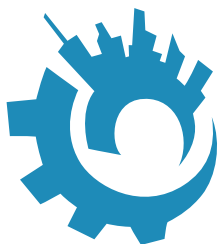


The State of Urban Manufacturing

**BALTIMORE
CITY SNAPSHOT**



**Urban
Manufacturing
Alliance**

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June 21, 2018

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Baltimore's Manufacturing History and the *State of Urban Manufacturing Today*

Baltimore's industrial strength emerged through its textile mills, being well positioned with access to myriad inputs, including cotton production in the south, underemployed labor from Appalachia, shipbuilding in its harbor, and the B&O Railroad, which brought in a supply of coal. By the late 1800's Baltimore was the producer of about 80 percent of the world's cotton duck for use in sails on commercial and military ships. At their peak, about 4,000 workers were employed in the Hampden-Woodberry Mills. Later, in the early 20th century, canning factories along the Inner Harbor made Baltimore the country's leader in canned fruits and vegetables. World War II shifted Baltimore's industrial focus to steel and ship-building. Indeed, by the 1960s, Bethlehem Steel's plant in Sparrows Point, which had turned out ingots used in the girders of the Golden Gate Bridge in San Francisco and cabling for the George Washington Bridge in New York, was the largest in the country. But by the second half of the 20th century, changes in production methods and trade policies eroded Baltimore's dominance in steel. The city's steel production dropped sharply, along with many of the industrial products that relied on it, especially the automobile.

The Baltimore region lost over 100,000 manufacturing jobs between 1950 and 1995—three-quarters of its industrial employment.

On the other hand, the Port of Baltimore has remained strong in the era of global trade. In 2017 it experienced a record-breaking year for overall cargo shipments. But the Port's strength now comes predominantly from growth in imports, not from shipping out finished products, as it once did. Manufacturing in Baltimore has pushed into suburban areas—as it has in most U.S. cities—and the sector's connection to the Port has diminished.

A portion of the city's remaining older industrial buildings are shuttered and crumbling from neglect, contributing to blight and declining property values in their neighborhoods. When resources are leveraged to redevelop these buildings, they are usually for conversion to residential and commercial uses; in the process, more and more of the city's industrial capacity is lost.

Yet in a handful of these older industrial buildings, a new narrative is taking shape. In places like the Cambridge Building in Southwest Baltimore, or the Crown Cork and Seal complex in East Baltimore, a new generation of small



light-manufacturers, along with other like-minded creative companies, is flourishing. New makerspaces, like Open Works and The Foundry, have re-inhabited formerly vacant industrial properties, and are turning them into hubs of maker education and innovation. Summer 2018 will see the opening of Union Collective, a multi-tenant industrial redevelopment project anchored by Union Craft Brewing, and backed by support from the Baltimore Development Corporation (BDC). There are emerging bright spots in the service provision landscape as well. In 2016, the BDC expanded its Façade Improvement Grant (FIG) program to include industrial properties; in 2015, the Jane Addams Resource Corporation (JARC) opened a training facility in West Baltimore for CNC machining and welding; programs run by Citywide Youth Development and SewLab USA have begun training a new generation of workers for the sewn trades.

While statistics showcasing the decline in manufacturing jobs in the U.S. are cited often, there are other numbers that tell different stories. Census data show that from 2003 to 2012, the number of manufacturing businesses without employees—that is, where the owner is a sole proprietor—increased by 67 percent in Baltimore City¹, suggesting that entrepreneurship in the sector has been on the rise. Anecdotally, business owners report that, thanks to new technologies like 3-D printing and e-commerce platforms like Etsy, it has never been easier for a small business to design, produce, and distribute new products.

It was these developments that led the Baltimore Office of Sustainability to create the Made In Baltimore (MIB) program. Made In Baltimore supports, promotes, and studies the city’s emerging ‘maker economy’. In its founding year, Made In Baltimore partnered with the Urban Manufacturing Alliance (UMA) to participate in the *State of Urban Manufacturing* study. The goal was to gain a clearer understanding of what these emerging businesses needed to grow and thrive. UMA also conducted this research in five other cities at the same time: Cincinnati, Detroit, Milwaukee, Philadelphia, and Portland (Ore.).

Baltimore’s participation in the *State of Urban Manufacturing* began in 2017 with a high-level analysis of existing data on manufacturing employment trends at both the metropolitan and city levels. It continued with the collection of data directly from Baltimore manufacturers through both an online survey and in-person focus groups.²

Several key findings emerged from our research.

- 1. Small, emerging firms are not accessing available resources, creating a perceived gap in services**—including incentives, spaces, and peer support—that makes it challenging for small, growing firms to become bigger businesses.
- 2. A clearer roadmap is needed for existing services serving smaller scale manufacturers.** We heard from business owners and some service providers that it is not enough to simply list the various programs and service providers. The

1 US Census, Nonemployer Statistics

2 UMA partnered with Made In Baltimore, the Baltimore Development Corporation, and the University of Baltimore’s Jacob France Institute to collect survey responses and recruit focus group participants. For more information on the background and methodology of the *State of Urban Manufacturing*, see “Afterword: Why we studied the *State of Urban Manufacturing*.”

complexity in process of how various programs are accessed, or how they need to be sequenced in order to provide the most impact, requires a seasoned hand to help guide smaller businesses.

3. **There is a need for space into which smaller manufacturing businesses can grow.** Owners cited a dearth of space to graduate into from their homes or start-up spaces. The median firm expecting to move to a larger space anticipated requiring 1,500 square feet.
4. **There is a need for more early stage growth capital.** Businesses need access to working capital, in particular, to help navigate growth.
5. **Access to skilled workforce** is a challenge for manufacturing businesses of all sectors and sizes.
6. Business-to-business opportunities may be hampered by a culture gap between larger, legacy manufacturers and smaller, newer production businesses. **Better connections between large and small, and legacy and new, could greatly expand market opportunities for all.**
7. There is a strong presence of woman-owned businesses in the light-manufacturing sector, **but women-owned businesses are by and large earning less than male-owned businesses.**

We're pleased to share this snapshot of Baltimore's manufacturing sector, along with several recommendations, that we hope will galvanize support to nurture and grow small-scale producers so that they become larger scale employers.

Baltimore's Manufacturing Economy

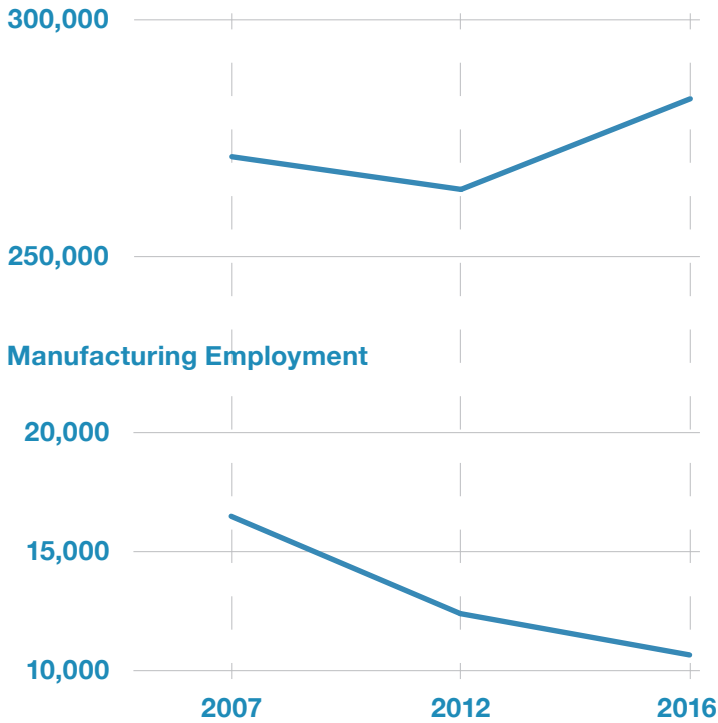
The *State of Urban Manufacturing* in other cities we studied relied on nationally available economic data related to business establishments, sectors, and wages at the level of Metropolitan Statistical Areas, since that is generally the most detailed data that is systematically collected by government.³ However, in Baltimore we were able to analyze similar data specific to Baltimore City.⁴ From 2006 to 2016, employment in Baltimore City's manufacturing sector declined by 38 percent. In 2016, manufacturing was Baltimore's tenth-largest sector by employment with 12,545 jobs—just 4.4 percent of all jobs in the city. But the economic impact of those jobs was somewhat greater with total wages of \$5.96 million making it the eighth-highest paying sector.

3 See methodology section.

4 It is useful to do this when appropriate data are available since analyses at the MSA level often mask economic disparities between cities and the broader regions that surround them; in the Baltimore area, for example, the median household income of the MSA is \$76,788 while in Baltimore City it is \$44,262. The City of Baltimore performed this analysis using data primarily from the Quarterly Census of Employment and Wages (QCEW) and County Business Patterns (CBP).

