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# The Economic Impacts of Self-Employment

Stephan J. Goetz, David A. Fleming, and Anil Rupasingha

Even as self-employment continues to increase, policymakers remain largely unaware of this trend and fail to see it as an opportunity for addressing enduring joblessness. In part, this is explained by limited data on the self-employed and by widespread perceptions that returns to self-employment are low; that the self-employed are merely patching together piecemeal work opportunities requiring limited skills; and that there are no local economic impacts or spillover benefits into other sectors. Contrary to these perceptions, recent studies suggest that self-employment has tangible positive economic impacts not only on wage and salary employment but also on per capita income growth and poverty reduction. This article synthesizes the pertinent emerging literature and assesses dynamics of the lags involved between self-employment shocks and subsequent employment growth.

*Key Words:* economic impacts, labor, rural development, self-employment

**JEL Classifications:** J54, O16, R11

The surge in self-employment since the 2000 recession has largely gone unnoticed by policymakers. Yet there is now one self-employed worker for every three wage and salaried workers in rural areas, and urban areas are not far behind. If current trends continue over the next decade, every third worker will be self-employed or the proprietor of his or her own business. This in turn has profound implications for the economy, and for economic policymakers, that are not well understood.

Although published data on the self-employed are far from perfect, it is important to analyze these numbers, if only to detect possible trends and to raise questions that would lead to improved federal and state data collection and reporting. For example, there is on the one hand much underreporting of self-employment due to tax shirking (Schuetze, 2008), but on the other hand the self-employment numbers are exaggerated: when the same individual engages in different types of self-employment (e.g., consulting versus yard maintenance), a job is counted each time that a Tax Form 1040, Schedule C, or SE is filed. Furthermore, census surveys reported by the Bureau of Labor Statistics show much lower counts of self-employed than do the Department of Internal Revenue Service filings, and many small businesses that are incorporated are not reflected in these self-employment counts (Goetz et al., 2010).

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Despite these shortcomings, studying the phenomenon of self-employment is critical. In the United States, however, this type of employment has not attracted much attention, primarily because it is viewed as small-scale and low-paying,

or it is viewed as a last resort for laid-off workers. Furthermore, the impact of this sector has, not surprisingly, been the subject of only a few rigorous investigations, as is true for the impact of entrepreneurship in general. Glaeser, Rosenthal, and Strange (2010) provide two reasons why such research has been lacking. First, anecdotal evidence is often seen as sufficient to demonstrate the powerful consequences of successful entrepreneurship (e.g., by appealing to Bill Gates, Mary Kay, Sam Walton, or Henry Ford). Second, it is difficult to isolate the independent causes of growth: does city or regional growth contribute to entrepreneurship, or is it the other way around? More succinctly, Dejardin and Fritsch (2011) note: “The important question is raised of to what extent new business formation can be regarded as a result of previous growth, and to what extent is it a source of growth independent of the prevailing development trend?”

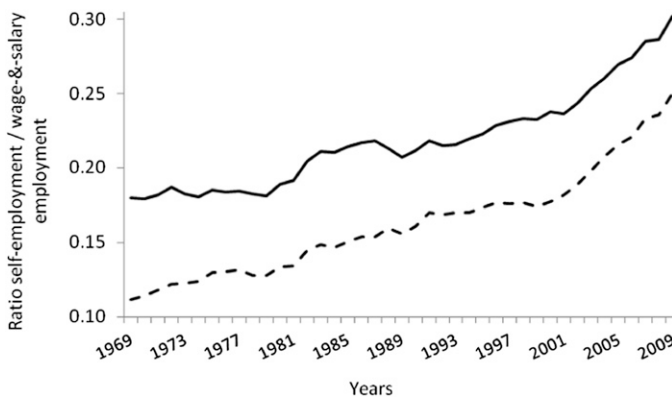
### Motivation: The Importance of Self-Employment

Data for 1969–2009 in the United States show that the ratio of self-employed to wage- and salaried workers has risen from 0.18–0.30 over the last four decades (Figure 1). Blau (1987), some time ago, attributed the growing propensity for self-employment to changing technology, industry structure, and tax rates, as well as social security benefits. The sustained relative increase

