

**THE CORPORATION AS A TAX SHELTER:
EVIDENCE FROM RECENT ISRAELI TAX CHANGES***

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Abstract

Shifting of income between the corporate and the personal income tax bases in response to tax incentives is the premise of the literature on taxation and organizational form. Empirical evidence of income shifting is, however, merely circumstantial. Using a unique panel of high-frequency VAT data from Israel, we trace the footprints of income-shifting through incorporation by high-income individuals who convert their labor income into less-taxed dividends. A rise in the personal income tax rates resulted in more than 2,200 corporations being registered, mainly by self-employed professionals, specialists and doctors for whom tax avoidance through incorporation was feasible and, apparently, preferable to tax evasion.

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1. INTRODUCTION

Shifting of income between the corporate and the personal income tax bases in response to tax incentives is *the* premise of the literature on taxation and organizational form.¹ This issue was raised by Feldstein and Slemrod (1980) who posited that, despite high corporate tax rates and double taxation of dividends, high-income individuals for whom the marginal personal income tax rate is higher than the effective tax rate on corporate-source income may shelter income through incorporation. Yaniv (1990) considered a related problem of tax evasion through misreporting of capital and labor income given differential marginal tax rates according to income source. Gordon and MacKie-Mason (1994) showed in a model accounting for non-tax factors of incorporation that "the noncorporate sector should consist of very profitable firms owned by investors in low tax brackets and firms with tax losses owned by investors in high tax brackets." Distinguishing between three types of behavioral response to taxation—real income creation, avoidance, and timing—Slemrod (1995) speculated that a large increase in the reported income of high-income individuals following the Tax Reform Act of 1986, that substantially lowered the top statutory tax rates of individuals relative to corporations, may be due to income shifting.

However, empirical evidence on income shifting between corporate and personal tax bases is scarce and merely circumstantial. Gordon and MacKie-Mason (1994), MacKie-Mason and Gordon (1997), Goolsbee (1998) and Gordon and Slemrod (2000) based their analysis on aggregate data from US corporate and individual tax returns. The use of aggregate time-series data poses an identification issue because a considerable variation in the corporate and personal income tax rates is produced in the course of major overhauls of the tax code, simultaneously altering many tax provisions, which often coincide with other significant changes of economic policy that may bring about swift changes in the macro economic environment. Goolsbee (2004) used cross-sectional data (of the U.S. retail trade sector) identifying the impact of tax distortions on incorporation through a variation of the tax rates across the states. Having found the share of incorporated business activity to be negatively related to the difference between top marginal corporate and personal tax rates, Goolsbee did not however provide a direct evidence of income shifting. As Gordon and Slemrod (2000) put it, "The only way to capture definitely the presence of income shifting is to examine changes within a firm following a tax change and to match this with data about employees' income

¹ See Gordon and Slemrod (2000) for a review and discussion.

receipts." Fjaerli and Lund (2001) is the only study we are aware of that exploited the matched owner-firm data (tax returns of 225 Norwegian sole proprietors and their corporations for 1991) to examine the effect of tax incentives on the distribution of the owner-employees' compensation between wages and dividends. Lacking exogenous variation of tax incentives, the authors failed to fully reconcile the observed distribution of compensation with tax minimizing behavior; they mention the rights to social security benefits, determined solely by wages, and confusion regarding the corporate tax regulations as an explanation for a moderate use of corporations for income sheltering.

The current study makes another step in this direction by presenting a micro-level account of a tax avoidance scheme in which individuals convert their labor income into less-taxed dividends through setting up corporations especially for that purpose. We trace the process of income shifting in a unique panel of bi-monthly reports of corporate and non-corporate businesses to Israel's VAT authorities.

Two recent changes in the level of the income ceiling for mandatory National Insurance and Health Insurance (NI-HI) contributions in Israel constitute a perfect natural-experiment framework for examining the effect of taxation on taxpayers' reporting decisions and tax avoidance efforts. The first change, introduced in 2000, raised the income ceiling for NI-HI contributions from four times to five times the national average wage, effectively increasing the marginal tax rate on labor income in this income range by 9.7 percentage points. The second change took place in July 2002, when the income ceiling was abolished altogether, effectively raising the marginal tax rates on earnings above five times the national average wage by 9.7 percentage points for labor income, and by 15.42 percentage points for business income of the self-employed.

The analysis shows that the behavioral response to the two tax hikes was quite different. While the first legislative change actually had no significant effect on income shifting, the second tax hike prompted the high-income individuals to instantaneously open more than 2,200 corporations—a three percent addition to the corporate sector—mainly for tax avoidance purposes. An enormous concentration of newly opened companies in business services and health services suggests that the tax avoidance scheme was especially popular with professionals, specialists and doctors, for whom income shifting was not only desirable but also feasible. Besides the usual repercussions of tax avoidance, income shifting through incorporation was found to have a tremendous impact on aggregate income statistics.

The rest of the paper is organized as follows. Section 2 presents a basic framework of income shifting through tax avoidance and tax evasion. Section 3 briefly describes Israel's tax system, introduces two legislative changes and specifies a scheme of tax avoidance through incorporation. Section 4 discusses the identification strategy and presents the data. Section 5 details empirical evidence of income shifting, whose aggregate implications are considered in Section 6. Summary and discussion of findings conclude the study.

2. THE FRAMEWORK

Putting a decision of income shifting into a simple framework, consider a risk-neutral individual earning a monthly wage W , that is taxed at a constant marginal personal income rate t_p .² When the individual's labor supply is fixed, for a given wage rate W represents the utmost potential income that can be realized through different organizational forms. The individual has two alternatives to employment as a wage-earner—legal avoidance and illegal evasion—both implying tax-induced income shifting.

Avoidance requires opening a closely-held corporate business, taxed at a fixed corporate rate, t_c . After that, if the firm's entire after-tax income is distributed as dividends, taxed at a fixed personal income tax rate on equity, t_{pe} , the owner's effective tax rate is $t_c + (1 - t_c)t_{pe} \equiv t_d < t_p$. This avoidance technology has a cost of C_A , depending on the extent of avoidance, A .³ The individual's after-tax income as a function of avoidance ($0 \leq A \leq W$), is:

$$Y(A) = (W - A)(1 - t_p) + A(1 - t_d) - C_A.$$

The optimal scope of avoidance is determined by the first order condition:

$$t_p - t_d = C'_A,$$

saying that income should be shifted from the personal income tax base into the corporate tax base until the marginal cost of avoidance equals its marginal return in terms of saved tax liability. The upper quadrant of Figure 1 (in axes $\Delta t = t_p - t_d$, C'_A and W) depicts an interior optimum for a general case of increasing marginal personal income tax rates. The lower quadrant (in axes W and A) shows the optimal distribution of individual's income: W^* stems

² The assumption of a linear personal income tax is not crucial. One may think of t_p as a top marginal rate.