Figure 1: Change in Total and Manufacturing Employment over Time

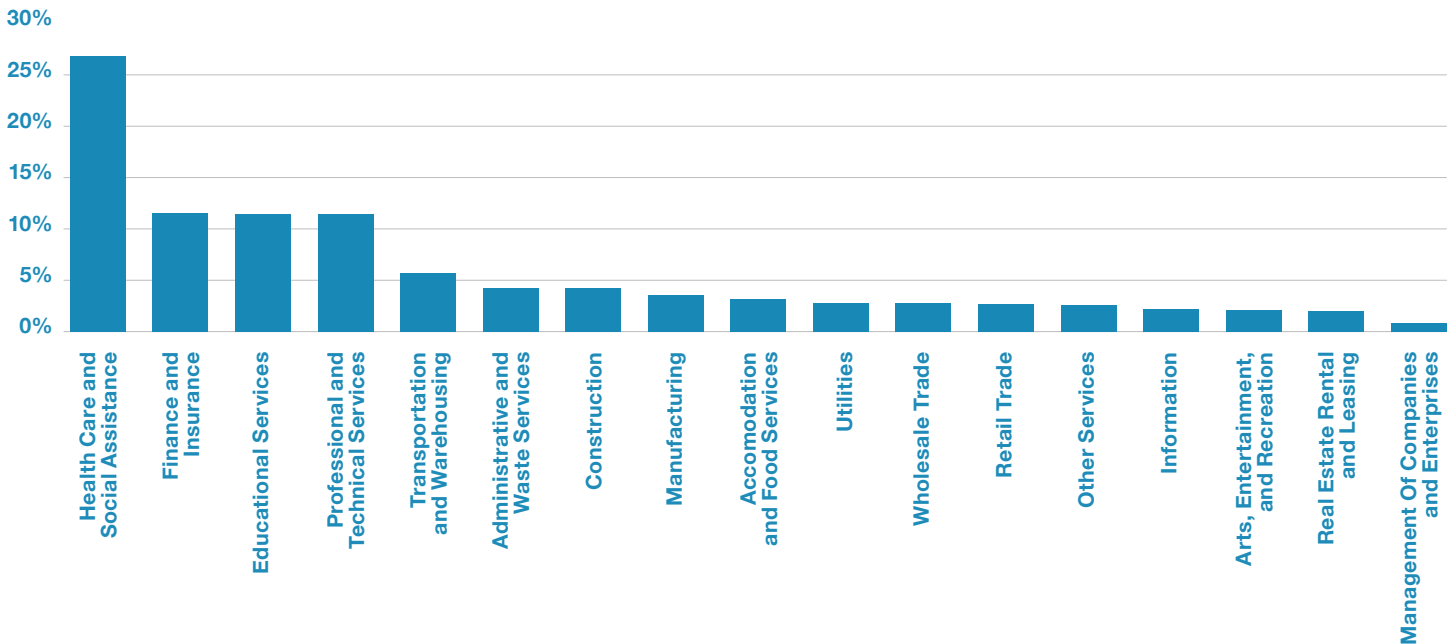
All Employment



While the Port of Baltimore experienced a record-breaking year in 2017 for overall cargo shipments, its strength now comes predominantly from growth in imports and not from shipping out finished products as it once did. Indeed, manufacturing in Baltimore has pushed into suburban areas—as it has in most U.S. cities—and its connection to the Port has diminished. As the creative economy has begun to take hold in Baltimore, developers are regularly purchasing former factories and converting them to residential or commercial use.⁵

Yet, data from our survey indicate the existence of a number of smaller producers that official statistics often fail to capture: **an emerging manufacturing presence in the city’s creative economy, even if that presence cannot be identified through ordinary data sources.**⁶

Figure 2: Share of Total Wages by 2-digit NAICS Category



5 See, for example, <https://www.bizjournals.com/baltimore/news/2016/12/08/tufaros-whitehall-mill-signs-two-office-tenants.html>

6 Businesses who are not filing with larger governmental agencies such as the Census Bureau or State Departments of Labor will not show up in data captured on traditional manufacturing firms. In addition, many other small producers don’t necessarily consider themselves “manufacturers,” as we’ll show when discussing the results of the survey. These production businesses therefore will not be captured in categories of more traditional manufacturers.

Respondents to UMA / MIB Survey

Baltimore had the broadest distribution of survey respondents across business size and age categories among the six cities participating in the *State of Urban Manufacturing*. Yet it also had an unusually high number of microenterprises responding, defined as sole proprietors (businesses having no employees other than the owner) earning under \$25,000 per year. Based on data provided by the Baltimore Metropolitan Council, 11 percent of Baltimore City's manufacturing establishments, overall, are sole proprietors.⁷ By contrast, more than five times as many (58 percent) of the respondents to our survey were sole proprietors. Half of the sole proprietors also reported holding additional employment, an indication that they were likely not able to support themselves from business proceeds alone. More than three-quarters of sole proprietors reported 2016 revenues of under \$25,000. (For reference, less than half (45 percent) of respondents, overall, reported 2016 revenues under \$25,000.) Further, while women comprised 65 percent of survey respondents, the vast majority (80 percent) of these women-owned businesses fell into the survey's three lowest annual revenue categories, earning under \$100,000.⁸ It is precisely these businesses that may benefit most from assistance and support as they struggle to become self-sustaining.

⁷ Emsi 2018.2. Emsi data provided by the Baltimore Metropolitan Council.

⁸ Further research is needed to understand how service providers can help these businesses attain their growth aspirations.

Figure 3: UMA Respondents by Size

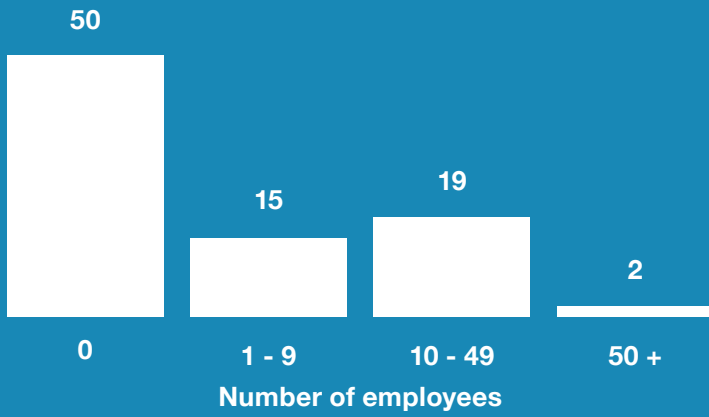


Figure 4: UMA Respondents by Revenue

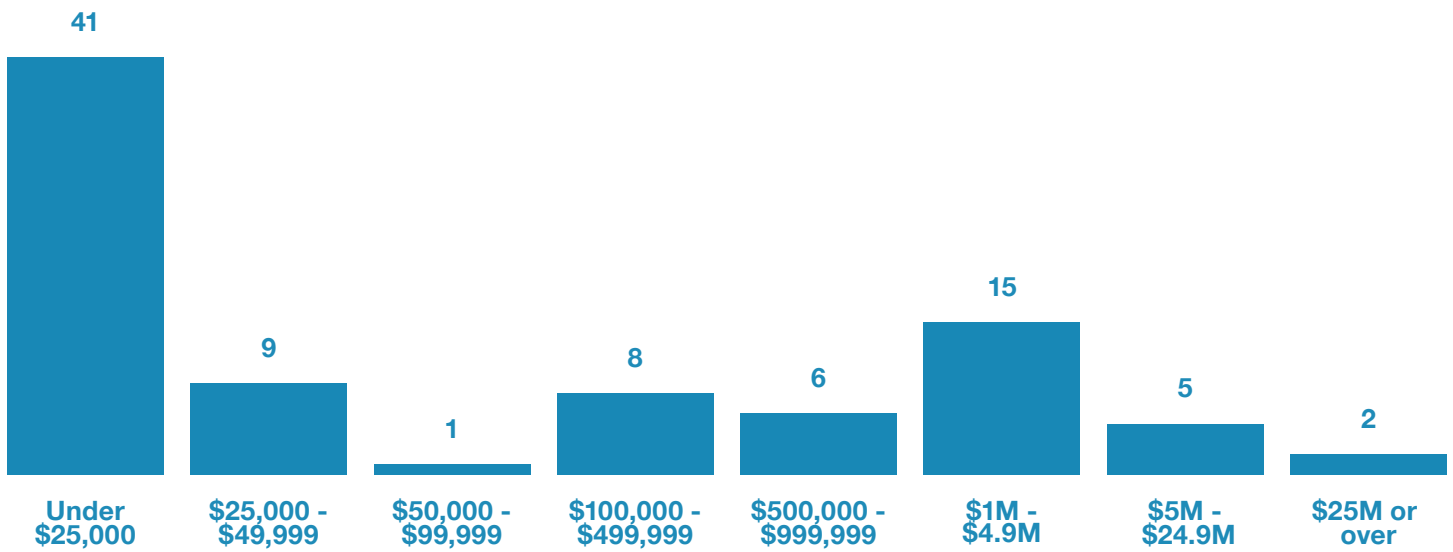
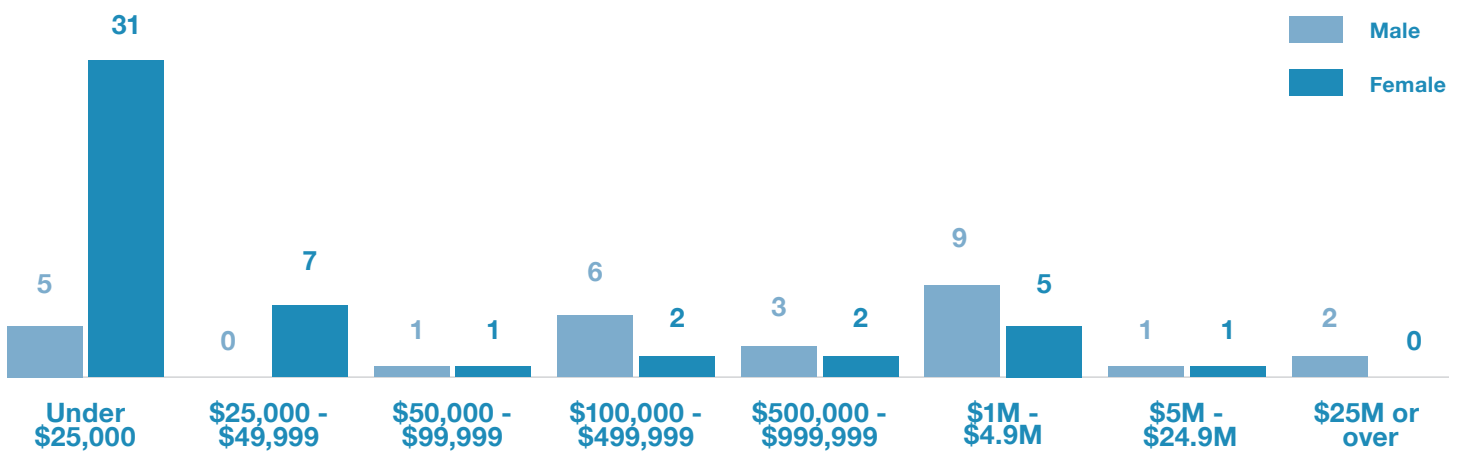


