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SMALL-SCALE MANUFACTURING

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About the Fellow



Peter Toth is an MPP candidate at the University of Chicago Harris School of Public Policy. Prior to beginning his masters program, he spent five years at Foresight Design Initiative, a Chicago-based social innovation consulting firm, and worked on sustainability-related projects with nonprofit organizations, foundations, government agencies, and utilities. He has experience in a variety of city, state, and regional issue areas, including water management, energy, and local food.

Acknowledgements

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EXECUTIVE SUMMARY

Montgomery County leaders have identified small-scale manufacturers (SSMs), businesses with between one and 50 employees that make reproducible, physical products, as a key part of preserving and enhancing the County's economic health.

This study evaluates how SSMs can help address the County's economic gaps, and how the County might support these businesses. Building on a preliminary 2018 Recast City report to the County Council, research for this study included: stakeholder interviews with SSMs, business service providers, and County officials; data analysis; and a literature review of existing County efforts, academic papers, and case studies from other regions.

The study's findings suggest that supporting the County's established and emerging SSMs can facilitate **placemaking** by creating destinations for locally made goods, offer a **pathway to higher wages**, and foster a **more diverse entrepreneurship ecosystem**.

Policy Recommendations

1. Direct existing **small business financial and technical assistance resources** to support SSMs with capital needs.
2. Target retail properties in high-vacancy areas to expand **supply and affordability of production space**.
3. Leverage the "MoCo Made" brand to create **new retail opportunities** for SSMs and facilitate placemaking.
4. Strengthen **workforce pipelines** from Montgomery College and MCPS to SSMs in high-wage sectors.
5. Support **public or nonprofit makerspaces** to assist emerging SSMs with production tools, training, and business advising.

INTRODUCTION

Background

Preserving and enhancing Montgomery County's economic health requires addressing several key needs: expanding entrepreneurship, developing new commercial destinations through placemaking, revitalizing economically lagging areas, and closing the wage gap between the highest and lowest earners. MCEDC has identified small-scale manufacturers (SSMs), businesses with between one and 50 employees that make reproducible, physical products, as a key component of these efforts. The County's SSMs make goods ranging from salad dressing to furniture to aerospace parts.

According to a preliminary 2018 study for the County Council by Recast City, SSMs have the potential to bolster the County's economy in the following ways:

- Support **placemaking and local identity** by creating destination-based retail focused on locally manufactured consumer goods;
- Provide **pathways to middle income and middle skill careers** by connecting job seekers with higher-paying manufacturing jobs; and
- Create a **diverse entrepreneurship ecosystem**, in terms of both business ownership among women and people of color, and types of industrial and consumer goods.

This study expands on this assessment by answering the following research questions:

- How should MCEDC and the County evaluate the impacts of investing in SSMs?
- What strategies should MCEDC and the County pursue to support SSMs?

Methodology

Stakeholder Interviews with **SSMs** of various sizes and sub-industries; **government agency staff** with experience in business support, planning and zoning, and economic development; County-based **real estate developers**; and **nonprofit and community-based organizations** that provide services to small businesses.

Literature Review of relevant reports, academic papers, and case studies.

Data Analysis of the County's manufacturing sector (businesses, employment, and wages), retail market, and real estate availability.