³ In the context of avoidance through incorporation, the costs include all relevant non-tax factors, analyzed by Gordon and MacKie-Mason (1994). As a necessary condition for an interior optimum, marginal cost of avoidance should be increasing (decreasing in W), as in Slemrod's (2001) model.

from employment as a wage-earner, while A^* is shifted to the corporate sector in a tax avoidance scheme.

The alternative of income evasion, e.g., through non-reporting or underground business activity, is risky. In a case of successful evasion the individual's disposable income is $Y_1 = W(1-t_p) + Et_p$, where E is evaded income. If evasion is caught by tax authorities, the individual is fined by $\pi t_p E$, where $\pi (> 1)$ is a fine rate imposed on evaded personal income tax, in accordance with the Israeli and US tax code. Then the individual's disposable income is $Y_2 = W(1-t_p) - Et_p(\pi - 1)$. Evasion technology has a cost of C_E , increasing with the extent of evasion and borne in any state of nature. Let the probability of detection (audit rate), p , be exogenous and impersonal. The individual's problem, as analyzed in numerous models of rational cheating, is:

$$\max_E E(Y) = (1-p)Y_1 + pY_2 - C_E.$$

The first order condition for an interior solution is:

$$t_p(1-p\pi) = C_E'.$$

Provided $p\pi < 1$, evasion should be pursued to the point where the saved taxes, net of the expected fine, match the marginal cost of evasion. According to this model, real-world values of p and π (rarely exceeding 0.5 and 1.5, respectively) ought to make evasion feasible for almost every taxpayer. Empirical studies, however, document a fairly high level of tax compliance (Andreoni et al., 1998, Erard and Ho, 2003). The following reasons may reconcile the facts with the theory. Even if evasion is feasible for a person, it is too costly to carry out, i.e., the person is found at the "corner" solution $E^* = 0$. But in many instances the feasibility is problematic, being determined by perceived (unobserved by a researcher), rather than objective, values of p and π . Compliant taxpayers' subjective audit probability is generally much higher than the objective one.⁴ Likewise, the anticipated penalty of a prospective cheater may dwarf the statutory fine rate if it includes psychic costs such as shame and guilt, or immense penalty of ruining the person's career, in the case of public servants and professionals in the fields of licensed activity.

⁴ "The studies ... indicate that individuals generally make poor predictions of the probability of audit and magnitude of fines from tax evasion. Moreover, there is consistency between their sense of a moral obligation to be honest and the tendency to overestimate the chance of being caught. Perhaps as a consequence, a high

3. LEGISLATIVE CHANGES AND TAX AVOIDANCE SCHEME

Israel's tax system at glance

We begin with a description of major features of Israel's tax system, as applied in 2002. Taxation of personal income in Israel is dual (like in Nordic countries, see Sorensen, 1998). Labor income and business income of the self-employed are taxed progressively, at steeply rising marginal tax rates, with the top rate of 50 percent beginning at just 2.7 times the national average wage. Capital gains are also taxed at the marginal rates. Dividends are subject to a fixed personal tax rate of 25 percent. Given a fixed corporate tax rate of 36 percent, the effective tax rate on dividends is 52 percent $(0.36+0.25*(1-0.36))$.⁵

An additional burden is imposed on individuals by mandatory National Insurance (including social security) and Health Insurance contributions, up to the ceiling level, except for the period when the latter was abolished.⁶ National Insurance contributions of the self-employed include a fixed-rate payroll tax paid by the employers up to the income ceiling.

For income tax purposes there are three types of non-corporate businesses: the self-employed persons and two flow-through entities—the partnerships and the family firms—all referred below as the self-employed. The only corporate organizational form is a limited liability company. In the following, company and corporation are used interchangeably denoting a corporate-sector firm. Both corporate and non-corporate firms may deduct various business-related expenses; wage-earners may claim only a handful of standard deductions.

The tax changes

The income ceiling for National Insurance and Health Insurance contributions by individuals—wage-earners and self-employed persons—was raised twice since 2000, bringing about a remarkable increase of marginal tax rates (MTR) at the very top of income scale in Israel (Table 1).

Change 1 came into effect on January 1, 2000; it raised the income ceiling for NI-HI contributions from its previous level of four times the national average wage to five times the

subjective probability of detection is associated with significantly more compliant behavior." (Andreoni et al., 1998).

⁵ Under certain circumstances – mostly irrelevant in the context of short-run income shifting – lower corporate and fixed personal tax rates may apply.

average wage, adding almost 10 percentage points to the tax burden on labor income in that range. Note that Change 1 increased the *average* tax rate on earnings above five times the average wage, while leaving the *marginal* rate intact.

Change 2, which came into effect on July 1, 2002, cancelled the income ceiling altogether. This step affected individuals whose taxable income was higher than five times the national average wage and employers who had previously been exempt from paying payroll tax on the wages above four times the average wage. The MTR of a wage-earner increased by 9.7 percentage points; the rate for a self-employed individual was raised to 65.42 percent – from 59.55 percent on (business) income between four and five times the average wage, and from 50 percent thereafter. The tax burden on employers became heavier, too, because of the widening of the payroll tax base and a one-percent increase of the rate. Effectively, however, the cost of labor increased less, as National Insurance contributions are fully deductible for the companies and partially for the self-employed. Change 2, originally scheduled to be in force till December 2003, was canceled before then: on July 1, 2003 the ceiling returned to the level of five times the average wage, as it had been after Change 1.

Tax avoidance scheme

The increased tax burden at the very top of the income scale should lead individual taxpayers to a tax loophole that allowed income shifting through a company. Having registered a company, the owner-employee may split the compensation into the wage and dividends in a tax-minimizing fashion.⁷ Given the parameters of the Israeli tax code, it is worth taking a part of the company revenue, up to the level of income where the marginal rate jumps above 52 percent, as a wage, and distributing the rest of the company after-tax income as dividends. Note that in Israel the decisions to incorporate and to get the compensation in form of dividends are not affected by the social security and health insurance benefits because these are not related – actuarially or directly – to one's contributions above some very low level.