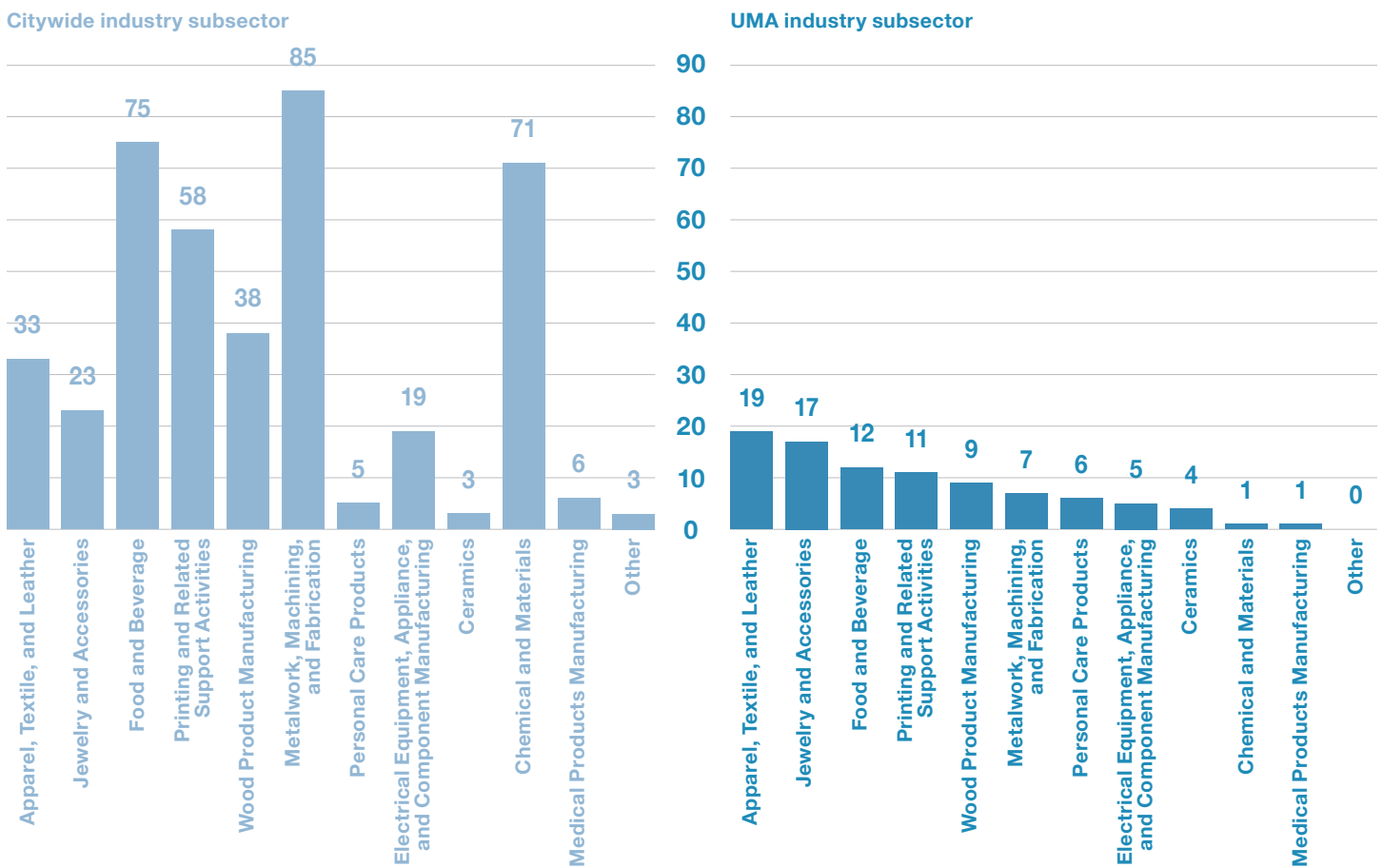
Figure 5: Revenue by Sex



Respondents to our survey had greater representation from the personal care products; jewelry and accessories; and apparel, textile, and leather subsectors than Baltimore City as a whole. Subsectors less represented in the survey included chemicals and materials, as well as metalworking and machining.

The size and sectoral differences between firms in our survey and manufacturing businesses as a whole in Baltimore indicate that survey respondents likely provided a window into a distinctive subsection of Baltimore’s manufacturing sector: young, small-batch producers.

Figure 6: UMA Respondents by Sector and Baltimore City Manufacturing Establishments by Sector



Just 42 percent of these firms even identified as manufacturers, with many instead using terms like maker, designer, or artisan to describe their businesses.

In addition to being smaller than the typical Baltimore manufacturer, survey respondents tended to be younger businesses; two-thirds were founded since 2000 with half of those in the past five years.

Among surveyed firms operating outside of the owner’s home, the median space occupied was 8,000 square feet. However, there was a wide range of responses; businesses that began as home-based microenterprises and then “graduated” were in smaller spaces than those which had started outside of the owner’s home. And at the time of the survey, almost half of survey respondents (44 percent) were still based out of their homes.

Figure 7: UMA Respondents by Production Location over Time

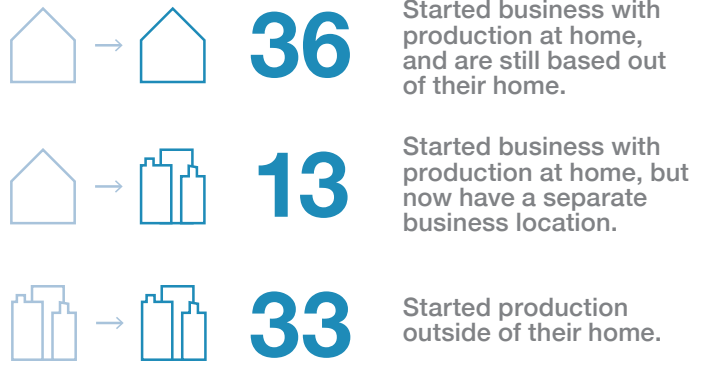


Figure 8: UMA Respondent by Year of Founding

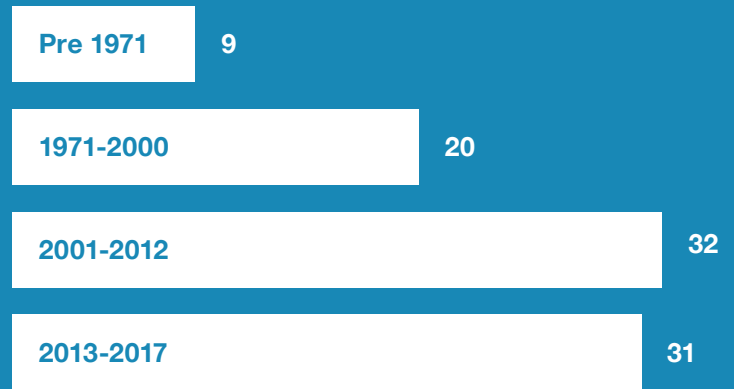
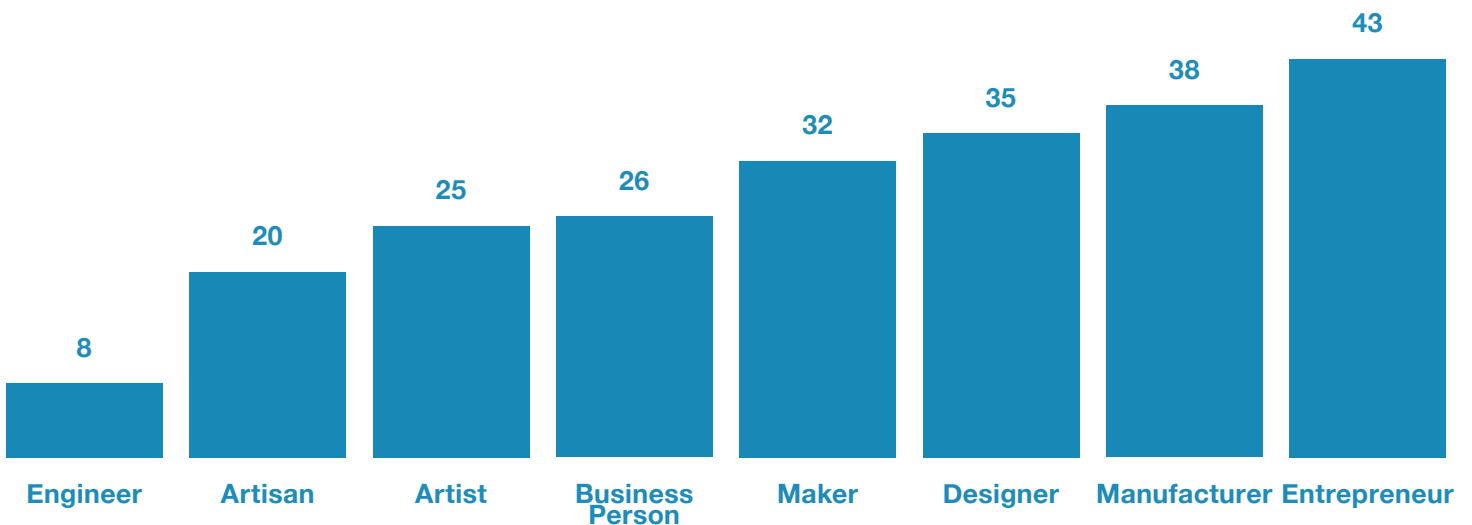


Figure 9: UMA Respondent Professional Identity



In spite of the small size and modest earnings of most of the companies represented in our survey, they tended to be both growing (more than 79 percent reported revenue growth in 2016) and optimistic about their future growth (over 90 percent said that they hoped their businesses would grow over the next two years, and nearly half expected to move to a larger space). The median firm expecting to move to a larger space anticipated requiring 1,500 square feet.

These microenterprises were making and selling a surprising variety of products, from tulle skirts to backpacks to custom wood furniture. The breadth of manufacturers captured in our survey represent a potential challenge to the portrait of a declining industrial sector portrayed in official statistics. The next section focuses on firms in two industry subsectors that exemplify the promise of emergent small-batch manufacturers in Baltimore: jewelry and accessories, and apparel, textiles, and leather goods.

