affect these markets if consumers offset purchases by 3D printing free designs, this study investigates the 100 most popular downloaded designs at MyMiniFactory in a month. Savings are quantified for using a Lulzbot Mini 3D printer and three filament types: commercial filament, pellet-extruded filament, and post-consumer waste converted to filament with a recyclebot. Case studies probed the quality of: (1) six common complex toys; (2) Lego blocks; and (3) the customizability of open source board games. All filaments analyzed saved the user over 75% of the cost of commercially available true alternative toys and over 90% for recyclebot filament. Overall, these results indicate a single 3D printing repository, among dozens is saving consumers well over $60 million/year in offset purchases. The most common savings fell by 40%–90% in total savings, which came with the ability to make novel toys and games. The results of this study show consumers can generate higher value items for less money using the open source distributed manufacturing paradigm. It appears clear that consumer do-it-yourself (DIY) manufacturing is set to have a significant impact on the toy and game markets in the future.

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