Figure 2 illustrates the extent of potential gain from tax avoidance through incorporation as a function of individual's income before and after legislative changes. The computations do

⁶ Tax bases for personal income tax (at marginal rates) and National Insurance/Health Insurance contributions are almost identical.

⁷ Under the US code it may be worth retaining the earnings in the company, paying a delayed and reduced-rate capital gains tax when selling it. Feldstein and Slemrod (1980) discuss this point. In Israel capital gains are taxed

not account for the cost of opening and operating a company, which reduce the potential gains of reorganization. On the other hand, wage-earners can increase the potential by deducting through the company various business-related expenses which are undeductible for an employee. A steeper increase in the gain of the self-employed after Change 2 is explained by the fact that this change not only extended their NI-HI tax base but also raised the payroll tax rate by one percent. We also ignore the non-tax factors of incorporation, as discussed by Gordon and MacKie-Mason (1994), as these are largely irrelevant to the decision to incorporate for the period of eighteen months (the anticipated life span of Change 2).

Figure 2 indicates that even before Change 1 took place there had been a certain incentive to incorporate. Potential tax avoidance gain then reached the peak of 2.7 percent of income for a wage-earner (2.6 percent for a self-employed person) at an income level equal to four times the average wage, and decreased thereafter. Therefore, some taxpayers could make use of the discussed income shifting scheme prior to both legislative changes, but the number of incorporations for tax avoidance purposes was negligible by all accounts, for the following reasons:

- (1) To carry out the stated tax avoidance project, an individual (a would-be owner) has to pass his/her personal income on to the newly established company. This should not constitute a problem for the self-employed, who can easily transfer the clients to another judicial entity. But for a wage-earner the reorganization as a company necessitates the close cooperation of the employer, since for the latter this implies outsourcing of certain functions which had hitherto been supplied in-house. Apart from the fact that many functions cannot be outsourced (like most managerial functions), even when outsourcing is feasible an employee who is paid up to four times the average wage hardly wields enough influence to ensure the employer's cooperation in the tax avoidance deal. Thus, failing to secure the company's future income would spoil the whole income shifting scheme.
- (2) According to the corporate regulation in force till October 1999, an individual was not allowed to be a sole owner of the company. Therefore, a number of individuals had to join the incorporation project, raising contract costs of the avoidance scheme.

Two hikes of the income ceiling for NI-HI contributions undoubtedly reinforced the tax avoidance incentives. Change 1 made incorporation more worthwhile for 2.2 percent of

at a marginal rate and dividends at the reduced rate; besides, a limited span of life of Change 2 strengthened the

individual taxpayers earning labor and business income above four times the average wage, maximizing potential gains at an income level of five times the average wage. Change 2 further raised the potential gain of reorganization for individuals earning more than five times the average income. In addition to increasing avoidance incentives, a wider use of incorporation has been facilitated by new corporate legislation (enacted since October 1999), which allowed an individual to be a sole proprietor of a company. Besides, after two legislative changes the circle of individuals potentially interested in incorporation narrowed to the upper layer of professionals or managers—top 1.1 percent of individual taxpayers—who may ensure an employer's cooperation in realization of the avoidance scheme.

Note that in addition to the gains depicted in Figure 2, implied by the difference in statutory marginal tax rates, wage-earners would attain a further reduction of the tax liability through deduction of expenses. That is, for a given level of individual's gross income, effective tax incentives are stronger for a wage-earner than for a self-employed person.

4. IDENTIFICATION STRATEGY AND DATA

As stated by Gordon and Slemrod (2000), an ideal dataset providing smoking-gun evidence of incorporation for the tax avoidance purposes would be a panel of matched employee-owner-firm records reflecting the change of a portion of the individual's income from labor or business income to dividends. In the absence of such data, one still can prove tax-induced income shifting—evidence as convincing as the prime suspect's fingerprints at the crime scene, to use detective-story jargon. Income shifting should be manifested in a surge of activity in the corporate sector simultaneously with a decline of activity in the non-corporate sector. This information is found in a high-frequency panel of VAT reports, compiled by Israel's Central Bureau of Statistics for this study from administrative sources.

Observing a spike of activity in the corporate sector following (or shortly before in anticipation of) a legislative change would be a principal piece of evidence of income shifting through incorporation, but not the only one. A cohort of companies established mainly for tax-sheltering ought to differ from all other companies in various aspects. First, they have to expand their activity instantly to reap the fruits of the tax avoidance scheme more fully, especially after Change 2 which was enacted only for a limited period of 18 months (but was actually called off after 12 months). In contrast, "normal" companies grow gradually, reaching

short-run motives that prefer distributing the dividends to retaining the earnings in the company.

their full scale of operation in years, not months. Another characteristic feature of companies used for tax avoidance is their excessive concentration in business services. This includes, *inter alia*, various professional services like computer-related services, legal and notary, bookkeeping and accounting, architectural and engineering, advertising and PR, business consultancy and market research activities. These services can be easily outsourced, passing the feasibility test of the avoidance scheme. Besides, professionals in these services, who are among the highly paid and therefore stood to gain significantly from income shifting, are at the same time especially sensitive to a potential loss in case of tax evasion detection.⁸ For that reason they may opt to pursue the legal project of tax avoidance through incorporation instead of illegal evasion. Finally, controlling for a firm's industry and vintage, the production function of a tax-sheltering enterprise should be relatively value-added-intensive, as it does not make the heavy initial investment required in normal business practice.

This identification strategy makes use of the well-known natural-experiment analytical framework considering tax changes as exogenous intervention in decisions of individuals. Since the two tax rate hikes were the only change of Israel's tax code at the upper end of the income scale in the studied period, and macro economic developments in the year of each legislative change were quite similar to those the year before, identification of behavioral response is unambiguous.

The VAT dataset is a panel of bi-monthly reports, from 1999 to 2002, of the entire population of registered Israeli businesses, and lists some 583,000 corporations, partnerships, and self-employed persons. The data identify the organizational form of the business (corporate, non-corporate), its 4-digit industry code, the date of registration, and current reports of sales and value added. We do not possess any information regarding the owners, which could be useful for assessing the number of individuals engaged in income shifting; no details are available about the form of compensation paid by the business. Nonetheless, the available information suffices for identifying the corporations established for tax avoidance purposes.