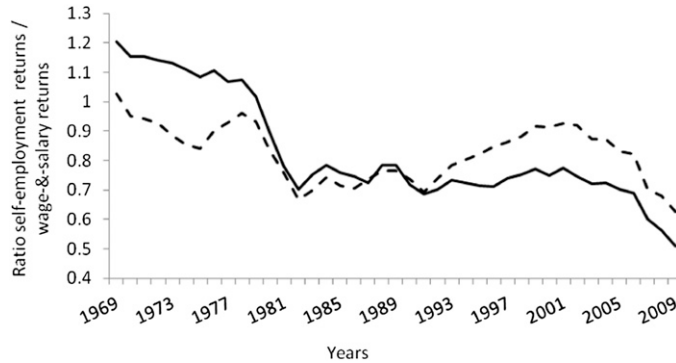
since 2000 in Figure 1 is remarkable. In the year 2000, a structural break occurred, changing the basic relationship between the two types of work. In urban areas this upward trend is even more pronounced, and it also appears that urban areas are catching up with rural areas.

If there is a positive story in terms of the self-employment ratio, the same is not true of the returns to self-employment. Figure 2 shows that the returns to self-employment compared with wage and salary earnings per worker have fallen to about one half in rural areas, after having been on par or higher for most of the 1970s during the natural resources boom. This picture lends support to the argument that self-employment is a last resort for unemployed workers. In 2000, the ratio also declined sharply (although less so than in the late 1970s), which suggests that the increase in self-employment shown in Figure 1 has occurred at the expense of declining relative returns to self-employment. This also raises the question of whether self-employment has any local economic benefits for the economy, in terms of stimulating incomes or wage and salary employment.

In terms of the distribution of self-employment by industry, Figure 3 shows that professional and business services make up the largest relative share, followed by construction. Agriculture and related (non-farm proprietorships), wholesale and retail trade, and education and health services follow, each making up about 10% of the total. These relative shares are based on



**Figure 1.** Self-Employed per Wage and Salary Employed, 1969–2009 (Rural: solid line; Urban: dashed line)



**Figure 2.** Returns to Self-Employment Relative to Wage and Salary Earnings, 1969–2009 (Rural: solid line; Urban: dashed line)

census data, rather than self-employment income tax filings reported by the Bureau of Economic Analysis, and there are important differences in these two series, as noted in the introduction.

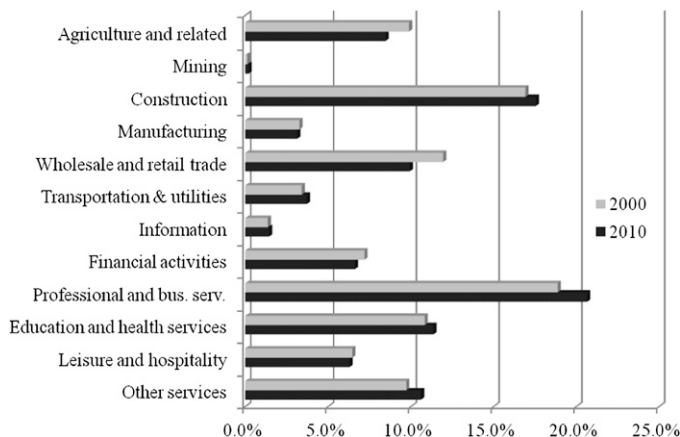
**Conceptual Issues: Dealing with Reverse Causation**

As noted above, a significant challenge to identifying the independent effect of self-employment growth on other economic variables is dealing with endogeneity. When start-ups or market entries lead to economic growth via supply side effects, that growth may in turn increase the number of start-ups or market entries in the next period (Figure 4 in Wennekens and Thurik, 1999; Fritsch, 2008). In most of the work reviewed here, the problem is addressed by measuring the

starting conditions (regressors, including self-employment levels or growth) at the beginning of the period, over which *changes* in the dependent variables (economic impacts) are calculated. This allows the authors to claim quasi-endogeneity (Rupasingha and Goetz, 2012). Another way in which Rupasingha and Goetz (2012) correct for endogeneity bias is by using a Spatial Durbin Model (SDM). The SDM controls for the influence of omitted variables, thus minimizing the endogeneity bias associated with the exclusion of variables that may exhibit non-zero covariance with variables included in the model.

