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To cite this article: Declan Martin & Carl Grodach (2020): Placing production in urban cultural policy: The locational patterns of cultural industries and related manufacturing, Journal of Urban Affairs, DOI: [10.1080/07352166.2020.1828904](https://doi.org/10.1080/07352166.2020.1828904)

To link to this article: <https://doi.org/10.1080/07352166.2020.1828904>



Published online: 07 Dec 2020.



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# Placing production in urban cultural policy: The locational patterns of cultural industries and related manufacturing

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## ABSTRACT

Urban cultural policy has long been framed with a limited geographic focus. Policy predominately targets central city areas where arts amenities and creative services visibly concentrate. This focus stems from a restricted definition of cultural activity, which tends to emphasize cultural consumption over production. This excludes a range of “cultural manufacturers,” which produce specialized products and inputs for the wider cultural economy. Although these industries play an integral role in the cultural ecosystem, their locational attributes have been largely overlooked in urban policy and research. Drawing on the case of Melbourne, Australia, we map location patterns of cultural industries and related manufacturing, revealing co-location in the central city and robust cultural manufacturing concentrations on the urban periphery. Our findings present a potential route for urban cultural policy to affect meaningful change in divided central cities, as well as under-served outer areas where most cultural industries and manufacturing workers live.

## Introduction: Current trajectories in urban arts and cultural policy

Urban cultural policy focuses predominately on localized concentrations of creative services and arts-based consumption amenities in central city areas. Cities across North America (Grodach, 2010), Europe (Colomb, 2012), Australia (Shaw & Montana, 2016), and Asia (Zheng, 2010) have sought to harness centrally-located arts and cultural industries for urban economic development through city marketing, clustering, and real estate initiatives. By fixating on a narrow geographic area and range of sectors, policymakers have overlooked the diversity of industries that contribute to arts and cultural activity, both within and beyond the central city. We call attention to these industrial and geographic oversights in policy by mapping the spatial patterns of employment in cultural industries and related manufacturing in Melbourne, Australia, using a novel industry taxonomy that reflects the cultural sector’s linkages with production. Contrary to on-going claims of the death of manufacturing in Australian cities, we find (1) central city co-location between cultural services and manufacturing built around remaining inner-urban industrial districts, and (2) robust concentrations of cultural industries-related manufacturing in middle- and outer-urban areas. We also show how the centralizing tendencies of cultural manufacturing vary by industry subset.

Sectoral diversity in the urban core and extensive cultural production activity on the urban periphery not only contrasts with current urban cultural policy settings. It also suggests the need for a new cross-sectoral agenda centered on material production at local and regional scales. The significance of a cross-sectoral cultural agenda has been reinforced by the COVID-19 pandemic, which has exposed the fragility of global supply networks and forced cities across the Global North to reconsider the position of domestic production (Stanford, 2020).

Increasingly, manufacturing in Global North cities has shifted to smaller, specialized production that combines symbolic (e.g. design) and synthetic (e.g. industrial) knowledge (Asheim et al., 2017; Hatch, 2013). These “cultural manufacturers” produce high-value, design-driven products (e.g. furniture, clothing, jewelry and crafts) or customized inputs for the wider cultural economy (e.g., specialty printing, home furnishings, event installations) (Grodach et al., 2017). These activities play an integral role in supporting artistic and cultural ecosystems (e.g., performing arts, media, design, and advertising), yet their spatial needs and attributes remain severely under-researched.

Moreover, cultural manufacturers are often excluded from urban cultural policy that targets inner-urban consumption spaces and a limited set of creative services (see Grodach, 2017 for a review). Policies relating to the former have typically focussed on the development of central city flagship entertainment precincts (Grodach, 2010) and other image and amenity-driven strategies (Florida, 2002). The latter has generally employed zoning regulations and locational subsidies to stimulate clustering amongst creative service businesses (Zheng, 2010).

In practice, these two approaches have worked in tandem to reproduce the central city for tourists and the creative class (Colomb, 2012; Scott, 2006, 2014). This contributes to the formation of highly uneven labour markets comprised of high-paying advanced services and low-paying hospitality, tourism and retail work with little career mobility (Pratt, 2011; Scott, 2014). Moreover, “renewal” projects have by and large resulted in upscale office and mixed-use developments in the central city that disenfranchise and displace existing low-income residents and businesses (Curran, 2007; Gornostaeva & Campbell, 2012). Undoubtedly, these policy mechanisms have reinforced inner-outer socioeconomic inequalities and ignored the vastly different infrastructural endowments and industrial legacies of the urban periphery (Bain, 2013; Gibson & Brennan-Horley, 2016; Phelps, 2012).

For these reasons, this paper seeks to build an evidence base toward redefining urban cultural policy around material cultural production. Drawing on the case of Melbourne, Australia, we use a novel industry taxonomy and dataset that captures the intersection between cultural industries and related manufacturing. We map employment and workforce location to demonstrate how opposing centripetal and centrifugal forces have contributed to a dispersed regional geography that extends across the metropole. This includes co-location in the urban core, alongside robust concentrations of related manufacturing on the urban periphery. Our findings challenge the privileged policy position of inner-urban areas but also present new avenues for policy and research based on material cultural production.

Firstly, the mix of cultural industries and manufacturing activity in and around inner-ring industrial zones presents opportunities for improved job and land use mix in bifurcated central areas. Secondly, the co-existence of a large peripheral workforce in cultural services and manufacturing holds the potential for more locally oriented livelihoods in material cultural industries. Beyond localized initiatives, urban cultural strategies could also adopt a regional approach, intermediating between inner-urban cultural services (e.g., design) and outer-urban cultural manufacturing (e.g., prototyping, fabrication, machining).

Overall, this research takes a first step toward uncovering the geography of an expanded cultural sector and the possibilities this might hold for urban cultural policy and research.

## Re-thinking the boundaries of urban cultural policy

Current approaches to urban cultural policy are based on a narrow view of the cultural sector, conflating it with creative services and consumption amenities (Grodach, 2017). By extension, this has led to a myopic geographic focus that privileges the central city where these industries and amenities are most densely concentrated. This has not only reinforced the uneven distribution of economic development (Gornostaeva & Campbell, 2012; Scott, 2014). It has also led to counter-productive policies that overlook: (1) industries operating at the interface of the cultural industries and manufacturing and (2) the multi-nodal, regional extent of the cultural sector.

### ***Sectoral boundaries: The cultural industries-urban manufacturing interface***

Urban cultural policy imposes an unhelpful binary between creative services and manufacturing (Grodach et al., 2017). Policymakers have internalized the idea that creative service industries cluster in dense inner-urban environments to take advantage of diverse businesses, abundant amenities, and developed infrastructure and institutions (Scott, 2010; Shearmur, 2012). With the exception of renewed policy interest in craft-based activities (Jakob & Thomas, 2017), material production is largely absent from the prevailing discourse (Grodach, 2017). This dualistic policy narrative overlooks a range of producers that operate across sectoral boundaries. In fact, rather than a splintering of cultural industries and manufacturing, emerging research suggests that the two are in some ways converging (Buciuni & Finotto, 2016; Gibson et al., 2017).