Table 2 presents the population of the VAT dataset and its dynamics by calendar year. In 2000 – the year of very rapid growth – the number of active businesses increased by 1.6 percent, with a 1.1 percent increase in the number of the self-employed and a 3.5 percent

⁸ Activity in most of these services in Israel is regulated by professional guilds enforcing among their members certain ethical norms. Tax evasion, if detected, may well cost a violator his professional license. Erard and Ho

addition to the number of companies. After the eruption of the *intifada* in October 2000 Israel's economy plunged into a deep recession, as observed in 2001 (when the business-sector product declined by 2.6 percent): there was no increase in the number of active businesses, openings of new businesses slowed down, whereas the number of inactive and closed enterprises was on the rise. This development was markedly strong among the companies, with net addition diving to minus four thousand as compared to stability in 2000. The net addition of all VAT businesses was negative in 2001 and as large as twice the size of net addition in 2000.

The year 2002 was the second year of economic slump in Israel; by many accounts it was even worse than 2001, as reflected by plummeting business-sector product that shrank by 2.8 percent, because of a significant deterioration in the security situation. The statistics of VAT businesses nonetheless show a striking picture. On the one hand, the number of inactive businesses grew by 6 percent, consistent with a severe contraction of economic activity. On the other hand, the number of active businesses increased by 2 percent, while the number of new businesses of all kinds soared by 10 percent and that of new companies – by an astonishing 27 percent. As a result, the net addition of companies turned positive – even better than it was in buoyant 2000. These figures evidently point to a marked difference between 2002 and 2001 in the pattern of establishing new enterprises, especially companies. This difference cannot be explained by the macro economic developments, which worsened in 2002, but it apparently matches an anticipated outcome of the discussed tax avoidance scheme. In the next section this hypothesis is tested statistically.

5. EMPIRICAL EVIDENCE

Let us begin by examining the pace of opening new companies around two legislative changes. Figure 3 depicts the number of newly registered businesses—the self-employed and companies—as a difference between the monthly pace in 2000 and that in 1999, and 2002 compared to 2001. A comparison between two organizational forms points to an evident difference in the pattern of registering new enterprises, supposedly related to the tax avoidance scheme.

(2003) report that the percentage of taxes not paid by professionals such as doctors and dentists is well below the average in the US.

As a benchmark for comparison, note that opening of non-corporate businesses—registered as the self-employed persons—exhibits no clear seasonality and does not vary too much from year to year (see also Table 2). The number of new corporate firms was higher in 2000 by 431 than in 1999, with a positive difference from February through September, but the share of new firms in the corporate sector did not differ significantly between 2000 and 1999. In other words, the data do not show any notable drive of incorporation caused by Change 1.

In 2002, however, the pace of opening new companies speeded up strikingly—in the second half of the year—when some 2,200 more companies were registered than in the corresponding period in 2001. This difference, being statistically highly significant, indicates that tax avoidance through incorporation burgeoned right after Change 2.

As to the distribution of newly opened corporations by industry, first compare 2000 and 1999. As stated, there were 431 more companies opened in 2000 than in 1999; two thirds of the difference in the business services, with 73 percent of these registered in the computer-related services—a plausible development in a year when Israel's economy grew by 7.5 percent, fuelled by the "new economy" (start-up companies alone contributed some 1.5 percentage point to the GDP growth).

The distribution of corporate businesses opened in the second half of 2002 is different from that in the first half of the year, and from that in the year before the legislative change. Table 3 points to a sharp surge in the share of companies registered in other business activities (SIC code 76, including legal and notary services, bookkeeping and accounting, business consultancy, market research and public opinion polling, architectural, engineering and other technical activities, advertising and PR services, photographic services), and health services (SIC code 85). On the eve of Change 2 there were roughly 11,000 companies operating in these industries. In the second half of 2002 their number increased by 2,000 – a huge 19 percent addition. This addition accounts almost for three quarters of the additional number of new enterprises registered in the second half of 2002 as compared to the same period of 2001.

Developments documented in Table 3 build up the evidence of tax avoidance following the tax change by focusing on a specific group of professionals in various business and health services.

Finally, let us consider the expansion path and the share of value added in two industries including the bulk of new companies established for tax-avoidance purposes: other business activities (SIC code 76), and health services (SIC code 85). Figure 4 compares four cohorts of

new companies in these two industries by the date of their establishment—the two halves of 2001 (as the same-period benchmark) and the two halves of 2002—during the first 12 months after the onset of company operation. Left panels present the dynamics of sales. Right panels show the share of value added, defined as the difference between sales and material inputs deductible for VAT purposes, divided by sales.

Though a direct comparison is possible only for the first six months,⁹ there is a marked distinction—observed in both industries—between the cohort of companies established in the second half of 2002 and other cohorts. As discussed above, to exploit the gains of incorporation more fully, the activity of a tax-sheltering company should be expanded instantaneously after registration, showing a pace of development exceeding by far that of a normal new company in the same industry. This is clearly seen in Figure 4. The sales reported in the first two months after registration is much higher among the companies established after Change 2 than in any of the three earlier half-year cohorts (on average, by 26 percent in business activities, and by 60 percent in health services). In the following four months the explosive development continues, such that the average of reported sales of tax-sheltering companies after six months was notably higher than the sales of other companies after a year in operation.

Another striking pattern is found in the two right panels of Figure 4 displaying the share of value added in new companies. Among those established in the second half of 2002 the share of value added is almost twice the average share of all other cohorts. This is consistent with the purpose of these companies as income-shifting instruments, whose major (if not exclusive) input is the owner-employee whose compensation takes two-thirds of the company's revenue. These findings prove, once again, that the tide of incorporation in the second half of 2002 was driven mainly by tax-avoidance considerations.

Lacking the identification of owners of the newly established companies and the information regarding the kind of individuals' compensation before and after incorporation, we cannot analyze directly the extent of income shifting by the self-employed and wage-earners. But we can observe the flows of business activity (sales and value added) due to a flight of the self-employed persons from the non-corporate to the corporate sector. Since the

⁹ The cohort of companies opened in the second half of 2002 is truncated because the data do not cover 2003.

self-employed person continues reporting separately for his non-corporate enterprise,¹⁰ transferring business activity onto the newly established company should be reflected in decreasing activity of the non-corporate business. Under a plausible assumption that individuals remain in the same business when changing the organizational form (e.g., professionals in a licensed activity), we limit our attention to the industries of other business activities (SIC76) and health services (SIC85), that have been shown to cover the majority of incorporating for tax purposes after the second tax change.