**A Review of Research on the Impact of Self-Employment**

Because the United States prides itself as a capitalist economy in which the role of government



**Figure 3.** Distribution of Self-Employment by Industry, 2000 and 2010

is limited and self-made millionaires are celebrated, it is perhaps ironic that most of the previous work on self-employment and entrepreneurial impacts has been carried out in Europe (Carree and Thurik, 2010; Van Praag and Versloot, 2007). The journal *Small Business Economics* devoted special issues to the topic in 2008 and again in 2011, with most of the papers covering countries in Europe. In the following review, we consider the impacts of small businesses along with entrepreneurship as complementary measures to self-employment, because this allows us to present a broader array of evidence. We include only studies analyzing the U.S. context.

Self-employment provides a non-market value, and a perceived benefit of being “one’s own boss” has been measured in earlier studies (Goetz and Debertain, 2001; Hamilton, 2000; Van Praag and Versloot, 2007). This is also an important factor in county-level studies, because lower per capita income potentially associated with self-employment does not necessarily imply lower local welfare. Hamilton (2000) finds that in the United States, median earnings of self-employed workers “are always less than the predicted starting wage (for zero job tenure) available from an employer, regardless of length of time in business,” and he argues that the earnings gap is not necessarily due to the fact that self-employed workers have lower ability levels.

Deller and McConnon (2009) use a data panel of micro-enterprises – defined as having one to four workers – as a share of all firms in the 48 lower U.S. states, and covering the years 1977–97. They examined the effect of these shares on population, employment, and income growth and obtained strong statistical effects overall in terms of higher per capita income and employment growth but, surprisingly, reduced population growth. However, when the authors considered services versus manufacturing firms, they found that service-oriented micro-enterprises increased income and employment but had no effect on subsequent population growth; conversely, goods-producing firms had the effect of *reducing* population and employment growth while not affecting income growth over the period studied. They conclude that these findings

have important implications for economic developers relying on the export base model.

The effect of a more direct, state-level measure of entrepreneurship – the Kauffman Entrepreneurship Index (KEI) – is analyzed in Goetz et al. (2011). The KEI is the share of adults starting a new business in the previous month, as collected in the March Current Population Survey; in 2000, the average was 0.298%, and in the years 2000–2007 employment grew by 6.63%. Goetz et al. (2011) examine the independent effect of the KEI measured in 2000 on employment growth over the period 2000–2007. They obtain a statistically significant effect of the KEI on employment growth, and find that if the KEI had been 0.100 points higher, at the mean (0.398 versus 0.298), the average rate of job growth would have been 7.80% instead. Although the KEI may not be fully comparable to self-employment, this result lends further support to the argument that self-employment may have locally beneficial effects.

Perhaps the statistically most robust county-level study of the effects of self-employment on different economic outcomes to-date is Rupasingha and Goetz (2012). As noted earlier, they use a fixed-effects Spatial Durbin Model to evaluate both direct and indirect effects of self-employment rates on wage and salary job growth, per capita income growth, and changes in poverty rates over the decades of the 1970s, 1980s, and 1990s. They also provide separate estimates for rural and urban counties and find statistically significant and positive effects of self-employment in all cases except for urban-area poverty rate reductions. However, for the urban poverty case, they obtain a negative *indirect* effect (a spillover from and to surrounding counties) of 0.298% reduction for every one standard deviation increase in the self-employment share. Unfortunately, their results do not cover the decade of the 2000s, when the structural break described above occurred, but they do confirm the findings of Shrestha, Goetz, and Rupasingha (2007) and Henderson and Weiler (2010) for the effects on job growth. Henderson and Weiler (2010) use nonfarm proprietorships as a measure of local entrepreneurship and study the relationship between entrepreneurship and job growth across U.S. labor market areas and

counties. They use both self-employment density and self employment change over time and find that the relationship between self-employment and job growth has strengthened over time.