Parallels between cultural industries and manufacturing are evident both in terms of outputs and organizational structures. In response to overseas competition and fluctuating macroeconomic conditions, manufacturing in developed cities has progressively shifted toward less trade-exposed outputs (Gibson et al., 2012; Weller & O'Neill, 2014). These outputs range from high-value, design-driven consumer products (e.g., furniture, clothing, jewelry and crafts) to specialized components for architecture, design, media and arts industries (e.g., speciality printing, commercial and residential furnishings, event installations) (Gibson et al., 2017; Wolf-Powers et al., 2017). This type of production—defined here as “cultural manufacturing”—combines material and cultural sensibilities and often caters to niche markets (Grodach et al., 2017). Similar to the cultural industries, demand for material cultural commodities is volatile and product turnover is high (Scott, 2004). Labor conditions can be informal and project-based, involving SME cultural manufacturers working with external contractors, intermediaries and clients to create material cultural products (Curran, 2010; Doussard et al., 2018; Gibson et al., 2017). These external transactions encompass a variety of cultural industries, both up- and down-stream. For instance, research around fashion clothing has found strong demand-side interdependencies between material production and service-based cultural industries, including fashion journalists, marketers, art schools, design and forecasting services (Rantisi, 2004, 2010, 2014). Other studies have found strong supply-side interlinkages, ranging from set builders and prop makers supplying performing arts institutions (Gibson et al., 2017; Rantisi & Leslie, 2015) to metal fabricators subcontracting their services to industrial designers (Hutton, 2008, p. 214).

In light of these intersections, binaries between cultural industries and manufacturing have become increasingly untenable. Urban cultural policy requires a broadened sectoral focus that recognizes the important connections between the two. This redefined set of industries necessarily implies a re-thinking of geographies in cultural policy beyond the current focus on the central city.

### ***Geographic boundaries: Between local and regional cultural policies***

As an extension of prioritizing services and consumption over production, urban cultural policy has generally fixated on localized initiatives in inner-urban areas (Grodach, 2017). The normative policy narrative emphasizes the relational nature of the cultural industries and the “traded” and “untraded” interdependencies that arise from close geographical proximity (Gibson & Brennan-Horley, 2016; Shearmur, 2012). In short, spatial clustering facilitates “traded” tangible interdependencies, such as streamlined input–output relations or efficient job matching for transient creative projects, as well as “untraded” intangible interdependencies, such as knowledge spillovers or the circulation of cultural norms and conventions (Branzanti, 2015; Scott, 2010; Storper, 1995). These interdependencies benefit from frequent face-to-face communication, giving rise to specialized districts of cultural industries businesses and workers (Clare, 2013; Hutton, 2008). Creative districts are typically comprised of a dense mixed-use built environment with access to skilled workers, specialist businesses, established infrastructure and institutions (He & Gebhardt, 2014; Spencer, 2015).

While inner-urban areas are undoubtedly important spaces for the cultural industries, the scale of contemporary cultural industries activity extends well beyond city boundaries (Phelps & Ozawa,

2003; Shearmur, 2012; Gibson & Brennan-Horley, 2016). Rather than a discrete, self-contained unit, the central city functions as a node within a broader regional and global context (Bathelt & Cohendet, 2014; Chapain & Comunian, 2010; Zhang & Chen, 2018). Although cultural industries tend to concentrate centrally, they also rely on fluid workflows outside the city (Gibson and Brennan-Horley 2016; Phelps, 2012). For instance, in their study of Metropolitan Sydney, Gibson and Brennan-Horley (2006) find comparable rates of growth in the cultural workforces of outer and ex-urban areas relative to the central city, highlighting the “mobility and migration of creative workers beyond the appeal of chic lifestyle districts” (p. 470). This is developed in subsequent work on Darwin (Brennan-Horley, 2010), a remote city in northern Australia, demonstrating the multiple worksites of cultural practitioners. Workplaces extended across Darwin and beyond “perform[ing] any number of roles, from the utilitarian, such as sites of supply, to more important roles as sites of exchange, networking or performance” (p. 46). The diffuse residential patterns of the cultural workforce, alongside interactions with dispersed manufacturing suppliers, contractors, and clients imply a more decentralized geography in the cultural sector than is currently recognized in urban cultural policy.

Moreover, different types of cultural activity exhibit varying degrees of centrality. The location of cultural industries and related manufacturing is shaped by the complex interplay of centripetal and centrifugal forces (Figure 1). On the one hand, the urban core offers access to a specialized cultural workforce, sizable markets, and established infrastructure, intermediaries and institutions (Curran, 2010; Gibson et al., 2017; Wolf-Powers et al., 2017). Centripetal dynamics are reinforced by a conducive built environment with older warehouse spaces amenable to subdivision (Rantisi & Leslie, 2010; Spencer, 2015). Shared spaces can serve as sites for “self-help” and “self-organization” to manage precarious working conditions (Merkel, 2019, p. 541), to engage in peer-to-peer and community-based learning (Capdevila, 2018), and to share equipment and resources (Gibson et al., 2017).

On the other hand, the urban periphery is endowed with more robust industrial capacities particularly conducive to material cultural production. This has been shaped by long-run policy and property market dynamics that have replaced inner-urban industrial districts with higher-dollar residential and mixed-use neighbourhoods (Curran & Hanson, 2005; Ferm & Jones, 2017). At the same time, large tracts of outer-suburban industrial land have been opened on the urban fringe, contributing to the peripheral agglomeration of manufacturing businesses and workers (Grodach & Gibson, 2019; Logan, 1966).

Of course, the decentralization of industrial firms and workers is not a recent phenomenon, nor are the associated changes to urban planning (Scott, 1980). However, they complicate the expected locational

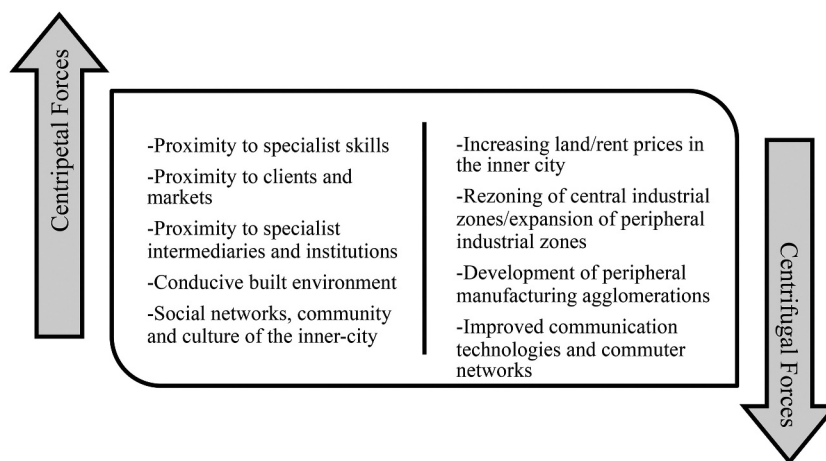


Figure 1. Centripetal and centrifugal forces affecting cultural industries and cultural manufacturing.

patterns of businesses working at the interface of cultural industries and manufacturing. Despite the opposing forces at work on locational decisions, the spatiality of the cultural industries-manufacturing interface has been largely overlooked in urban policy and research. To address this, we investigate the location of jobs and workforces in cultural industries and related manufacturing, observing varying degrees of centrality between different industry subsets. Our results confirm co-location between cultural services and production at the city scale, potentially indicating cross-fertilization. However, they also demonstrate the regional spatial extent of employment and workforce location.

