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## A public health perspective on small business development: a review of the literature

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### ABSTRACT

Federal spending on non-health entitlement programs, including the Earned Income Tax Credit and SNAP, has decreased as a percent of GDP since 2011, putting social safety net and community and economic development funding at risk. As an important component of community development, small business support programs are also at risk under social spending cuts. While theory suggests that a strong small business sector could protect health by improving socioeconomic conditions and reducing unemployment, the public health implications of reduced support for small business has not been explored. We conducted a scoping literature review of studies indexed by Pubmed, Cochrane Review, Google Scholar, and Academic Search Premier. The literature suggests that small businesses may provide social and economic benefits to communities that likely protect health, especially in economically deprived communities. These health impacts should be considered when policy-makers weigh decisions that affect small businesses and funding for community and economic development.

### KEYWORDS

Population health;  
community development;  
economic development;  
small business; social  
epidemiology

State and federal tax revenue declined substantially during the great recession (Gordon 2011; Pew Charitable Trusts 2017), leading to spending cuts on various services such as education, programs for the elderly and people with disabilities, childcare, and state employee benefits (Greenstein, Friedman, and Shapiro 2017; Johnson, Oliff, and Williams 2011). Though post-recession budgets have rebounded (Pew Charitable Trusts 2017), the percent of the federal budget spent on various means-tested non-health programs targeted to low- or moderate- income people – such as Supplementary Nutrition Assistance Program (SNAP), Supplementary Security Income (SSI), and refundable tax credits for the working poor – has declined to a historic low (Greenstein, Reich et al. 2017). Health care spending, however, has continued to increase (Greenstein 2015), and debates on reforming the health care and insurance system, and repealing “ObamaCare” have dominated elections, legislative

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agendas, media reports, and academic literature (Jost 2017). And, despite substantial spending reductions on services and programs for vulnerable US residents (Bradley and Taylor 2013; Johnson, Oliff, and Williams 2011), attention in public health and health services research has largely focused on the effects of changes to health care costs, access to insurance, and federal research funding (McKee, Greer, and Stuckler 2017). Yet, cutting resources for community and economic development programs – such as anti-poverty initiatives, affordable housing, training and technical assistance programs, social services, neighborhood stabilization actions, and microloans (Mandelbaum 2017; Office of Management and Budget 2017) – affect social and economic conditions, which are crucial determinants of population health (Kawachi and Subramanian 2014). Given declining spending on social programs targeted to low- and moderate- income people, there is need to support strategies that encourage economic inclusion and development for low-income workers and communities, and to understand how changing community development budgets affect health and health inequities. This paper focuses on one core component of community and economic development efforts: the small business sector.

We provide a scoping review of the relationship between small businesses and community health to inform debates about public budgetary decisions, as well as about state and local funding for community development. This review will provide evidence about the potential health effects of changing funding for community and economic development, focusing on effects generated by the small business sector. Small businesses play a critical role in local and national job and economic growth, making them a popular subject for economic development policies and programs. To the extent that a strong small business sector contributes to the local economy and strengthens community social fabric, investing in small businesses may confer benefits not just to those who own or are employed by these small businesses, but to an entire community (Tolbert, Lyson, and Irwin 1998). These benefits may extend to health, as suggested by a small number of empirical studies (Blanchard, Tolbert, and Mencken 2011; Tolbert 2005) and a social determinants of health theoretical perspective, which recognizes economic and community social conditions as fundamental to population health (Marmot and Wilkinson 2005). While theoretically, a strong small business sector could protect health by improving local socioeconomic conditions and reducing unemployment, the scholarly evidence connecting the sector to health has not been investigated and summarized.

We address this gap by conducting a scoping literature review (Armstrong et al. 2011) of studies from economics, sociology, urban planning, and public health. Scoping reviews survey existing evidence to identify major themes and gaps in the literature, and assess the strength of existing evidence. We review the literature on the effects of small businesses on community and neighborhood environments, as well as the effects of these environments on population health. We examine how small businesses confer unique social and economic benefits to communities, focusing on benefits that are less likely to result from developing large businesses. In particular, we consider how investment in small business plays a role in creating employment and economic opportunity in economically disadvantaged communities. We report empirical effect size estimates from quantitative studies on small businesses, their intermediate impacts on community conditions, and health to provide a sense of the magnitude of importance of the small business sector for health. Our review can aid Health Impact Assessment (HIA)<sup>1</sup> and Health in All Policies (HiAP) practitioners who are increasingly interested in assessing the potential health implications of economic and social policies for

health. HIA, and HiAP generally, are useful resources for understanding health effects of proposed budgeting and policy changes, contributing an additional lens to consequences of reducing funding for social services and community and economic development programs.

## Methods

We performed a scoping literature search to identify studies that examined associations between small businesses and determinants of health, as well as between small businesses and community level physical and mental health outcomes. Though definitions of “small business” vary depending on the industry, we defined small businesses as those with less than 20 employees (Neumark, Wall, and Zhang 2011). We conducted stakeholder interviews – with community development practitioners, small business technical assistant providers, immigrant advocacy organizations, community development corporations, social epidemiologists, and federal and state agencies involved in the small business sector – and a preliminary unstructured literature search of the social epidemiology literature to develop an expansive list of mechanisms linking small business to health. We translated these pathways into search terms such as “small business and community health” or “unemployment rate and injury,” and entered them in four electronic databases: PubMed, Cochrane Review, Academic Search Premier, and Google Scholar. We then used a snowball strategy to identify additional articles. We retained pathways between small businesses and health that were supported by reviews, meta-analysis, or more than five articles.

## Study selection

Based on the exploratory and snowball searches, we identified quantitative studies published in English in peer-reviewed journals, gray literature, and official US Government documents, with no date range specified. We only included studies on US populations, as the social context of other countries varies dramatically enough to make results inapplicable to the US. We additionally only included studies with analysis at the area level, and excluded studies with only individual-level analysis, because we were interested in community-level effects of small business on population health.