Neumark, Wall, and Zhang (2011) reinvestigate the seminal work of Birch (1987), who was the first to point out the important role of small businesses in job creation. They use National Establishment Time Series (NETS) for 1992–2004, which, with 14.7 million establishments, is among the largest firm-level data sets available. They consider gross job creation and destruction, as well as the net effect, and conclude that “small businesses *do* create more jobs” (p. 27). They also find that the more recent data suggest “a negative relationship between establishment size and job creation holds for both the manufacturing and services sectors” (p. 16, abstract). While these firm types are not necessarily led by self-employed workers, the findings in general lend further support to our premise that self-employment matters in important ways.

Also recently, Fleming and Goetz (2011) use the NETS data set to examine the independent effect of firm ownership locus and size of firms on per capita income growth across U.S. counties. Their independent variables are measured as the number of firms per 1,000 population in different size categories, and they find that a higher share of small (10–99 employees) *locally*-owned firms in 2000 is associated with statistically faster per capita economic growth over the period 2000–2007. More specifically, their results suggest that one additional small (10–99 employees) locally-owned firm per 1,000 population raises annual per person income by \$285, which translates into additional household income of \$1,140 for a family of four. A community that doubles the number of small, locally-owned firms from the average of 5.51 (to 11.02 firms per 1,000 population) would see additional annual per household income of \$6,281. In sharp contrast, doubling the number of very large, not locally-owned firms (from 0.02–0.04), would reduce average household income by \$372.

This brief review of earlier work indicates that self-employment, entrepreneurship, and micro-business formation all matter in terms of having

**Table 1.** Lag Structure Effect of Self-Employment on Wage and Salary Employment Change

	Urban Counties ( <i>n</i> = 7,173)	Rural Counties ( <i>n</i> = 20,228)
<i>Constant</i>	10.527***	8.920***
<i>y<sub>t</sub></i>	−0.003***	−0.083***
<i>Pop den<sub>t</sub></i>	−0.145*	2.117
<i>NFP<sub>t</sub></i>	0.833*	0.214
<i>NFP<sub>t−1</sub></i>	4.584***	1.178**
<i>NFP<sub>t−2</sub></i>	3.972***	1.765***
<i>NFP<sub>t−3</sub></i>	−0.511	−0.987***
<i>NFP<sub>t−4</sub></i>	−2.690**	−0.964**
<i>NFP<sub>t−5</sub></i>	0.778	0.966*
<i>NFP<sub>t−6</sub></i>	0.782	−0.426
<i>Adjusted R<sup>2</sup></i>	0.30	0.08

Notes: All coefficients (except the constant) are multiplied by 100 for sake of clarity. Robust clustered (at county level) standard errors used.

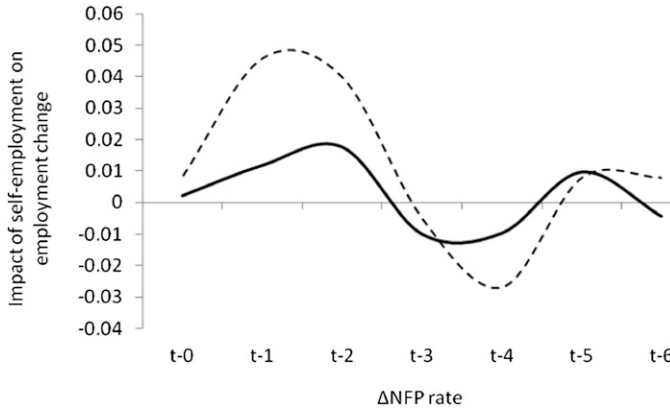
\*, \*\*, \*\*\* indicates  $p < 0.1$ ,  $p < 0.05$ ,  $p < 0.01$ , respectively.

positive local economic impacts for job and income growth or poverty alleviation. These effects studied thus far however, are, for the most part, based on a static, one-time response and shed less light on the dynamic effect over time. In particular, if new firms are more labor-efficient, overall employment in a community should decline (while incomes should rise) at least initially. Subsequent effects would then depend on how labor is reallocated following such a perturbation. We examine this dynamic effect next.