Research design: Mapping the cultural industries-manufacturing interface

Data and study context

In this study, we delineate three sectors that represent the cultural industries-manufacturing interface: Cultural Industries, Cultural Manufacturing, and Ancillary Manufacturing (Table 1). We constructed a novel taxonomy of industry codes for each sector from the Australia New Zealand Standard Industrial Classification (ANZSIC). While past definitional studies were used to inform the Cultural Industries taxonomy (Australian Bureau of Statistics, 2014; Higgs & Cunningham, 2008; Markusen et al., 2008), no studies to our knowledge have developed taxonomies for cultural industries-related manufacturing. Consequently, we created a composite group of four-digit level ANZSIC codes, with characteristics outlined in a small but growing literature on cultural manufacturing (Appendix A). Specifically, we looked for “production-related actors” (Leslie & Rantisi, 2017) that combine practical and cultural sensibilities (Grodach et al., 2017) in “low-technology,” “labor-intensive” processes (Grodach & Martin, 2020b; Hansen & Winther, 2015). Using these criteria, we reviewed the ABS’s (Trewin & Pink, 2006) description of business activities for all manufacturing codes and other miscellaneous production activity (e.g., 9352 Photographic Film Processing), delineating those directly involved in the supply chains for material and immaterial cultural products. We differentiated between Cultural Manufacturing and Ancillary Manufacturing on the basis of whether industries specialize in products with high symbolic value (e.g., clothing, furniture, jewelry) versus those that serve more utilitarian functions<sup>1</sup> (e.g., textiles, wood, metal) (Rantisi, 2013; Scott, 2004).

We collected employment data for our three custom sectors from the ABS Census of Population and Housing (Census) for Metropolitan Melbourne. Historically, Melbourne served as Australia’s manufacturing centre through the 19th and 20th centuries (Dingle & O’ Hanlon, 2009; Logan, 1966) and has more recently developed a vibrant arts and cultural sector (Creative Victoria, 2016). Beyond this, Melbourne presents a useful case geographically with its sprawling urban form and contrasting inner and outer zones. The inner zone is defined by a high-density, high-cost central business district (CBD) and a highly gentrified inner ring containing many older industrial properties. Inner Melbourne contains approximately 34% of metropolitan employment, predominately in professional and creative service industries alongside tourism, entertainment and specialist retail functions (Australian Bureau of Statistics, 2016a). In contrast, the peripheral zone is comprised of high-growth, low-density suburbs and predominately local-serving employment.

Table 1. The cultural industries-manufacturing interface.

Cultural Industries	Industries that produce service and intellectual property outputs with high symbolic value	E.g. Media publishing, architecture and design services, performing arts
Cultural Manufacturing	Industries that directly produce material consumer products with high symbolic value and/or specialized inputs for cultural industries	E.g. Clothing, furniture, jewelry, specialty printing, home furnishings
Ancillary Manufacturing	Industries that indirectly contribute labor and manufactured inputs to cultural production	E.g. Wood, paper, paint, metal, textile manufacturing

See Appendix A for a complete list of industries.



This metropolitan form has been reinforced by a strategic land use directive to remove industrial activity from the central city to enable new residential mixed-use development. Between 2000–2001 and 2017–2018, 2,423 hectares of industrial land was re-zoned for residential and mixed-use development in inner- and middle-ring suburbs (State of Victoria, 2019, p. 7). In contrast, over the same period, 6,674 hectares of land was zoned for industrial purposes almost exclusively in outer suburbs (State of Victoria, 2019, p. 6).

## Method

We combine “hotspot” analysis with descriptive statistics to map Cultural Industries, Cultural Manufacturing and Ancillary Manufacturing employment and workforce location patterns. In line with other mapping studies of cultural industries (Currid & Williams, 2010; He & Gebhardt, 2014; Spencer, 2015; Williams & Currid-Halkett, 2011), we use co-location to infer similarities in spatial requirements and potential cross-fertilization between industry subsectors.

Using GIS, we mapped 2016 employment data based on Place of Work (POW) at the Destination Zone (DZN) level for the whole of Metropolitan Melbourne (measured by Greater Capital City Statistical Area) (Australian Bureau of Statistics, 2016a). DZNs are the smallest available Census geography and thereby enable the identification of employment concentrations closest to their actual locations. The Getis Ord  $G_i^*$  statistic was used to determine employment hotspots,<sup>2</sup> a common approach for identifying concentrations of high employment that are unlikely to have occurred randomly (Currid & Williams, 2010; ESRI, n.d.).

Hotspot mapping was paired with descriptive statistics showing the distribution of jobs (using Place of Work data) and workforces (using Place of Residence data) between “Inner,” “Middle,” and “Outer” metropolitan areas (see Appendix B). Workforce residence data gives an insight into worker mobility and highlights the spatial distribution of cultural and manufacturing labor. A closer alignment of workplaces and workforces has the capacity to create more locally oriented livelihoods and generate a degree of polycentricity to reduce reliance on a high-cost urban core.

In addition, we delineate two sub-regions within Metropolitan Melbourne and analyze the concentration of selected sub-industries. Firstly, we examine “fashion design-manufacturing” in Melbourne’s city centre and inner neighbourhoods. This type of production relies on inner-urban cultural infrastructure, such as galleries, specialist retail, and design services (Rantisi, 2004), and is therefore likely to exhibit centralizing tendencies. Secondly, we examine “architectural design-manufacturing” in Melbourne’s South East. This region encompasses middle and outer-urban areas between 20 and 60 km to the southeast of the city centre, including Melbourne’s most developed industrial precinct (Australian Bureau of Statistics, 2017). The production of architectural glass, furniture and fittings requires larger spaces and heavier processes. Hence, such activity is likely to occur in peripheral industrial areas.

Sub-regions were defined using the ABS’s Statistical Area 4 (SA4), the standard geographic unit for labour market analysis (Australian Bureau of Statistics, 2016b). We used location quotients to measure sub-industry concentration, comparing the ratio of employment in the sub-region to that of the nation (Grodach & Martin, 2020b). This part of the analysis demonstrates how centralizing tendencies vary across different industry subsets.

## Employment concentration across the cultural industries-manufacturing interface

The following maps the spatial relationship between Cultural Industries, Cultural Manufacturing, and Ancillary Manufacturing employment and workforce location. The first section starts by mapping conventionally-defined Cultural Industries at the city scale and then expanding sectoral boundaries to include related manufacturing. We analyze the extent of sectoral diversity in the urban core and co-location between industry subsets. Co-location dynamics are further investigated with a finer-grain analysis of the

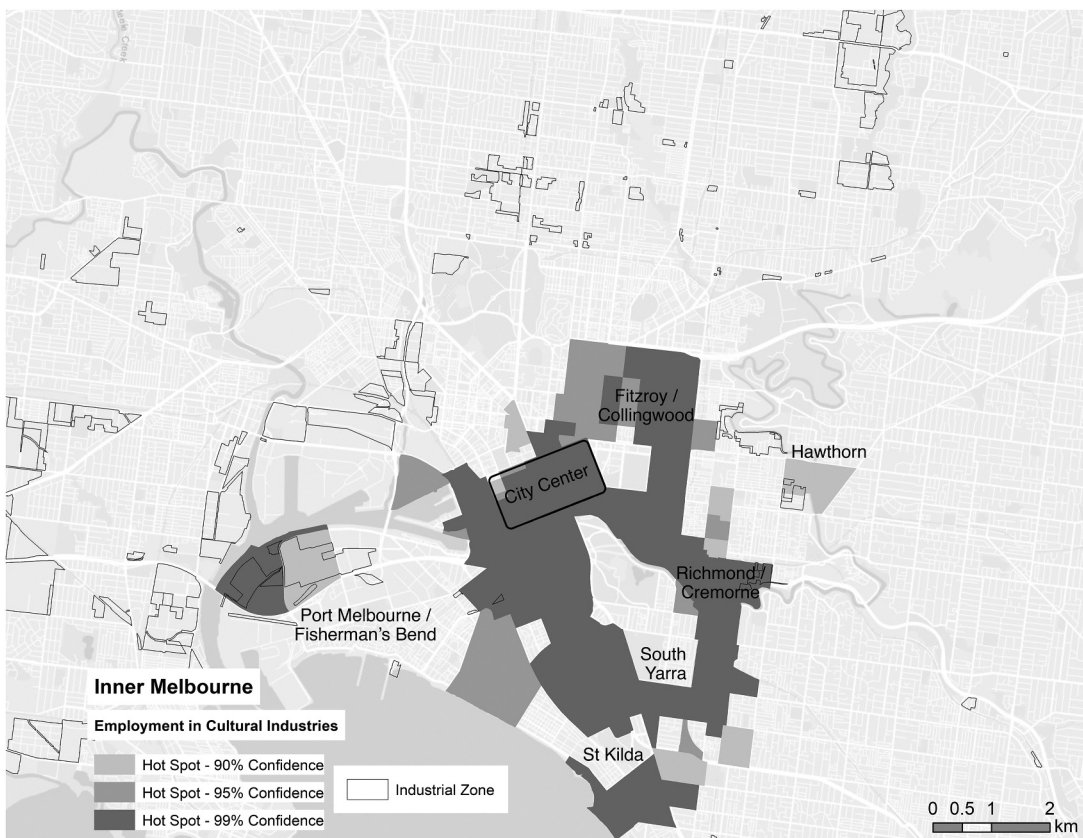
“fashion-design manufacturing” subsector. Industrial zones are overlaid to determine the effect of land use planning on concentration and co-location.