ANALYSIS & FINDINGS

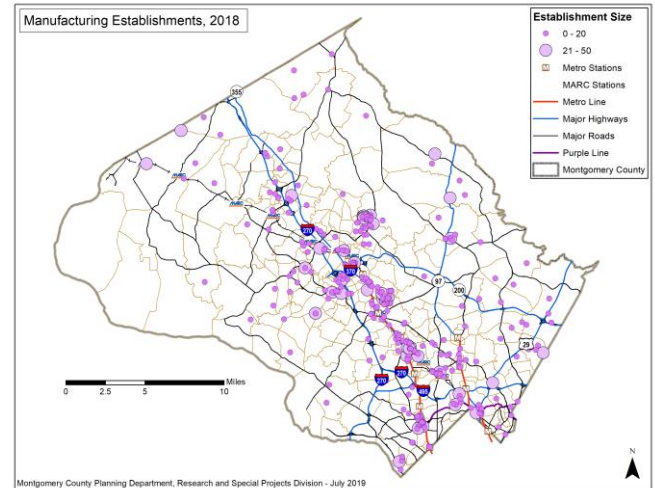
SSMs encompass diverse sub-sectors that impact, and are impacted by, Montgomery County's economy in different ways. The following quantitative and qualitative research findings provide context for evaluating the costs, benefits, risks, and opportunities associated with investments in SSMs.

Manufacturing Sector Overview

As of 2018, there were 427 businesses in the manufacturing sector (NAICS codes 31-33) in Montgomery County, employing nearly 14,000 workers. They are distributed across the County, with notable clusters of industrial space in Rockville (Stonestreet and Gude) and Gaithersburg (Airpark).

Of the County's manufacturing businesses, 396 (93%) can be classified as SSMs by number of employees. These SSMs fall into three categories as defined by Recast City:

- **Artisan/Maker:** 1-5 employees, minimal noise and equipment
- **Scaling Production Business:** 5-20 employees, interest in scaling, larger tools and more technology, B2C or B2B
- **Distributed Production Business:** 20-50 employees, offsite small-batch production at one or more sites



Data Source: Montgomery County Planning Department

Montgomery County SSMs by Typology



■ Artisan/Maker (1-5 Employees)

■ Scaling (5-20 Employees)

■ Distributed (20-50 Employees)

Most of the County's manufacturing is artisan-scale: SSMs make up over 90% of County manufacturers, and a majority of these businesses have 5 or fewer employees.

Data Source: BLS QCEW, 2018 Q3

Business Challenges & Needs

Stakeholder interviews revealed numerous challenges that the County's SSMs are facing. These needs differ according to the previously defined typology.

	Artisan	Scaling	Distributed
Growth-Stage Capital: While there are numerous funding sources for early stage and established businesses, there are fewer options for those seeking loans between \$50,000 and \$250,000 to scale production.			
Improved Outreach: Additional outreach efforts are required to connect entrepreneurs with information about available space and support services.			
Affordable Workspaces: High rents, limited industrial space, and buildout costs create barriers for small manufacturers seeking to scale beyond home production.			
Business Networking: Networking and matchmaking with larger businesses and fellow SSMs would be valuable for customer acquisition, peer-to-peer mentorship, and forming advocacy coalitions.			
Workforce Pipeline: In manufacturing sectors with strict quality control standards, finding qualified talent at all education levels is both crucial and challenging.			
Shared Tools & Facilities: Shared facilities for production, packaging, and prototyping can help to reduce the cost of some of these processes.			

Market Opportunity for Consumer Goods

Many SSMs sell goods in the consumer market, ranging from food and beverages to clothing and jewelry. These goods have an experiential value that can draw customers to retail sites and create additional economic benefits. As the following table shows, the County's market is ripe for consumer goods, with over \$100 million of retail opportunity in multiple sectors.

Industry Group	Retail Gap (Potential minus Actual Sales)
Clothing Stores	\$485,096,405
Furniture Stores	\$173,895,246
Jewelry, Luggage & Leather Good Stores	\$150,527,827
Health & Personal Care Stores	\$150,285,052
Specialty Food Stores	\$133,340,153
Home Furnishings Stores	\$111,562,436

Data Source: Esri Retail MarketPlace Profile, Montgomery County 2017

Employment & Wages

Montgomery County's manufacturing workforce is employed across diverse sub-sectors. The following table shows total number of workers, including both employees and self-employed, across the self-reported manufacturing NAICS codes. While these data include manufacturing businesses of all sizes, not just SSMs, they demonstrate the wide variety of consumer and industrial goods produced in the County.