Figure 10: UMA Respondent by Current Square Footage Occupied by Firms Operating Outside the Home

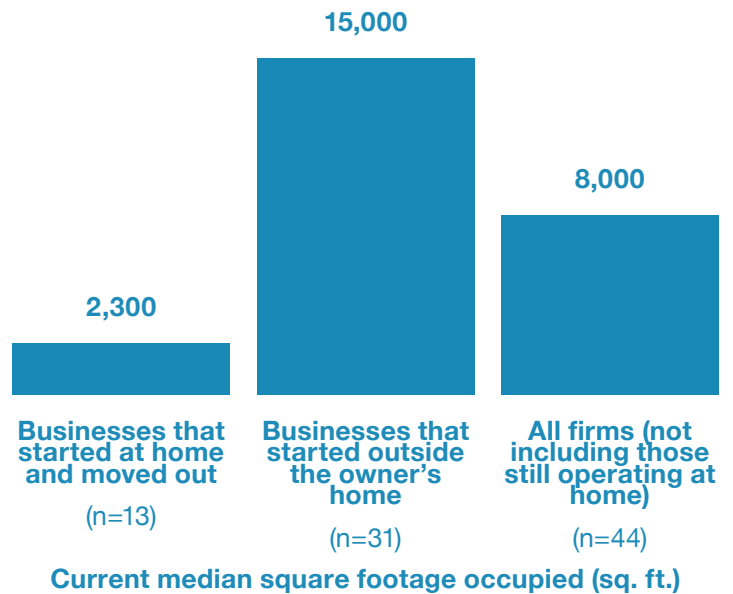
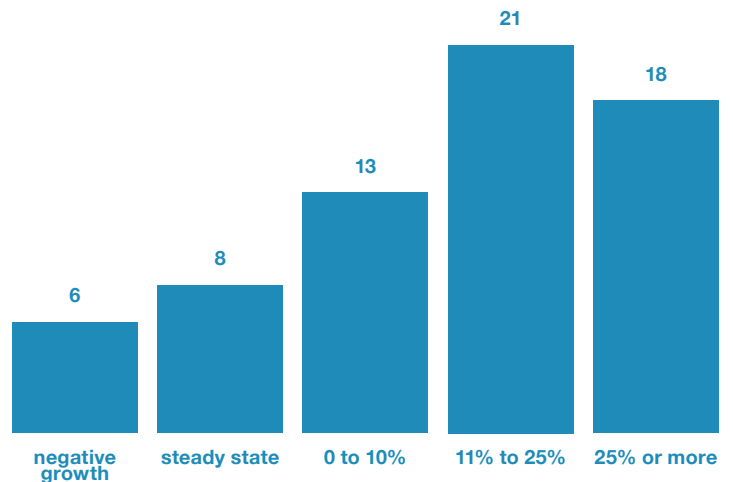


Figure 11: UMA Respondent by Revenue Growth, 2015-2016



Focus on Apparel and Jewelry Enterprises

Companies in two manufacturing subsectors—apparel, textiles, and leather (“apparel”), and jewelry and accessories (“jewelry”)—exemplify the young, small-batch producers whose existence our survey’s findings bring into clearer focus. In these two subsectors, most of the respondents either were sole proprietors or employed fewer than ten workers. While two apparel companies in our survey earned more than \$1 million in revenue in 2016, more than two-thirds of these companies earned less than \$25,000 that year. Further, more than two-thirds still operated from their homes.

Figure 12: Apparel and Jewelry Firms by Employee Size

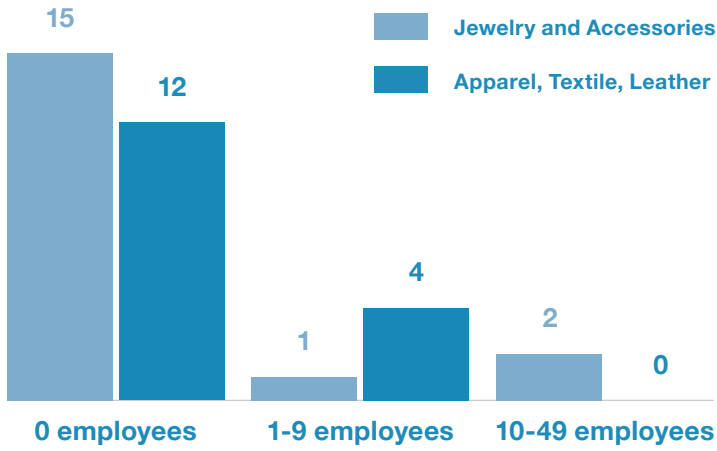
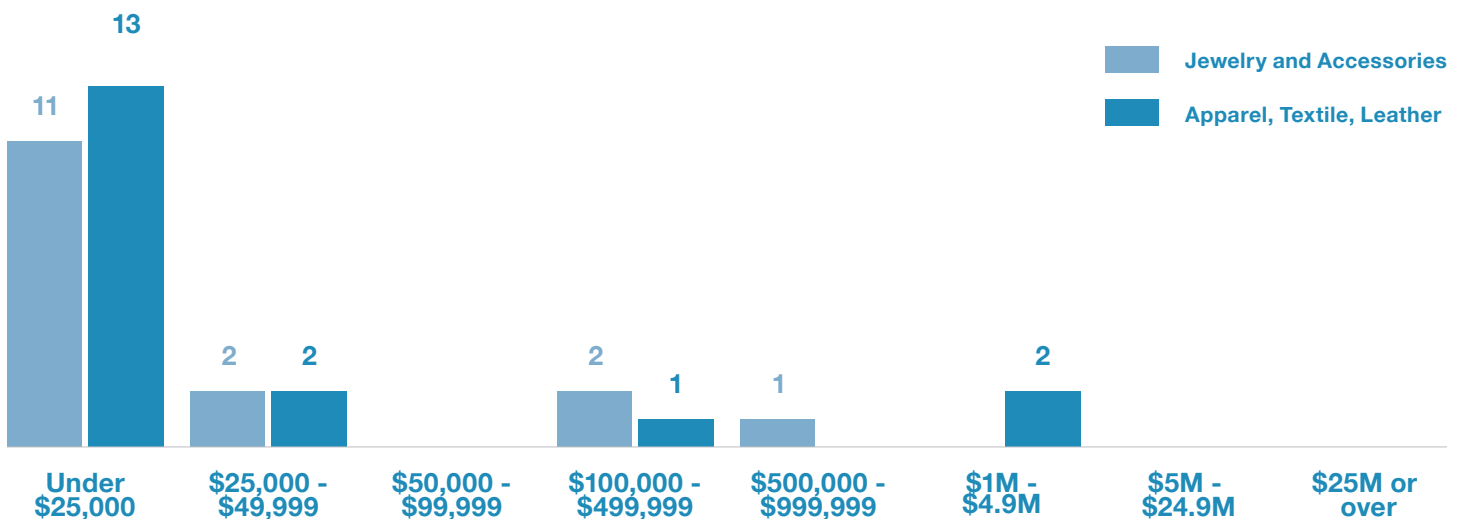


Figure 13: Location Status of Apparel and Jewelry Firms



Figure 14: Apparel and Jewelry Firms by Revenue



A majority of both apparel and jewelry firm owners responding to our survey reported that they originally thought of themselves as makers as opposed to manufacturers. And while, over time, more of these business owners shifted their descriptions to manufacturers, the maker identity still predominated. This has important implications for how business support services are marketed to these microenterprises and their owners since many—especially nascent firms—may not be looking for “manufacturing” assistance.

Again, despite their small size, the market reach of apparel and jewelry firm respondents was significant; nearly 60 percent sold most of their products in national and international markets. These firms overwhelmingly cited as their main customers as consumers (as opposed to wholesalers, retailers, or other firms) suggesting that most engaged directly with individual purchasers.

Figure 15: Change in Identities of Apparel and Jewelry Firms

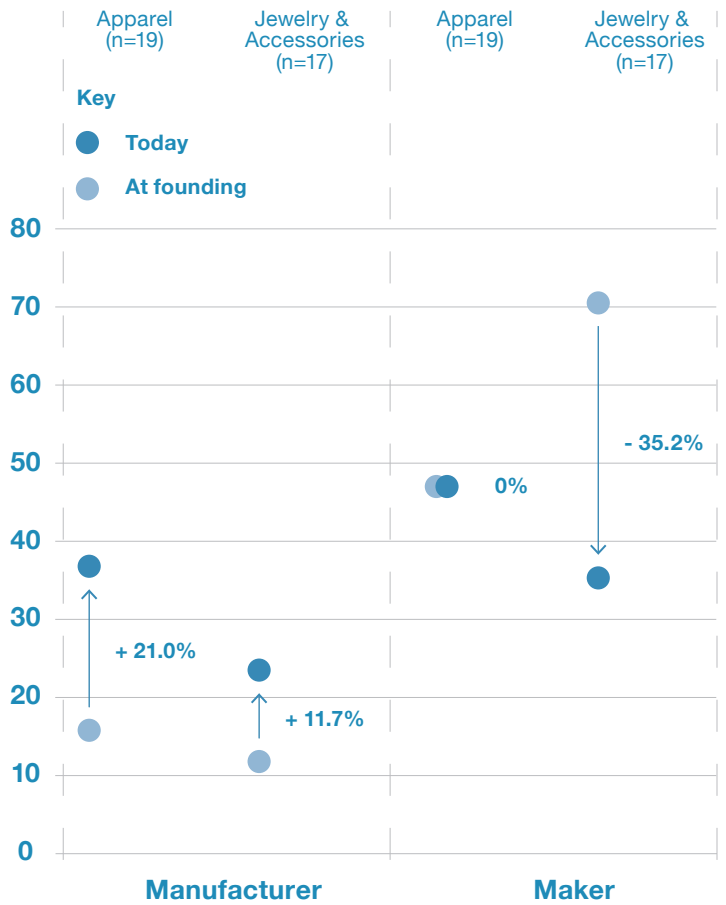


Figure 16: Market Reach of Apparel and Jewelry Firm Respondents

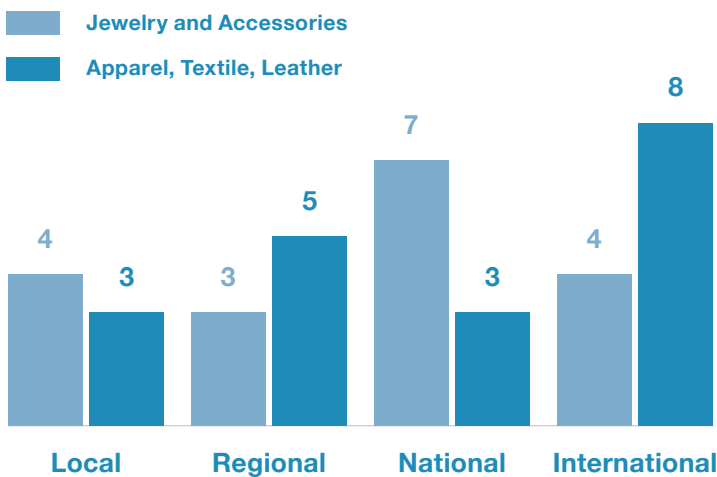
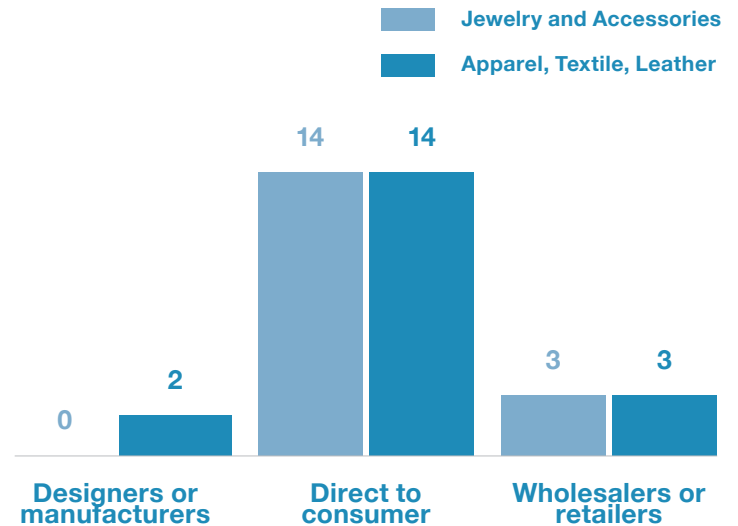