In the second section, we expand geographic boundaries to the metropolitan scale to examine cultural industries-manufacturing activity occurring outside the urban core. This is further explored with a finer-grain analysis of “architectural design-manufacturing,” analyzing the extent of co-location between manufacturing subsets and the possibilities this might hold for outer-urban cultural and economic development.

### **The city level: Inner Melbourne**

Largely as expected, Cultural Industries employment hotspots tightly concentrate in the city centre and surrounding suburbs (Figure 2). In fact, nearly 60% of Cultural Industries employment is located in Inner Melbourne, nearly double the proportion of employment as a whole (33.5%) (Table 2). This supports a large literature on arts and cultural industries, demonstrating the tendency for transaction-intensive businesses to concentrate in high-amenity inner-urban areas (Currid & Williams, 2010; Grodach et al., 2014; Spencer, 2015). On the surface, it also validates urban cultural policies that target central areas.

However, the use of workplace data for a narrow range of cultural services and amenities presents only a partial picture of urban cultural activity. Using residential data, we see that only a third of the Cultural Industries workforce actually lives in inner-urban areas (Table 2). Although this is higher than



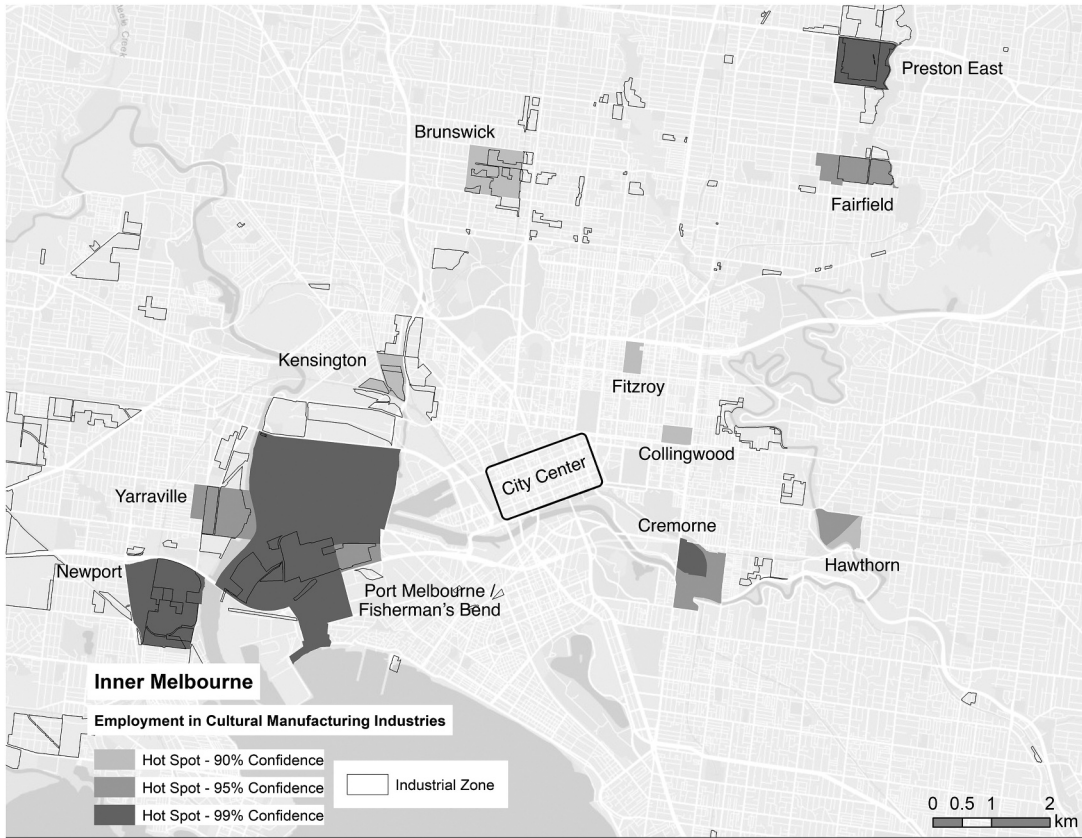
**Figure 2.** Inner Melbourne Cultural Industries employment hotspots.



**Table 2.** Spatial distribution of Melbourne’s Cultural Industries, Cultural Manufacturing and Ancillary Manufacturing employment.

		Cultural Industries (%)	Cultural Manufacturing (%)	Ancillary Manufacturing (%)	All Industries (%)
Inner	Working	59.6	15.5	5.2	33.5
	Residing	34.6	9.3	5.3	15.1
Middle	Working	24.6	38.5	38.2	32.7
	Residing	39.3	34.3	28.8	37.4
Outer	Working	15.8	46.1	56.6	33.8
	Residing	26.1	56.4	65.9	47.5

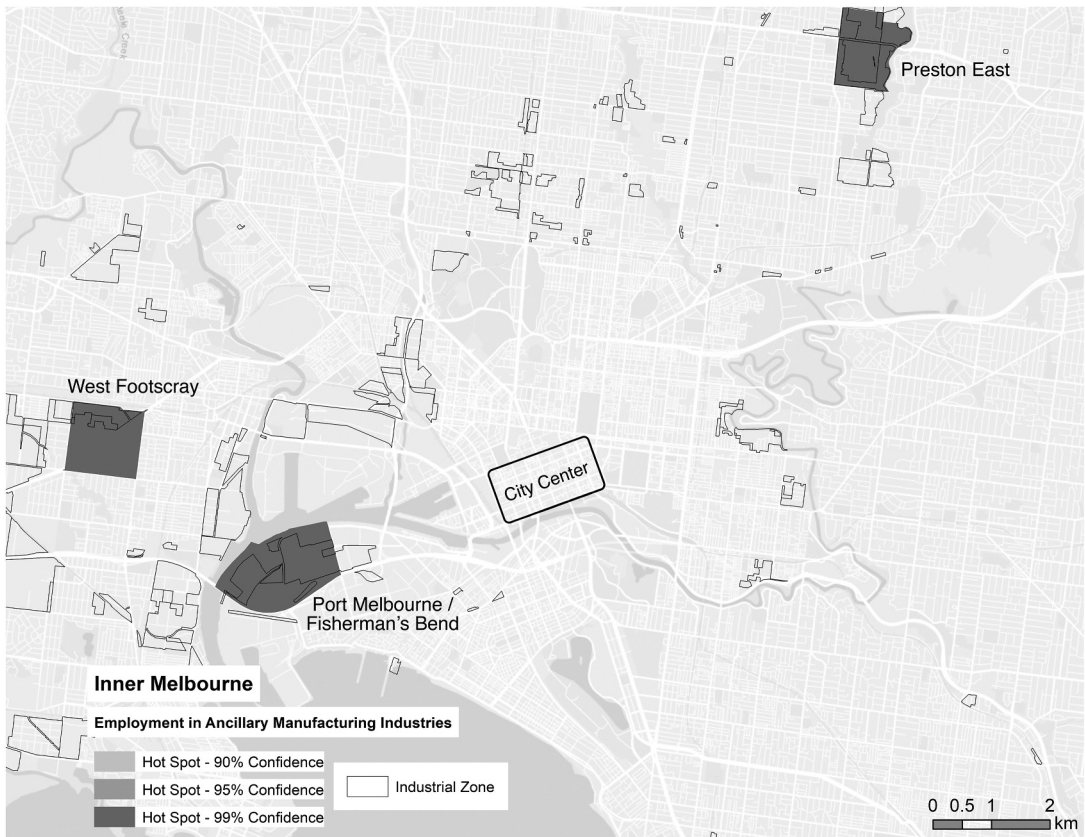
Australian Bureau of Statistics (2016a) census data, by place of work (“working”) and residence (“residing”). See [Appendix A](#) for industry aggregation and [Appendix B](#) for geography aggregation.