To draw conclusions about the statistical strength of each relationship, as assessed by risk of bias, we established an evidence hierarchy based on the evidence pyramid adopted by the US Preventive Services Task Force (1996). Recognizing the challenges of applying a hierarchy established for clinical practice to a population health assessment (Rychetnik et al. 2002), we also consider external validity – we ranked nationally representative articles as stronger than locally based ones – and whether directionality was consistent across articles on an assessed relationship. Our evidence hierarchy was as follows: *strong* relationships were those where a large and robust body of literature supported causal relationship (e.g. from meta-analysis or multiple strong experimental or quasi-experimental studies); *moderate* relationships were those with a few strong studies, or a larger body of literature, but with mixed evidence or with more limited evidence for causality (such as longitudinal studies); *weak* relationships were those with a small number of cross-sectional studies or weakly associational studies (multi-level or ecological).

## Effect estimates

We report effect estimates for the intermediate relationships between small business and community health, in order to suggest the magnitude of possible effects from changes in communities' small business structure. We followed the evidence hierarchy to determine which estimates to report, and selected summary statistics from meta-analysis or reviews where available, and where unavailable report estimates from individual articles. For each relationship, we report the highest and lowest estimates, and their corresponding 95% confidence intervals or standard errors, available across all studies on that relationship. We report multiple estimates to show the range of effects found by studies included in the review, and also provide a ranking of the magnitude of the relationship, or the estimated size of the effect, and the direction of the relationship.

## Results

We retrieved over 1,000 studies in our search, and 145 papers met our inclusion criteria and were reviewed. The majority of studies used cross-sectional study designs, and fewer than five studies used an experimental or quasi-experimental design. Few articles assessed small business activity as an independent variable and community, or population, health as a dependent variable. Both of these terms refer to health outcomes of a group of individuals, and the assessed studies defined groups by administrative boundaries (e.g. census tracts), neighborhoods, cities, or states. The majority of the articles considered intermediate relationships between small business and community health. Table 1 shows a selection of the assessed relationships: column 1 shows the independent variable, column 2 the dependent variable, column 3 the magnitude and direction of the relationship, column 4 our assessment of the strength of the evidence, and column 5 summarizes the effect estimates from the included articles.

### Small business and health

Only two studies that examined direct relationships between small business and population health outcomes met our inclusion criteria. The first study, which used a repeated cross-sectional design, found that higher levels of employment and wages in locally oriented retail establishments were associated with lower levels of infant mortality, when measured at the state level. This relationship appeared to become stronger over time (Tolbert 2005). The second study examined the association between the concentration of small businesses per 100,000 population and three health outcomes: the age-standardized mortality rate, obesity prevalence, and diabetes prevalence. Using a multilevel design and data from 3,060 counties across the contiguous US, Blanchard, Tolbert, and Mencken found that the concentration of small businesses was associated with lower rates of obesity, mortality, and diabetes (Blanchard, Tolbert, and Mencken 2011). The authors hypothesized that the entrepreneurial culture of small business facilitates increased collective efficacy, contributing to local solutions to health challenges. The protective effect against obesity prevalence of small business concentration was stronger than were the protective effects of health insurance coverage rates, higher *per capita* income, or lower income inequality (Blanchard, Tolbert, and Mencken 2011). Although the authors used a time-lagged study design to rule out potential reverse

**Table 1.** Relationships between small business and community health.

Independent variable	Dependent variable	Magnitude (Direction)	Strength of evidence	Effect estimates
<b>ECONOMIC DEVELOPMENT</b>				
<i>Small Business Presence</i>	County Level Health	Small (Increase)	Weak	In a multilevel model using data from 3,060 counties across the contiguous US, Blanchard, Tolbert, and Mencken found that a one standard deviation increase in the number of businesses with 1–4 employees per 100,000 people was associated with a 0.07 (SE: 0.0006) standard deviation lower county level age-adjusted mortality rate, a 0.23 (SE: 0.00002) standard deviation lower county level percent obese, and a 0.126 (SE:0.00001) standard deviation lower county level percent of people with diabetes (Blanchard, Tolbert, and Mencken 2011)
	Local economic activity	Modest (Increase)	Weak	Based on studies across several cities (Civic Economics 2012b; Association, American Booksellers, civic economics, and Las Vegas First, 2012; Patel and Martin 2011) we find that local retailers return between 32.1% (The Urban Conservancy 2009) and 58.2% (Civic Economics, American Booksellers Association and Re Think Local, 2014) of their revenue to the local economy, in comparison to national chains which recirculate between 13.6% and 30.4% of revenue (Civic Economics, American Booksellers Association and Re Think Local, 2014). Additionally, for every \$100 spent at locally owned businesses an additional \$45 to \$58 is contributed to the local economy (Patel and Martin 2011)
	Job creation	Small (Increase)	Weak/ Inconclusive	Generally, there is a lack of consensus on the degree of job growth associated with small businesses. A study using data from all business establishments between 1992 and 2004 finds that net job creation is greatest among the smallest firms and establishments (<20 employees) and decreases as size of the establishment increases: establishments with 0–19 employees have an average net job creation rate of 2.7%, compared to a rate of –1.7% for establishments with 5,000 or more employees (Neurmark, Wall, and Zhang 2011). Another study found that the smallest firms accounted for 79.5% of net new jobs (Edmiston 2007). Combining effects across studies of individual cities and counties we find that shifting 10% of purchasing from chains to small businesses would produce between 874 and 31,000 jobs, with variation by the size of the locality examined (Civic Economics 2012a). Other studies find that there is not a net job growth benefit from small firms, after controlling for firm age (Haltiwanger, Jarmin, and Miranda 2013), and that during the recession job growth among small businesses may have been more constrained than among larger firms (Siemer 2014)
<i>Small Business Growth</i>	Economic growth	Small (Increase)	Weak	Fleming and Goetz, using data across 2,953 counties in the US found that for each additional small business (10–99 employees) owned by a resident there was an associated 0.168 ( $p < 0.001$ ) percentage point increase in the county level income growth rate between 2000 and 2007, after adjusting for other determinants of income growth. For each additional small business, whether owned locally or not, there was a 0.185 ( $p < 0.001$ ) percentage point increase in the county level income growth rate, after adjusting for the same factors. The authors state that all standard errors for estimates were robust but not reported (Fleming and Goetz 2011)
	Social Cohesion	Small (Increase)	Weak	In a nationwide study, Blanchard and Matthews found that at the county level a 1% increase in the percentage of total employment accounted for by the four largest business establishments was associated with a 0.138 (B = –0.138; SE:0.03) point decrease in the electoral politics index – a measure of participation in local politics through voting, following current events and knowledge of representatives – and a 16% (OR:0.84; SE:0.05) decrease in the odds of participating in protest activities (defined as petition signing, demonstrations, boycotts, marches, protests, local reform efforts or membership in local organizations) (Blanchard and Matthews 2006)

(Continued)



Table 1. (Continued).