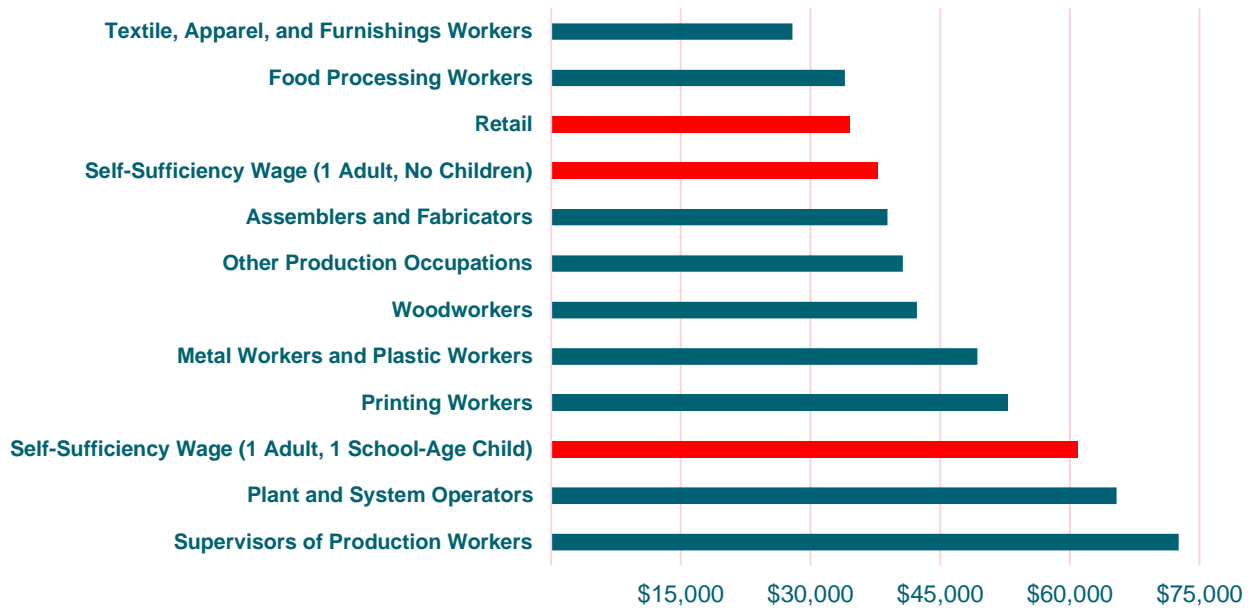
Number of Workers by Manufacturing Sub-Sector (NAICS Codes 31-33)

Sub-Sector	Total Number of Workers
Computer and Electronic Product	5,032
Chemical and Pharmaceutical	4,708
Food Product	863
Miscellaneous	491
Printing and Related Support Activities	478
Beverage and Tobacco Product	327
Nonmetallic Mineral Product	198
Wood Product	181
Furniture and Related	159
Electrical Equipment, Appliance, and Component	157
Fabricated Metal Product	149
Textile Product	126
Transportation Equipment	104
Paper	97
Machinery	85
Petroleum and Coal Products	81
Plastics and Rubber Products	80
Apparel	63
Leather and Allied Product	8
Textile	6
Primary Metal	3

Data Source: JobsEQ, 2018 Q3

Production workers also make a wide range of wages, as shown in the chart below. For reference, these are compared with average annual retail wages in 2018 (\$34,538), as well as two levels of self-sufficiency wages calculated using the County Department of Health and Human Service (DHHS) Self-Sufficiency Standard tool.

Average Annual Wages by Production Occupation (4-Digit SOC Codes)



Data Source: JobsEQ, 2019 Q1

Space Availability & Affordability

Historically, Montgomery County's economy has not had a large manufacturing presence. This legacy is reflected in the relatively small amount of industrially zoned property compared to commercial and retail, as shown in the following table. As a result, small-scale manufacturing businesses often face high rents which, in combination with production buildout costs, can be prohibitive to their development.