**Figure 3.** Inner Melbourne Cultural Manufacturing employment hotspots.

the average for all industries (15.1%), it nevertheless highlights the importance of the wider metropolitan region in supplying cultural labour with a combined 65% living in middle and outer areas.

Furthermore, when we expand sectoral boundaries to include material sectors, spatial patterns deviate from the city center and toward inner-ring industrial zones. Cultural Manufacturing hotspots are dispersed through older industrial suburbs with the most robust hotspots occurring in remaining industrial zones in the west close to the city center ([Figure 3](#)). Around 16% of Cultural Manufacturing jobs are located in Inner Melbourne ([Table 2](#)). While this is smaller than the average



**Figure 4.** Inner Melbourne Ancillary Manufacturing employment hotspots.

for all industries (33.5%), it is considerably higher than the 5% of Ancillary Manufacturing jobs located centrally, predominately in three industrial districts (Figure 4).

Two main inferences can be drawn from inner-urban Cultural Industries, Cultural Manufacturing and Ancillary Manufacturing spatial patterns. Firstly, the strong connection between Cultural Manufacturing hotspots and industrial zoning implies that the ability of material cultural producers to locate centrally is contingent on land use protections (Wolf-Powers et al., 2017). Though land use decisions typically sit beyond the purview of urban cultural policy, policymakers should be more active in this space (Grodach et al., 2017). This is particularly pertinent given that three central industrial districts containing Cultural Manufacturing are currently slated for urban renewal: Fisherman's Bend, Preston East, and Kensington (City of Darebin, n.d.; City of Melbourne, 2012; State of Victoria, 2018).

Secondly, Cultural Manufacturing co-locates with Cultural Industries across several inner-city locations, including renewal areas (Fisherman's Bend and Kensington) and gentrified industrial suburbs (Fitzroy, Collingwood, Cremorne). Compared with the relative scarcity of inner-urban Ancillary Manufacturing activity, this may suggest that particular types of manufacturing require inner-city locations close to their Cultural Industries counterparts.

This is supported by a finer-grain analysis of industry subsectors across fashion design and apparel manufacturing (Table 3). While just under half of Melbourne's design services employment (i.e. fashion, textiles, interiors and jewelry design) is concentrated in Inner Melbourne (45.7%, LQ = 1.9), production jobs in jewelry (38.6%, LQ = 1.2) and clothing (29.8%, LQ = 1.4) exhibit comparable concentration as well. These two Cultural Manufacturing subsectors are design-intensive and rely on cultural infrastructure to promote and sell their work (e.g., galleries, specialist retail)

**Table 3.** Clothing and jewelry, design and manufacturing, Inner Melbourne.

		Share (%)	LQ, Inner Melbourne	LQ, Metro Melbourne
<b>Cultural Industries</b>				
6924	Design Services	45.7	1.9	1.4
<b>Cultural Manufacturing</b>				
1351	Clothing Manufacturing	29.8	1.4	1.5
1333	Cut and Sewn Textiles	5.2	0.3	1.7
2591	Jewelry Manufacturing	38.6	1.2	1.0
<b>Ancillary Manufacturing</b>				
1334	Textile Finishing	12.1	0.7	2.0
<b>All Industries</b>		33.5	-	-

Australian Bureau of Statistics (2016a) census data, by place of work. Design services includes fashion, textiles, interiors and jewelry design. Shares represent the proportion of industry jobs in Inner Melbourne relative to the metropole. Location quotients measure industry concentration in Inner Melbourne (SA4) and Greater Melbourne (GCCSA) relative to the nation.

(Rantisi, 2004; Williams & Currid-Halkett, 2011). However, they also require production space that is affordable and suited to small-scale manufacture (Gibson et al., 2017).

Although significant fashion design and production activity occur within Inner Melbourne, it is likely that central businesses rely on wider metropolitan contractors and suppliers. For example, around 95% of cut and sew textile manufacturing and 88% of textile finishing occurs outside Inner Melbourne<sup>3</sup> (Table 3). We now examine Cultural Industries, Cultural Manufacturing and Ancillary Manufacturing spatial patterns at the metropolitan scale.

### ***The regional level: Metropolitan Melbourne***

The position of Inner Melbourne as a specialized node in a wider metropolitan system is largely supported by spatial patterns at the regional level. The urban core exhibits a strong specialization in Cultural Industries, demonstrated by the striking pattern of centrality with no hotspots outside Inner Melbourne (Figure 5).

Again, this reflects the findings of other mapping studies based on workplace data and supports the inner-urban focus of urban cultural policy. However, it also partly obscures the more complex geography of Cultural Industries work occurring beyond the workplace (Gibson & Brennan-Horley, 2016). This is likely to encompass interactions with manufacturing contractors, suppliers and clients concentrated in middle and outer areas (Figures 6 and 7).

When we expand sectoral boundaries to include material sectors, we observe robust concentrations of cultural industries-related manufacturing in middle and outer areas. Comparing Cultural Manufacturing and Ancillary Manufacturing hotspots, the former exhibits less clear-cut stratification. In addition to employment hotspots in Inner Melbourne (Figure 3), there is also more activity distributed throughout middle-ring industrial areas. These spatial patterns potentially indicate a negotiation between opposing forces. Cultural Manufacturing businesses may be attracted to middle areas close to specialist Cultural Industries workers and clients in the central city on the one hand, and manufacturing services and suppliers in outer suburbs on the other.

Despite less polarity in Cultural Manufacturing spatial patterns, the most robust hotspots are co-located with Ancillary Manufacturing near State Significant Industrial Precincts (SSIP), particularly in the north and south. These industrial precincts date back to the decentralization of high-volume manufacturers in the 1950s (Logan, 1966) and account for a significant share of Melbourne's manufacturing workforce (Table 2).

When Cultural Industries are considered alongside related manufacturing, the regional spatial scale of the cultural sector becomes apparent. This not only contrasts with current urban cultural policy settings that fixate on central city consumption amenities and creative service industries. It may also present opportunities for cross-sectoral policies anchored by robust material production in outer-urban areas.