Independent variable	Dependent variable	Magnitude (Direction)	Strength of evidence	Effect estimates
<i>Small Business Density</i>	Physical Activity	Small (Increase)	Weak	Based on data from two studies we find between a 90% (OR: 1.9) (Grasser et al. 2013) and 140% (OR:2.4) (Frank et al. 2007) higher odds of walking in high density vs. low density areas
<i>Third Place Establishments (places where people gather)</i>	Socioeconomic Status	Small (Increase)	Weak	A study of 4,533 small towns in metro and non-metro counties found that a one-unit increase in the natural log of the number of third places (establishments where people regularly interact socially) was associated with a statistically significant 0.0311 non metro and 0.0151 metro increase in median income, and a -1.4942 non metro and -1.0340 metro decrease in the poverty rate. Standard errors were not reported, and standardized coefficients were not disclosed due to small sample size (Tolbert et al. 2002)
<i>Unemployment</i>	Unintentional Injury	Modest (Decrease)	Moderate	Combining a nationally representative and single city study, we find that a 5.4% or greater increase in the unemployment rate is associated with between a 1.27% (HR: 2.27 no standard error or confidence interval reported) (Cubbin, LeClerc, and Smith 2000) unintentional injury hazard ratio and 194% (RR:2.94 SE:1.79) higher incidence rate of unintentional injury, after adjustment (LaScala, Gerber, and Gruenewald 2000)
	Intentional Injury	Small (Decrease)	Moderate	Combining two nationally representative studies, we find that a 5.4% or greater increase in the unemployment rate is associated with between a 50% (RR: 1.5; 95% CI: 1.45,1.56) higher risk of homicide (Jones-Webb and Wall 2008) and 82% (no SE or CI reported) (Cubbin, LeClerc, and Smith 2000) higher homicide hazard ratio, after adjustment for various confounders
<b>COMMUNITY REVITALIZATION</b>				
<i>Neighborhood Disadvantage</i>	Health Care Access	Small (Decrease)	Moderate	A nationally representative study found that an increase in one standard deviation in neighborhood disadvantage (corresponding to a 4% increase in the unemployment rate, a 13% increase in the prevalence of poverty, or a 17% increase in the high school dropout rate) was associated with a statistically significant 24% (OR:0.76; SE: 0.11) lower odds of having a usual source of care, and a 70% (OR: 1.70; SE: 0.2) higher odds of experiencing an unmet health care need, after controlling for individual covariates and county level health care supply (Kirby and Kaneda 2005)
<i>Neighborhood SES</i>	Opportunities for Physical Activity	Small (Increase)	Weak	Differences in the measurement of neighborhood SES and the dependent variable make it difficult to combine effect estimates, but we generally find that studies show a positive relationship between area-level SES and opportunities for physical activity (Duncan et al. 2002; Estabrooks, Lee, and Gyurcsik 2003). In neighborhoods with less poverty, residents' perceptions of the availability of neighborhood physical activity opportunities were higher (B = -3.60, SE = 1.89, $p < .05$ ) (Duncan et al. 2002). A study across census tracts in the US found that each additional \$10,000 increase in median household income was associated with a 1.014 (IRR: 1.0135; SE: 0.0053 $p < .001$ ) increase in the difference in the logs of the number of locations for physical fitness facilities, 1.06 (IRR = 1.0619, SE: 0.0060; $p < .001$ ) increase in the difference in the logs of the number of membership sports and recreation clubs, 1.01 (IRR: 1.0102; SE: 0.0059; $p < .05$ ) increase in the difference in the logs of the number of dance studios, schools, and halls, and a 1.09 (IRR:1.0873; SE:0.0085 $p < .001$ ) increase in difference in the logs of the number of public golf courses (Powell et al. 2006)

(Continued)



**Table 1. (Continued).**

Independent variable	Dependent variable	Magnitude (Direction)	Strength of evidence	Effect estimates
<i>SOCIAL CAPITAL AND COMMUNITY COHESION</i>				
<i>Social Capital</i>	Infant Mortality	Modest (Decrease)	Moderate	Though the effect size differs greatly across studies, modeling strategies, and level of social capital assessed (state, neighborhood), there is generally a consistent negative relationship between area-level social capital and infant mortality (Buka et al. 2003; Folland 2007; Kawachi et al. 1997). We find that each point increase in social capital is associated with between 0.12 (B = 0.12; SE = .02) (Kawachi et al. 1997) and 5.6 (B = 5.653; SE = 2.06) (Folland 2007) fewer infant deaths. Effect sizes were generally greater when measured at the neighborhood vs. state level
	All cause mortality	Modest (Decrease)	Weak/Moderate	Across two studies, we find a consistent negative relationship between area social capital and all cause mortality, but with a wide range of effect sizes: for each point increase in the overall level of trust in an area there was between 6.7 (B = -6.71; SE = 0.91) (Kawachi et al. 1997) and 480.7 (B = -480.7; SE = 71.004) (Folland 2007) fewer deaths per 100,000 people. Conversely, Kawachi et al. 1997 finds that each percent increase in self-report of mistrust was associated with an increase of 5.32 (B = 5.32; SE = .68) additional deaths per 100,000 people (Kawachi et al. 1997)
	Injuries	Modest (Decrease)	Moderate	In a study measuring state level social capital across 39 states, Kawachi et al. (1997) found each weighted percent increase in self-reported lack of social trust was associated with 0.51 (B = 0.51 se:0.15) fewer injuries per 100,000 people (Kawachi et al. 1997). Another study found that, depending on modeling strategy, a 1% increase in self-reported social trust was associated with a decrease of between 2.812 (SE: 1.42) and 21.88 (SE: 8.04) unintentional injury related deaths per 100,000 persons (Folland 2007)
	Self-reported health	Small (Increase)	Moderate	Using results from two studies at the state level, we find that a 1% increase in self-reported mistrust (as measured by the General Social Survey) in row associated with self-reported health 0.45% (OR: 0.0045; SE: 0.001) (Mellor and Miliyo 2005) and 1.9% (OR: 0.019; SE:0.33) (Subramanian, Kawachi, and Kennedy 2001) increase in the odds of reporting poor health, after adjusting for individual and state level covariates
				Note – many systematic reviews have been conducted on the relationship between various measures of social capital and self-reported health, but there is some disagreement on directionality, particularly depending on the type of social capital employed (i.e. bridging, bonding, linking). However, there is relatively strong evidence that community social capital is positively associated with self-reported health. Odds ratios for the relationship between area level social capital and self-rated health were generally attenuated after adjustment for individual social capital indicators in multilevel models (Kim, Subramanian, and Kawachi, 2008)
<i>Collective Efficacy</i>	Self-reported health	Modest (Increase)	Weak	Browning and Cagney found in a study of Chicago neighborhoods that after adjustment for various individual and neighborhood level covariates, a one standard deviation increase in collective efficacy was associated with a 17.2% (OR: 0.172; SE: 0.059) increase in the odds of self-reporting fair health or above, and a two standard deviation increase in collective efficacy was associated with a 27% reduction in the odds of reporting poor self-rated health (Browning and Cagney 2002)