The upper panel of Table 4 documents a sharp decline in sales reported by the self-employed individuals in the second half of 2002—after Change 2—in both industries. This development cannot be explained by seasonal factors as these are controlled for by the second differences within the industry. One could relate the contraction to the worsening macro-economic conditions, but in fact Israeli business-sector product expanded in the second half of 2002 after a continuous slump since the beginning of 2001. This does not imply, of course, that the two industries should flourish concurrently, but a nine-percent drop in sales of professional business services (six-percent drop in health services) is hardly consistent with an improvement in the economy.

The lower panel of Table 4 presents the half-year aggregates of sales and value added as reported by the self-employed and newly established companies. Note that these figures do not stem from owner-firm matching but represent a contemporaneous change in sales and value added in the non-corporate and corporate sectors by industry.

The difference-in-differences estimates of the impact of the tax change on sales and value added are negative for the self-employed and positive for the newly established companies clearly indicating the substitution of business activity between the non-corporate and corporate sectors. For the self-employed, the second differences of the value added are of the same magnitude as the differences of sales (336.1 and 325.8 in SIC76, 156.1 and 158.3 in SIC85),¹¹ whereas the average value-added share in both industries is about 70 percent. This means, quite literally, that the self-employed persons fade away with the value added in hand, leaving all material inputs (and losses) to be ascribed to a non-corporate firm. This

¹⁰ Bureaucratic procedures do not allow for an instant end of reporting, even in absence of any business activity in the enterprise. The self-employed persons are required to file the tax returns for the next year or two after the closure to prove it is final and to settle their tax liability.

¹¹ Since the first and the second differences are changes of a flow, a ratio between the difference of value-added and the difference of sales is not limited by 100 percent.

observation reconciles the prediction of Feldstein and Slemrod (1980) with that of Gordon and MacKie-Mason (1994).

As to the share of self-employed persons and wage-earners in income shifting through incorporation, one may roughly assess it by comparing the difference-in-differences estimates of business activity by the newly established companies with those by the self-employed, assuming that income shifting by the wage-earners fills the gap. This account is limited because it deals only with intra-industry flows, and it implicitly attributes the abnormal contraction of non-corporate business activity and the extraordinary expansion of the corporate sector solely to income shifting. Table 4 reveals that in other business activities (SIC76) a decrease of sales (value added) by the self-employed accounts for about two-thirds (three-quarters) of the increase reported by the new companies. In health services (SIC85) the contraction of business activity among the self-employed is about the same as the addition by the newly incorporated firms, i.e., the extent of income shifting by the wage-earners in this industry appears to be negligible.

6. TAX AVOIDANCE IN MACRO PERSPECTIVE

According to Israel's Ministry of Finance (2003) *ex-ante* assessment, abolishing the income ceiling for NI-HI contributions could force up to 15 percent out of 40,000 individuals affected by the change to engage in income shifting through incorporation. This would cause, on an annual basis, the loss of NIS270 million in the National Insurance and Health Insurance contributions and a decrease of about NIS200 million in corporate and personal income tax revenues. Hence, income shifting could deduct NIS470 million from NIS1,600 million of additional collection—a static full-compliance estimate of revenues due to the tax change. In its *ex-post* account, based on the Register of Corporations data and the National Insurance Institute tax collection figures, the Ministry of Finance estimated that some 4,000 individuals pursued incorporation for tax avoidance purposes in 2002.¹²

A surge of income shifting activity following the tax hike of 2002 may be an outstanding one-off episode, but a wide gap between the marginal personal and effective corporate income tax rates persistently encourages incorporation. In the period from 1993 to

¹² The process of registering "excessive" new companies continued through March 2003, until the Minister of Finance declared, in a dramatic move, his intentions to reestablish the income ceiling in July 2003. The total number of individuals who pursued tax avoidance through the reorganization as a company is estimated at 4,400 (State Revenue Administration, 2003, p. 74, National Insurance Institute Annual Report 2002-2003, pp. 68-69).

1999 the number of corporate businesses in Israel grew by 61.5 percent (the addition of 32,800 firms), whereas the number of the self-employed increased only by 5 percent (16,000 more persons).¹³ The excess burden of this tax-induced incorporation drive dwarfs the extent of income shifting documented in the present study.

In addition to "normal" repercussions of tax avoidance, like draining tax revenues, incurring the deadweight loss and creating an inefficient organization of the affected industries, income shifting through incorporation may bias the aggregates of return on labor and capital and confuse the changes of income distribution. Converting a part of earnings into dividends is reflected in the declining share of labor compensation and increasing return on capital. To demonstrate the impact of income shifting on aggregate wage statistics, let us assume that 4,000 individuals, each earning six times the national average wage, converted a third of their labor income into dividends. This would moderate the wages in Israeli business sector (which employs 1.9 million workers) by 0.6 percent, explaining 43 percent of the actual decline of average wage in 2002. The impact of income shifting is magnified, of course, when considered within the two industries including the majority of newly established companies—other business activities and health services—which employed some 250,000 wage-earners in the beginning of 2002. Exodus of high-income individuals to the corporate tax shelter may be depressing the average wage in the two industries by 3 percent, probably being a dominant factor of a historic decline of average wage in the second half of 2002 (Figure 5).

One should bear in mind, however, that tax avoidance through income shifting is not the only mode of behavioral response to the increasing tax burden. Those high-income individuals who exert a certain degree of command over their compensation but may not engage in income shifting through incorporation (top executives and managers), may increase their gross income to balance the higher taxes. An intriguing question as to which kind of behavioral response was dominant awaits its answer; it is unquestionable, though, that both kinds of behavioral response add to the deadweight loss of progressive income taxation.

6. SUMMARY AND DISCUSSION

This study explores the extent of behavioral response to two legislative changes of the level of income ceiling for mandatory National Insurance and Health Insurance contributions in Israel.

¹³ State Revenue Administration Annual Reports, various years.

The first change, introduced in 2000, raised the income ceiling from four times to five times the national average wage, effectively increasing the marginal tax rate on earnings of individual taxpayers in this income range by 9.7 percentage points. The second change took place in July 2002, when the income ceiling was abolished altogether, effectively raising the marginal tax rate on incomes above five times the national average by 9.7 percentage points for wages and salaries, and by 15.42 percentage points for business income of self-employed persons, affecting the top 1.1 percent of individual taxpayers..

Using a unique high-frequency panel of VAT records for the entire population of Israeli businesses, we investigate, in the natural-experiment analytical framework, whether these tax hikes triggered any significant tax avoidance drive. The tax avoidance instrument operational in this context is shifting of income between the personal and corporate tax bases, made possible through opening a new corporate enterprise and transferring to it an individual's business activity.