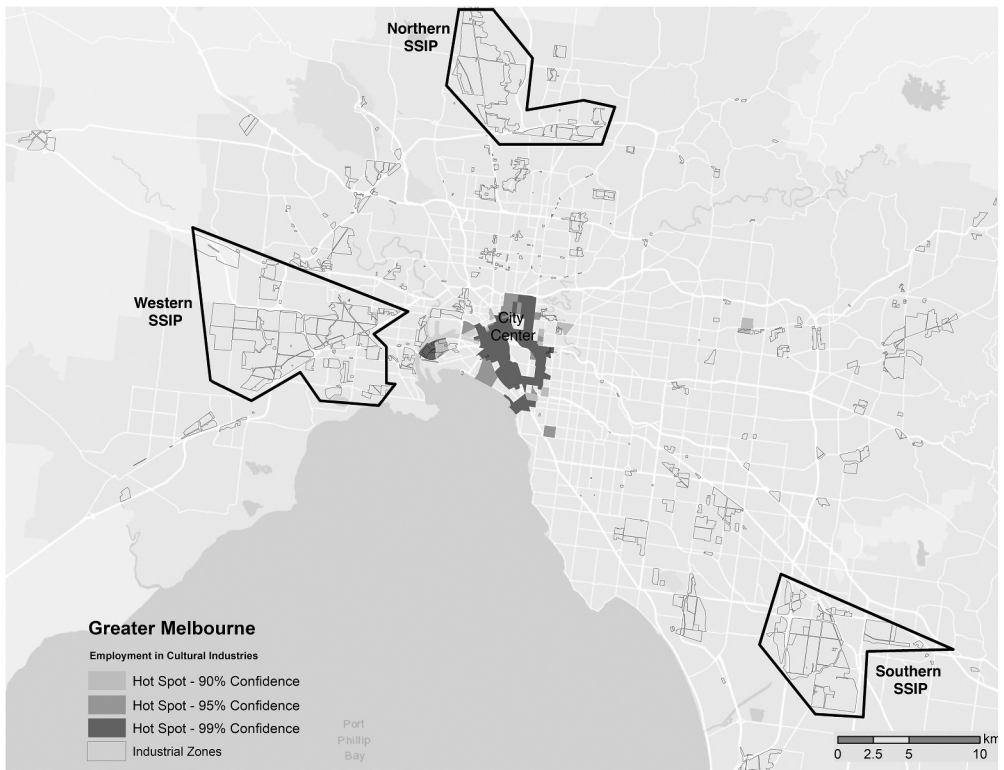


Figure 5. Metropolitan Melbourne Cultural Industries employment hotspots.

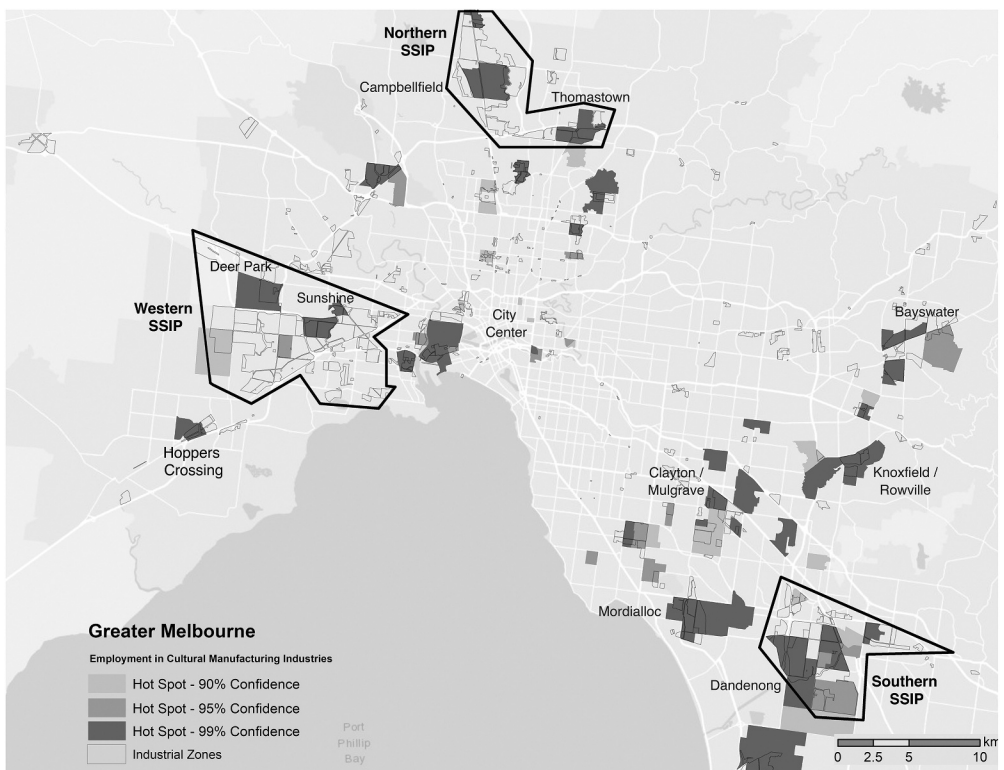
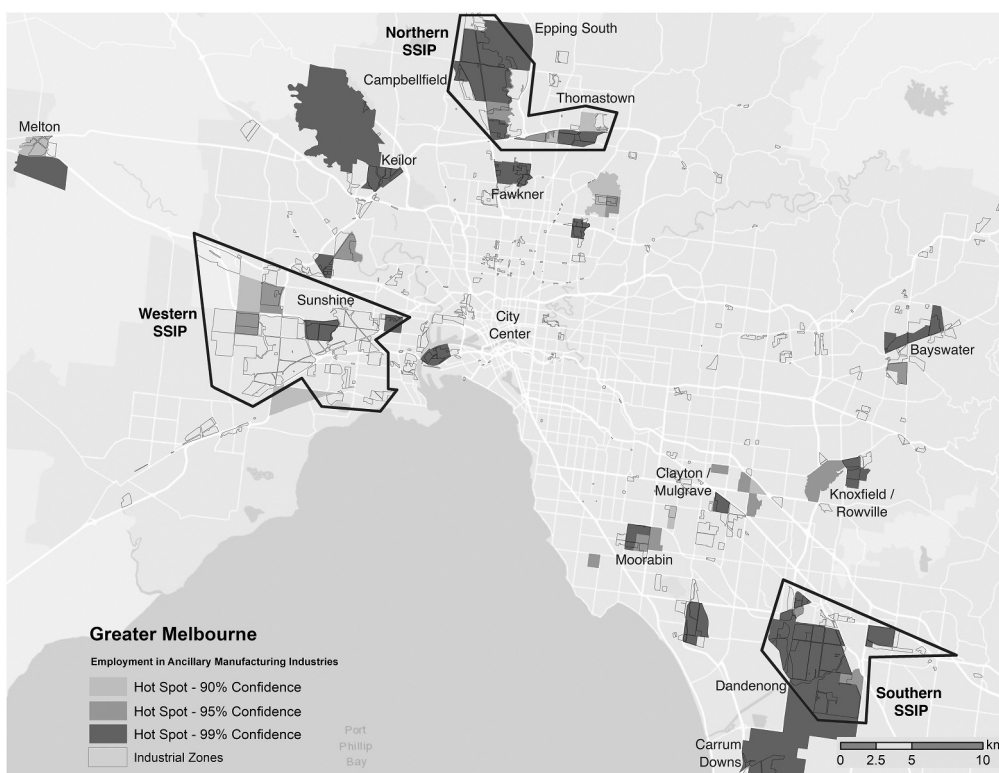


Figure 6. Metropolitan Melbourne Cultural Manufacturing employment hotspots.