causation between community health and the concentration of small businesses, other potential biases prevent a causal interpretation of the findings.

## **Small business, economic investment, and health**

Our search identified a larger number of papers either on intermediate outcomes associated with the small business sector, or the relationship between these intermediate outcomes and community health.

### ***Small business and economic investment***

New and small firms play a critical role in employment growth dynamics and economic productivity (Haltiwanger 2012). But recent evidence points to declining entrepreneurship rates (Decker et al. 2014), and a slower pace of job generation from business startups in the US over recent decades (Haltiwanger, Jarmin, and Miranda 2011; Reedy and Litan 2011). This dynamic has led to more research investigating the role of small businesses in economic development, which finds that communities with strong entrepreneurial cultures and small business sectors often experience better economic outcomes than do communities without such characteristics (Lyson, Torres, and Welsh 2001). The authors of these studies suggest this is because small businesses are more economically and socially engaged with the community and invested in the community's well-being than are large businesses or chain retailers (Tolbert et al. 2002). A nationally representative study found that in counties of various sizes in both rural and urban locations, locally owned small firms are consistently associated with enhanced economic growth (Fleming and Goetz 2011). Notably, the type and level of clustering of small businesses affect the degree to which existing small businesses can further encourage innovation and support other small businesses.

Small businesses are more likely than larger or chain companies to reinvest their profits locally (Edmiston 2007). Several single-city studies examined the local economic effects of small business and found that small and locally owned businesses reinvested a greater percentage of their revenue to the local economy than did national chain retailers (CUPE-BC 2013; Patel and Martin 2011; The Urban Conservancy 2009). Additionally, products created by local businesses are often consumed by residents of the same community, giving entrepreneurs greater incentive to support efforts to increase community capital and purchasing ability, further boosting the local economy (Blanchard and Matthews 2006).

Small business owners can also act as key nodes for employment and purchasing networks, and clustering of small businesses can encourage innovation and support small business networks. Community ties can be particularly advantageous for small business owners, as they often rely on one another for support and information, forming networks that allow them to compete with larger producers (Edmiston 2007). These networks are also beneficial to the community members who are part of them. For example, informal social networks can play central roles in job search processes, helping local businesses hire employees from the community. O'Regan's (1993) work suggested that the probability of being employed was largely dependent on whether a person's network had job information and that networks with more employed people were stronger and had more job information (O'Regan 1993). However, some studies have suggested that lower income people and individuals with less education tend to have the most spatially limited networks (Fischer 1982), meaning the

more socioeconomically vulnerable often are most dependent on networks that are geographically proximate. Thus, strengthening and expanding local employment networks via small businesses may help to facilitate employment of local workers, which may be particularly impactful for economically marginalized groups. Though not explored in depth as part of our scoping review, we note that it is possible that improved health could contribute to higher productivity and further economic development (Blanchard, Tolbert, and Mencken 2011).

Finally, small businesses contribute to job growth at the community level and account for a substantial proportion of job creation across the country. Studies designed to look at individual cities show that small businesses often make larger contributions to job creation and local economic growth than do chain companies (CUPE-BC 2013; Patel and Martin 2011; The Urban Conservancy 2009). And, some studies using national data found that small firms acted as the most important source of job creation in the country (Birch 1987). Others conclude that employment growth does not have a systematic relationship to business size (Haltiwanger, Jarmin, and Miranda 2013). On balance, the evidence suggests that small businesses create more jobs annually, in terms of absolute numbers of jobs, than businesses with more than 100 employees (Neumark, Wall, and Zhang 2011; Tracy 2011). This job growth is in part due to the creation of new small businesses, but also to the growth of existing small businesses (Edmiston 2007; Haltiwanger, Jarmin, and Miranda 2013). Though the level of job growth and economic benefits produced by small businesses are likely heterogeneous with regard to productivity level, industry and local economic context (Haltiwanger 2012), overall small businesses can play an important role in job growth and can contribute to reductions in area-level unemployment rates. We explore the health implications of area unemployment in the following section.

### **Community investment and health**

Small businesses may indirectly affect the health of the local population by impacting community investment and economic development. We discuss how several aspects of community development target conditions thought to impact health, including unemployment, socioeconomic status (SES), opportunities for physical activity, the health care infrastructure, and the quality of the built environment and community resources.

### **Unemployment**

Evidence suggests that higher unemployment rates are associated with worse community-level health outcomes (Besser and Ramsey 2013; Naimi et al. 2009). For example, large cross-sectional studies examining a range of different geographic levels consistently show that unemployment is associated with various adverse health outcomes (Bartley, Ferrie, and Montgomery 2009), including increased risk of cardiovascular disease (Sundquist et al. 2006, 1627), suicide (Luo et al. 2011), all-cause mortality (Jin, Shah, and Svoboda 1995), and type two diabetes in men (Müller et al. 2013). We note however that debate exists in the literature about the effect of economic recessions, which generally include high national unemployment rates, on health. Some studies using national data have found a procyclical relationship between the economy and mortality rates (Ruhm 2006), where overall mortality declines during economic downturns and times of high national unemployment. Other studies have found that mortality, particularly suicide mortality, is countercyclical: it rises during economic

recessions and decreases when the economy improves (Catalano et al. 2011). Conversely, analysis at lower aggregated levels and the individual-level find that unemployment and other events that occur during recessions such as job loss and financial strain have negative mental and physical health consequences (Burgard, Ailshire, and Kalousova 2013, Burgard and Kalousova 2015).