Figure 17: Main Customers of Apparel and Jewelry Firm Respondents





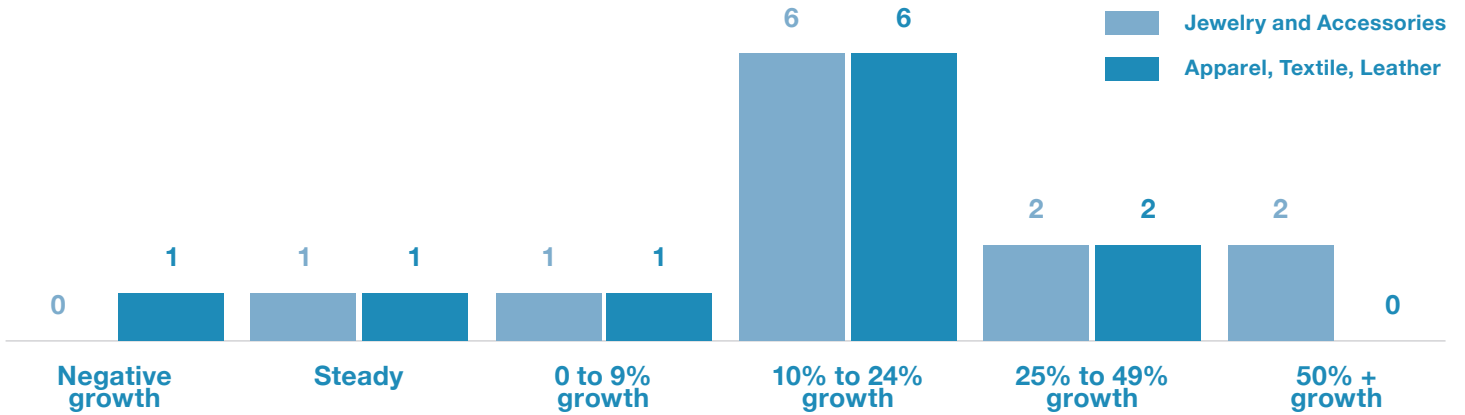
2LIVE2LOVE

In 2012, designer and entrepreneur Keisha Ransome founded 2live2love, a boutique apparel company specializing in tulle skirts and other related apparel such as bridal separates and accessories. Ms. Ransome designs and makes all of her products by hand in a home studio, and sells them via 2live2love's website and online e-commerce platforms, such as Etsy. Her primary market is bridal attire, which comprises over 60 percent of her sales.

As a sole proprietor in the apparel sector, Ms. Ransome is representative of a large number of SUM survey respondents. She has demonstrated success as a small business and demand for her product, but has not yet made the leap to a commercial production space or the hiring of her first employee. Navigating this stage of growth is a challenge for many entrepreneurs in Baltimore's apparel sector, but Ms. Ransome is undaunted. As a way of diversifying her business offerings, she utilizes her expertise as an Etsy vendor to consult with other small businesses on how they can achieve greater visibility and sales on the Etsy platform. //

Photo Credit: 2live2love

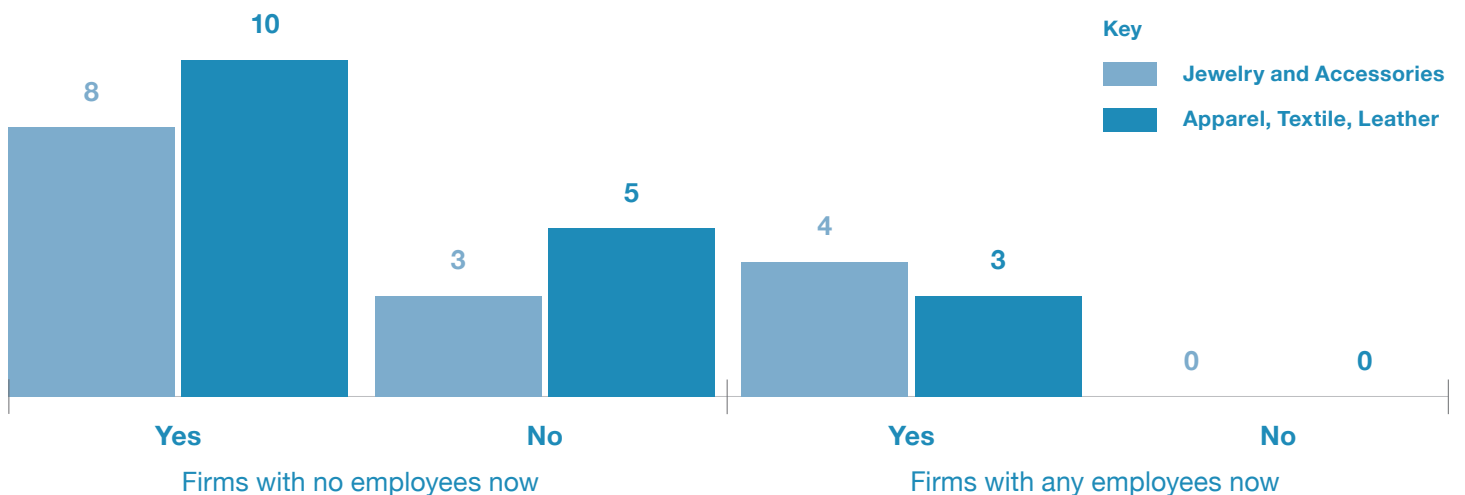
Figure 18: Revenue Change of Apparel and Jewelry Firm Respondents, 2015-2016



Moreover, apparel and jewelry firms reported positive growth in recent years and an appetite for future growth. Among those reporting revenue, more than three-quarters had grown by at least 10 percent between 2015 and 2016. Among sole proprietors, 69 percent intended to add employees in the following two years. Among respondents who already had employees, 100 percent said they intended to hire more.

A final notable characteristic of apparel and jewelry firms in the survey was that 87 percent were owned by women (versus 65 percent of the survey respondents overall). African-American owners were more frequent among apparel firm respondents (31 percent) compared to all respondents (19 percent).

Figure 19: Apparel & Jewelry Firm Respondents Intentions to Add New Employees in the Future⁹



⁹ Both Q24 (posed only to firms with no employees) and Q26 (posed to firms with any employees) divide anticipated future employment into three categories: full-time, part-time, and contract workers. The median numbers of anticipated employees in both charts were reached by adding the three categories to reach a sum of total future employees (i.e., a firm projects having two full-time, one part-time, and five contract workers, then their anticipated eight future employees).

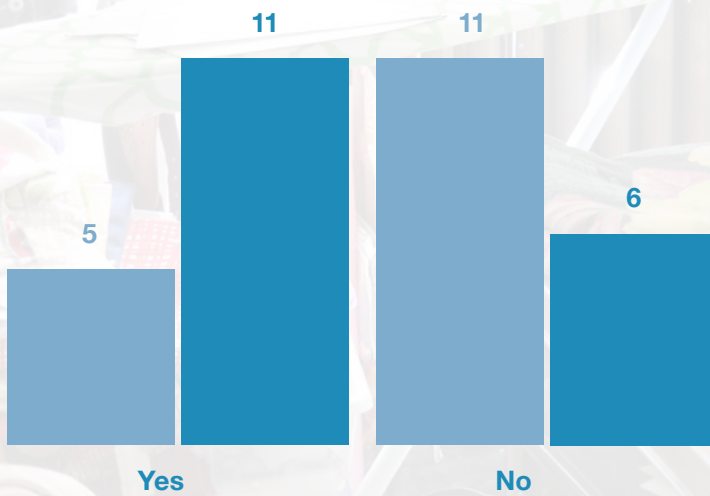
Space and Capital Needs of Apparel and Jewelry firms

Respondents in the apparel subsector were more likely than survey respondents overall to cite the lack of affordable space as a barrier to growth. Further, more than two-thirds of apparel firms indicated that they expected to be in a larger space in two years, with the average firm citing a desire for approximately 1,600 square feet. Unlike apparel companies, however, jewelry firms were less likely to indicate that they were anticipating a move to larger space perhaps. This may indicate the success of co-working studios like the Baltimore Jewelry Center in serving firms like these.

Figure 20: Apparel & Jewelry Firm Respondents: “Will you need a larger space in two years?”

Key

- Jewelry and Accessories
- Apparel, Textile, Leather



Both apparel and jewelry firms cited access to financing as a growth barrier. Almost all (90 percent) said they would use financing to support cashflow and working capital needs, while more than half said they would hire more workers. More than half of jewelry firms also said they would purchase new equipment.



Key Findings: Assets & Challenges of Baltimore's Manufacturing Ecosystem

Below are our key findings regarding Baltimore's manufacturing ecosystem.

Access to business support services was described as a challenge for firms looking to grow. There was a perception that existing services to support businesses tended to be geared either to microenterprises that are just starting or to large factories taking advantage of complex tax and real estate incentives; fewer services were thought to be oriented toward small companies who have overcome the start-up phase, but still had just a few employees and relatively low revenues. In focus groups, service providers suggested that merely describing and marketing services to these firms more effectively might help. "A common issue is the silos in city government," said one nonprofit service provider. "There are several places you can look and see small business services [being provided], but they're pretty scattered and not well-coordinated."

Indeed, there appeared to be a number of service providers in Baltimore. "SourceLink lists 74 different organizations providing support to businesses," said one city agency representative, referring to the city's online business service directory. The question appeared to be how well the various services are positioned for manufacturers, especially small-batch manufacturers, to take advantage of: while there were 12 mentions of the BDC by survey respondents, SourceLink was not mentioned.

"A common issue is the silos in city government," said one nonprofit service provider. "There are several places you can look and see small business services [being provided], but they're pretty scattered and not well-coordinated."

What was missing, many said, was mid-sized spaces.