**Figure 7.** Metropolitan Melbourne Ancillary Manufacturing employment hotspots.

**Table 4.** Architecture, design and manufacturing, South East Melbourne.

	Share (%)	LQ, South East Melbourne	LQ, Metro Melbourne
<b>Cultural Industries</b>			
6921 Architectural Services	5.2	0.5	1.5
<b>Cultural Manufacturing</b>			
2010 Glass	41.0	3.9	1.4
2029 Ceramics	64.3	5.8	1.3
2511 Wooden Furniture	17.7	1.6	1.3
2519 Other Furniture	23.8	2.5	1.6
<b>Ancillary Manufacturing</b>			
1492 Wooden Structural Fittings	25.2	1.6	1.0
2221 Structural Steel	29.9	1.3	0.7
2223 Architectural Aluminum	43.8	3.7	1.2
2229 Other Structural Metal	34.4	2.8	1.2
<b>All Industries</b>	14.6	-	-

Australian Bureau of Statistics (2016a) census data, by place of work. Shares represent the proportion of industry jobs in Melbourne's South East relative to the metropole. Location Quotients measure industry concentration in Melbourne – South East (SA4) and Greater Melbourne (GCCSA) relative to the nation.

For instance, Melbourne's outer South East suburbs (which includes the Southern SSIP) encompass a robust concentration of architecture-related manufacturing (Table 4). Glass (41%, LQ = 3.9), ceramics (64%, LQ = 5.8) and furniture manufacturing (18%–24%, LQ = 1.6–2.5) are strongly concentrated here. Similarly, a significant proportion of the region's structural wood (LQ = 1.6), steel (LQ = 1.3), aluminum (LQ = 3.7) and other structural metals (LQ = 2.8) manufacturing is concentrated in the area.

A comparatively small proportion of architectural service employment is located in Melbourne's South East (5.2%) relative the average for all industries (14.6%). However, given the robust concentration of architectural production, the potential for new urban cultural policies and economic development initiatives centred on manufacturing should not be overlooked. The majority of architectural service workers live in middle and outer suburbs (62%), while over a third also work in these areas (Australian Bureau of Statistics, 2016a). While this is lower than the proportion of the workforce living and working in middle and outer areas as a whole (Table 2), it is nonetheless significant. Robust outer-urban Cultural and Ancillary Manufacturing economies and a large peripheral cultural workforce could anchor Cultural Industries businesses, particularly those with weaker centralizing tendencies. Leveraging these outer-urban assets could provide locally oriented livelihoods centred on material production. Beyond localized policies, however, the spatial distribution of Melbourne's cultural industries-manufacturing interface highlights the need for urban cultural policymaking at the regional scale.

## Discussion and conclusion

Urban cultural policy has long been framed with a limited sectoral and geographic focus, prioritizing creative services and consumption in wealthy inner-urban areas (Grodach, 2017). Our analysis of cultural industries-related manufacturing challenges this myopic policy focus on two accounts. First, we show sectoral diversity in the urban core, particularly the co-location of service-based cultural industries and related manufacturing. Specifically, subsectors related to fashion, such as clothing and jewelry, exhibit strong centralizing tendencies potentially indicating cross-fertilization between material and immaterial cultural activity. Second, we demonstrate the regional spatial extent of cultural activity when service-based cultural industries are considered alongside related manufacturing. The robust hotspots of Cultural Manufacturing in middle and outer-urban areas calls into question the privileged policy focus on the central city. It also presents new avenues for urban cultural policies with more broad-based benefits.

### *A broadened sectoral focus: Production space and jobs in the central city?*

Despite an overall contraction in manufacturing employment, our research demonstrates that some cultural manufacturing activity persists in high-cost inner areas. While more research is needed to determine the precise social and organizational dynamics behind locational decisions, industrial zoning close to cultural industries is likely to be an underlying factor. This presents opportunities for urban cultural policy to join with urban planners and other urban policymakers to encourage greater land use and job mix in bifurcated central cities. Such policies might include mixed-use zoning and renewal projects that prioritize and protect manufacturing space (Grodach & Martin, 2019), new building typologies with an explicit focus on material production (Hatuka et al., 2017), or strategic initiatives aimed at connecting designers and arts institutions with local manufacturers (Wolf-Powers et al., 2017).

With the appropriate cross-sectoral policies, co-location between material and immaterial cultural industries could be leveraged in a way that promotes knowledge exchange (Gibson et al., 2017), shortened supply chains (Buciuni & Finotto, 2016), and accessible, high-quality employment opportunities (Chapple, 2014). This moves urban cultural policy beyond its limited prioritization of cultural consumption, which is now particularly urgent given the significant impacts on consumer service employment under COVID-19 (Grodach & Martin, 2020a).



## ***A broadened geographical focus: Economic and cultural development outside the central city?***

Although district-based models offer possibilities for improved job and land use mix in bifurcated central areas, city governments are often encumbered by real estate-driven models of economic development (Schrock & Wolf-Powers, 2019). Beyond high-demand central areas, the cultural industries-manufacturing interface presents policymakers with opportunities to affect meaningful change in under-served middle and outer areas.

Our results indicate the co-existence of a large Cultural Industries workforce and robust Cultural and Ancillary Manufacturing economies in middle and outer areas. In addition, a central location may be less important or less viable for certain cultural industry subsets. Taken together, this suggests that district-based models could be applied outside the central city if policymakers can identify appropriate subsectors and outlying districts.

This policy directive is particularly apt in the context of the COVID-19 pandemic, which will have lasting impacts on the relationship between home life, work places, and how we move around the city. Now more than ever, policy initiatives can consider how to align the suburban cultural industries workforce with existing jobs in the middle and outer suburbs. This might involve retrofits and subdivisions of large single-occupant factories, providing affordable space for SME designers and cultural producers that exhibit weaker centralizing tendencies or struggle to pay central city rents (Curran, 2007; Ferm & Jones, 2017). Beyond industrial spaces, vacant suburban retail stores hold significant potential for small-scale cultural production, as cities in Australia (Lewin, 2020) and the United States (Fairfax County, 2018) are now experimenting with. With the aid of locational subsidies and regulatory incentives, peripheral industrial districts and disused retail precincts could form an anchor for diffuse suburban cultural activity, creating key nodes outside of the city centre.

Nevertheless, the capacity for localized initiatives on the urban periphery should not be overstated given the striking centrality of service-based Cultural Industries (Figure 5). District-based models should be viewed as one policy tool within a broader metropolitan cultural and economic agenda. Multi-scalar policy initiatives might include intermediating between central cultural services (e.g., design) and peripheral cultural manufacturing (e.g., prototyping, fabrication, machining). Intermediary organizations can bridge physical distance by brokering relationships between cultural industries and manufacturing contractors, embedding and expanding regional production capacities (Clark, 2014; Rantisi, 2014).

In sum, our research takes a first step toward uncovering the geography of an expanded cultural sector and has highlighted tentative policy implications. Future research is needed to examine the dynamics of knowledge and resource exchange between cultural industries and related manufacturing, specifically how this varies across space and between industry subsets. Improving our understanding in these areas holds potential for a more productive urban cultural agenda with broader socio-spatial benefits.

## **Notes**

1. It should be acknowledged that there is “no hard and fast line separating industries that specialize in purely cultural products from those whose outputs are purely utilitarian” (Scott, 2004, p. 462). Nevertheless, it is common practice in definitional studies to make judgments of where certain activities fit along the continuum between cultural and utilitarian value and organize them into “core” and “peripheral” categories accordingly (Higgs & Cunningham, 2008; Markusen et al., 2008).
2. See Appendix C for an elaboration of the geography and parameters used in the hotspot analysis.
3. Indeed, most of this activity occurs even further afield in overseas industrial economies given the prolonged contraction of Australia’s textile, clothing, and footwear (TCF) industries (Webber & Weller, 2001).