Despite disputes about the impact of macroeconomic trends on health at the national level, there is robust evidence of a positive relationship between city or neighborhood level unemployment and injury rates (Bell, Arrington, and Adams 2015; Cubbin, LeClere, and Smith 2000). For instance, a study in ten cities across the US found that a 10% higher unemployment rate was associated with a 50% (CI: 1.45, 1.56) higher homicide rate (Jones-Webb and Wall 2008). We examined injuries specifically in this section and the following section on socioeconomic status, because injuries are a leading cause of morbidity, mortality, and disability across the population, and are particularly burdensome among the young and poor (Cubbin, LeClere, and Smith 2000).

The relationship between unemployment rate and injury is partly dependent on other characteristics of an area, especially the crime rate. High unemployment rates correlate positively with other neighborhood characteristics, such as poverty rate, percent of substandard housing, and percent female-headed households, each of which is associated with crime and injury. For instance, several studies using panel data and measured at various area levels, consistently found that a 1% increase in the unemployment rate increases property crime by approximately 1–2% contemporaneously, but that the unemployment rate has no systematic impact on violent crime rates (Levitt 2001). In a state-level instrumental variable analysis, Raphael and Winter-Ebner (2001), analyzed military contracts and state-specific measures of oil shocks as instruments for unemployment rates. They found that across models, a percentage point decrease in unemployment was associated with a 1–5% decrease in property crime, but the effects on violent crime were inconsistent (Raphael and Winter-Ebner 2001). However, the true exogeneity of the instrument is unclear, calling into question the magnitude of the assessed relationship. The relationship between unemployment and crime at the neighborhood level is thought to be due to the concentration of social and economic disadvantage within resident populations, and this concentrated deprivation can create high levels of social disorganization. Social disorganization is in turn associated with low levels of social control, an aspect of social capital (Diez Roux and Mair 2010). Social control allows communities to discourage violent crime through regulation of activities within their neighborhoods (Sampson, Raudenbush, and Earls 1997). Therefore, the impact of unemployment and socioeconomic status on crime and injuries may be mediated by the level of social control in an area. In the section on Community Social Fabric and Health, we examine how small business may affect the level of social capital in a community.

### *Socioeconomic status*

A number of studies have found an economic gradient in injury rates for both children (Baker, O'Neill, and Ginsburg 1992; Singh and Kogan 2007) and adults (Fagan and Davies 2004), suggesting that as area-level deprivation increases, crime and injury rates increase (Cinat et al. 2004; Cubbin and Smith 2002). For instance, a study of 472,364 persons ages 18–64 in 6,179 census tracts across the US found a twofold increased risk of homicide associated with living in a neighborhood characterized by low socioeconomic status (Cubbin, LeClere, and Smith 2000), and another found that children in the most deprived socioeconomic quintile

had 2.77 (95% CI: 2.62, 2.93) times the risk of unintentional injury mortality than did children in the least deprived socioeconomic quintile (Singh and Kogan 2007). A systematic review of mostly cross-sectional studies found a strong inverse association between area-level SES and risk of homicide and fatal unintentional injury (Cubbin, LeClere, and Smith 2000). Areas with high levels of poverty, a measure of socioeconomic status, are also more likely than higher income areas to have hazardous traffic conditions and poor housing, which increase the risk of injury (Cubbin, LeClere, and Smith 2000). Though we only focus on injury here, neighborhood deprivation and low neighborhood socioeconomic status are associated with a multitude of other poor health outcomes (Pickett and Pearl 2001; Arcaya et al. 2016), such as adverse birth outcomes (O'Campo et al. 1997) and heart disease (Diez-Roux et al. 1997). The low neighborhood SES to poor health relationship operates through multiple pathways, where in low-income neighborhoods, neighborhood and individual resources are more limited than in more socioeconomically deprived neighborhoods, and there is greater exposure to aggressive targeting of unhealthy products and foods, environmental pollutants, substandard housing, and chronic stressors (Diez Roux and Mair 2010; Sampson, Raudenbush, and Earls 1997; Steptoe and Feldman 2001). And, exposure to stressors and chronic stressors is a primary mechanism through which socioeconomic, gender, and racial inequities in health manifest (Thoits 2010).

### *Opportunities for physical activity*

The economic benefits associated with small business activity may lead to increased opportunities for physical activity. According to the county health rankings website, opportunities for physical activity can be measured by the number of facilities and presence of infrastructure to support physical activity, such as parks, playgrounds, sports fields, walking and biking paths, gyms, and fitness studios. Studies find that areas with higher SES generally have more physical activity opportunities than areas with lower SES (Estabrooks, Lee, and Gyurcsik 2003). Limited opportunities for physical activity are in turn associated with less physical activity and higher rates of obesity (Kelley 1997). According to the literature, lower SES areas tend to have fewer physical activity opportunities because of a variety of contextual factors, including lower levels of social cohesion and social capital, limited social networks, and higher rates of poverty, which all hinder investment in resources that encourage physical activity (McNeill, Kreuter, and Subramanian 2006).

Data from a small Midwestern US city found that the availability of resources for physical activity increased with increasing levels of income (Estabrooks, Lee, and Gyurcsik 2003; McNeill, Kreuter, and Subramanian 2006). However, these findings do not necessarily indicate that communities invest in more locations for physical activity when area economic status improves. Alternatively, it is possible that the association between neighborhood SES and opportunities for physical activity results from selection bias by more economically advantaged individuals choosing to live in areas with more physical activity opportunities, or preferences of those in lower SES areas to invest in neighborhood resources other than physical activity facilities (Sampson and Sharkey 2008). Resident preferences for more physical activity opportunities can generate additional demand for physical activity opportunities, exacerbating existing neighborhood differences in the availability of health promoting resources.