	Commercial/Residential	Neighborhood & General Retail	Light/Moderate Industrial
Manufacturing Uses Permitted	Artisan Medical & Scientific Brewing & Distilling	None	Artisan Medical & Scientific Light Industrial
Total Parcels	988	102	109
Total Acres	5,738	489	1,828

Data Source: Montgomery County Planning Department

Entrepreneurship, Equity, & Economic Opportunity

Bolstering the County's entrepreneurship ecosystem is a key priority: the 2016 Comprehensive Economic Strategy identified making the County an "international hub for entrepreneurship and innovation" as one of its four goals. The following findings indicate that SSMs are an important part of helping small businesses launch and thrive across the County:

- While entrepreneurship is often associated with tech startups, a 2018 study of entrepreneurs identified manufacturing as the sector with the **second-highest share of new businesses**, at 23% (*Source*: Boudreaux, "The Importance of Industry to Strategic Entrepreneurship," 2018).
- In its FY20 Small Business Development Strategic Plan, the County government's Business Solutions Group recommends supporting minority and immigrant businesses as an important strategy to promote entrepreneurship. Efforts to quantify the impact of SSMs on diverse entrepreneurship were still underway as of the completion of this report. However, stakeholder interviews suggested that **SSMs represent the County's geographic, racial, gender, and socioeconomic diversity**. Thus, supporting SSMs should be a component of an equitable entrepreneurship strategy.

POLICY RECOMMENDATIONS

1. Direct existing small business financial and technical assistance resources to support SSMs with capital needs.

Local public, private, and nonprofit small business funding programs have two important gaps that affect SSMs. The first impacts micro-enterprises that are eligible for microloans from nonprofit funders but require additional technical assistance, less stringent loan requirements, or longer-term funding. Many of these businesses are owned by immigrants, people of color, and residents of lower-income communities, so outreach about available resources must be targeted and culturally competent. Ensuring that more micro-SSMs receive financial and technical assistance will require collaboration with nonprofits and “connectors,” individuals and businesses with informal networks within specific communities and enclaves. Key service providers include Life Asset, Latino Economic Development Corporation (LEDC), Maryland Women’s Business Center, and IMPACT Silver Spring.

The second funding gap affects scaling businesses that need to expand their production capacity but are both too large for nonprofit loans and too small for traditional private banks. Montgomery County’s Economic Development Fund (EDF) could help to fill this gap if potential projects are evaluated by criteria beyond fiscal impact, such as job creation, addressing gaps in the economic ecosystem, and investing in high-need geographic areas. In addition, the County could activate the existing Small Business Revolving Loan fund, which is currently dormant.

CDFI Partnerships for Community-Focused Projects



In addition to leveraging its existing resources, the County could also expand its collaborations with community development financial institutions (CDFIs), which are designed to provide capital to businesses and communities with barriers to traditional funding sources. LEDC and the Baltimore-

based Harbor Bank, which recently opened a Silver Spring branch, could be valuable partners in supporting SSMs and related community-based projects.

2. Target retail properties in high-vacancy areas to expand supply and affordability of production space.

The County's high rents and limited availability of industrially zoned properties can make it difficult for SSMs to expand production locally. While the County has an overall retail vacancy rate of only 4%, there are pockets of concentrated vacancy across that represent an opportunity to expand SSM access to production space. These areas have either disproportionately high retail vacancy rates (Burtonsville), or retail markets that are vulnerable to future vacancy due to concentrated big-box retail (Wheaton-Glenmont).

There are specific properties in these and other communities that, with subsidies and the proper adjustments to allow

Property	Min. Vacancy since 2010
Burtonsville Crossing	60%
Kolb Center 3 (Gaithersburg)	20%
Georgia Crossing (Wheaton)	25%

Data Source: CoStar

manufacturing uses, could house SSM production. For example, the retail spaces in the table above, each with at least 50% current vacancy and over 10,000 available square feet, are located around the County in areas that either would benefit from economic development (Burtonsville, Wheaton) or are located near existing SSM clusters, as with the biotech corridor in Gaithersburg.