Empirical analysis shows that there was no significant response to the first legislative change, whereas the second change caused an abrupt addition of some 2,200 firms to the corporate sector. These new companies have been found to possess a number of distinctive features exposing them as functioning mainly for tax avoidance purposes.

The much publicized surge of tax avoidance activity by high-income individuals eventually led to reinstatement of the income ceiling twelve months after its abolishment. Being carried out in the midst of a severe recession in Israel, during massive cuts in welfare payments, with the unemployment rate above 10 percent, this step sparked a fierce public debate regarding its normative aspects, namely, considerations of income redistribution and social justice. On the one hand, reestablishing the income ceiling evidently widens vertical inequality for it eases the tax burden borne by the rich. On the other hand, reinstating the income ceiling moderates the incentives for income shifting, therefore it improves horizontal inequality between the tax-avoiding and tax-paying public. Finally, the existence of an income ceiling may be warranted by the fact that, at the margin, contributions by the rich do not actually yield any return from the social security, national insurance and public health insurance systems because the transfer payments and benefits from these systems are limited in size and independent of individual's contributions.

Considering the two tax hikes as the subsequent steps uphill the Laffer curve, one should note the incomparably stronger behavioral response to the legislative change of 2002, that raised the marginal tax rate at the very top of earnings, as compared to increasing the

inframarginal rate in 2000. This result supports Feldstein's (1999) observation that "the relative cost of incremental revenue is greater when it is achieved by a tax change that increases the progressivity of the rate structure...". The second tax hike incurred a hefty efficiency cost: income shifting drained almost one third of the anticipated tax revenues, actually thwarting the prospects of financing the inflated welfare state in Israel by further increasing the progressivity of direct taxation. Reinstitution of the income ceiling has become a landmark of the new economic policy striving to bring long-awaited relief to tax-burdened Israelis.

The story of income shifting through incorporation adds to reservations regarding high estimates of the elasticity of taxable income with respect to the net-of-tax rate (Slemrod, 1995, Goolsbee, 2000, Gordon and Slemrod, 2000, Saez, 2004). The New Tax Responsiveness literature documented a substantial behavioral reaction to taxation of certain types of income (especially capital gains) and forms of compensation whose extent and timing can be influenced by taxpayers in general and the affluent in particular. The estimates of elasticity—a key parameter for tax policy—were found in a range from 1 to 1.5. These figures reflect the response of the personal income tax base, but largely ignore simultaneous changes in the corporate tax base. As documented in Table 6, looking at the contracting non-corporate sector separately from the booming corporate sector would miss not only the scale of response but its sign. It is important therefore to address all relevant tax bases in estimating the elasticity of tax-induced response.

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Figure 1. Optimal extent of income shifting through incorporation

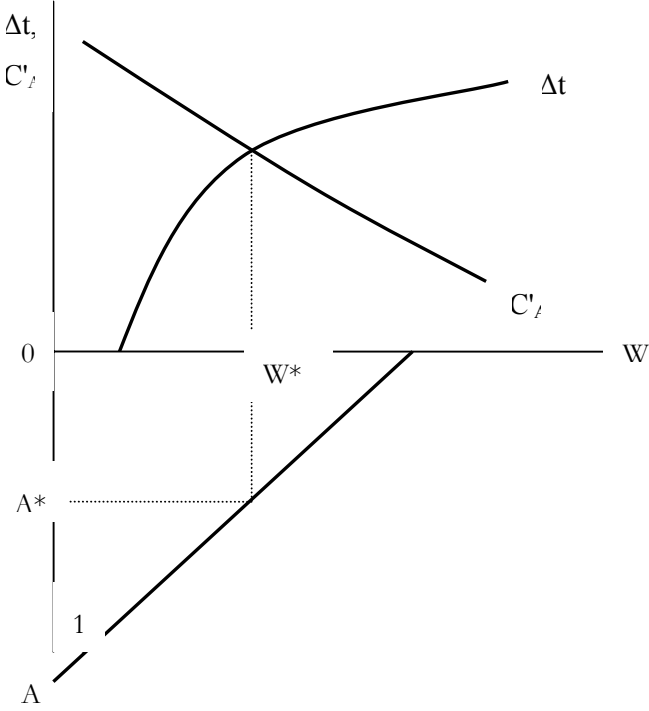
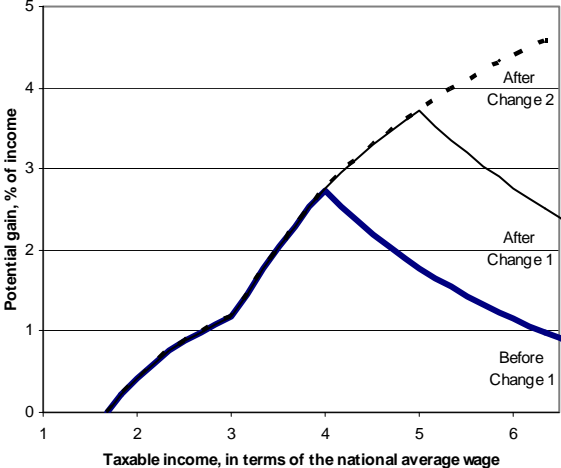