Although several reviews have found positive associations between the proximity and density of opportunities for physical activity and physical activity levels in both adults and

youth (Lee et al. 2012), other community factors influence people's ability to participate in physical activity. For example, elements of the neighborhood built and social environments, such as short distances from home to school or work, safe public spaces, additional pedestrians, and sidewalks can encourage physical activity, while barriers such as abandoned buildings or crime may discourage physical activity (Sallis and Glanz 2006). Increases in community financial resources, created through factors such as small business development, can allow for greater public and private investment in elements of neighborhood infrastructure that make being physically active easier (Bell, Arrington, and Adams 2015; Cubbins and Parmer 2001). In addition to impacting access to physical activity facilities, small businesses in commercial and mixed-use districts can impact the walkability of communities by increasing business density. The presence, distance to, and density of retail correlate with the amount of walking done in an area, and people are more likely to walk to places with eating establishments, retail, and shopping (Mehta 2008). More "eyes on the street" in busy areas are believed to deter crime and encourage walking, and Perkin, Meeks, and Taylor (1992) showed that people find streets safer when they include stores and other non-residential properties (Perkins, Meeks, and Taylor 1992). Studies have generally found a positive association between density, walkability (how friendly a place is for walking) and physical activity (Grasser et al. 2013). One study by Forsyth et al. found that in high-density areas, such as those with numerous businesses, odds of walking was 1.9 times greater than in low-density areas (Forsyth et al. 2009).

Increases in physical activity positively affect numerous health outcomes and risk factors. Physical activity has been found to benefit 25 chronic conditions, including coronary heart disease, stroke, hypertension, breast cancer, colon cancer, type 2 diabetes, and osteoporosis (Warburton, Nicol, and Bredin 2006). A large body of evidence demonstrates that inactivity is a primary cause of many of non-communicable diseases (Lee et al. 2012) and that incremental increases in physical activity yield marked reductions in disease risk (Warburton et al. 2006). Based on reviews of hundreds of studies, Warburton et al. (2010) determined that for those currently exercising less than the recommended 30 min per day, exercising more can reduce average risk of hypertension, stroke, colon cancer, type 2 diabetes, and all-cause mortality by more than a third (Warburton et al. 2010). Increases in small businesses likely encourage higher levels of physical activity and benefit chronic conditions through the following pathway: (1) increases in small business can (2) improve area socioeconomic conditions, which (3) support development and growth of physical activity infrastructure and access to locations for physical activity, which (4) likely increase levels of physical activity, and (5) positively impact population health.

### *Health care infrastructure*

By investing economic resources into a community, small businesses may improve access to health care. Health care access, in this case, refers to the ability to obtain affordable, quality, and geographically proximate health care (Bambra et al. 2009), and is an important social determinant of health (McGibbon, Etowa, and McPherson 2008). The health care infrastructure (i.e. organization, financing, and availability of health care services) of a community is related to broader community socioeconomic conditions, with lower SES areas experiencing more limited access to quality health care infrastructures (White, Haas, and Williams 2012). Thus, the geographic and economic distribution of health services can reinforce existing health disparities.

Few studies have been published on community factors that influence health care utilization, though those available have found that rates of preventive care utilization, primary care access, and levels of medical resources are lower in more socioeconomically disadvantaged communities (Andersen et al. 2002; Kirby and Kaneda 2005). Other studies have similarly found variation in access to care associated with neighborhood socioeconomic conditions, but these do not control for individual-level characteristics, so their findings may reflect the composition of the communities rather than characteristics of the community environment. However, the positive relationship between neighborhood economic status and increasing health care access is complicated by Community Health Centers and Federally Qualified Health Centers, community-based providers located specifically in medically underserved and low-income neighborhoods, which are associated with better neighborhood level access to primary care among low-income persons (Andersen et al. 2002). Though the exact relationship between improving low community SES and health care infrastructure quality is not clear from the literature, less socioeconomic disadvantage seems to be associated with better health care access for residents (Kirby and Kaneda 2005). Therefore, improved economic conditions, as a result of small business development, may lead to more robust health care infrastructures and better access to health care.

### **Small business, community social fabric, and health**

The potential benefits of small businesses are not limited to altering local economic conditions; they can also enhance the social fabric of a community. A strengthened social fabric can contribute to community collective efficacy, and support a community's problem-solving capacity and ability to address local challenges (Blanchard, Tolbert, and Mencken 2011). Specifically, we will discuss the effects of small businesses on social capital and civic engagement.

#### ***Social capital***

Social capital is often defined as the value that arises from social networks and the support that people within these networks provide each other, and is commonly measured by the number and strength of familial, friendship, neighborhood, religious, and community ties (Putnam 2001). A body of literature suggests that areas with low socioeconomic status are characterized by lower levels of social capital than areas with higher socioeconomic status (McNeill, Kreuter, and Subramanian 2006). One multilevel analysis found that individuals in higher SES neighborhoods had 55% (OR:1.55, SE 0.34) greater odds of reporting high levels of social capital than did those living in socioeconomically deprived neighborhoods (Steptoe and Feldman 2001).

The effects of small business on social capital reflect the role small businesses play in communities not only as economic forces but also as part of the social infrastructure. Small businesses can nurture trust and cooperation between community members, creating strong social ties, a robust social network, and more investment in place, encouraging these businesses to further care for, invest in, and engage with their community (Irwin, Tolbert, and Lyson 1999). The networks created by small business relationships help to anchor small businesses to place, contributing to greater investment in the collective strength of the social and economic community. The number of small-scale local establishments can also

help to maintain community stability, as people are less likely to move out of areas with robust small business communities (Irwin, Tolbert, and Lyson 1999).

### *Civic engagement and social cohesion*

Several studies examined local businesses and their relationship to civic engagement (Mills and Ulmer 1946). Using national longitudinal data measured at the state level, Tolbert (2005) found a modest but positive correlation between local retail and the number of associations and groups in which a person participated. They also found a strong positive relationship between local retail and both the number of locations used for public gathering spaces, as well as voter turnout for national elections (Tolbert 2005).