It is also not enough simply to provide a list, UMA has heard in most places in which it has asked about service directories. The complexity in how various programs are accessed, or how they need to be sequenced in order to provide the most impact, requires a seasoned hand to help guide smaller businesses. Additional context for business services, often in the form of an ombudsman helping a business owner understand which programs apply to them, and in what order, is useful. “There is no single path,” said one Baltimore service provider. “You need a flow” that accounts for different circumstances, she continued.

A related issue is how effectively services are marketed to small-batch manufacturers. Because, as we saw above, many of these businesses may not think of themselves as manufacturers when they begin (as opposed to artists, artisans, or designers) they are likely not looking for programs marketed to manufacturers.

Access to growth space was insufficient for small and mid-sized growing firms.

Focus group participants told us that there were incubators or co-working spaces that hatch businesses, but no step-out space as microenterprises seek to grow into going concerns. Most of the respondents to our survey who indicated that they planned to move in order to accommodate business growth were smaller companies who sought to graduate from home offices or shared workspaces. The median size needed was 1,500 square feet. This is important because 44 percent of respondents reported having started their business at home, where it remained as of the time of survey, while only 16 percent reported “graduating” from a

home-based business to a separate production space.

But it’s not just the smallest of businesses that are challenged by the lack of early growth space. In our focus groups, business owners said Baltimore has small spaces in which to get a business started, and really large spaces that might be renovated. What was missing, many said, was mid-sized spaces. One growing manufacturer said it was hard to find a 7,000 square foot space. Another said it took him a year to find an 8,000 square foot space. “The first and second expansion is really tough” for small manufacturers, he added. A third manufacturer went further and said, “Spaces that are 15,000 to 30,000 square feet are impossible to find.” A service provider suggested that city government was not sufficiently focused on the space needs of these manufacturers, saying, “All of the city’s real estate resources are geared toward affordable housing.¹⁰”

Financing for growth was perceived as being difficult to access. Thirty percent of survey respondents indicated that they pursued financing to help grow their businesses, but only three-quarters of them succeeded. Of the 70 percent who did not pursue financing in the first place, one-quarter said that, while they needed financing, they did not apply because they were not confident they would have been approved. The most important financing need cited was for working capital, which is also the category

¹⁰ The City, through the BDC offers an Industrial & Commercial Financing loan program, which can be used for capital improvements, equipment purchases, and other real estate related projects.

“One-quarter said that, while they needed financing, they did not apply because they were not confident they would have been approved.”



banks find most challenging to provide for small businesses. Focus group participants—both businesses and service providers—articulated a need for more early-stage funding that might be supported by government with less risk-averse underwriting. One nonprofit group suggested this should be a role of the BDC, “but they are so risk-averse that they have made very few loans.”

Although this perception was held by some participants, the BDC awarded 90 loans between 2015-2017. 47 were micro loans (ranging from \$5,000 to \$30,000); loans to manufacturers of various sizes totaled nearly \$3 million.

Access to a skilled workforce was a challenge most businesses said they faced. At a broad level, there was a sense that recent hiring by large Baltimore employers—Under Armour and Amazon, in particular, were mentioned by focus group participants—was contributing to a tighter labor market for production employees.

Larger manufacturers also reported encountering a loss of skilled workers as older employees age and retire. They reported that certifications in key skills among new jobseekers were challenging to come by.¹¹ Local training organizations, including community

colleges, did not successfully turn out job candidates, several said. Smaller firms indicated a greater willingness to provide technical training if job seekers showed up with an interest in learning, engaging in the work (which can be challenging by being repetitious), and improving. Interestingly, some smaller manufacturers reported that jobseekers who show up with specific craft training can quickly become restless because many are actually aiming to start their own business. For their part, workforce development providers said Baltimore’s diversity of manufacturing needs made it challenging to provide training in specific skills—there were simply too many to cover effectively, they said.

Many smaller companies also described a chicken-and-egg conundrum: being ready to scale if they had the right workforce, but not being big enough to interact effectively with the workforce development system, which prefers to work with larger employers in order to maximize job placements.

Job access was also raised. Many industrial jobs are not feasibly accessible by public transportation—either because transit is too far away or runs too infrequently. One large, Port-related business shared that its executives often use their personal vehicles to pick workers up

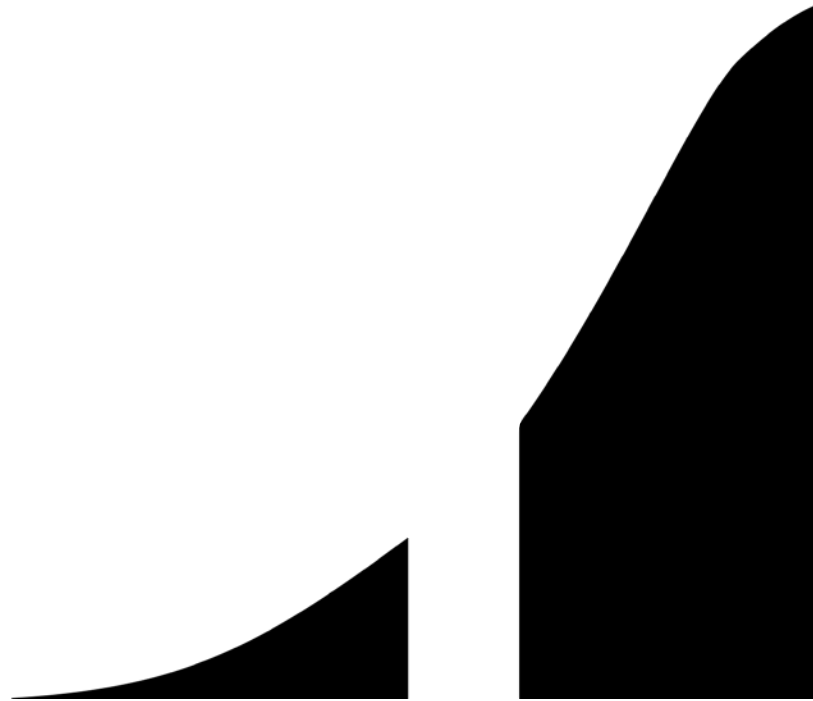
¹¹ Certifications mentioned included technical training, such as welding, CAD, HVAC, Forklift Operation, as well as CPR and OSHA.

Many smaller companies also described a chicken-and-egg conundrum: being ready to scale if they had the right workforce, but not being big enough to interact effectively with the workforce development system, which prefers to work with larger employers in order to maximize job placements.

from the nearest bus stop to ferry them to the factory. The same business also succeeded in recruiting two welders with specialized skills to relocate to Baltimore for a special project. But both left after a year because they could not find quality, but affordable housing.¹² “Everything available was either too expensive, or too crappy,” she said.

Opportunities for B2B collaboration exist, but guidance is key. Several focus group participants also pointed to the challenges of getting smaller and larger firms to work together on business projects—such as opportunities for smaller firms to serve as suppliers to larger ones when surge capacity or a specialized process is needed. “There is a bias out there by larger companies or service providers against smaller manufacturers—that somehow they’re not serious enough or strong enough or are really just kids figuring out if this is what we want to do,” said one service provider. Another reinforced this: “The chasm in the middle that we’re missing is that small businesses need to go from scrappy to standardization, but that takes capital and time; they don’t want to do that if [there aren’t specific business opportunities with larger firms] out there.” On the other hand, she continued, bigger firms don’t want to take a risk on working with small

firms. “If you want my money and my contract, you have to step up,” is larger manufacturers’ point of view, she suggested.



The chasm in the middle that we’re missing is that small businesses need to go from scrappy to standardization.

¹² We heard from focus group participants that safe, affordable housing for workers is in short supply—housing stock that is decent is too expensive, and what is affordable is decrepit or in dangerous neighborhoods.

Recommendations & Opportunities¹³

¹³ The *State of Urban Manufacturing* recommendations were developed in collaboration with Made In Baltimore staff, and informed by analysis of the study findings with the SUM Baltimore Steering Committee members.

Services for Growing Companies

Increased attention should be paid to support services for young companies that are past the start-up phase but haven't yet grown to a sustainable scale. These companies may be ready for support navigating tax benefits, workforce development programs, and other types of financing but struggle to find adequate support services. Several reported being too small to be taken seriously by regional and statewide programs, and too big to find local start-up accelerators and incubators useful. Additionally, they reported a lack of industry-specific support services; while general business support is helpful, what is really needed is expertise in specific manufacturing subsectors.



Expand the capacity of Baltimore City-based light-manufacturing support organizations.

Made In Baltimore and the Small Business Resource Center were two of the city government programs these businesses are most likely to approach for assistance, but UMA heard from several focus group participants that “both are understaffed and under-resourced”. The City of Baltimore and its partners should consider a commitment to increased staffing and funding for these programs to meet the needs of Baltimore’s small manufacturers.

Increase the marketing of BDC business support programs.

The Baltimore Development Corporation offers a variety of support services to businesses of all sizes and industries (including light manufacturers) such as loans, façade improvement grants, assistance identifying tax credits and incentives, and support with real estate searches. However, utilization of these programs by light manufacturers in Baltimore is currently low. The BDC should continue to expand their outreach around these programs to light manufacturers and market services to light-manufacturing business owners that identify as artisans, makers, or entrepreneurs who may not otherwise access services targeted to manufacturers.

Create a platform for coordination across light-manufacturing business service providers.

There are many small business support programs operating in Baltimore City but

nearly all operate independently, leading to overlapping services and unidentified gaps in services. A similar problem existed in Baltimore's workforce development sector. As a solution, the Baltimore Workforce Investment Board (BWIB) was created to increase coordination across government, service providers, and workforce funders. A similar board could be created for Baltimore's small business service providers.

Establish a guild or trade organization for manufacturing subsectors in Baltimore City.

In many cities, guilds and trade organizations exist to advocate for the needs of specific business types, such as apparel producers or carpenters. Such organizations cultivate expertise in their niches, and share opportunities with their membership. Few if any of these types of organizations exist in Baltimore's light-manufacturing subsectors. Such organizations could go a long way towards developing subsector expertise here that could make existing business support services more relevant to small-scale manufacturers. In 2017, Made In Baltimore began convening a group of employers in the sewn trades in order to address a skilled workforce gap in that sector. Uniting around a common challenge may be an early step towards organizing subsectors in this way.

Create a Business Mentorship program for light manufacturers.

A business mentorship program could be a first step towards bridging the gap between legacy manufacturers and younger companies.

