TECHNICAL NOTE NO. NIS-1

Analysis of Payroll-related Revenue Sources for Health Services

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INTRODUCTION

Zdrav*Reform* would like the local and national governments with which it works to consider all available sources of funds for health services. Zdrav*Reform* offers to help analyze the advantages and disadvantages of the options considered.

In the former Soviet Union, two sources of funds have predominated: general budget revenues (GBRs) and a payroll tax. GBRs were the source of funds during the Soviet era and continue to be the major source of funds today, even as moves are made toward using the second source.
In the mid- to late '80s, the Soviet government began to be dissatisfied with GBRs as the sole source of funds for health services. After some consideration, the government decided to test a tax, in the form of a fixed percent of employers' payrolls, as a funding source for health care. This was already being done for pension and other purposes. The concept was tested in areas like Kemerovo, Siberia, and Dnepropetrovsk, Ukraine.

Following the 1992 dissolution of the Soviet Union, nearly all of the successor countries have begun at least thinking about health financing reforms, and some have begun to take action. In nearly all of these countries, the approach to sources of funds has been to increase reliance on a payroll tax.

A number of other approaches that are available do not seem to get much, if any, attention. These include: sin taxes (e.g., taxes on tobacco and alcohol), sales or value added (VAT) taxes, income taxes, individual mandates for purchase of health insurance, and, even, a return to a new form of reliance on GBRs. These approaches could be used individually or in combination. Each has advantages and disadvantages which might make them more or less desirable in given situations. Zdrav*Reform* would like to help decision-makers consider these options by helping them perform the appropriate analyses.

ANALYSIS OF PAYROLL-RELATED CONTRIBUTIONS

One of several disadvantages of payroll taxes is that they tend to make labor more expensive to employers, and hence to increase costs. In an emerging market economy, one fear is that the raising the cost of labor will make enterprises less viable, especially in a time of economic fragility. The Clinton proposal (as well as several others) for health reform in the United States featured an employer mandate to pay a large fraction of the price of health insurance for workers and their dependents. This is similar to a payroll tax and has faced strong opposition from those businesses which currently do not pay for insurance for their workers, on the grounds that higher costs would drive them out of business.

This argument has some element of truth, but it is overstated. A payroll tax or an employer mandate would raise the cost of labor, hence costs of production. This would reduce employment some and would cause some businesses to go under. However, these effects would be much less than what is claimed by simply extrapolating increased labor costs onto current margins of profitability. This is demonstrated in the attached exhibits.

In many markets, firm profitability can be approximated by the pure-competition, price-taker situation. The market price must be taken by all firms as given. Efficient firms are able to earn minimal ("normal") profits and remain in the market. (N.B. This is the most unfavorable position a firm can be in. Anything other than a purely competitive situation allows the firm the ability to earn more than minimal profits. In pure competition, anything that would increase costs for an *individual* firm would cause it to make losses and go under.)

To examine the effects of a required payment by firms for health insurance, let us model the situation as follows: Purely competitive firms produce all goods and services and make minimal "normal" profits. To remain in any market a firm must be efficient. Any costs above minimums force firms out of markets. The firms in our model produce all goods and services in the economy. This exaggerated situation can show us the worst that could happen to firms and employment with a mandated payment for health insurance.

Exhibit 1: The typical efficient firm is shown on the left of the exhibit. It produces q_1, goods or services, at the market-given price of p_1, where average total cost is minimized and only minimal profit is earned. The sum of the marginal cost curves (MC) of the many efficient firms in the market make up the supply curve for the market, as shown on the right of the exhibit. The intersection of the supply and demand curves occurs at p_1, where the total quantity produced is Q_1.

Exhibit 2: For an *individual* firm, if the cost of labor rose because it *alone* was required to pay for health insurance, its marginal and average cost curves would shift upward. Since it is still subject to the market-given price, p_1, it now makes losses and would have to leave the market. Neither the shift of its marginal cost curve with the increased cost of labor in the first instance, nor the disappearance of the firm's marginal cost curve when it leaves the market, would have any effect on the overall supply curve, because the firm is one of many in the market. Hence, the market price of the good or service produced would not change. The *individual* entrepreneur and the firm's workers would be hurt, but little other change would occur.

Each *individual* firm fears this outcome from a requirement to pay for health insurance for its workers or to pay a health insurance payroll tax. *All* firms fear that they will be forced to leave the market, since they look at the situation from their *individual* perspective. However, when all firms are required to pay for health insurance, the outcome is different, as described below.

Exhibit 3: When all firms are required to pay for health insurance for their workers (either directly or through a payroll tax), the cost of labor goes up for all. This raises the marginal and average cost curves for all firms (left side of the diagram), hence the overall supply curve (right side of the diagram). The intersection of the supply and demand curves comes at a higher price, p_2, and lower quantity, Q_2. Some firms (likely those using a higher labor to capital mix-_see below) have to leave the market, but the vast majority remain. Employment falls a bit, but not drastically. Consumers have to pay higher prices for the goods and services they consume to help pay, indirectly, for the health insurance. The outcome of the required health insurance payment is not catastrophic for all firms-_not even for many

firms. The fears that seemed valid when looked at from the perspective of the individual firm are largely unwarranted.

Exhibit 4: Let us next examine the effects of the required payment for insurance on overall employment. The diagram shows labor and non-labor inputs into production on its axes. Before the mandated insurance payment Q_0 of total output of goods and services was produced, using L_0 and NL_0 of labor and non-labor inputs. The slope of the line L_m-NL_m indicated the relative prices of labor and non-labor inputs. This input-price line is tangent to the Q_0 isoquant at point C.

The requirement to pay for insurance for workers raises the price of labor as an input. This is represented by rotating the input price line on NL_m to a lower intercept on the labor axis at L_{mt}. The maximum output that may be produced falls to Q_t, where the new input-price line is tangent to the lower isoquant Q_t ($< Q_0$) at point A. The use of labor L_t ($< L_0$) falls. The use of non-labor NL_t may fall or rise depending on the shape of the isoquant ($NL_t <$ or $> NL_0$).

Proportionally, the decline in the use of labor input is greater than the decline in non-labor inputs. This is shown by constructing an input-price line parallel to the original L_m-NL_m, which is tangent to isoquant Q_t. This input-price line is labelled G-F. This line indicates the proportions of labor and non-labor that would be used to produce Q_t level of output, if the relative prices of labor and non-labor had not changed from the pre-insurance mandate situation. G-F is tangent to Q_t at point B. The combination of labor and non-labor used would be L_t' and NL_t'. Since L_t' must always be greater than L_t and NL_t' always less than NL_t, the post-mandate situation would result in a higher non-labor to labor ratio of inputs to production.

Note: If the coverage of health insurance costs for workers by their employers replaces individual workers' spending on insurance, then the demand curve for goods and services in Exhibit 3 would shift to the right, as workers would have more disposable income to spend on non-health insurance items. This would further raise overall prices but also mitigate some of the decline in output, hence employment.