Blanchard and Matthews (2006) examined how the size of businesses in a community relate to civic engagement. The authors employed an economic concentration index, as a measure of the size of businesses, that included three items: (1) percentage of total employment accounted for by the four largest business establishments in a community; (2) percentage of the labor force employed in large retail, large manufacturing, corporate headquarters, regional management offices, subsidiaries and auxiliary establishment; and (3) concentration of employment in a specific industry. They found that a one-point increase in the economic concentration index was associated with a statistically significant 0.138 (SE:0.03) point decrease in the electoral politics index (a measure of whether a respondent participates in the voting process, follows current events, knows information about politics, and knows the name of their senators), and a 16% (OR:0.84; SE .05) decrease in the odds of participating in local reform activities, such as protest (Blanchard and Matthews 2006). These findings indicate that counties in which economic activity is highly concentrated in only a few large businesses have lower levels of engagement in political activity and problem-solving behavior by residents. A possible explanation for this finding is that small businesses, in comparison to larger businesses, may encourage more personal interaction and provide a greater variety of public spaces for meeting. Additionally, small business owners and employees may be more invested in local political outcomes than those who own or are employed by larger businesses.

In turn, the community social structure may also positively influence an area's economic activity – generating a potentially beneficial feedback loop. Tolbert, Lyson, and Irwin (1998) examined counties across the US, and reported an association between measures of civic engagement and higher socioeconomic well-being, after controlling for business size (Tolbert, Lyson, and Irwin 1998). A different study by Tolbert et al. found that in models of small towns in both metro and non-metro counties, the number of businesses where the owner is the only employee and the number of public gathering places were both positively associated with higher income levels, lower poverty rates and lower non-migration rates (Tolbert et al. 2002). In small towns, the number of establishments where people regularly interact socially (third places) was positively associated with median income and negatively associated with the poverty rate (Tolbert et al. 2002).

### *Community social fabric and health*

Social capital has been positively associated with economic development and crime prevention and explains some variation in health outcomes between individuals, communities,



states, and nations (Kawachi, Berkman, and Glymour 2014). The literature suggests that social cohesion can generate demands for investments that prevent neighborhood deterioration and improve conditions (Kawachi, Berkman, and Glymour 2014). Collective efficacy, a component of social capital that describes a group's belief in its ability to collectively achieve an outcome, has also been linked to better self-rated health (Browning and Cagney 2002; Uphoff et al. 2013), lower levels of neighborhood violence, and homicide rates (Kawachi, Berkman, and Glymour 2014).

Social capital affects health through a variety of pathways including informal social control, collective efficacy, network social capital, and diffusion of social norms. Although a full review of the literature on social capital and health was not possible in this study, reviews by Kawachi and Subramanian (2014), Uphoff et al. (2013), Murayama, Fujiwara, and Kawachi (2012), Kim, Subramanian, and Kawachi (2008), and meta-analysis by Gilbert et al. (2013) provide additional detail (Gilbert et al. 2013; Kawachi and Subramanian 2014; Kim, Subramanian, and Kawachi, 2008; Murayama, Fujiwara, and Kawachi 2012; Uphoff et al. 2013).

The literature generally finds a positive relationship between social capital and health at the neighborhood, community, state, or national level, particularly for self-reported health and all-cause mortality (Lochner, Kawachi, and Kennedy 1999). Although there is some debate in the literature around the effect size, directionality, and level of significance of the effect (Kennelly, O'Shea, and Garvey 2003), social capital has been found to be associated with better community health (Kim, Subramanian, and Kawachi, 2008), and higher levels of community social capital and cohesion are associated with better measures of population health (Lynch and Kaplan 2000). There is evidence that higher levels of social capital are associated with lower rates of infant mortality (Buka et al. 2003; Kawachi et al. 1997), all-cause mortality (Folland 2007; Kawachi et al. 1997), injury/accident mortality (Folland 2007, 1682; Kawachi et al. 1997), homicide (Kennedy et al. 1998), suicide (Folland 2007), mental disorders (De De Silva et al. 2005), obesity (Zimmerman and Bell 2006), and better self-rated health (Gilbert et al. 2013; Helliwell and Putnam 2004; Mellor and Milyo 2005; Kawachi, Kennedy, and Glass 1999; Kim, Subramanian, and Kawachi, 2008; Subramanian, Kim, and Kawachi 2002). These relationships were generally attenuated after adjusting for individual-level characteristics but remained statistically significant. However, these studies used cross-sectional designs and therefore should be interpreted cautiously with regard to the causality of the relationship. Studies using stronger designs for causal inference, such as Folland (2007), which used national panel data and subjected the data to multiple modeling strategies (Folland 2007), have also found that social capital performs reasonably well in predicting health.

Access to social capital has been found to differ by economic status; several studies in a systematic review of social capital and health inequalities found that disadvantaged groups can be constrained in their opportunities to access and use social capital (Uphoff et al. 2013). However, other studies assessed in the systematic review found a greater health benefit of social capital among people with a disadvantaged position in society, who may use social capital as a buffer against the negative health impacts of low economic capital, stressful exposures, and social marginalization (Uphoff et al. 2013). For example, low-income uninsured individuals may primarily access health information through informal exchange of information through social networks, while higher income individuals can directly purchase such information through formal health services (Scheffler and Brown 2008). Some forms

of social capital – network social capital (Haines, Beggs, and Hurlbert 2011), neighborhood disorder, (Ross and Mirowsky 2001) and collective efficacy (Sampson, Raudenbush, and Earls 1997) – can mediate the relationship between neighborhood disadvantage and health. Social capital can also help to facilitate investment in a neighborhood, and conversely, the way a neighborhood is built or designed can contribute to social capital. For example, Leyden (2003) found that more walkable, mixed-use neighborhoods have higher levels of social capital (Leyden 2003). Overall, the literature suggests that small business development and activity can lead to higher levels of social capital and civic engagement and that the resulting stronger social fabric can contribute to better community health.

## Conclusion

This scoping review is the first review to connect disparate literature on small businesses and health, and contribute to better understanding of the mechanisms linking small business and its associated effects to community health. Improving economic conditions for people and communities may be among the most powerful health interventions society has at its disposal. But the protective health effects associated with small business and community development are not static nor are they evenly distributed. Supportive conditions require intentional action and frequently, targeted investment. For some entrepreneurs – especially immigrants, people of color, rural, entrepreneurs, and business owners working in low-income areas – capital, business education, and networks are not accessible, or difficult to access, from typical private lenders. Public funding for technical assistance and financial support can fill this void and allow local small businesses to open, stabilize, grow, and contribute to local economic development. By helping to support local economic opportunity in traditionally underserved communities, small business support may confer a broad range of health benefits.