Affordable Production Space

There was a clearly articulated need for affordable production space by businesses ready to graduate from their homes or makerspaces. Among that group, the most commonly required space cited was 400 to 600 square feet. Companies expressed great difficulty finding appropriately zoned, renovated, and subdivided spaces that they could afford. However, Baltimore City has seen a steady decrease in the acreage of industrially zoned land, increasing prices for the spaces that remain.



Undertake a comprehensive city-wide industrial demand study before further rezoning of industrial areas.

Light-manufacturing businesses report being priced out of production spaces due in part to a shrinking supply of such spaces. In the past year, at least two Made In Baltimore companies, citing this reason, have relocated outside of the city to Baltimore County. By rezoning light-industrial areas for other uses, the City may be unintentionally forcing out these businesses. A comprehensive industrial land use and demand study should be completed in order to better guide decision making in these areas.

Create a strategy for the assessment and redevelopment of historic light-industrial properties for modern industrial users.

Rezoning is not the only factor driving a reduction in affordable production space. Many older industrial buildings in Baltimore are presently vacant, but in unusable condition. Redeveloping these properties is cost-prohibitive for small manufacturers. For developers with the resources to do so, the leasing rates that small manufacturers can afford would not make such redevelopment profitable. Often, the cost of simply assessing structural integrity of these properties is too high for anyone to even get started. Creating a strategy that identifies vacant properties with the highest potential for industrial re-use, recruits suitable light-industrial end users, and proposes funding mechanisms to support their assessment, could increase the feasibility of redeveloping these properties.



1100 WICOMICO

Originally built in 1914, the Baltimore Bargain House (as it was known at the time) was designed by the noted architect James Evans Sperry. Today, 1100 Wicomico is home to 33 businesses that represent the diversity of Baltimore's industrial ecosystem: apparel manufacturers, an interior design firm, a specialty sword-making shop, artisan furniture makers, hemp product makers, and a biomedical research firm. The building sits at the border of Pigtown and the Carroll Camden Industrial area, providing easy access to I-95 and other transportation routes.

1100 Wicomico is one of very few multi-story, multi-tenant industrial spaces in all of Baltimore City. As such, it serves as an economic engine for the Carroll Camden and Pigtown neighborhoods. This eight-story, 400,000 square-foot building is home to over 200 jobs. Many of the tenants employ local residents, and cite its walkability from residential areas as a perk for their staff.

The development of new entertainment venues adjacent to Carroll Camden has led to increased pressure to change the use of the area from light industrial to commercial and residential. In 2017, 1100 Wicomico was re-zoned from light-industrial to industrial mixed-use, allowing for new residential and commercial uses in the building. It remains to be seen if these changes will have an effect on the many businesses that call 1100 Wicomico home. //

Photo Credit: mdesignbaltimore.com

Support the development of step-out spaces for early-stage light manufacturers.

Baltimore has seen two large redevelopments for manufacturers in recent years: City Garage in Port Covington and Union Collective in Woodberry. They share several traits: each houses around ten different tenants and offer spaces between 3,000 to 12,000 square feet for \$11-\$13 per square foot. Leasing in these projects suggests there is unmet demand for projects of this type that could accommodate businesses scaling up from smaller commercial production locations.

On the other end of the spectrum, Open Works offers 50-square-foot studio spaces with access to shared workshops and design labs.

Most respondents to our survey stated a need for something in between these two options, at a lower price per square foot. Such a space likely needs multiple units sized between 400 to 1,500 square feet, and priced between \$3 and \$9 per square foot. Similar to affordable housing development, a mission-driven, non-profit development model is an approach that might accomplish this.

Create incentives to help legacy manufacturers incubate new companies.

Many older manufacturing companies in Baltimore have downsized in recent years, but still occupy the same spaces. While the total is unknown, we expect that there is a substantial amount of such under-utilized industrial space throughout the city that might be deployed to small, growing companies while providing older firms with rental revenue. In addition to providing newer companies with affordable space, older companies might be exposed to new technologies, processes, and markets.

Create a co-production space for the apparel sector.

Sector-specific co-production facilities like Bmore Kitchen and Baltimore Jewelry Center have enabled early-stage companies to produce at scale while enjoying the benefits of shared industrial equipment and services. The large number of apparel firms who report the intention to grow suggests a co-production facility with industrial-grade space and equipment could be effective at helping entrepreneurs move out of their homes or makerspaces.

Early-Stage, Risk-Tolerant Capital

Equipment and other start-up costs can feel prohibitively large for early-stage companies but are nothing more than rounding errors for large institutions and foundations. Small grants, in addition to low-interest loans, to early stage entrepreneurs could go a long way to helping these companies get established. Pitch competitions, equipment donations, and small contracts from large buyers can fill a similar role.



Continue to support pitch competitions for product-based companies.

Pitch competitions with monetary awards are an appealing way for emerging businesses to promote themselves while vying for early-stage funding. Even companies that are not awarded funds benefit from the process of developing their business model to become pitch-ready. Open Works piloted a pitch competition for product-based companies in 2017 that received 76 applicants and awarded \$23,000 to small, growing producers. The prize money was contributed by a mix of government, banks, and foundations that included Baltimore Development Corporation, PNC Bank Foundation, Abell Foundation, TEDCO (a state program), and Wells Fargo. Open Works has expressed intentions to repeat the program, specifically targeting “small- to mid-sized craft manufacturers that can leverage our facility to scale up and become sustainable businesses.” Programs like this could become a critical component of Baltimore’s light-manufacturing support ecosystem.

Develop and promote alternative lending models.

In 2017, the crowdsourced online lending platform Kiva.org made its first no-interest micro loans to Baltimore City-based businesses. (One recipient was an apparel company in the Made In Baltimore network). Alternative lending models like Kiva create opportunities for companies that do not qualify for loans from traditional lenders. More opportunities for crowdsourced or business-to-business lending should be developed for early-stage, light-manufacturing companies.

Community Development Financial Institutions (CDFIs) such as Baltimore Community Lending, Harbor Bank, and Latino Economic Development Center, have also begun offering small business loan programs for borrowers that would otherwise not qualify for traditional bank loans. More work needs to be done to connect early-stage light manufacturers to these lending tools.

Embed business development programs in Baltimore City makerspaces.

In 2017, Made In Baltimore spent several hours per week at Open Works, allowing it to conduct business development workshops as well as to connect directly with early-stage businesses utilizing the space. Business support providers and programs should be on offer at all of Baltimore City makerspaces, providing guidance around access to capital and other resources where critical masses of these entrepreneurs spend their time already.

Developing a Skilled Workforce

While there are many workforce programs currently operating in Baltimore City, few are targeted to the manufacturing sector. Makerspaces like Open Works and The Foundry have an opportunity to be incubators for new training paradigms; city and state workforce programs would do well to adapt to the needs of microenterprises, whose capacity for hiring often fails to meet their required minimum numbers of job openings. Entrepreneurship training should be included in workforce development programs.



Ensure there are adequate skills training programs for the manufacturing subsectors experiencing growth in employment or establishments.

Humanim's School of Food and the Jane Addams Resource Corporation's machining and welding training are examples of industry-led subsector training programs that have shown great success and may provide a roadmap for other subsectors with growth potential. Since 2013, Carver High School has offered CNC training to prepare students for careers in manufacturing. From 2004 to 2017 the number of beverage manufacturers in Baltimore City more than doubled,¹⁴ with the opening of several new microbreweries and distilleries throughout the city. One brewery predicts hiring at least 50 new positions in 2018. Workforce pipelines should be created or strengthened immediately to ensure there is an adequate labor pool for this industry.

Production businesses in fashion-related subsectors are another area showing strong growth potential, led by the presence of Under Armour and their plans for growth in the coming years. Planning for a number of training programs for the sewn trades is in the early stages, but more support and investment are required to get them off the ground. Special attention should be paid to developing a supportive environment for production skills and entrepreneurship training in this sector.

Design new training programs that incorporate entrepreneurship with skill development.

The traditional approach to workforce development programs is to teach a mix of

JANE ADDAMS RESOURCE CORPORATION - BALTIMORE

The Jane Addams Resource Corporation - Baltimore, or JARC, is a welding and machining training facility in Baltimore's Park Heights neighborhood. JARC's workforce development program assists people with barriers to employment gain the skills and connections to find good jobs in manufacturing and construction. Between 60-70 people receive training here each year in one of two offered training tracks: CNC machining or welding.

The original Jane Addams House was founded in Chicago in 1983 to promote local economic development and the preservation of manufacturing in Chicago. Since opening its doors in Baltimore in 2015, over 110 people have completed trainings at JARC, 80% of whom have been placed in jobs with Baltimore area manufacturers, construction companies, and unions. A close relationship with their industry advisory council ensures that JARC's trainees are developing the appropriate skills needed by these employers, and helps trainees expand their professional networks while in the program. //

Photo Credit: JARC

technical or operating skills as well as so-called soft skills, like communication and conflict resolution. These programs are specifically geared towards preparing trainees to work for an employer. However, job training should also be offered to the aspiring entrepreneurs in growing subsectors of manufacturing.