Figure 2. Potential gain of income shifting through incorporation

For Wage-Earners



For the Self-Employed

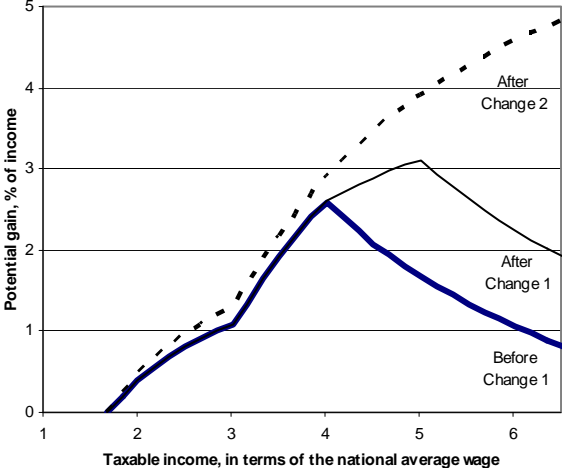
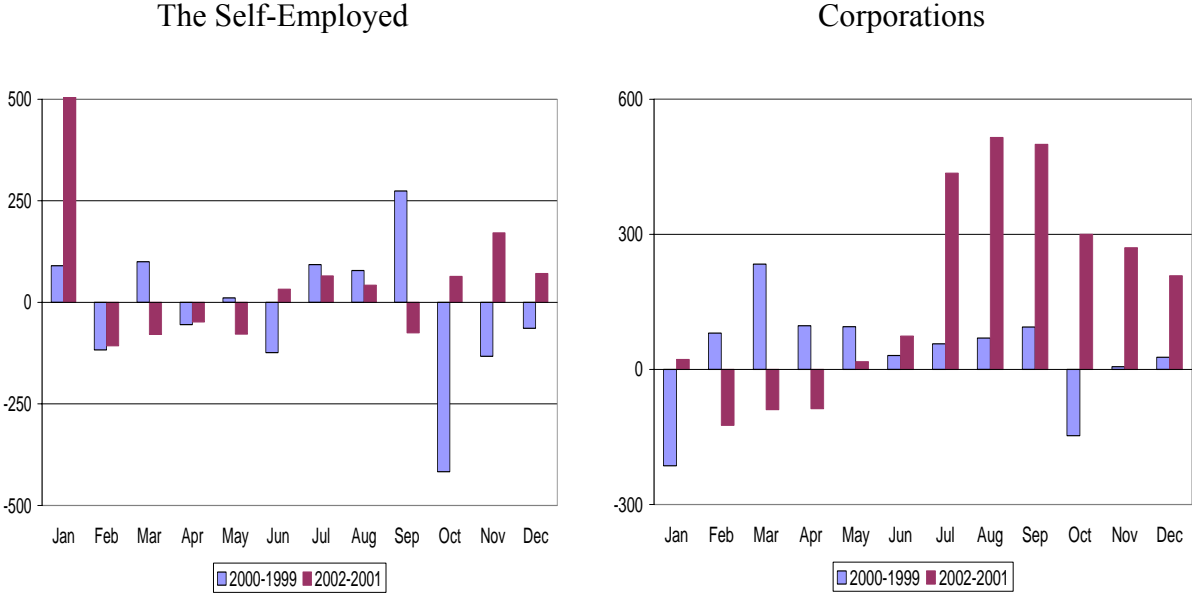


Figure 3. Difference in the number of new businesses, 2000 vs. 1999 and 2002 vs. 2001, by month



Source: Central Bureau of Statistics, author's computations.

Figure 4. Sales and value added in the first twelve months of operation, by cohorts of new companies, 2001-2002

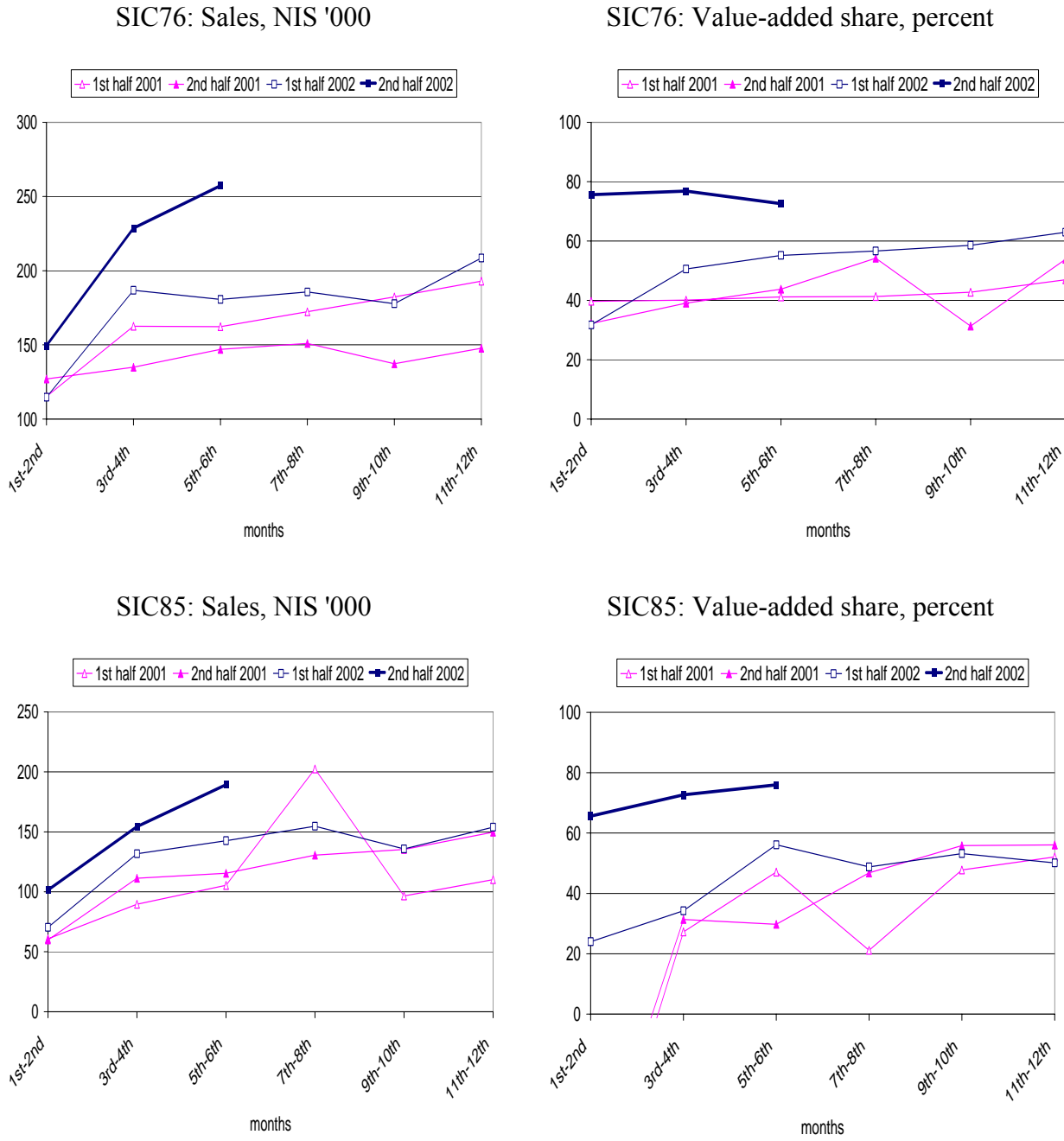


Figure 5. Average wage per employee post in other business activities, 2000-2002, percent change on the same period a year before