### Dynamic Effects of Self-Employment on Job Growth

We examine the lag structure effect of self-employment on wage and salary employment growth across U.S. counties. Our estimated equation uses, as regressors, the contemporaneous change in the number of self-employed workers (Non-Farm Proprietorships, NFP) and six-year lags of this variable.<sup>1</sup> In carrying out this analysis, we follow Fritsch and Mueller (2008) and Acs and Mueller (2008). Our model also includes, as controls, the initial level of the

<sup>1</sup> Note that the self-employed are the same as non-farm proprietors in the definitions of the BEA data.



**Figure 4.** Lagged Effect of Self-Employment on Job Growth (Rural: solid line; Urban: dashed line)

wage and salary employment and population density, and it is based on a fixed effects panel:

$$\Delta y_{i,(t+3) - t} = \alpha_i + \beta y_{i,t} + \gamma PopDen_{i,t} + \sum_{j=0}^6 \delta_j \Delta NFP_{i,t-j} + \lambda_t + \varepsilon_{i,t},$$

where *i* denotes the county and *t*, the year of the corresponding variable. The variable  $\Delta y$  is the percent change in wage and salary employment from year *t* to year *t* + three. We construct nine panels with the dependent variable measured over periods: 1980–1983, 1983–1986, 1986–1989, 1989–1992, 1992–1995, 1995–1998, 1998–2001, 2001–2004, and 2004–2007. Variable  $\lambda_t$  is the time effect common to all counties;  $\varepsilon$  is a standard error term;  $\alpha$ ,  $\beta$ , and  $\gamma$  are parameters to be estimated; and  $\delta_j$  is a set of seven parameters to be estimated from the  $\Delta NFP$  variables.

$\Delta NFP$  is the difference in the number of non-farm proprietorship between the previous year and the current year, normalized by the number of non-farm proprietors in the previous year:

$$\Delta NFP_{t-j} = \frac{NFP_{t-j} - NFP_{(t-j)-1}}{NFP_{(t-j)-1}},$$

with  $j = \{0, 1, \dots, 6\}$ . Thus, the model includes the current value of  $\Delta NFP$  ( $j = 0$ ) and six lags from the previous years ( $j = 1, 2, \dots, 6$ ).

The regression results using simple covariate levels and unrestricted parameters are presented in Table 1 and the lagged structure is

graphed in Figure 4.<sup>2</sup> Results suggest that the effects are more pronounced in urban than in rural areas. Further, the positive effects reported in studies reviewed above are averages over a certain period, and while employment first increases following the change in self-employment (lag *t*–5), the effect turns negative and then tapers off as the less-efficient firms are driven out (lag *t*–3 and *t*–4). This does not mean that self-employment is undesirable; instead, it suggests that the pipeline of new businesses needs to be well-supplied each year (Lichtenstein and Lyons, 2001; Loveridge and Nizalov, 2007).

**Summary and Conclusion**

Self-employment is often perceived to be a desperate effort of workers who have been laid off and unable to find work again; it is viewed as low-paying, and as providing little or no benefit for the local economy. It may also be just a temporary phenomenon observed until the economy recovers.

In sharp contrast to this perception, our review shows that self-employment is growing and

<sup>2</sup>Other studies use third-order polynomial Almon lags (Fritsch and Mueller, 2008). The Almon lag procedure reduces potential multicollinearity problems from the model’s lag variables (Van Stel and Storey, 2004), but in our case correlation between covariates is low (always under 0.25), signaling that multicollinearity should not be a problem affecting our estimates.

likely here to stay, and it behooves policymakers to pay attention to this new workforce reality. While more studies with different data sets on the dynamic effects of self-employment would be valuable, these results suggest that policy and educational programs directed at improving the productivity and earnings of the self-employed could have high payoffs in terms of local economic growth and opportunity.

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