Table 1 provides a summary of effect estimates from the most rigorous studies we reviewed and is intended to serve as a resource for HIA and HiAP practitioners and public policy-makers to make predictions about how policies or proposals may affect health. The estimates we report will help practitioners articulate whether the relationship of interest is evidence-based and if the association is large enough to be substantively important for policy and funding decisions.

The literature directly connecting small business to health is limited, likely reflecting both a lack of attention to the subject and the difficulty in isolating the effects of small business on health. We find that although very few articles link small business and community health directly, the two are connected by intermediate factors such as local economic vitality and the strength of a community's social structure. We suggest that economic investment and social structure affect health behaviors and outcomes including physical activity, health care access, all-cause mortality, infant mortality, unintentional and intentional injury, cardiovascular disease, hypertension, and obesity. We propose the following model through which a more robust small businesses sector supports better community health: in places with more and stronger local small businesses, economic ties are stronger within the community, more local jobs are available, and economies overall are more prosperous; these positive economic conditions are associated with less crime, fewer injuries, more opportunities for physical activity, and greater access to health care, which in turn help improve opportunities for community residents to live healthier and longer lives.

The magnitude of possible health benefits from small business support is dependent on the extent to which investment in small business can affect these intermediate factors, and therefore more substantial investments and support in small business development may lead to more substantial effects. Our review identifies areas where the links in the causal chain between small business and community health are strongest and weakest to help policy-makers understand the strength of evidence behind the assessed relationships, and aid researchers in identifying areas of study with need for more analysis and stronger study designs.

Several limitations should be noted. Due to few studies on the direct relationship between small businesses and health, we were forced to rely on indirect associations between consequences of small businesses and other factors in the social and economic environments of communities. Despite using the literature and stakeholder interviews to determine intermediate relationships between small businesses and health, our list of mechanisms is not exhaustive, and articles may have been excluded because they were not indexed in the four selected databases, because the pathway to which they pertain did not remain in the list of final pathways, or because a scoping review summarizes research findings and identifies research gaps, but does not exhaustively review all articles on a specific relationship. We also did not apply formal meta-analytic methods, as prior studies suggest that meta-analysis of observational studies should be limited to topics with a single research question and homogeneous study design and population (Stroup et al. 2000). Though less methodologically rigorous than a meta-analysis, our scoping review shows the possible range of effect sizes estimated for various relationships, across heterogeneous populations and study designs; useful results for a policy and practitioner audience that may serve diverse populations in varying contexts. This review can also inform future systematic reviews on the intermediate relationships investigated here.

Further, our study does not examine how specific local or state-level government policies can encourage small business development. Instead, we focus on how small business development, which is often made possible through government investment in programs and services supporting small business, can help improve small business outcomes and thereby produce gains in small business culture, employment, and wages. We refer readers to our HIA on the Massachusetts Small Business Technical Assistance (SBTA) Program, for one study on a specific government policy (Keppard and Schnake-Mahl 2016). The HIA examined how the SBTA, which provides financial services and technical assistance to underserved and disadvantaged business with 20 or fewer employees, may affect both individual and community health in Massachusetts.

Finally, the majority of studies reviewed relied on cross-sectional study designs; therefore, we cannot assume exposures and outcomes are causally related. More research should be conducted on the relationship between small business specifically, and community development generally, and health. However, given the methodological challenges, and often inappropriateness of randomizing such social phenomena (Skivington et al. 2010), we suggest expanded use of longitudinal data collection, natural experiments, and quasi-experimental designs. These methods provide greater evidence of causality and eliminate potential confounding factors that may bias the results of the studies. For instance, natural experiments that examine whether state expansion or contraction of small business support programs are associated with changes in health measures, could fill the research gap on small business

government policies, and improve understanding of the causal relationship between small business and health.

Our results have implications for potential budgetary decisions about community and economic development programs and services that fund and support small businesses. Our review suggests that policies and programs that provide funding and technical assistance to small businesses may confer health benefits to communities, particularly to economically underserved ones. There are probable health payoffs for investment in the small business sector, in addition to the traditionally considered economic benefits of this activity.

Although we reviewed the literature on how one component of community development – namely local economic development to support small businesses – shapes health, other studies and HIAs (Pew Charitable Trusts 2015) have previously examined the health implications of different aspects of community and economic development (Arcaya and Briggs 2011; Goldman 2014; Komro et al. 2013; Miller, Pollack, and Williams 2011; Williams and Marks 2011). Other studies on health impacts of community and economic development, and our review, offer strategies aimed at reducing economic inequities, which may in turn also improve population health. Our review can also contribute to the evidence base supporting funding for community and economic development, and bring into question the health and social costs of past and proposed budgetary cuts to HUD and other agencies. For example, the 2017 proposed Presidential Budget includes a 13.2% (\$6.2 billion) reduction in Department of Housing and Urban Development (HUD) funding, and elimination of core funding for various programs providing housing assistance and expanding economic opportunity for the nation's most vulnerable, including the \$3 billion in funding for Community Development Block Grants (CDBG) (DelReal 2017; Office of Management and Budget 2017). This funding is integral to the work of the community development sector and is a major source of funding for economic development, including small business support. Such cuts would threaten the sustainability of vital programs and services for struggling families across the country, and our review suggests, likely harm health and threaten to further magnify social, income, and health inequities (McKee, Greer, and Stuckler 2017).

This review will help practitioners, policy-makers and advocates explicate the pathways connecting small business, but also community development generally, to health. During a period of major downgrading to the publicly funded social safety net infrastructure, state and local funding and support for community and economic development will be even more imperative for economic stability and public health.

## Note

1. HIA offers a method of systematically assessing the positive and negative health consequences of policies, plans and projects implemented outside the health sector, and are increasingly being applied to projects addressing the social determinants of health. These assessments often identify unintended health results of such actions and allow stakeholders and policy-makers to integrate health protection and promotion into policy decisions.

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