Once properties have been selected, the County could pursue the following policy interventions to spur SSM production activity:

- Subsidize upfront build-out costs for production; and
- Allow limited manufacturing uses in retail zones as an alternative to rezoning as light or moderate industrial.

Retail Vacancy in Burtonsville



Burtonsville's high retail vacancy rate and lack of available industrial space make it a prime candidate for SSM production.

	Retail	Industrial
Space (Sq. Ft.)	409,000	172,000
Vacancy Rate	29.3%	0%
Rent per Sq. Ft.	\$27.67	\$10.97

Data Source: CoStar

3. Leverage the “MoCo Made” brand to create new retail opportunities for SSMs and facilitate placemaking.

The County’s SSMs reflect its geographic, racial, and cultural diversity. Many of them also noted during interviews that the broader DMV region’s wealth and interest in locally made goods have been key to their success. These factors, combined with over \$1 billion in retail opportunity in Montgomery County alone (as illustrated in Analysis & Findings), suggest that SSM-produced consumer goods could form the foundation of destination retail and placemaking, attracting customers to the County and supporting local businesses.

The existing MoCo Made brand, which has been used primarily by the Montgomery County Food Council to promote local food products, could be expanded to support these efforts. Other consumer goods that could be sold under this brand include clothing, furniture, jewelry, and cosmetics. Using a unifying brand would also allow for multiple retail opportunities for SSMs. For example, MoCo Made products could be sold both in high-traffic, wealthier parts of the County like Bethesda, as well as in areas with concentrated retail vacancy, as previously identified, that would benefit from additional economic activity. Overall, an integrated MoCo Made strategy focused on SSMs could build the County’s placemaking efforts, attracting new businesses, visitors, and residents.



Made in DC



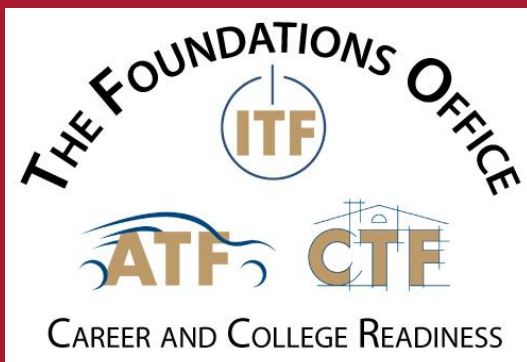
Established in 2016, Made in DC is a government-run initiative that supports the District’s maker community. Three brick-and-mortar Shop Made in DC stores sell a rotating variety of locally manufacturing goods, ranging from jewelry to bath products. While the stores are not officially operated by the agency that runs Made in DC, co-branding has created a common identity that gives SSMs access to both local and visiting customers.

4. Strengthen workforce pipelines from Montgomery College and MCPS to SSMs in high-wage sectors.

As illustrated in Analysis & Findings, most of the County's production occupations have higher annual wages, on average, than those in the retail sector. The jobs in the middle of the wage range, including woodworkers, metal workers, plastic workers, and print workers, pay above the \$37,807 self-sufficiency wage for an adult with no dependents, as defined by the County's Department of Health and Human Services. Based on interviews with local industrial and biotech SSMs, production in these sectors is also often done by workers without four-year college degrees. Thus, strengthening workforce pipelines into these occupations, especially given the higher wages for production supervisor positions, could offer a pathway to middle-income wages for more County workers.

While many such pipeline programs already exist in the County, including through WorkSource Montgomery, Montgomery County Public Schools (MCPS), and Montgomery College, some business owners expressed difficulties in finding young talent with trade skills, as well as detail-oriented and diligent workers to make products with strict quality control standards. Moreover, technological changes in the manufacturing sector demand that training and retraining programs remain up to date. As an example of how training models can be adapted to new technologies, one local manufacturing business that has successfully expanded its production beyond the County is considering supporting apprenticeships across its shops for advanced manufacturing techniques like computer numerical control (CNC).