## Acknowledgments

This work was supported by the *Australia Research Council Discovery Project, Urban Cultural Policy and the Changing Dynamics of Cultural Production* (DP170104255). We would like to thank members of the ARC project team, Justin O'Connor, Xin Gu, and Chris Gibson, for ongoing discussions about the interface between cultural industries and manufacturing. We would also like to thank the journal's anonymous reviewers for their careful reading of the paper and their constructive feedback.

## Disclosure statement

No potential conflict of interest was reported by the authors.

## Funding

This work was supported by the Australian Research Council [DP170104255].

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## Appendix

**Appendix A.** The cultural industries-manufacturing interface, ANZSIC codes.

Cultural Industries		Cultural Manufacturing		Ancillary Manufacturing	
ANZSIC (4 digit)	Industry	ANZSIC (4 digit)	Industry	ANZSIC (4 digit)	Industry
5411	Newspaper Publishing	1320	Leather Tanning, Fur Dressing and Leather Product Manufacturing	1311	Wool Scouring
5412	Magazine and Other Periodical Publishing	1331	Textile Floor Covering Manufacturing	1312	Natural Textile Manufacturing
5413	Book Publishing	1333	Cut and Sewn Textile Product Manufacturing	1313	Synthetic Textile Manufacturing
5419	Other Publishing (except Software, Music and Internet)	1340	Knitted Product Manufacturing	1332	Rope, Cordage and Twine Manufacturing
5511	Motion Picture and Video Production	1351	Clothing Manufacturing	1334	Textile Finishing and Other Textile Product Manufacturing
5512	Motion Picture and video Distribution	1352	Footwear Manufacturing	1491	Prefabricated Wooden Building Manufacturing
5513	Motion Picture Exhibition	1611	Printing	1492	Wooden Structural Fitting and Component Manufacturing
5514	Post-production Services and Other Motion Picture and Video Activities	1612	Printing Support Services	1493	Veneer and Plywood Manufacturing
5521	Music Publishing	1620	Reproduction of Recorded Media	1494	Reconstituted Wood Product Manufacturing
5522	Music and Other Sound Recording Activities	2010	Glass and Glass Product Manufacturing	1499	Other Wood Product Manufacturing nec
5610	Radio Broadcasting	2029	Other Ceramic Product Manufacturing	1510	Pulp, Paper and Paperboard Manufacturing
5621	Free-to-Air Television Broadcasting	2511	Wooden Furniture and Upholstered Seat Manufacturing	1521	Corrugated Paperboard and Paperboard Container Manufacturing
5622	Cable and Other Subscription Broadcasting	2512	Metal Furniture Manufacturing	1522	Paper Bag Manufacturing
5700	Internet Publishing and Broadcasting	2519	Other Furniture Manufacturing	1523	Paper Stationery Manufacturing
6010	Libraries and Archives	2591	Jewelry and Silverware Manufacturing	1529	Other Converted Paper Product Manufacturing
6921	Architectural Services	2592	Toy, Sporting and Recreational Product Manufacturing	1829	Other Basic Polymer Manufacturing
6924	Other Specialized Design Services	2599	Other Manufacturing nec	1891	Photographic Chemical Product Manufacturing
6940	Advertising Services	9532	Photographic film Processing	1911	Polymer Film and Sheet Packaging Material Manufacturing

(Continued)



**Appendix A.** (Continued).

Cultural Industries		Cultural Manufacturing		Ancillary Manufacturing	
ANZSIC (4 digit)	Industry	ANZSIC (4 digit)	Industry	ANZSIC (4 digit)	Industry
6991	Professional Photographic Services			1912	Rigid and Semi-Rigid Polymer Product Manufacturing
8212	Arts Education			1913	Polymer Foam Product Manufacturing
8910	Museum Operation			1915	Adhesive Manufacturing
9001	Performing Arts Operation			1916	Paint and Coatings Manufacturing
9002	Creative Artists, Musicians, Writers and Performers			1919	Other Polymer Product Manufacturing
9003	Performing Arts Venue Operation			1920	Natural Rubber Product Manufacturing
				2021	Clay Brick Manufacturing
				2032	Plaster Product Manufacturing
				2034	Concrete Product Manufacturing
				2090	Other Nonmetallic Mineral Product Manufacturing
				2210	Iron and Steel Forging
				2221	Structural Steel Fabricating
				2222	Prefabricated Metal Building Manufacturing
				2223	Architectural Aluminum Product Manufacturing
				2229	Other Structural Metal Product Manufacturing
				2240	Sheet Metal Product Manufacturing
				2293	Metal Coating and Finishing
				2432	Electric Lighting Equipment Manufacturing

**Appendix B.** Inner, middle, and outer areas for metropolitan Melbourne.

Inner	Middle	Outer
Brunswick – Coburg	Boroondara	Nillumbik – Kinglake
Darebin – South	Manningham – West	Whittlesea – Wallan
Essendon	Whitehorse – West	Macedon Ranges
Melbourne City	Bayside	Sunbury
Port Phillip	Glen Eira	Tullamarine – Broadmeadows
Stonnington – West	Kingston	Knox
Yarra	Stonnington – East	Manningham – East
	Banyule	Maroondah
	Darebin – North	Yarra Ranges
	Keilor	Cardinia
	Moreland – North	Casey – North
	Whitehorse – East	Casey – South
	Monash	Dandenong
	Brimbank	Melton – Bacchus Marsh
	Hobsons Bay	Wyndham
	Maribyrnong	Frankston
		Mornington Peninsula

*Note:* “Inner” comprises all SA3s within the “Melbourne – Inner” SA4 under the Australian Statistical Geography Standard (ASBS).

“Middle” and “Outer” are SA3s grouped according to Department of Infrastructure and Transport (2011, pp. 343–345).

## Appendix C. “Hotspot analysis,” geography and parameters

- (1) **Analysis:** The  $G_i^*$  statistic compares the local sum of employment for a Destination Zone (DZN) and its neighbors to the expected local sum for the study area (Mitchell, 2009). If the local sum was significantly higher than the expected sum for Metropolitan Melbourne, the DZN was deemed to be part of an employment hotspot. The 90%, 95%, and 99% confidence levels were used to determine statistical significance.
- (2) **Geography:** Using a fine-grain geographical unit, like a DZN, mitigates the scale effects associated with the modifiable areal unit problem (MAUP) by maintaining variability in the data that is generally moderated when aggregating to larger areal units (Altaweel, 2018; Wong, 2009).
- (3) **Threshold distance:** Although the appropriate threshold distance for cluster analysis is contested (Carroll et al., 2008; Sunley & Martin, 2003), we used a distance band of 500 meters to reflect intense local clusters of employment within a broader regional area. These locational patterns are supported by a large literature on cultural and creative clusters (Chapain & Comunian, 2010; Currid & Williams, 2010; Grodach et al., 2014), alongside a growing literature on cultural manufacturing (Comunian & England, 2019; Gibson et al., 2017; Lazzeretti & Oliva, 2018; Sprague & Rantisi, 2019). In addition, a smaller distance band distinguishes dense employment clusters in mixed-use areas (e.g., small inner-ring industrial districts surrounded by residential and green spaces). The significance of these areas is moderated with larger distance bands, which create a bias toward outer-suburban industrial precincts with large, continuous tracts of employment land. While small distance bands are used with caution in hotspot analyses, a parameter in the spatial weights matrix was included so that all DZNs had at least one neighbor and computed z-scores were valid (Basu, 2015; ESRI, n.d.).