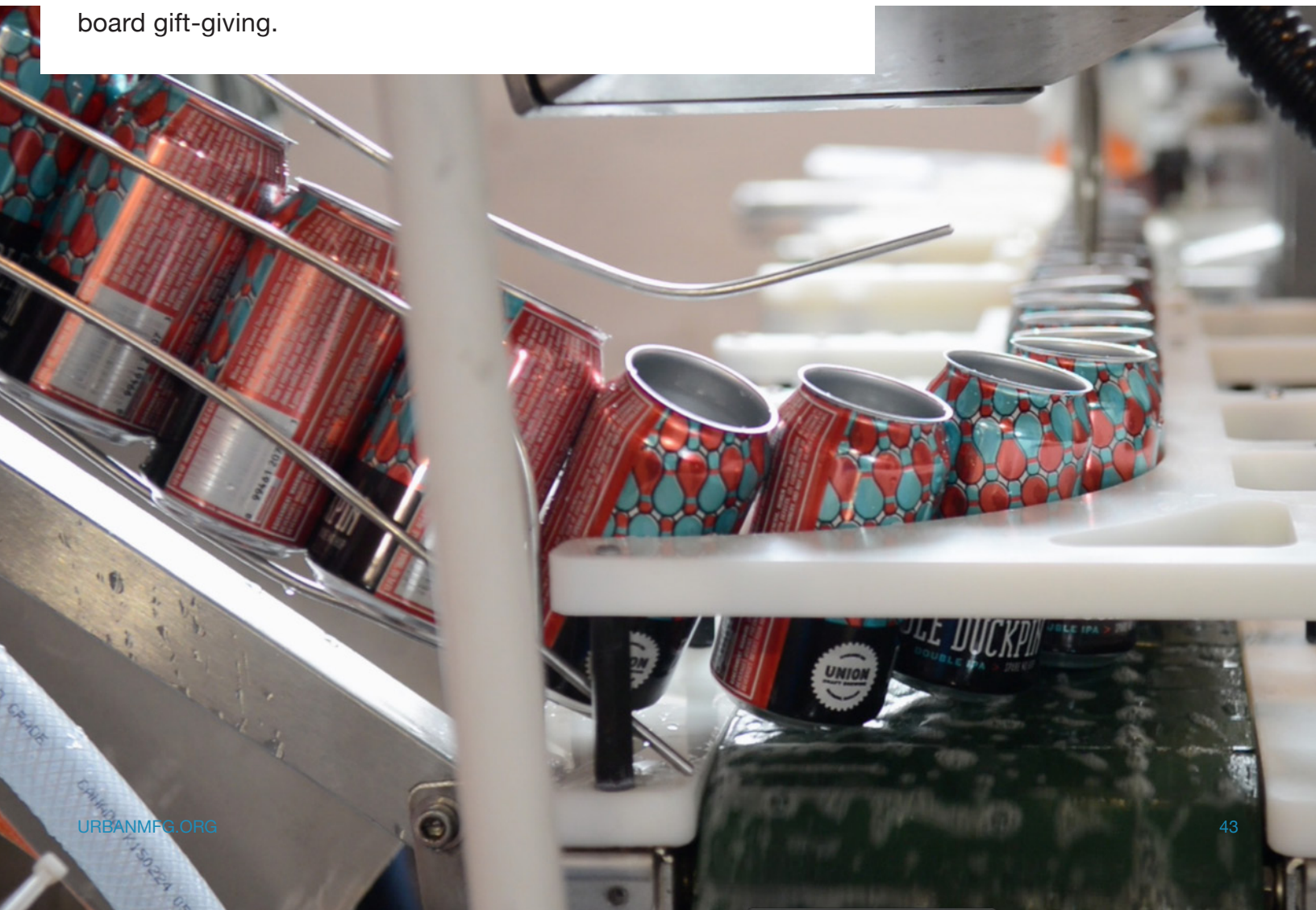
There is an additional racial equity perspective to this recommendation. Despite Baltimore's population being 66 percent African-American, the rate of minority ownership of manufacturing businesses in Baltimore is only 25 percent; their participation in the manufacturing workforce is only 22 percent. Including entrepreneurship in training programs where trainees are predominantly African-American could lead to increased minority business ownership in the manufacturing sector and help close the racial employment gap as well.

Encourage growth of light-manufacturing businesses near residential areas.

The lack of transportation is often cited as a barrier to employment for job-seekers in the manufacturing sector. Most of Baltimore's larger manufacturing employers are clustered in industrial zones near the waterfront or on the outskirts of the city—both areas with poor public transit access. By encouraging the growth of neighborhood-scale light-manufacturing companies in established commercial areas nearer to residences, the transportation barrier may be reduced. In order to accomplish this, zoning changes to increase I-MU and I-1 footprints, or incentives for the redevelopment of vacant industrial properties in such areas, would be required.

Increasing the Local Purchasing Power of Anchor Institutions

Efforts to connect procurement departments with local manufacturers face bureaucratic hurdles and budget constraints. While those efforts are ongoing, other efforts are needed to identify more flexible sources of anchor institution spending, such as marketing budgets, purchasing cards, and corporate or board gift-giving.



Establish procurement liaisons at anchor institutions for local small producers.

Such liaisons could help small businesses navigate complex procurement processes, keep small businesses informed about timelines for procurement contracts, and educate small businesses about what kinds of procurement contracts exist at their institutions. Such liaisons could also work with their larger manufacturers to identify opportunities for them to sub-contract with local producers.

Use the Baltimore Integration Partnership (BIP) to connect institutions marketing departments to local businesses.

Procurement is not the only way anchor institutions spend money. Marketing departments often purchase products of a type and quantity that could easily be fulfilled by local companies. The BIP should expand its membership and activities to include institutional marketing spend.

This is just the beginning...

This snapshot begins to shed light on the small-batch producers of Baltimore, but it taps only a portion of the data collected. It is the intention of UMA that cities participating in the *State of Urban Manufacturing* study be able to take the full data set from the survey and focus groups and continue to pursue their own lines of inquiry. We hope each city will share additional findings as they become available so that the field of business support for small producers—including UMA and its members—may continue to benefit.

Afterword: Why we studied the *State of Urban Manufacturing*

Manufacturing — particularly specialized, small-batch production — benefits from locating in cities. Firms tap rich labor markets as well as dense, sophisticated consumer markets for their finished goods. Firms also benefit from cross-sector collaboration (with designers, technologists, and scientists) that contributes to urban manufacturing's high value of production.

At the same time, cities benefit from manufacturing; many officials see this emerging sector as rich with possibility for promoting entrepreneurship, innovation, and economic growth. But UMA members, including many city decision makers, told us

they know remarkably little about smaller scale manufacturers. These innovative businesses often combine design, art, and production. As a result, they often do not fall neatly into the data collection categories that government has used to classify manufacturers for generations. What's more, the data that do exist are often at the metropolitan level, which can swamp nuances as this sector grows and establishes itself in modest-sized clusters at the hearts of cities. The result is a dearth of understanding by city policy makers on this burgeoning sector within their boundaries. These businesses' impact, potential, and needs are poorly understood.

UMA conceived the *State of Urban Manufacturing* study as a way to fill this information gap in order to begin to give policymakers, economic development practitioners, and workforce training providers information they can use to make strategic decisions to support urban manufacturers. Longer term, this information may serve as a foundation to expand understanding across the economic development field. To inform this national research, UMA collected information directly from hundreds of manufacturers—including over 100 in Baltimore—on the nature of their businesses and the challenges they face; the research team also spoke with a variety of organizations that aim to support these firms.

Our goal is to begin to understand what the small-batch manufacturing sector¹⁵ looks like, who its entrepreneurs and employees are, and what cities can do to help these firms

thrive and grow into larger employers. We have released a snapshot of our findings for each of the six cities we are studying, as well as a national report that identifies promising practices that might be shared among cities to help these firms succeed. Finally, we hope the conversations we have had with businesses and stakeholders as part of this study have created relationships that will continue to grow the sector and its promise for cities. To help ensure that, we have developed an initial “manufacturing ecosystem map” for each city that includes all of the organizations we worked with directly as part of the *State of Urban Manufacturing* process. There are other organizations that we haven't yet worked with and we encourage Baltimore stakeholders to continue to increase the coverage of this tool, which will help producers—and the organizations that support them—match the right resources to businesses' needs or identify where gaps exist.

15 Small-scale manufacturing (also known as micromanufacturing, small-batch manufacturing, or artisan manufacturing) is defined as all types of small businesses producing tangible goods. This includes businesses producing goods in textile, hardware, wood, metal, 3D printing, consumer product design and prototyping, breweries and distilleries, and local food production and packaging. For further reading on small-batch manufacturing: <http://urbanmakeconomy.org> and <https://www.urbanmfg.org/project/discovering-your-citys-maker-economy>.

Methodology

The *State of Urban Manufacturing* was conducted in two phases, beginning in early 2016. Phase 1 helped us set the context across the country for urban manufacturing by analyzing publicly available data over a ten-year period (2004-2014) from 16 metropolitan areas. These metros represented a cross-section in terms of size, geographic region, and dominant manufacturing trends or “typologies” (i.e. metros seeing a growth in activity driven by one major industry; metros heavily focused on the innovation economy and advanced manufacturing; large metros with a diversified manufacturing base; smaller metros that are growing the fastest, both in terms of population and jobs; and metros with a strong artisanal / craft production sector). These included: Atlanta, Buffalo, Baltimore, Charlotte, Chicago, Cincinnati, Detroit, Houston, Los Angeles, Milwaukee, New York, Philadelphia, Portland (Ore.), Salt Lake City, San Francisco, and San Jose.

Focusing on the MSA level allowed for ease of comparison over time using easily obtainable data from the Bureau of Labor Statistics, Bureau of Economic Analysis, and U.S. Census, specifically observing manufacturing sector trends. The indicators we evaluated included: change in the number of establishments; employment change; wage rates and change; demographics of workforce; education of workforce;

and contribution of the manufacturing sector to MSA-area Gross Domestic Product. In Baltimore, we undertook an additional analysis of the same metrics using the boundary of Baltimore City.

Because existing data reveal only so much about small-scale manufacturers' challenges, we sought to understand with greater precision these businesses' day-to-day experiences with the hope that it would spur new thinking about how service providers and advocacy groups can support these firms. In Phase 2, we used a survey to collect data directly from manufacturers in Baltimore, Cincinnati, Detroit, Milwaukee, Philadelphia, and Portland (Ore.). Questions focused on basic business demographics, challenges in scaling, and understanding where businesses go to get assistance and information when they need it. Where possible, we looked at how businesses in each city differed in the way they answered questions based on whether they were new or more established, big or small, or producing exclusively for themselves or others.

In Baltimore, the authors partnered with researchers at University of Baltimore's Jacob France Institute to generate the business list we used to distribute the survey. Using data collected from InfoUSA, LexisNexis, and Made In Baltimore, we generated a list of over 1,200 manufacturing businesses and their mailing addresses. Postcards were mailed to these businesses with instructions on how to complete the online survey. Where data existed, we also sent emails and made follow-up phone calls to these businesses. University of Baltimore categorized the businesses on the list by industry subsector, and Made In Baltimore staff used targeted outreach to attempt to get a

representative respondent group.

We also interviewed key policymakers and service providers—practitioners in economic development, community development, workforce development, real estate development, chambers of commerce, and neighborhood nonprofits. Finally, we conducted focus groups in each city with large manufacturers, small manufacturers, and the groups that support both with services like connections to financing, navigating regulations, market development, business acceleration, and finding affordable real estate.

While the *State of Urban Manufacturing* advances our understanding of this sector simply by providing perspective on what small-scale producers experience as they navigate business ownership and growth, our study has a few limitations worth pointing out. The main limitation is that we did not develop a stratified sample in advance of our survey distribution and focus group recruitment, so participants are not necessarily representative of manufacturers as a whole in each city. In particular, we relied on community partners to promote the survey and focus groups, so participation in each place reflected the types of businesses our partners interact with most.



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