Existing MCPS Pipeline Programs



The Montgomery Student Foundation Office includes three programs, located at different MCPS high schools, that prepare students for careers in the Automotive, Construction, and Information Technology fields. Each Foundation provides students with relevant courses, connections to employers, and hands-on experience. These programs provide a

model for a possible pipeline program into SSM fields.

5. Support public or nonprofit makerspaces to assist emerging SSMS with production tools, training, and business advising.

Makerspaces play an important role in bringing manufacturing skills and tools to both amateur and professional makers. They typically include a range of tools for traditional manufacturing, such as sewing, carpentry, and metalwork, as well as more advanced equipment, including 3D printing and CNC. In addition, many makerspaces also offer training workshops, retail, and business incubation.

While makerspaces have been a part of economic development efforts in cities with strong manufacturing legacies, such as New York City and Baltimore, various Montgomery County institutions have preexisting, smaller-scale makerspaces and related programming that could be leveraged and expanded to support SSMS. These include the Rockville Library, KID Museum's school makerspace initiative, and Montgomery College's Fab Lab. Combining these existing resources with business incubation and advising services could provide new opportunities for SSMS to prototype their products and develop skills to launch and expand their businesses.

When considering a funding model for makerspaces, it is important to note that these institutions require public or philanthropic support to ensure their sustainability. TechShops, a for-profit makerspace chain with locations around the world, closed in 2017 due in part to the challenges of its membership-based business model. Open Works Baltimore and Futureworks NYC's Brooklyn makerspace, by contrast, operate through a combination of government and foundation grants, in addition to fees for memberships and courses.

Open Works Baltimore



Established in 2016, Open Works Baltimore is a hub for the city's maker community. It offers two floors of production equipment for clothing, artwork, models, woodwork, and sheet metal, among other tools. Courses and workshops are available for many of these manufacturing techniques. In addition, micro-office space is available for small businesses. Open Works receives operating support from a variety of public and private investors.

REFERENCES

Stakeholder Interviews

All interviews were conducted between June 10 and August 1, 2019.

Business Leaders

Name	Affiliation
Constance Aguayo	CAVA Creative
Catherine Asare	Asarco International Food Store
Carolina Clavijo	Caros Designs
Michael Dickson & Aaron Hutcherson	Xometry
Henry Figueredo	Stilo Enterprises LLC
Tygon Hanshaw & Zeke Sky	Tronics
Martha Leuro	Leuro Handmade Creativity
Sophia Maroon	Dress It Up Dressing
Eneshal Miller	Benefit Manufacturing
Jamil Miller	JRM Cleaning Services
Steen Nissen	Applied Biomimetics
Charles Popenoe	Industrial Indicators
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Rochel Roland	Joyful Bath Co.
Claudia Weiss	Nuna Bravo
Sheridonna Fiona Wilson	Sheridonna Designs LLC

Funding & Service Providers

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Martha Jimenez	Maryland Women's Business Center
Grier Melick	Small Business Development Center
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Michael Rubin	IMPACT Silver Spring
Patty Simonton	Bethesda Green
Judy Stephenson & DeVance Walker	Montgomery County, Business Solutions Group

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Todd Pearson	BF Saul Company
Shane Pollin	Duffie Inc.

Public Sector Officials

Name	Affiliation
Tina Benjamin	Montgomery County, Office of the County Executive
Laurie Boyer	Montgomery County, Dept. of Finance
Pamela Dunn	Montgomery County Council
Molline Jackson & Nkosi Yearwood	Montgomery County, Planning Dept.
David Levy	City of Rockville
Tom Longergan	City of Gaithersburg
Kenneth Welch	Montgomery County, Dept. of Health and Human Services

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