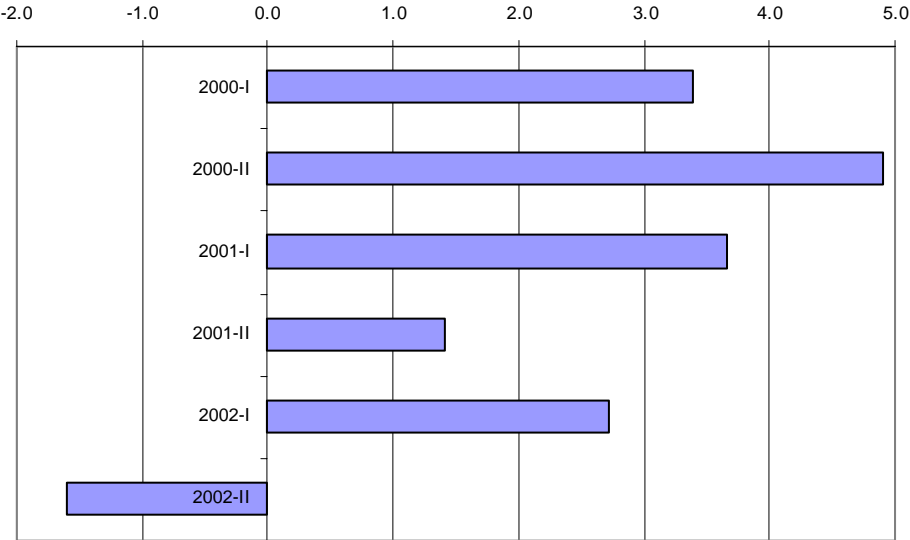


Table 1. Marginal tax rates before and after legislative changes, percent

Labor income ^a	Employee		Employer		Self-employed	
	Before	After	Before	After	Before	After
Change 1 (January 1, 2000 till June 30, 2002)						
Up to x4 av. wage ^b	59.7	59.7	4.93	4.93	64.42	64.42
From x4 to x5 av. wage	50.0	59.7	0	0	50.0	59.55
Above x5 av. wage	50.0	50.0	0	0	50.0	50.0
Change 2 (July 1, 2002 till June 30, 2003)						
Up to x4 av. wage ^b	59.7	59.7	4.93	5.93	64.42	65.42
From x4 to x5 av. wage	59.7	59.7	0	5.93	59.55	65.42
Above x5 av. wage	50.0	59.7	0	5.93	50.0	65.42
Dividends	taxed at the fixed rate of 52 percent.					

Notes:

^a Earnings and business income of the self-employed, subject to regular marginal tax rates.

^b From approximately three times the national average wage, where top marginal *income* tax rate of 50 percent begins.

Table 2. Population of VAT businesses, 1999-2002, thousands

	Self- employed	Corporations	Partner- ships	Total
1999				
Active businesses ^a	228.7	76.9	23.2	328.8
thereof: new businesses ^b	17.3	8.4	3.0	28.7
Inactive businesses ^c	85.5	29.1	6.1	120.7
2000				
Active businesses ^a	231.3	79.6	23.0	333.9
thereof: new businesses ^b	17.1	8.8	2.9	28.8
Inactive businesses ^c	81.7	29.7	5.7	117.2
Closed businesses ^d	22.8	8.9	3.5	35.2
Net addition ^e	-5.8	-0.1	-0.6	-6.5
2001				
Active businesses ^a	231.9	78.4	24.6	334.9
thereof: new businesses ^b	15.9	7.8	2.5	26.3
Inactive businesses ^c	81.5	33.6	5.7	120.8
Closed businesses ^d	23.6	11.8	3.5	38.9
Net addition ^e	-7.7	-4.0	-1.0	-12.7
2002				
Active businesses ^a	235.4	82.2	24.4	341.9
thereof: new businesses ^b	16.5	9.9	2.7	29.0
Inactive businesses ^c	85.2	37.0	6.0	128.1
Closed businesses ^d	22.5	9.2	3.4	35.1
Net addition ^e	-6.0	0.7	-0.8	-6.1

Source: Central Bureau of Statistics, author's computations.

Notes:

^a Business reporting positive sales.

^b Active business registered by the VAT administration during the year.

^c Business reporting zero sales.

^d Inactive or non-reporting business that was active in the previous year.

^e The number of new businesses minus the number of closed businesses.

Table 3. Distribution of new companies by industry, 2001 and 2002, percent

	2001		2002		Difference ^a	
	1st half	2nd half	1st half	2nd half	First	Second
All industries	100	100	100	100		
(I) Real estate and business services	29.7	29.4	31.1	41.1	10.0*	10.3*
(72) Computer and related activities	5.7	5.5	5.0	4.5	-0.5	-0.3
(76) Other business activities	15.5	15.8	17.6	30.7	13.0*	12.7*
(L) Health services, welfare and social work	2.3	3.0	2.9	13.2	10.3*	9.6*
(85) Health services	2.0	2.6	2.6	13.0	10.4*	9.8*
Number of new companies	5,275	2,540	5,088	4,769		

Source: Central Bureau of Statistics, author's computations.

Notes:

* Significant at 5%. Numbers in parentheses are the codes of the Standard Industrial Classification of economic activities, 1993.

^a The first difference is between the two halves of 2002; the second difference is between years.

Table 4. Sales of self-employed, and activity shifting from non-corporate to corporate sector in other business activities (SIC76) and health services (SIC85), 2001-2002

(NIS million, current prices)

	2001		2002		Difference ^a	
	1st half	2nd half	1st half	2nd half	First	Second
Sales per self-employed						
SIC76	136.2	133.0	132.9	121.0	-11.9*	-8.7*
SIC85	117.2	118.9	119.1	111.6	-7.5*	-9.2*
The self-employed, total						
SIC76: sales	4888.5	4773.6	4929.0	4488.3	-440.7	-325.8
value added	3528.5	3253.5	3468.3	2857.2	-611.1	-336.1
SIC85: sales	1970.8	1999.4	2072.6	1942.8	-129.8	-158.3
value added	1473.9	1443.5	1496.9	1310.4	-186.5	-156.1
New companies, total						
SIC76: sales	268.8	111.3	300.9	675.2	374.3	529.8
value added	116.3	40.4	140.9	508.1	367.3	443.2
SIC85: sales	21.7	12.1	28.9	192.4	163.5	173.1
value added	1.5	-1.9	11.4	137.0	125.6	129.0

Source: Central Bureau of Statistics, author's computations.

Notes:

* Significant at 5%. Numbers in parentheses are the codes of the Standard Industrial Classification of economic activities, 1993. Average exchange rate in 2002 was \$1=NIS 4.75.

^a The first difference is between the two halves of 2002; the second difference is between years.